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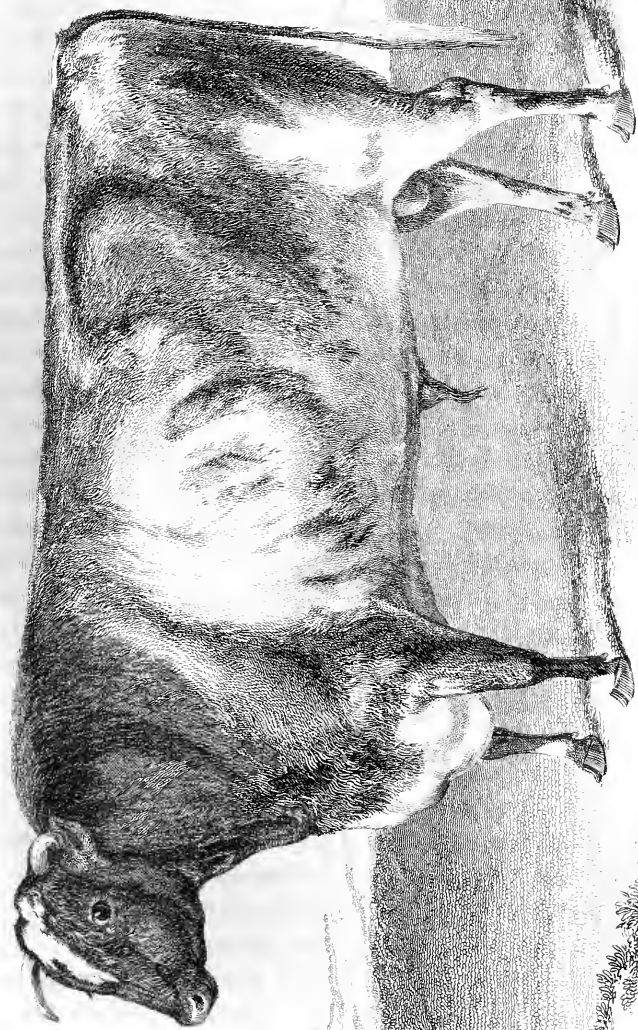
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*Young Bull of the Friesian breed, which
 was the first of the kind near Rotterdam. It was the first of the
 breed in the Netherlands, and was the first of the
 breed in the world.*

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*Derby and
Dagge Birds the Property of the Rev. Mr. W. F. W. W. W.
Engraved by W. F. W. W. W.*

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THE FARMER'S MAGAZINE.

JULY, 1854.

PLATE I.

A SHORT-HORNED BULL.

BRED BY AND THE PROPERTY OF MR. RICHARD BOOTH, OF WARLABY, NEAR NORTHALLERTON, YORKSHIRE.

"Vanguard," a short-horned bull, was bred by and is the property of Mr. Richard Booth, of Warlabby, near Northallerton, Yorkshire.

Vanguard (10,994) roan, calved April 3rd, 1847, was got by Buckingham (3,239), dam Isabella, by Young Matchem (4,422), g. d. Isabella by Pilot (496), gr. g. d. by Agamemnon (9), gr. gr. g. d. by Mr. Burrell's Bull of Burdon.

Vanguard was exhibited by Mr. Torr, of Aylesby (by whom he is now being used for the fifth season), at the Meeting of the North Lincolnshire Agricultural Show at Gainsborough, in July, 1853; where he obtained the first prize of twenty sovs., for the best bull of any age (open to all England), beating a winner at Lewes and several other first class animals. Vanguard obtained a prize in 1849 from the same society, at their annual meeting held at Brigg.

PLATE II.

DORKING FOWL.

PRIZE BIRDS, THE PROPERTY OF HIS ROYAL HIGHNESS PRINCE ALBERT, BRED AND EXHIBITED BY MR. FISHER HOBBS, OF BOXTED LODGE, ESSEX.

These birds are a select trio from nine which took first and second prizes, with two high commendations, at the Metropolitan Poultry Show, in January last. They were all exhibited and bred by Mr. Fisher Hobbs, who sold the three grouped together in our plate to his Royal Highness Prince Albert, almost immediately on the judges' award being published.

The Dorking may now be considered the most fashionable variety of poultry we have. At the West of England Show, the other day, they were clearly the chief attraction, the Cochins suffering greatly by comparison with them. As our readers may remember, this is only in accordance with the opinion we have held from the first as to the real merits of the two. Mr. Hobbs being not only a successful exhibitor, but also having tried all kinds, may be considered no mean authority on this point. It is thus he has publicly given in his adhesion to the Dorking:—"He had tried all kinds, and had come to the conclusion that there was no bird so fit for common farm premises, and which the farmer could call his stock, equal to the Dorkings. He believed it was the best bird to place in the farmers' hands as domestic poultry. No doubt the Cochins had certain properties; they were good breeders, and produced eggs at a very early period of the year. For that purpose they were good; but when they came to consider the great amount of food they consumed, and the inferior quality of their flesh, he believed, for general purposes, they would not equal the Dorkings. There were other breeds beneficial for certain localities and certain purposes. He thought the Spanish was a nice bird for a gentleman in a town, or inn-yard, as it required warmth and would produce a great number of eggs; it grew very slowly, but when it came to maturity was a nice bird upon the table. One of their exhibitors, Mr. Punchard, had made more out of a few Cochins than he had out of his flock of 600 breeding ewes; but they could not expect that the high price that enabled him to amass that large sum would continue, and therefore they must give up the idea of that extravagant price, although at the present day five guineas for the male bird was likely to answer the purpose. The Dorkings were in the ascendancy, while the Cochins were going down."

ON ROOT CROPS.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

The last days of turnip-sowing for the season of 1854-55 will have arrived when this essay comes before the reader. It may be useful, however, to collect together a few facts with regard to the composition and growth of root crops, especially if we confine our attention to only the most recent sources of information. A prejudice has been entertained in the northern portion of our island against the growth of mangel wurzel, which Professor Anderson has well and laboriously endeavoured to remove (*Trans. High. Soc.*, 1854, p. 274): that injurious opinion is, however, much too widely diffused to be readily removed, and it will be well therefore if we examine it a little in detail.

It is commonly said, according to Dr. Anderson, that mangel wurzel is not suited to the more northern climate of Scotland, and that although it forms a profitable crop in the warmer and dryer climate of England, yet a better result both in bulk and nutritive value can be obtained in Scotland from a crop of turnips. It is true that of late years the skilful and closely observant Scotch farmers have frequently expressed their doubts regarding the correctness of this opinion, and small experimental patches of this root have been sown, which have of late materially increased in number. It is still, however, little more than an experimental crop, sown only in small quantity, and there is obviously a great disinclination to rely upon it to any extent. Weight for weight, however (continues Professor Anderson), it is unequivocally superior to the turnip, even though grown in an unfavourable season. The analyses from which the Professor obtained his results were made on plants grown by Mr. Telfer, of Canning Park, Ayr, whose successful application of liquid manure to the cultivation of roots is so well known. The experiments were made on three varieties—the long red, long yellow, and yellow globe; the examinations included the leaves and roots. A separate analysis was made of the upper and lower portions of the bulb in the long varieties, in order to ascertain the truth of the common opinion, that the upper portion of the root is superior in nutritive properties to the lower portion. I will only give the result of the analysis of one of these, the long yellow mangel-wurzel. The following table gives the composition of 100 parts of the bulb of this, obtained from the upper and lower portion.

	Upper.	Lower
Water	88.65	88.22
Ash	1.25	1.41
Proteine compounds ..	2.28	1.52
Other constituents	7.82	8.85
	100.00	100.00

IN THE ASH.

Nitrogen	0.36	0.24
Phosphates	0.09	0.07
Phosphoric acid, combined with alkalies ..	0.02	0.06

In this variety the proteine compounds in the upper portion of the bulb considerably exceeded that of the lower portion, but the same result was not obtained from the examination of the other varieties of mangel wurzel.

From the result of his experiments, the Professor constructed the following valuable little table of the total amount of solid matters and proteine compounds, showing to a great extent their relative values:

	Total solids.	Proteine compounds.
Long yellow	11.57	1.90
Yellow globe	9.76	1.75
Long red	9.44	1.54
Turnip (average)	7.89	1.27

In this table the superiority of the mangels is distinctly brought out; at the same time, it must be remembered (adds the Professor) that the turnip is occasionally grown with feeding qualities much above the averages; and in one or two instances, I have found the proportion of proteine compounds slightly greater in the swede, than even in the long yellow mangel, but in no case did the amount of solid matter rise so high. If we calculate from the amount of proteine compounds the relative value of these sorts, we obtain the following table, in which the first column gives the value of each, compared with the turnip taken as 1.; the second, the number of pounds of each, which contain the same amount of nutritive matters as 100 lbs. of turnips, and which therefore represents the quantity of each that may replace that quantity in any feeding experiments.

	Relative Value.	Feeding Equivalents.
Turnips	1.00	100
Long yellow mangel wurzel.	1.49	67
Yellow globe	1.37	72
Long red	1.21	82
Average of mangel wurzel..	1.35	74

It thus appears that long yellow mangel is more valuable than the turnip, in the proportion of 3 to 2, or in other words, that 2 tons of this mangel will go as far as 3 of average turnips. We may also remember that the weight per acre of an average crop of mangel wurzel is at least equal to that of turnips, I learn from Mr. Telfer (concludes Professor Anderson), that the crop of long yellow mangels, analyzed, amounted to 34 tons per imperial acre; and we learn from the analysis, that the nutritive matter produced is equal to that contained in about 51 tons of turnips. Mr. Telfer's crop was raised by means of liquid manure, which has unquestionably many advantages in the cultivation of root crops. The leaves of the long yellow mangel were found to contain per cent.—

Water	91.60
Ash	1.77
Proteine compounds	1.77
Other constituents	4.86

10.000

IN THE ASH.

Nitrogen	0.28
Phosphates	0.15
Phosphoric acid combined with alkalies	0.00

It is, from these results, very certain that still more attention will be paid to the cultivation of this valuable root. It is probable that by varying the soil, the manure employed, the time of sowing, and the variety of mangel, to the climate and situation, a much greater amount of valuable food for stock may be raised than any yet generally produced.

Other valuable researches upon turnips by Professor Anderson will be found in the last volume of the "Highland Society's Transactions." I will give in this place only the result of another branch of his enquiries, viz., on the composition of the turnips grown on different soils, and with different manures. In the following table, column I. gives the soil and crop; II., the water in 10,000 parts; III., the nitrogen in the fibre; IV., the nitrogen in the juice; V., the phosphates. The turnips were grown on the property of Lord Kinnaird, in Perthshire. The clay soil is the heavy alluvial clay of the Carse of Gowrie, which is a wheat soil of the best description. The hill land is a light loamy soil, of an entirely different character from the Carse clay, and lets at a much inferior rent. The black land forms the boundary between the two former, and partakes of the character of both, those of the clay, however, preponderating—

	I.	II.	III.	IV.	V.
Swedens in 1849.					
Clay land	9058.0	2.9	12.9	16.0	
Black land	9878.0	4.0	14.2	17.6	
Hill land	8712.0	1.7	26.8	15.9	
Swedens in 1850.					
Clay land	9273.0	3.7	8.6	9.6	
Black land	9278.0	4.0	5.9	9.0	
Hill land	9278.0	4.5	10.2	9.8	
Aberdeen yellows, 1849.					
Clay land	9119.5	3.6	15.9	16.2	
Black land	9047.8	3.8	13.7	16.7	
Hill land	9057.8	3.9	24.4	13.3	
Aberdeen yellows, 1850.					
Clay land	9426.3	3.1	7 0	6.8	
Black land	9059.0	2.9	13	12.1	
Hill land	9399.0	3.4	12	12.0	

The past year has produced several important papers upon the growth of turnips. I have given a digest of these in the "Farmers' Almanac" for the present year. From this I abridge the following paper, merely adding a few notices, which will perhaps be useful to the turnip grower at this season.

Of these, the most valuable of the reports on this all important crop is that from the Lockerbie Farmers' Club, of the weight of turnips grown in the season of 1852, on various farms, about thirty-two in number, in the middle and upper districts of Anandale. In the following table the report of the first eight farms is only given. Column I. gives the kind of turnips and breadth of drills in inches; II., the weight of turnips in tons and cwts.; III., the farm-yard dung in cubic yards; IV., the Peruvian guano in lbs.; V., ground bones in bushels; VI., the dissolved bones in lbs., all per imp. acre:—

	I.	II.	III.	IV.	V.	VI.
1. Yellow bullock	26	20 18	8	180	8	67
Hardy green	26	26 18	8	180	8	67
Skirving's swede	26	24 10	9 $\frac{3}{4}$	224	9	90
Hardy green	27	27 18	8	180	8	67
Purple-top yellow	27	17 17	8	180	8	67
2. White globe	26	20 6	—	112	19	—
Skirving's swede	26	16 3	10	112	9	—
Hardy green	26	13 15	10	112	9	—
White globe	26	10 15	10	112	9	—
3. Skirving's imper. swede	27	27 1	18	168	—	168
Ditto ditto	26	29 0	18	168	—	168
Laing's swede	26 $\frac{1}{2}$	28 15	18	168	—	168
In these Salhandha B. guano.						
4. Curwen's swede	26	24 19	20	336	—	—
Skirving's swede	26	31 2	220	336	—	—
Ditto, Scotch grown	24	25 12	20	336	—	—
Purple-top yellow	25	15 10	20	336	—	—
5. Swedes	27	20 4	—	224	12	—
Green-top ditto	27	17 10	—	224	12	—
Ditto ditto	27	20 13	—	224	—	448
6. Swedes	27	22 9	—	336	—	224
Pomeranian white	27	20 3	—	336	—	224
7. Swedes	27	28 4	17	268	12	—
White globe	27	31 3	17	268	10	—
Yellow bullock	27	18 14	17	268	10	—
8. Swedes	28	21 7	15	268	12	—
White globe	26	23 18	15	268	—	—

The general conclusions to which the members of this intelligent club arrive are that the average weight in tons and cwts., per imperial acre, of all the crops examined by them during the last four years, were (*Trans. High. Soc.*, 1853, p. 541)—

	1849.	1850.	1851.	1852.
Swedes	21 16	24 9	19 16	23 7
Yellow	20 2	19 14	17 0	17 7
Common	22 17	25 14	21 1	23 14

These weights, they consider, exceed that of the whole district by 10 per cent. on the common white, 5 on the yellow, 7 on the swedes. They advise that swedes should be sown from the 10th to the 20th of May, not later than the 25th; white, for consumption in September, early in May, and again partially as the last of the season; yellow after swedes, and as few as possible after the 15th of June. *Width of drills*—from 26 to 29 inches; on level rich lands, well manured, 30 to 31 inches; on hard gravelly soils, and on exposed steep fields, yellow, about 24 to 25 inches. *Width of hoeing*—from 10 to 13 inches. *Varieties*—the yellow seems growing out of favour. *Manures*—that it seems to the club more and more clearly ascertained that to farm-yard dung alone, in quantities however great, extra manure should always be added, as increasing the weight at a cost far under the value of the extra produce. That with guano, turnips may be grown, with dung little decomposed. That bones, either ground or dissolved, should in most cases, especially with swedes, be used with guano and lighter manures. These experiments and observations were made in a district extending about twenty-five miles in the valley of the Annan, on elevations from 100 to 800 feet above sea level.

A novel method of hoeing broad-cast sown turnips by the horse-hoe has been successfully practised by Mr. Pusey. It consists in hoeing them across as well as along the lands (*Farmer's Mag.*, vol. xxxvii., p. 335.) It seems that Mr. Cottingham, of Leiston, Mr. Sydney Herbert, Mr. Fielder King, and other agriculturists, have repeatedly employed this mode of cheaply hoeing a full plant of turnips.

Much difference of opinion exists, as to the most

advantageous distance at which turnips should be set out—a conclusion whose correctness must depend, like most of the other vexed questions of agriculture, upon soil and situation. In the consideration of the question, the following table may aid those for whom I have long laboured cheerfully and gratefully. This gives, in tons, cwts., and lbs. the weight produced per acre, at different distances, in inches, each plant supposed to weigh on an average 1 lb.—

	12	13	14	15
12....	19 18 104			
13....	17 19 1	16 11 44		
14....	16 13 41	15 7 81	14 5 83	
15....	15 11 16	14 7 23	13 6 77	12 8 102
16....	14 11 78	13 9 29	12 10 21	11 13 40
17....	13 14 60	12 13 47	11 15 35	10 19 70
18....	12 19 32	11 19 38	11 2 27	10 7 48
19....	12 5 71	11 6 83	10 10 61	9 16 57
20....	11 13 40	10 15 45	10 0 2	9 6 76
21....	11 2 27	10 5 16	9 10 55	8 17 89
22....	10 12 16	9 15 92	9 1 93	8 9 80
23....	10 2 103	9 7 34	8 13 104	8 2 37
24....	9 14 52	8 19 56	8 6 76	7 15 64
25....	9 6 76	8 12 36	8 0 1	7 9 39
26....	8 19 56	8 5 78	7 13 96	7 3 67
27....	8 12 96	7 19 62	7 8 18	6 18 32

Some valuable experimental investigations on the fingers-and-toes in turnips, by Mr. M. M. Milburn (*Quar. Jour. Agri.*, 1853, p. 73), lead to the conclusion that the following applications per imperial acre are a complete prevention of this very commonly increasing disease—

- 1. Caustic magnesian lime 3 tons.
- 2. Ditto ditto 3 tons.
- Common salt 20 bushels.
- 3. Common salt 40 bushels.

While I write this, the public prints inform me that poor Milburn is gone, at an early age of 38. His loss is a serious one to the agricultural literature of his country; for he united to great abilities and industry, a love of truth, a caution, and clearness, equally valuable and unusual. Many a reader of this widely circulating magazine will unite with me in this brief, yet truthful tribute to the memory of one of its ablest contributors.

ON BREEDING HORSES.

Every farmer of land should breed all animals which it employs at work and all which it fattens, rendering it a regular manufactory, or workshop, of which it possesses the necessary elements, and is wholly employed in the fabrication. Extensive farms, as three hundred or four hundred acres, should breed horses of two kinds; and all farmers who are less extensive should breed work-horses, which may be sold when not required to replace

the old and worn-out animals on the farm. The idea that one person can breed animals at a cheaper rate than another, from some supposed advantages of soil and situation, is carried much too far. There is no doubt that such advantages do exist, but not to the extent that is supposed; it varies in a very great degree from the genius of the people being turned in that direction. Any farmer may be a breeder and a feeder of animals if he

turns his attention to the acquisition of the knowledge that is necessary to plan and conduct it, and to the provision of the natural means that are required for the successful development. If these wants are not supplied, and if they be not judiciously and perseveringly administered, failures can only ensue, as experience has fully proved.

Two kinds of horses to be bred come within the province of the farmer: one for the purposes of riding, hunting, or coaching, and the other for purely agricultural use. The foundation for all breeding is, that "like produce like;" and that certain purposes require certain qualities, which it is the object to produce, and not singly, but in combination. For quick purposes, elasticity and speed are required; while, for slower uses, more weight and less promptitude are endurable. The first thing to be acquired is the knowledge of the parts or points that are supposed to constitute the different qualities; and this can only be done by incessant labour and by the most acute and frequent observation. But without this knowledge it is useless to proceed; for blunder would only succeed to blunder, and the whole business would only terminate in failure. From the want of this knowledge bad breeds of animals of every kind are continued, which is wholly chargeable to the ignorance and apathy of the farmer; for both the knowledge and the elements of the qualities exist, and only want the search and the application. In acquiring this knowledge, the farmer must inquire most anxiously into the practice of those persons who have acquired an eminence in that branch of his profession, ascertain correctly the causes which have produced the known results, compare them with his own observations, and then try to discover the applicability in his own case of similar causes in order to produce similar results. This recommendation is in the power of every person; here are no interferences to check the visual or mental energies; there are no restraints on observation, nor any checks on judgment and reflection. In almost every active business there are impediments in the way of alteration or advancement, which are not in the power of the practitioners to remove. But in this case none of any kind exist; the field is ample, open, and fair, and the remuneration certain.

The farmer whom Fortune may not have supplied with very ample means, or who may be averse to the costly importation of the most improved breeds of horses in order to stock his farm at once, must not fail to acquire the knowledge above mentioned as the foundation on which to build the superstructure. This condition being granted, almost every locality in Britain will supply the elements of an improved breed; and it only remains that the requisite skill be employed in the selection, and continued in the propagation. The progeny of this selection have a very great advantage over any imported breeds, "in being bred in the country, and from elements that have existed there." From whatever natural cause this fact may arise, experience has most fully demonstrated the certainty, showing an identity or alliance between the animals and the soil that maintains them. Almost every fair in England will afford the farmer the elements he requires, and at a moderate cost.

The great and very general mistake committed by the farmer in the breeding of horses consists in thinking any shape or sort of animal, on the female side, "good enough to breed from." Accordingly we find young animals void of one single point of recommendation; colours many, and most disagreeably marked, and every point of excellence wanting. Experience in breeding has not been able to fix the limits of excellence that are conferred by the male and female respectively; and in the absence of any certainty, we may very reasonably allow an equal share to each agent in the business of procreation. All the sensitive parts may be derived from the female, and the male may confer the robust qualities of organization. It may be safely asserted, notwithstanding the strong and very general prejudice against it, that the value of the progeny depends fully as much, if not more, on the dam than on the sire; and that from the neglect of this maxim many failures and miscarriages have proceeded. An excellent kind of horse for farm purposes may be obtained by selecting a choice brood mare of the black-brown or dark-grey colour, large in body and well shaped, carcass roomy, bone thin and flat, and legs clean from shaggy hair; one cross from a strong thorough-bred male would produce an offspring combining strength and action, and possessing power, with spirit to exert it on strong lands, and quickness of motion for light soils, and for all work that requires a rapid execution, without being encumbered with a heavy lumbering carcass, which is most erroneously supposed to constitute strength. The female will impart size, strength, and vigour of constitution capable of performing any work that is required; and the male will supply spirit and muscle to put the strength into action in any instance of time or purpose. This breed would be almost invaluable if discrimination and judgment be used in selecting the parents, especially the female; the progeny suits many purposes, and a farther cross would remove them to the hunting stud. A less degree of breeding on the side of the male may be reckoned to be sufficient, which would produce animals of great use, probably superior to the other, for farming purposes.

The farmer must be very careful in selecting the female, and may allow a somewhat finer quality in the male, but not so far different as to form an unseemly distinction. The qualities of animals that are assorted for propagation should be much alike; for if a very wide gap exist, many crosses must intervene before the qualities could be made to approximate. The properties will be more usefully developed in the process of like qualities advancing step by step to better than in the ill-consorted adaptation of extremes, which in the process of meeting may be expected to yield many irregularities.

Much breeding has been attempted in this manner, and has been stopped before the results had time to appear, either from unavoidable circumstances or from an ignorant impatience. The farmer who has the command of ample means, and who has provided himself with better ideas, will not hesitate to adopt the highest mode that is here recommended; while the cultivator who is obliged to tread in an humble path, and who has not at command the necessary ideas and the ready application

of them, may be most earnestly exhorted to use the materials that are within his reach, though they be of an inferior order, but which by a steady progression will lead to the same end.

The farmer must be again reminded that all success in the breeding of animals is based on the selection of the parents, and the treatment of the progeny. The fundamental axiom consists in "like produce like;" and this maxim applies not only to the production of the qualities of external form and utility, but to the constitutional vigour and the predisposition to disease. Experience has most fully shown that no animal is more liable than the horse to transmit blemishes as well as beauties, and that diseases of all sorts are transmitted to the progeny: if not in the first generation, they very speedily appear in that immediately succeeding it. This consideration increases the necessity of a judicious selection; for the propagation of diseases of any kind is even worse than the continuation of unsightly forms and of condemned points.

The mare from which the farmer intends to breed must be free from disease of any kind: carcase roomy—barrel wide, large, and round formed, with the ribs curving from the back, the short rib "well home," or leaving a small space between it and the hook bone—thighs deep and muscular—bone of the legs flat and thin—clean of rank hair—must have no appearance of swelling or any kind of thickness—feet clean, firm, and sound—pasterns short, but not thick and greasy—the arm in front wide and brawny—chest deep—shoulders oblique, and sloping backwards at the withers and shortening the back—top of the shoulder narrow—neck rising in an arched form from the withers, and drooping a little to the set on of the head—crest strong and firm, and thickening downwards—ears long and fine, and quick in motion—eye prominent, bold, quick, and lively—face broad between the eyes, and tapering to the muzzle—cheek-bone not very broad, which shows coarseness—muzzle small—lips short and thin—nostrils expanded, but neat—fore-legs standing well forward, and not under the belly of the animal—bone clean, and short in hair—feet standing concave, and not flat—knee-joints flat and broad—colour of the animal black, or black-brown, with white on the hind feet, but no more. A variety of colours shows much cross descent. Horses that are white in colour, or even having a white hair mixed in the coat, as grey horses, are reckoned to be delicate in constitution, and experience seems to confirm the observation.

The most objectionable points that the farmer has to guard against are heaviness of form and dullness in action, and round, heavy, hairy legs. These latter indicate disease, and never fail to constitute a dull, lumbering animal, with a sluggish motion and a funereal pace. In order to remedy this defect, ample elements exist, so soon as the farmer is able to divest himself of the idea that bone and flesh constitute strength. A heavy belly or great depth of rib is also objectionable, showing a great quantity of offal to be carried about in a loose state in the shape of guts and entrails. A main point in breeding lies in reducing the size of the useless parts, and in getting rid of unnecessary appendages, and the

lightness of offal ever forms a point of excellence. Huge bulks must be reduced, and it always formed a leading point with our first breeders to diminish the size of the animals, in order to acquire symmetry and compactness, it being an invariable law of nature that bulk is always attended with a corresponding degree of coarseness. This point, however, must not be carried too far, as has often been done in the case of animals that are fattened for the sake of the flesh, as smallness of size is not so objectionable, as a greater number may be kept; but with working-horses the case is widely different, where a certain degree of size is indispensable in order to effect purposes where a specific strength *only* is applicable. The object of the farmer therefore is to retain a certain size in the animal, and to impart to that bulk the necessary points of muscle and spirit. But this point cannot be gained without reducing the bulk in some quarter; and that reduction must take place in the useless parts, in the quantity of bone, of offal, and of flesh; and the increase must be made in the necessary parts of muscle, spirit, and action. The productions of nature are so varied, that an ample store of the elements almost everywhere exists: one animal is found of a finer form than another, produced by accident—and these varieties afford the instruments with which the further improvement is effected. No organ in the animal body shows the results of a superior organization more quickly and more durably than the eye: in every case of refined systems it is prominent, pert, and lively, and forms a point of great importance in the selection of animals. When the body is in a state of inaction, the visual organ should appear placid and easy; but when any symptoms of exertions are required, the eye must ever give the first signal, and communicate to the other parts the intelligence that the time of action has arrived: and these parts must ever be ready and willing to obey the summons by being closely knit and joined in combination, compact, and ready for action, and not loose or disjointed and far between. A horse may be called society in miniature, the component parts of which must be ready for action and polished for use, and adjusted so that each part assist the other in the most direct, the most rapid, and most precise combination. These qualities are obtained under the name of "spirit" and "action," and proceed from a superior organization produced by the assorting and joining the similar parts in combination.

The qualities of the male require a similar examination; for though the best animals are usually kept for the purpose of propagation, yet a discrimination is essentially necessary. The animal must be clean-legged, with a flat thin bone; barrel rounded, and carcase rather light; lofty oblique shoulders, tapering withers, arched neck, and a small head; eye impetuous, but at the same time, placid, ears fine and quick in motion, jawbone narrow, and the muzzle tapering, colour black or black-brown; the hind legs white a little above the fetlock, with a white dot on the forehead, and a white stripe down the face, are no objection, but any further mixture of colours must be rejected. It is a sign of hardihood when the legs are darker in colour than the body. The grey

colour of the horse is fashionable ; but, unless the colour is very dark, it becomes white in age, and experience has shown that colours having even a degree of white in the composition denote feebleness and a slight delicacy in the constitution of the animal. The black-brown or dark-bay seems to be hardest of all colours ; and an animal of that sort, when well bred and of a uniform colour throughout, shows a production of skill and judgment.

An extreme attenuation of the parts of an organized body is as bad as the gross composition of it ; for, how-

ever desirable the refinement may be, substance or the necessary bulk must be retained, not only in the horse, which requires strength to sustain exertion, but in all the animals that are used in the easy purposes of producing fat and flesh. It is more valuable in the horse, because the deficiency cannot be supplied by the addition of number : one animal has its prescribed performance to execute, and must be independent in itself—the other animals can be increased to make up the required amount.

J. D.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

WEEKLY COUNCIL, May 24 : Mr. RAYMOND BARKER, V.P., in the chair. Prof. Simonds, the veterinary inspector of the Society, resumed and concluded his lecture on the ages of animals as indicated by their teeth. He confined himself on that occasion to the teeth of the sheep and the pig. This subject, as before, was elucidated by reference to admirable coloured diagrams on a large scale, and to a considerable number of anatomical specimens, exhibiting the structure and relative position of the teeth of those animals, at different stages of their development, as well as to tabular statements of age at different periods of growth. Having entered into interesting details connected with the distinctive character of the teeth in those animals, and described the mechanical provisions affecting the chewing of the cud in ruminants, he gave the result of his examinations in reference to the tusks of the pig, and the influence of breed, sex, or castration, in modifying their development, which, taken alone, he considered a very uncertain criterion of age in that animal. He dwelt on the peculiar character of simple and compound, and the temporary and permanent teeth in sheep and pigs. He pointed out the remarkable effects of breeding and feeding in forcing the growth of teeth, and the total incorrectness of the rules hitherto given on that subject. He referred to the great importance of exact data on that point in guarding agricultural societies from fraud when prizes were intended to be awarded to animals of distinctly assigned ages. The results he then laid before the Society were deduced from a comparison of 2,000 examinations, and it was only from the opportunities he had possessed, as the Society's Veterinary Inspector, that he had been enabled to make so extensive and satisfactory an investigation. He believed the facts he had obtained in the case of the pig to be perfectly new. He referred to the singular circumstance of the pig being born with a certain number of teeth already developed ; to the peculiar formation of its tongue, which by means of a fringe had the power of retaining the nipple strongly in its mouth, without injury from the teeth, while in the act of sucking ; to the particular ages at which the pig loses and gains certain teeth ; to the errors connected with the ordinary modes of estimating the age of pigs by the tusks alone ; and to the importance of connecting both

the tusks and the incisors in forming a just conclusion on that point. He cited striking instances how accurately a person might now determine the age of pigs from the new data his researches had furnished. He concluded by stating that he believed the facts he had been enabled, as one of the officers of the Society, to submit to the members, had not only been justly deduced from the numerous investigations he had made, and were therefore founded on natural circumstances, but that they were nearly altogether novel in a physiological point of view ; and that the development of the teeth of cattle, sheep, and pigs, arising from superior food and improvement in their breed, as well as greater care and attention bestowed generally upon their management, was much earlier than had hitherto been supposed.

Mr. Miles, M.P., in moving a vote of the best thanks of the meeting to Professor Simonds, for his admirable lecture, remarked that nothing could show more clearly the advantage of a society like their own, than the opportunity it had afforded to their veterinary inspector, to collect, from numerous original sources, the great amount of valuable practical information that had resulted in the important data then submitted to them, in reference to the age of the sheep, and especially in the novel, striking, and connected facts illustrating that subject, hitherto so little understood, the dentition and age of the pig. He had not been able to be present at the first part of the lecture given last week ; but if that had been as good as the one he had then heard, he had no hesitation in saying that Prof. Simonds had fully maintained, and still further confirmed, his high character for scientific attainment.—Sir Robert Price, Bart., M.P., seconded the vote, which was carried unanimously ; the Chairman remarking that the members would perceive that no assertions were made uncorroborated by evidence ; and that he, as the chairman of the Veterinary Committee of the Society, entertained at all times the fullest appreciation of Prof. Simonds's services.

A MONTHLY COUNCIL was held at the Society's house, in Hanover-square, on Wednesday, the 7th of June. The following Members of Council and Governors of the Society were present : Colonel CHALONER, Trustee, in the Chair ; Lord Camoys, Lord Southampton,

Sir Stafford Northcote, Bart., Sir Matthew White Ridley, Bart., Sir John V. B. Johnstone, Bart., M.P., Sir Montague John Cholmeley, Bart., Mr. Arkwright (Hampton Court), Mr. Raymond Barker, Mr. Barnett, Mr. Barthropp, Mr. Brandreth, Mr. Cavendish, Mr. Druce, Mr. Garrett, Mr. Brandreth Gibbs, Mr. Hammond, Mr. Fisher Hobbs, Mr. Hoskyns, Mr. Hudson (Castleacre), Mr. Jonas, Mr. Kinder, Mr. Lawrence, Mr. Milward, Prof. Simonds, Mr. Simpson, Mr. Slaney, Mr. Towneley, Mr. Turner (Barton), Captain Vyner, Prof. Way, Mr. Jonas Webb, and Mr. Woodward.

George Wood, Esq., of Hanger Hill, Middlesex, was elected one of the Governors of the Society.

The following new Members were elected :—

Arrowsmith, Thomas Charles, Blackfriars'-street, Stamford, Lincolnshire

Barrow, William, Bilbrooke House, Wolverhampton, Staffs.

Baxter, Richard, M.D., St. Anne's Hill, Blarney, Ireland

Bowater, Lt.-Gen. Sir Edward, Bt., Richmond Park, Surrey

Cox, Joseph, Wisbeach, Cambridgeshire

Dacre, Joseph, King's Bench Walk, Temple, London

Deacon, John, Mabledon, Tonbridge, Kent

Downe, Viscount, Belgrave-square, London

Fordham, Edward King, Ashwell, Baldock, Herts

Fowler, Francis, Henlow, Baldock, Herts

Gilding, J., Bushley Park Farm, Tewkesbury

Griffith, Trygarn, Careglwyd, Anglesea, North Wales

Heanley, Thomas, Croft, Wainfleet, Lincolnshire

Holland, Capt. Frederick, R.N., The Hall, Ashbourne, Derbyshire

Kirkman, Joseph, jun., 14, Berners'-street, London

Mann, Henry, Lighthorne, Kineton, Warwickshire

Marfleet, Charles B., Bassingham, Newark-on-Trent

Moore, John, Littlecote, Hungerford, Berkshire

Page, Isaac, West Bergholt, Colchester, Essex

Parker, John, Idridgehay, Wirksworth, Derbyshire

Price, John Lewis, Llangwilly, Carmarthen

Pocock, Sir George Edward, Bart., Grosvenor Place, Bath

Pryor, Rev. Frederick B., Beunington Rectory, Stevenage, Herts

Rawson, Christopher, 62, Moorgate-street, London

Rea, James, Monaghty, Knighton, Radnorshire

Richardson, John William, Willoughton, Keston-in-Lindsey, Linc.

Robinson, Edward, Princess-street, Manchester

Straw, Thomas, Grutwell, Lincoln

Straw, Frederick, Stonesplace, Skellingthorpe, Linc.

Tripp, Arthur Sampford, Esgair-Evan, Montgomeryshire

Tudor, George, Park House, Laphy, Pukridge, Staffs.

Webster, Charles, Cowley, Uxbridge, Middlesex

Whitley, Nicholas, Truro, Cornwall

Wilson, Henry J., Sherwood Hall, Mansfield, Nottinghamshire

Wood, Edward, Exeter College, Oxford

Worrall, Henry, Knotty Ash House, Liverpool.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, read the report on the accounts; from which it appeared that the current cash-balance in the hands of the bankers at the end of the previous month was £1,548.

LINCOLN MEETING.—Mr. Barker then reported from the General Lincoln Committee the favourable progress of the works for the ensuing country meeting in that city, and the numerous entries of implements, machinery, and live-stock for the show.

PRIZE-ESSAY.—Mr. Pusey reported from the Journal Committee the following award in the Miscellaneous Class of Essays :

To WILLIAM WALLACE FYFE, of Nottingham: the prize of Ten Pounds, for his Report on the Management and Economical Values of Timber, as the best essay competing in the class of "Any other Agricultural Subject."

ESSAY-PRIZES.—The Council deferred till their next monthly meeting the final arrangement of the subjects and amounts of prizes for the essays and reports of next year.

INDICATIONS OF AGE.—On the motion of Mr. Fisher Hobbs, seconded by Mr. Hudson, of Castleacre, the following resolution was agreed to unanimously, namely : "That on account of the immediate practical importance of the two lectures recently delivered before the Society by Prof. Simonds, on the age of animals as shown by their teeth, these lectures be at once prepared for publication in the second part of the Journal for this year; but as that number will not be due till the 1st of Jan. next, that Prof. Simonds be allowed to print off from the type and wood-cuts as many copies as he may require for the purpose of publishing the lectures in the form of a pamphlet, at a cheap rate, in time for purchase by the public at the Lincoln meeting."

STEWARD OF POULTRY.—On the motion of Mr. Fisher Hobbs, seconded by Mr. Hudson, of Castleacre, Sir Archibald Macdonald, Bart., was appointed the Steward of the Poultry Department at the Lincoln meeting.

JUDGES.—The judges of implements and live-stock for the Lincoln Meeting were then, with a few exceptions, finally appointed.

COUNTRY MEETING of 1855.—A report having been read from the Town-Clerk of Carlisle, on the amount of railway accommodation in the north of England, it was carried unanimously, on the motion of Mr. Raymond Barker, seconded by Sir Matthew White Ridley, Bart., that the city of Carlisle should be the place of the Society's country meeting next year.

COMMUNICATIONS were then submitted to the Council, and reserved for further consideration, from Mr. Spooner, on the National Importance of Promoting Improvement in the Breeding of Cavalry and Artillery Horses, and from Mr. Frere, on the Appointment of a Consulting-Botanist to the Society.

Adjourned to Wednesday, June 14th, at 12 o'clock, when Prof. Way would deliver his lecture on Peat-Charcoal and other Deodorizing Substances.

WEEKLY COUNCIL.—Mr. RAYMOND BARKER, V.P., in the chair. The names of 14 candidates for election, received during the previous week, were read. Prof. Schilthuis, of Groningen, presented to the Council a copy of his essay "On the Relations of Agriculture to the Soil and Population, and on the Condition and Improvement of the Agricultural Classes in the Netherlands;" to which the Gold Medal of the Dutch Society of Sciences at Haarlem had been awarded, and which the author offered to the Council on this occasion "as a token of his homage to the merits of England in

agricultural science, and as a proof of his esteem for the Royal Agricultural Society, also much valued in his own country." The Council received this present with a vote of their best thanks. Mr. Miles, M.P., having expressed his own views, and those of Mr. Pusey, on the importance of an early settlement of the prizes to be offered by the Society for the Essays and Reports of next year, it was arranged that a special council should be summoned for that purpose.

PEAT-CHARCOAL.—Prof. Way then proceeded to deliver a lecture on peat-charcoal and other deodorizing substances. He remarked that, independently of the noxious gases resulting from the putrefaction of animal matter generally, and which consisted principally of sulphuretted hydrogen and sulphuret of ammonia, each particular animal substance, excretory or otherwise, had its *peculiar* odour, which, although abundantly perceptible by the senses, and in many cases, as in musk, almost inexhaustible, was inappreciable in weight; therefore, by deodorizing a large amount of odour, it was not to be inferred that a large amount of manuring matter was thereby secured. He then enumerated the various single and double deodorizers that had been employed. He referred to Sir William Burnett's excellent application of chloride of zinc, and to the ordinary chloride of lime; to gypsum (sulphate of lime), and its conversion in ammoniacal atmospheres into sulphate of ammonia and carbonate of lime; to the agreeable odour of pure ammonia, and its power of giving intensity to odours of a disagreeable character, which intensity was lost when the ammonia was withdrawn; to sulphate of iron (green copperas), which, when powdered and thrown into tanks, turned black, on account of the sulphuret of iron formed on the decomposition of the sulphuretted hydrogen present. He then proceeded to the consideration of charcoal as a deodorizer. He gave an interesting statement of the peculiar action of charcoals in general, arising, he believed, from the great amount of surface their spherical interstices presented, and of the particular action and superior value of animal charcoal over all others. He referred to the theory he had been led to form of this peculiar difference, and to a very successful imitation of animal charcoal, which he and Mr. Paine had made, in reference both to deodorizing and decolorizing properties, from the light porous silica-rock found on Mr. Paine's estate in Surrey, which, when broken up and steeped in heated tar, was put into a gas-retort, where the tar was burnt off in the state of very pure gas, and a residuum left of the new silicated charcoal in question. He explained that in charcoals it was not the amount of carbon they contained that constituted their value, but the mode in which the carbon was distributed; that animal charcoal contained only 10 per cent. of real carbon, while wood charcoal contained 90 per cent. He referred to the large amount of water, 50 or 60 per cent., which peat charcoal took up, and to the fallacious dry state of the manures with which this water-carrier was mixed. He feared this mode of introducing water in a latent state into manures in many cases gave a turn of the scale more in favour of the manufacturer than of the farmer.

He doubted whether peat charcoal could be used economically for the purpose of soaking up tank water; if not, he feared it would prove of no advantage in other respects as a remunerative agent to the farmer. It had been long before the public, but had not progressed in market value, as it would have done had its application been successful. He considered it to lead to much error in practice, that the exact nature of the action of charcoal on ammonia was not better understood by the public. Fresh-burnt charcoal would absorb a large quantity of ammoniacal gas, but it was a mistake to suppose that it would consequently abstract ammonia from a liquid impregnated with it; on the contrary, water had the power of displacing from charcoal the whole of the ammonia it had received in a gaseous state within its pores. Peat charcoal did not either make manure or separate it from sewage; it simply rendered manure portable. He exhibited a striking experiment, showing the power of *dry* peat charcoal to arrest odours. Two open tumblers were half-filled with the most offensive sewage matter Professor Way could obtain, and the surface of each mass covered with a film of thin paper, and a thin bed of powdered peat charcoal resting upon it. These tumblers were in this state handed round to the members, who ascertained the perfect manner in which the sewage-matter was thus rendered no longer offensive to the smell. He then gave an interesting account of the process of Mr. Stothert, by which sewage-matter was reduced, by a double-action of purification, into clear water and inodorous precipitate—a process admirably adapted for sanitary purposes, although not for those of agriculture, as the more valuable manuring matters were held in solution and carried off in the pellucid liquid, while the precipitate was comparatively an inert mass. Remarks, bearing on the questions brought before the meeting, were then offered by Mr. Paine, Dr. Calvert, Sir John Johnstone, Major Wollaston, Mr. Caird, and the Rev. L. Vernon Harcourt; and the thanks of the members were unanimously offered to Prof. Way, on the motion of Mr. Miles, M.P., seconded by Mr. Parkins.

Messrs. Stassen and Pernollet had leave to exhibit the operation of their apparatus for sorting grain and removing from it all extraneous matters. This operation was effected by passing the grain through a revolving metallic plate cylinder divided into compartments having apertures of different size and shape, the grain (freed from its extraneous accompaniments of small seed, dirt, or stones) passing out at the end of the machine in a state fit for sowing.

The Council adjourned to Wednesday, the 21st of June, at 12 o'clock, when Prof. Way would deliver his Lecture on the Absorbent Nature of Soils.

A SPECIAL COUNCIL was held on Wednesday, the 21st of June. The following Members of Council and Governors of the Society were present:—Colonel CHALLONER, Trustee, in the chair; Lord Camoys, Lord Berners, Hon. A. Leslie Melville; Sir John Villiers Shelley, Bart., M.P.; Sir Matthew White Ridley, Bart.; Sir Robert Price, Bart., M.P.; Sir

John V. B. Johnstone, Bart., M.P.; Mr. Raymond Barker (Hambleden), Mr. Raymond Barker (Fairford), Mr. Gadesden, Mr. Fisher Hobbs, Mr. Lawes, Mr. Lawrence, Mr. Miles, M.P., Mr. Slaney, Mr. Towneley, Captain Vyner, Professor Way, Mr. George Wood, and Mr. Woodward.

The following subjects and prizes for the reports and essays to be sent to the Secretary on or before March 1, 1855 (and of which the full terms and conditions of competition will be given in the next number of the *Society's Journal*), were finally arranged.

Farming of Warwickshire	£50	0	0
Farming of Buckinghamshire	50	0	0
Chemical changes in the fermentation of dung	30	0	0
Artificial manures, and principles of their application	20	0	0
Artificial feeding stuffs	20	0	0
Causes of fertility and barrenness in soils ..	40	0	0
Retention of moisture in dry turnip land ..	10	0	0
Prevention and cure of mildew in cereal crops ..	20	0	0
Lameness in sheep and lambs	20	0	0
Any other agricultural subjects	10	0	0
	£270	0	0

ACTION OF LIME.—A weekly Council was then held, when Professor Way delivered before the members a lecture on the results of a nine months' investigation into the conditions under which lime affects the absorptive power of soils in reference to ammonia. These results were numerically represented in a small table, containing only four vertical columns, intersected by as many horizontal spaces; but would prove, as Professor Way remarked, of a permanent value, worth all the time and labour bestowed upon their production, if they should be found to lead to the establishment of any new principle in agriculture. His lecture was chiefly occupied in the discussion of these results, and of the clue they might possibly give to explanations of the mode in which lime acted upon soils as a manure. The two principal facts ascertained by these experiments appeared to be the following:—1. That all clay soils, more or less, even beyond the depth of 20 feet, are found to possess a certain quantity of ammonia, derived, as Professor Way supposes, from the fishy and vegetable matter of beds of lakes or rivers, no bed of clay whatever, he thought, being entirely free from ammonia. 2. That the addition of lime to a soil set free one-half the ammonia it contained; thus acting, in the first instance, as a "stimulant" to vegetation, but as an exhauster of

the stock of ammonia already in the soil or to be slowly derived from the atmosphere, if applied in large quantities. The two principal recommendations were—1. That liming should take place periodically at short intervals, not more than from 8 to 10 bushels per acre being used every year, or every two years: lime would, under such circumstances, he thought, be found to be one of the most useful adjuncts of the farm. 2. That lime when slaked and mixed with water, forming what was known as "milk of lime," should be added to tank-water, and distributed by means of piping, as in the case of Mr. Mechi's operations at Tiptree, or Mr. Kennedy's, at Myre Mill.—Prof. Way, in the course of this lecture, entered into most interesting details connected with the chemical machinery of the double silicates in the soil, by which the action of lime was regulated; and with the experiments he had instituted for showing, in strong comparative contrasts, the results he had obtained. He also pointed out the great importance of giving to land, by means of suitable cultivation, that condition under which it would best act as an absorbent of ammonia from the atmosphere. He has drawn up a complete statement of these details, which will be submitted in due course to the members, in the pages of the *Society's Journal*. Colonel Challoner, Mr. Woodward, Dr. Calvert, Sir John Johnstone, Mr. Beale Brown, Lord Berners, Mr. Fisher Hobbs, Mr. Payne, and Sir Matthew Ridley, favoured the Council with the results of their own experience in the use of lime of different kinds, and on various soils. These results depended much on the nature of the lime itself, on the mode and time of its application, and on the condition of the land to which it was applied. The chairman remarked that the great value of discussions on questions of that kind was the production of evidence indicating results diametrically opposite to each other, obtained under the same management, and the great value it proved of the establishment of sound general principles in agricultural practice, by means of which exactly the same results might be expected to recur when repeated under exactly the same circumstances. On the motion of Lord Berners, seconded by Mr. Lawrence, the best thanks of the meeting was voted to Prof. Way, for his interesting lecture.

The Council then adjourned to their Weekly Meeting on Wednesday the 28th of June.

EPIDEMICS, TOWN DRAINAGE, AND MANURING THE LAND.

No. IV.

SIR,—In the first of a series of letters which I had the honour of addressing to Lord Palmerston in August last, I observe, "Whether it be my misfortune or good fortune, I appear to have a mind so constituted as to place me in direct opposition to the reflecting portion of mankind on all matters connected with natural philosophy. And whilst others suggested the flushing of sewers,

the construction of gigantic tunnels, and sumps, and pumps, and tanks, the question of town-drainage appeared to me to reduce itself to the following simple heads:—

"1. That rivers are the natural receptacles of the water of all land drainage, whether of town or country, but that these should be preserved from pollution.

"2. That the atmosphere of towns should be preserved from pollution by the noxious gases generated during the putrefaction of the filth necessarily created in towns.

"3. That as the country supplies towns with food, towns, in return, should provide the country with the means of producing it."

And Professor Way, in his excellent lecture on manures, having given his opinion that the application of sewage to agriculture is secondary in importance to town drainage as a sanitary measure, I think there can be no difficulty in showing that all the above essential requisites may be amply provided for, if matter *increase in weight*, as well as specific gravity, by compression and contraction; and in illustration of my views I shall confine my remarks to the drainage of London and towns in its vicinity.

A child may readily break singly a number of sticks, which, when formed into a faggot, would defy the power of an elephant. Instead, therefore, of accumulating the sewage of London into one or two unmanageable masses, in the plans and memoranda submitted by me to the Commissioners of Sewers, a general outline of which will be found in their printed papers of 20th August, 1849, I propose subdividing it as much as possible. Immediately north of Blackfriars Bridge runs a high ridge of land, which slopes on one side to the east and on the other to the west. The sewage of one portion may therefore be diverted towards the river Lea, and the other may be carried westward, so high up the Thames as to discharge where now exist fields and gardens; whilst those portions near the banks of the Thames, when relieved of the upland water, may be drained directly into that river. To this system of drainage no land can be better disposed than that on the south side of the Thames, including Lambeth, sloping, as it does, in every direction towards the river; but the applicability of such a system must obviously depend on the practicability of collecting the sewage in the sewers, and of preventing the pollution of the atmosphere.

To the accomplishment of these objects, I propose converting the termination of the main or collecting sewers into what I term "discharging sewers;" that is, to make them sufficiently capacious to admit of their being divided longitudinally into two compartments, each of which, by transverse walls, will be converted into dams, and on these transverse walls to put rails, on which to run a truck. These discharging sewers being large and nearly level, the water must necessarily pass through them slowly, and deposit in the dams the matter held in suspension, agreeably to its specific gravity; and when one compartment shall have been filled, the sewage will be turned into the other, and the matter in the first filled having been solidified and deodorised, either with lime or peat charcoal, will be thrown into the trucks and shot into barges at the mouth of the sewer. That this system will relieve sewage of all matter held in suspension, I have not the slightest doubt; but if it should not, His Royal Highness Prince Albert has presented to the world a filtering apparatus, of the efficiency of which

ample evidence has been afforded, and which might be applied to the last dam through which the sewage would pass: and should there be found any difficulty in solidifying the slushing matter in this dam, but which I do not anticipate, it might be pumped into barges, containing the requisite deodorizing materials, and conveyed either up or down the river for agricultural purposes, leaving the more dense materials of sewage, such as grit, sand, stones, bricks, and wood, on which no pump would act, to be removed by hand; but if the agriculturist should prefer using the sewage when relieved of all solid materials, and pump it over the land, the townsman can have no objection to his so doing.

Whether the sewers be made the collectors of the filth of towns, or used only as means of transit, they cannot well be more offensive than they already are by this accumulation of filth, and, under any circumstances, in the vicinity of towns this filth must not be exposed to the open air. It remains then to be decided what means can be devised to relieve the atmosphere of its noxious gases, and other pernicious influences. We have unquestionable evidence that there are circumstances that cause the discharge of the gases of sewage to be much more intolerable than at other periods, and these occur generally before rain, or when the atmosphere is negatively electric, when the gases ascend from the sewer atmosphere in search of the electricity, necessary for their condensation. In the plans, therefore, submitted by me for the ventilation of sewers, so far back as 1848, I propose obtaining this supply of electricity from above the atmosphere in which we live, by connecting the sewers with ventilating shafts, armed with electrical points, which points, on the unquestionable testimony of Mr. Andrew Crosse, will draw down electricity from the upper or surrounding regions; the atmosphere, on the evidence afforded by the late Mr. William Henry Weekes, being electric in proportion to its distance from the earth; it signifying little whether this ventilation be afforded by shafts erected in open spaces, or by tubes in connection with dwellings, care being taken that their discharge be above the tops of the houses.

Here, at least, we have a plan for town drainage that has a conclusion, which is more than can be said of any scheme that has as yet been submitted to public consideration, and, furthermore, it is based on fixed principles in nature. And what, may I ask, is the principal cause of the very offensive condition of the Thames, and of all other tidal rivers with towns on their banks? During two-thirds of the flood and of the ebb, the water is dammed back in the sewer; and during this period, the solid matter of sewage is deposited in the sewer, so that a short time before, and during low water, when the sewage has a clear exit, the whole of this offensive matter is washed out on the mud of the river—an evil which my plan must obviously rectify, and the object is accomplished without poisoning the atmosphere of the town. But if the sewage were first tumbled into a deep tunnel, as proposed for Lambeth in the last plan of the Commissioners, the sewers must necessarily be rendered tenfold more offensive, and to pump such an offensive matter into open tanks, in the centre of such a densely populated neighbourhood as Deptford, could not fail in being attended with the most disastrous consequences. The plan, I respectfully submit, on which the metropolis is to be drained, must form the ground-work of the constitution of the commission or commissions to direct the operations.

FRANKLIN COXWORTHY,

Author of "Electrical Condition."

Maresfield, Sussex, May 21.

VEGETABLE MANURES, SOLID AND FLUID.

Green manures have often been advocated, and have sometimes been applied, but not as a part of any regular system of culture, save of late years, in the case of turnip leaves, which many farmers cut off and plough in for wheat, to be sown in the end of autumn or in winter; and in this climate the practice of ploughing down green manure just before winter, when the soil is moist and cold, is not in every respect commendable, though certainly experience teaches that it may be profitable, except where the soil may be sour or retentive from want of drainage. The presence of water is essential to the decomposition of vegetables when covered with earth, but the heat of the soil in summer is also beneficial; hence the best time to plough-in green manure is previous to the planting of potatoes and sowing of turnips in May or June, and the sowing of fallow wheat in the early part of autumn. On fallows mustard or rape are sometimes sown, and the young plants ploughed down when in the full luxuriance of their early growth. The putrefaction of the vegetables thus treated, resulting as it does in the emission of various gases, appears to nourish and invigorate the cultivated plants for whose benefit the operation is intended. Various kinds of gases are emitted by different plants when putrefying. Broom smells strongly of ammonia, and it is found that ammonia is emitted by all plants which contain gluten. This explains why the green twigs of broom constitute such a rich vegetable manure. Onions and some other plants evolve phosphuretted hydrogen; and from green manure in general, carbonic acid gas and hydrogen gas are usually formed, besides various kinds of vegetable matters more or less nourishing to growing plants. Sea-weed forms a peculiarly rich vegetable manure, containing, as it does, saline principles of which ordinary vegetables possess comparatively little. In practice, it is found that the heaviest corn on newly broken up pasture ground comes after the closest and most verdant turf, and that where red clover in an arable field has been most luxuriant, the succeeding crop of wheat will be weightiest. Where rape, mustard, buckwheat, or any other plant is sown for the purpose of being ploughed down as green manure, it should not be allowed to pass the flowering stage; and the greatest amount of nutrition will be conveyed to the soil by ploughing down just when the flower begins to appear. After this, the plants, if allowed to grow, would begin to abstract from the soil more than they would return to it when converted into green ma-

nure. When ploughed down they afford, in time, saccharine, mucilaginous, and extractive matters, which gradually decompose, and continue to enrich the soil for years.

It was long thought by cultivators, that vegetable matters should not be used as manure till putrefaction had nearly destroyed all organic texture. Mr. Knight was amongst the first to advocate the employment of green manures on scientific principles, and experience showed him that many vegetable substances are best calculated to re-assume an organic living state when they are least changed or decomposed by putrefaction, or when they are mixed with the soil immediately when in the full vigour of their growth. In Germany it has long been the practice to dig down vine prunings as manure in vineyards; and it is found that the tender shoots and leaves of the vine decompose so rapidly when mixed with the soil, that no trace of them can be found by turning up the soil four weeks afterwards.

Green manures, unless very succulent, require to be applied to turnips with caution. Such kinds as broom twigs or fern leaves will keep the soil too open below the young plants, and as the seed-leaves of the turnip afford little nourishment to support the plants in their first stage, the plants may suffer, especially in poor or light soils, or in very dry weather. The drier and woodier kinds of green manure should, therefore, be partially fermented before application, so as to cause an exudation of their juices, and also to cause their parts to lie closer in the bottom of the drills, and thus obviate the evil of keeping the soil too open. Turnips sown over green broom have failed, just because it kept the soil too open and dry under them. Fern leaves are liable to a similar objection, unless first partially fermented; but this can be done by laying them in a heap for a few days.

Broom twigs, when applied as manure to potatoes, have been known to cause an increase of 17 per cent. over portions of the field manured from the farm-yard in the common way. The leaves of the gigantic cow-parsnip are better adapted for turnips, being juicy and succulent, and soon decaying, so as not to keep the soil open; but they do equally well in the potato field; and this plant grows with so much vigour as to afford a large bulk of foliage to be ploughed in with potatoes by the end of April, and a second cutting, nearly of equal bulk, to be used as manure for turnips in the early part of June. Every cottager who pos-

sesses a garden, and has neither a cow nor a pig, should endeavour to set apart a waste corner, where the soil is rich and deep, for a few plants of this giant among herbs, that he may be able to manure his late potatoes, and also his winter cabbages and greens, with its leaves.

We refrain from further remarks on green manures, having before made some statements regarding their importance; but it may be of interest to refer to those experiments that were made and recorded by Mr. R. P. Drummond, in order to prove their usefulness, and to show that they cannot become really useful unless water be present in the soil in sufficient quantity to aid in their decomposition, and to retain part of their substance in a soluble state till it is taken up by the roots of plants. Mr. Drummond had an upright cask, with one end taken out, filled with leaves of cabbage and other succulent plants, these being pressed down and rain water added until the mass rose level with the rim of the cask. Putrefaction proceeded quickly, and was complete in three or four weeks, the time varying on occasion of different experiments according to the heat or coolness of the weather. That he might be the more certain of the fertilizing effects of this water (which must have contained much animal matter in the form of microscopic insects), he subjected 500 scarlet geraniums to experiment, they having been exposed for the greater part of the year to all the variations of the weather, being pot-bound, or having the pots filled with their roots, and thus having nothing to subsist on but what was supplied them in a liquid state. For upwards of a month one-half of them were watered from the cask, and the other half with rain water in its natural state; and at the expiration of that period the experimenter states, no one ignorant of their treatment could have believed that they were all of the same age, and had been treated alike in every other respect, the difference was so much in favour of those which had been supplied with the water containing

dissolved vegetable matter. They had grown more vigorously, and their leaves were larger, and of a darker green. Every experienced horticulturist could have anticipated such a result, and the practice of applying liquid of this kind to garden plants is far from being novel: but a defined experiment is nevertheless worth recording, were it but to render a truth more impressive and more fitted to excite attention.

It is easy to conceive that this liquid might be enriched by mixing it with ordinary liquid manure derived from animal secretions; but urine may be still farther useful when so used, for, when the liquid is required speedily, a mixture of urine with the rain water will cause the vegetable fibre to be decomposed with greater facility. For this reason Mr. Mechi mixes straw and vegetable refuse with animal manures in his tanks; only he adds mineral substances, which by their chemical action render the process of decomposition still more speedy.

On farms there will always be an opportunity of mixing animal with vegetable substances in preparing liquid manures; but the gardener oftentimes has difficulty in procuring manures from the farm-yard, and to him therefore the cask of vegetable water may prove a valuable resource. And to have a constant supply he ought to have two or more casks, if not small tanks, so that, while he is withdrawing the liquid gradually from one, that in the other may be in course of preparation. When using this vegetable liquid in a close house such as a stove or greenhouse, it has been recommended to mix sulphuric acid or some other fixing substance with it, so as to prevent the gases from filling the place with noxious effluvia. The cottager might have a cask or two sunk into the ground in a corner of his garden, into which he might cast the refuse of his vegetables, filling them up with rain water, or with soft pond water when it cannot be obtained. "Waste not, want not," is true in every department of agriculture and gardening.

UPON THE PRODUCTION AND PRESERVATION OF MANURES.

The difficulties which are felt in obtaining guanos and other portable manures in sufficient quantities, and at reasonable rates, should induce farmers to bestow more care upon the production and preservation of all substances capable of being employed as manures. As regards production of manures, every vegetable or animal product is calculated to swell the manure heap. Animal products are, from their containing a larger per-centage of nitrogen, more valuable than vegetable products; and although

none of the latter should be allowed to run to waste, all animal matter connected with the farm, or which can be cheaply obtained, should be carefully collected, and added to the manure heap. Where the cleaning of slaughter-houses or the refuse of fisheries can be so obtained, these should be added from time to time. Where such animal matter can be obtained, peat earth, saw-dust, sand, or clay, &c., should be mixed up with it, to absorb the liquid, and also retain the ammonia, which is

in some forms extremely volatile. Weeds, when once their vitality is destroyed, make excellent fertilizers when mixed up with other manures. The chief danger is from the roots or seeds of these escaping destruction during languid fermentation, and thus re-appearing to exhaust the soil and otherwise interfere with cultivation. Upon the sea coast, in many localities, much valuable vegetable matter is obtained. This is usually cast ashore by the tides; sometimes it is cut where growing, to be afterwards floated ashore by the tide. The great drawback to seaweed in a green state is the expense of carriage; but where this is at the minimum, seaweed becomes a valuable fertilizer. It is not liable to any objection from the roots or seeds possessing vitality when placed in the soil. It may be used to decompose strawy manure; but as it possesses most power when applied in a green state, it is seldom advisable to apply it to any other purpose than to cart it direct to the soil, spreading it as carted.

Summer is not the season to obtain the leaves of trees; but at the fall of the leaf, these can in some situations be collected and used as litter for stock. During summer, or towards autumn, ferns and other plants can be also easily collected. Ferns do not possess a high manurial value; but as they readily absorb liquid, they can be advantageously used for litter. In the neighbourhood of the New Forest, Hants, hay made from ferns appear to be much used. We saw them so employed in a posting establishment at Lyndhurst. When cut in proper season, they doubtless can be so employed with advantage; but we believe it will generally be more profitable to use them for litter, thus adding to the manure-heap. There are several other vegetable substances which will occur to our readers. These are used as litter, and with the extending system of soiling stock, much valuable manure can be manufactured.

But neglect in the preservation of farm-yard manure is usually more palpable than neglect in collecting substances to form a large manure-heap. The courts for manufacturing manure are frequently so arranged, that exposed to rains and the drooping from the roof of adjacent buildings, much that is valuable is, especially during wet, washed out of it, and carried away to some neighbouring ditch. Sometimes the drainage of the farm offices is so defective, that these act as drains for the liquid manure. To add to the evil, it is not unfrequent that the liquid from the stables, byres, and other outhouses, is allowed to run to waste, polluting the atmosphere, and in a brown stream oozing away from the farmstead: gold, only in a different form, is escaping from the grasp of the farmer. Although no advocate for the application of manure in a li-

quid form, we think it cannot be too strongly impressed upon agriculturists, that the most valuable ingredients of the muck heap are certain to escape, if the liquid flowing from it is not collected and again put over the mass. If the portion of liquid is more than the manure will retain, it should be used for saturating dry peat-earth or dry mould. It should never be forgot that the urine of animals is the most valuable part of the excreta of animals, and is, under ordinary circumstances, all absorbed by the litter; but there are cases where this not so absorbed; in such cases, to allow it to escape is a sad waste. The liquid escaping from the muck heap, from the excess of rain water, is not manurially so valuable as urine; still it possesses so much fertilizing matter, that none of it should be allowed to escape after it is once formed. Under good farm management, however, little of it will be formed. During the season of thunder storms with heavy rains, manure made in open courts will have a surplus of moisture, but this will seldom be in excess, and is, perhaps, one of the strongest arguments for feeding in boxes, or, at all events, proves the importance of having in accommodation for stock a system of spouts to carry away from the roofs all the rain water which falls upon them.

We have already spoken of peat-earth to increase the manure heap, and to preserve the fertilizing qualities of all kinds of bulky manures. No substance is so generally available in Scotland and Ireland, and no substance is better adapted for the purpose. Hitherto, the use of it for this purpose is all but universally neglected, although for the purpose of mixing with farm-yard manure and lime to form a compost, it was strenuously advocated by Lord Kaimes. When we come to speak of compost heaps, we may again refer to it.

Hitherto, we have spoken of the escape of fermenting matter in the liquid form. Loss also accrues from the escape of matter in a gaseous form. Ammonia, the most valuable, and at the same time the most volatile, readily passes into the atmosphere. When fermentation rises to a certain height, this escape is constant. To keep fermentation in check, and to fix the ammonia for retention, should be the study of the farmer. Here, dry peat becomes a valuable auxiliary, also dry mould. Some have advocated the adding of gypsum; it is, however, found in practice not to answer the expectations which were at one time formed of it. No substance has yet been recommended better than dry peat or dry mould. Sawdust, where it can be obtained in sufficient quantities, makes an excellent addition or covering for the manure heap. As a rule, all farm-yard manure should be applied to, and mixed with the soil, as speedily as possible; but during summer, at least, this becomes all but impracticable. It

is under such circumstances, therefore, that a covering of some sort should be applied.

In the straw courts, care should be taken to mix all the different kinds of manure together, stable and byre manure. Horse dung is very liable to become overheated, and become what is termed firefanged. Keeping it level, and by treading it close by cattle, this can be very much checked, if not wholly prevented. When the mass of manure is treaded closely, evaporation carrying off the volatile particles is almost wholly prevented.

From what has been stated, it will be understood that the custom of turning manure heaps to hasten decomposition is so far injurious; but to quicken decomposition, it is often a saving of time, and where a root crop, such as the turnip, requires the manure in a concentrated form and ready for action, the turning of the heap becomes a necessity. When turning is resorted to, it should be well watered at the time, and some substance thrown loosely over the top and sides. Here, again, peat-earth and dry mould can be made available.

The mixing of street and other town manure with farm-yard dung has been frequently recommended. When mixed, it is generally advisable to apply it within one month to the soil. By mixing these together, the action of both seems to be

increased. A series of well-conducted experiments on this subject would not fail to be interesting, and is at present much required.

In the neighbourhood of Edinburgh immense masses of street manures are stored at present. We are at a loss to account for this, except that the police authorities are determined only to part with it upon their own terms—making, in short, a monopoly price. Certainly, the prices hitherto obtained for the police manure have been higher than in any other town of the same population we are acquainted with, and surely the Police Commissioners are not cognisant of the fact that police manure loses bulk and weight to a very considerable degree; it does so less than strawy manure, but still it does lose weight—perhaps about one-fifth in three months. One or two experiments of weighing one or more hundred tons, and after three months re-weighing, would tell a tale not very creditable to the present enlightenment of Police Commissioners. Apart from sanitary reasons, therefore, all police refuse should be parted with as soon after it is collected as possible. In this manner the interest of the corporation is studied, and public health not endangered by the massing together of vegetable and animal matter. —North British Agriculturist.

FEEDING OF STOCK.—EXPERIMENTS WITH COD-LIVER OIL.

We seem to be arriving step by step at the principles of agricultural science. The process may be slow and gradual; the means may be few and limited; and when arrived at, there may be many saving clauses and many exceptions arising from modifications of soil, of climate, and of circumstances; but the settling of a few sound principles in manuring crops and in feeding stock is of such vast general importance, that its value is but little affected by the few exceptional cases which continually will, from the nature of things, almost necessarily arise.

We can remember the day when a manure had to be tried and tested a few years in succession before it could be known whether it was good or bad, whether it would answer or not; and when practice showed it did, we were no wiser as to why it did, nor did we know a whit better whether the next manure of a somewhat like origin would be equally good or be utterly worthless, because we knew not the principles of its application.

Science has enlightened us. We well remember two earnest agricultural writers contending as to the fertilizing element in bones—one, that it was the phosphates to which their value was to be at-

tributed, and another that it was to their nitrogen. The fact is, it was simply to both; but we now begin to inquire if there are, in a given manure, the requisite proportions of nitrogen, of phosphates, and perhaps of potash and chlorine; and then we *know* what its results will be, to a positive certainty.

And so with the feeding of stock. We know that fat is composed of the elements of the air and the water, that it is very nearly identical with the vegetable oil in its composition, and we might almost expect the fattening result to be the same.

Mr. Lawes seems to have established the fact, at least, that the nitrogenous materials are useful to growth, and possibly to supply waste; but saccharine and oleaginous matters are necessary in large proportions to feed rapidly and at a small expenditure of food.

If we for a moment consider the abstract position of a fattening animal, we shall find that though he consumes sugar and starch, the elements of which sustain respiration, yet he must also lay up in the interstices of his muscles or upon his rump-crop a given quantity of fat; and it is in accordance with reason to think that if some of this fat were sup-

plied ready formed, the vital energy would be less taxed to deposit it, than if it had to decompose by its vital process the combination of sugar or gum or starch, and to recombine them again in the formation of fat. So far was this principle carried, that one chemical experimentalist advised the feeding of pigs on fat pork; but we see, though we do not go so far, the common-sense of cooking the linseed, as Mr. Hutton does, *which contains all the oil*, rather than feed on the refuse—the oilcake, from which, in fact, the oil has all been most carefully expressed.

We were not quite prepared, however, for the step taken by Dr. Pollock, and detailed by him in the *Lancet*, of fattening animals by the addition to their ordinary food of *cod-liver oil*.

As an efficient medical agent in chronic diseases, it is no doubt a most remarkable and powerful auxiliary; and as our Newfoundland fisheries afford us the means of vast supplies, we will give to our readers an outline of the experiments detailed by Dr. Pollock and made by a practical man, to set them to work trying the very simple experiment whether some little addition may not be made to the materials they use in fattening, with some greater degree of success than pursuing their old method.

Dr. Pollock does not give us the name of his practical friend, to whom he trusted the experiments made on cattle, on sheep, and on pigs; but his own name is sufficient to indicate him to be a respectable man and worthy of credit. Commencing with the animals which may be most easily induced to take anything—*pigs*. The experimentalist was an extensive feeder, and killed 20 to 30 per week. He separated first 20 pigs from the rest, and added 2 oz. per day each of the cod-liver oil, with as much meal as both lots would take. Those which had the oil ate less meal, weighed the heaviest, and made the most money per stone in London. He subsequently found that one ounce of oil per day was better than two, for small porkings; and though he has gone so far as to give a quarter of a pint per day to large, full-grown pigs, and also to small ones, he found it did not pay, nor was his pork so valuable. "When given in small quantities it was profitable, as the animal fattened upon a less amount of food, the oil tending to produce fat quickly."

With sheep he proved that by the addition of one ounce per day they fattened quickly, had beautifully white fat, and the 80 sheep so treated "gave general satisfaction to the consumers, though the butchers complained of lighter weight than the appearance of the sheep led them to expect."

On bullocks he tried the experiment by giving a quarter of a pint to three-quarters of a pint per day, and he says the ten shorthorns to which the cod-liver oil was given "paid better than any other bullocks." He is now trying the experiment with Herefords, part being supplied with the oil and part without.

He gave the oil to his bullocks mixed with their meal and chaff, commencing with the minimum and ending with the maximum quantity named above; to his pigs it was given in dry meal, and to the sheep in the shape of split beans steeped in the oil. The oil costs from 2s. 8d. to 3s. per gallon.

We give his *facts*, and leave our readers to draw their own conclusions. We could have wished the experiments to have been more precise and the results a little more carefully detailed; but we really see no reason why a small dose of *fresh*, not rancid cod liver oil, should not assist at least the ordinary feeding materials on a farm. How far this could be combined with some one or other of the many kinds of cooked food now adopted, to produce fat, by being added to the chaff or a little meal *in the pastures*—we think is at least worth a trial to ascertain, if it be only on a small scale at the commencement.

THE LATE M. M. MILBURN, ESQ.—This gentleman, whose greatly lamented death, at the age of 38, took place May 27th, was the only child of a respectable farmer, who lived (till his death, sixteen years ago) on his small paternal inheritance, at Thorpfield, near Thirsk. He gave early indications of kindness and talent; and soon after leaving Sowerby Grange Academy, he became a frequent contributor to the Conservative local newspapers. Though busily employed on his father's farm, he diligently cultivated his mind. Ere long he distinguished himself by gaining several prizes for essays on subjects connected with agriculture; and up to his death he wrote a great deal for the leading agricultural newspapers and magazines. His long connection with the Yorkshire Agricultural Society is extensively known. His indefatigable labours as its secretary unquestionably tended greatly to its success, and they were handsomely acknowledged a few years ago by the presentation to him of some silver plate. The loss which that important society must have sustained by his premature removal will not be easily repaired. After he left Thorpfield to live at Sowerby, his time became fully occupied with his multifarious engagements as land-agent, &c., in all which he acted with characteristic energy and unswerving integrity. A more upright man never lived; and he lived not to himself, but was always earnest in his endeavours for the temporal and spiritual good of his fellow-creatures, especially of the young men of his neighbourhood, in whose welfare he took peculiar interest. Often, indeed, were his counsel and help sought, and they were most freely rendered. The labouring classes had his kindly regard almost from his very childhood. He was emphatically the poor man's friend: and in the sacred home relations of life he was highly exemplary. In short, he was a man of great public and private, moral and religious worth. To say he was free from foible or failing, would be to forget that "to err is human." But we may hardly hope to "look upon his like again." His death occurred after only a few hours' illness, in the prime of his life, and in the midst of his usefulness. His remains were interred on Sunday morning, in the churchyard of his own village, amid a large gathering of sincere mourners. The service was read with impressiveness and feeling, by the Rev. S. Coates, whose ministry was highly valued by the departed. We have great satisfaction in stating that the deceased's very dear personal friend, the Rev. J. C. Raw, preached a funeral sermon in the parish church of Ainderby Steeple, on Sunday, June 4th.—*Yorkshire Gazette*.

PROBUS FARMERS' CLUB.

LECTURE BY MR. TRETHEWY.

At the monthly meeting of this club there was a full attendance of the members, and the chair was taken by Mr. Tresawna, the president of the club.

The secretary, Mr. H. Tresawna, brought before the meeting an application from a committee formed at the Farmers' Club Rooms, Blackfriars, soliciting a subscription towards an annuity fund for Mrs. Shaw, the widow of the late Mr. Shaw, of London, who, becoming connected with the Islington Cattle Market, had been involved in pecuniary obligations, and emigrated to Australia to retrieve his lost fortune, and shortly after his arrival there, died of malignant fever, leaving his widow destitute of support. In consideration of Mr. Shaw's acknowledged services to the landed and farming interests, when he was in this country, the club voted £2 towards his widow's annuity fund, which was unanimously agreed to, on the motion of Mr. Kendall, seconded by Mr. W. Trethewy.

Mr. TRETHEWY, sen., then proceeded to deliver an interesting lecture "On the importance of keeping young stock in a thriving condition." He first alluded to the miserable system so frequently practised in the rearing of young cattle in many districts in Cornwall. In order to fatten two or three bullocks, the young stock, he said, are deprived of the few turnips which would have carried them through the winter in an improving state, and are kept instead on nothing but straw, whilst the breeding animals consume the hay and roots. The consequence of which is, that in the spring, when the young stock are turned to grass, they require everything they can obtain in the shape of fodder, for the first two or three months, to get them in a moderate condition, and after all are not much better off than many would have been at the end of the winter, had they been but fairly supplied with turnips, hay, or linseed cake. Animals so treated never attain a full size; they are stunted in their food, and become stunted in growth; and hence we frequently see, at our fairs and markets, young cattle that have been properly reared sold fat at two or three years old, for more value than ill-kept stock at four or five years old. The difference in the expense of keep for the first six months in the feeding in the two cases is very little—perhaps none; and during the next twelve months, one lot we will suppose are well kept, the other indifferently; the following year the former are made fit for the butcher, and worth probably £20 and

upwards, whilst the latter, which have been allowed to "run," as it is termed, with often more toil than pleasure to procure enough food to satisfy their wants, are scarcely worth more than from £7 to £10. I have seen (said Mr. Trethewy) during the past season a number of steers, from two and a half or three years old, tied up to fatten, that have been reared in this miserable manner, not heavier than some yearlings in this neighbourhood. Now I ask if the yearling is equal in value to the three years old, and supposing—which is impossible—that the keep of the one during the twelve months costs as much as that of the other during the three years, which is the most profitable to the breeder? Why the one year old certainly, however expensively it might have been reared. The fact is, young stock of all descriptions, whether cattle, sheep, horses, or pigs, if not improving in condition, must be retrograding or at a standstill, which is similar to a man allowing a sum of money to remain idle, making no interest. He was sorry to say that this starving system of rearing stock was more common than was generally known, the consequence frequently of farmers rearing more stock than they are able to keep well. This is a mistake which he would warn all agriculturists to beware of, as it is undoubtedly more profitable to rear a smaller number, and keep them in a progressing state, than to have a large number of half-starved animals. The author of the prize essay on the Farming of Cornwall, Mr. Karkeek, in alluding to this short-sighted system of economy, strongly reprobates the practice of keeping a greater number of cattle than farmers can properly feed, which are kept, he says, in a half-starved condition, either in the yards or lanes in the winter, and turned out in the fields in the spring, and on the rough pastures or commons in the summer. And in his other prize essay on Fat and Muscle, he says, "The object of the farmer, whose purpose is profit, will be to force his stock on, during the period of their growth, by such kind of food as will produce the largest quantity of muscle at the least expense." I perfectly agree in this, for we should remember that we are not only losing the time during which the animal is at a standstill, but by not allowing sufficient sustenance we are also checking their growth and injuring the constitution, in support of which he would make another quotation from the same essay. "There should be no privation in the rearing and

feeding of cattle; for those that are stuffed and starved by turns are sure to prove unprofitable to the feeder; and there is no more certain rule in the rearing of young stock than this, that those that suffer a deprivation either in quantity or quality of food, never become perfectly developed, either in bulk or proportions." Mr. Trethewy then explained to the club the method he had adopted in rearing his young stock. They should not be over-fed or delicately reared; a judicious middle course should be pursued, providing everything necessary for the growing wants of the young animal; they should not be neglected and kept in a starving state, nor should they be pampered, and become weak and sickly from too tender treatment. The practice of giving young stock linseed cake or other artificial foods, in addition to straw and roots, is extending throughout the country. Mr. Clarke, in his prize essay on the Farming of Lincolnshire, says "The practice of giving 2lbs. or 3lbs. of linseed cake daily to the young cattle, and those in the straw-yard, has much extended itself of late years." Mr. Trethewy said he had pursued this system for some time, and could speak confidently of its advantages; he would advise those who were sceptical on the point to try the system, and they would soon find whether it was profitable. Mr. Trethewy next spoke on the subject of sheep rearing, premising that much that had been stated respecting cattle was applicable to sheep. He was of opinion that the improvement in the general management of our flocks has progressed more rapidly than in that of our herds, in most parts of the county, and the breed of sheep has been throughout much improved. The great increase in the growth of rape, for which a large portion of our soils are well adapted, has given a great stimulus to the sheep farmer, providing as it does some of the best food for these animals. But though we may congratulate ourselves, he said, on the advances we have made in improving our breed of sheep, and in their general treatment, yet even now we too frequently observe many wretched poverty-stricken animals that have fared hard, and been almost brought to the starving point during the winter season. There was another point to which he would direct attention. After the shepherd has spent many long and tedious nights with the ewes, and his efforts have been successful in obtaining a good increase of lambs, how often do they find that in the months of August and September, ten, fifteen, and even twenty per cent. of the flock are carried off by the scour, occasioned either by scarcity of food or mismanagement. But keep the young sheep well, and bestow on them proper attention, and they will not suffer much from this disease. Mr. Trethewy also strongly recommended oil cake to be given to sheep. On the subject of

pig rearing, he said, pigs, beyond all other young stock, should be well kept; they should never lose the fat or condition they receive from the mother, which is easily kept up by proper food. He then remarked incidentally that a neighbour of his, Mr. Northey, of Grampound, had bred and fattened twelve pigs of one litter, which averaged fifteen score each at eight months old. They were a cross between the Berkshire and the Neapolitan. And now (said Mr. Trethewy) a word on horses; but here I must act with caution, because the farmer or breeder is not the only one whose opinion is to be consulted. Every Englishman, whatever his calling may be, considers he is a judge of horse-flesh. Many persons think it to be a matter of no great moment how a colt is kept; let him rub on roughly for the first year or two, and he will come all right when he gets better food. But there is no greater mistake than this; it is now well understood by all those who have had any experience in the matter, that the better a colt is kept, the more likely he is to remunerate the breeder. Mr. Trethewy then made some interesting statements on the fattening of stock, quoting Mr. Hillyard, Mr. Morton, and others. The former, he said, was of opinion that beasts should increase when tied up 64lbs. in the first month, 80lbs. in the second, and 48lbs. the last fortnight; that is, 192lbs. in the ten weeks. Mr. Spooner, in his prize essay on Root Crops, in the *Bath Journal*, says:—"It is stated by Mr. J. C. Morton, that it requires 150lbs. of turnips to produce 1lb. of beef or mutton, which being reckoned at 6d. per lb., gives about £8 5s. as the feeding value of twenty tons." Messrs. Davey and Webb King, in the same journal, have given some useful experiments on fattening sheep and cattle. Mr. Fowler, of Dartmoor, says his feeding hogs consume 20lbs. to 30lbs. of Swedes each per day, with half-a-pound of oil cake, and 2lbs. or 3lbs. of clover hay. Mr. Clark, in his prize essay on the Farming of Lincolnshire, states—"Where cattle are not bred, it is customary to buy in yearlings or two years old in November, and feed them loose in courts or yards, giving them from 2lbs. to 4lbs. of cake each per day. If older stock are purchased, they have 4lbs. to 8lbs. of cake daily." Mr. Trethewy concluded his interesting subject with a quotation from a writer in the *Mark Lane Express* of March 6th, "On extremes in farming," who having given an example of a man that much improved his estate by converting corn and cake into manure, then takes the opposite side of the question, and says "a straw-yard farmer will soon take the mettle out of a highly cultivated farm. When I say 'a straw-yard farmer,' I mean a man whose cattle consume the principal part of his straw, without cake or corn. If cattle

eat straw alone, the dung is straw, and the manure is straw, the cattle are straw, the farm is straw, and the farmer is straw, and they are straw altogether." (Laughter.)

The CHAIRMAN (Mr. Tresawna) having invited discussion,

Mr. KARKEEK asked if Mr. Trethewy would give them some further details respecting his system of rearing calves (alluded to in the lecture), and of managing the yearlings during the winter and spring.

Mr. TRETHEWY said, if the calves are not allowed to suck the cows, they have raw milk, or milk from the cow, given them for the first month or six weeks, after which it is mixed with skim milk; and they have also some oil cake, or other food, to keep them in good condition till they go from the bowl. They should be kept with the bowl from three to four months; that, however, depends on how the farmer is situated with regard to his dairy. If milk is scarce, linseed boiled, or linseed cake, will be of great assistance, and they will go from the milk very quickly. There is no necessity for giving them milk ten weeks or three months; he had seen very good calves go off at less age. As to the yearlings, they should be kept well, otherwise they could not be brought to perfection, or fattened at two years old. The calves should be kept in a progressive state, and not allowed to retrograde when they go from the bowl. That, however, was to be seen on very many farms in the county. They might be kept in a progressing state in the way he had stated. In most of the eastern counties the same course is pursued, where the pastures are not sufficient, or where there are a great many other stock on the pastures. They give them linseed or linseed cake, or oatmeal; or other substances may be given. In some places Indian corn, ground, is given, and is very nutritious for the young stock. Bean meal is useful, particularly where much green food is given, especially turnips and mangel wurzel, which make the animals laxative; bean meal is also good when rape is used for feeding.

Mr. KENDALL said, from his experience, the calves ought to suck at least two months; or if three months, it would be better; and he had always found that the calves do much better on the cow than when reared by hand.

Mr. TRETHEWY said that might answer very well when calves are bred on a large scale; but many small farmers in this county could not afford to let the calves continue to suck so long, and therefore might help them forward with artificial food.

Mr. KENDALL would, however, let as many as could suck the mothers; a good cow would rear two calves, and a heifer one. He had reared a great number of bullocks in the last two or three years,

as was well known in that neighbourhood, and he did not recollect having lost a single calf. One was obliged to be killed, from one to two years old, from injury.

Mr. TRETHEWY observed that the writers of various reports on farming stated that by keeping the cattle in a good condition, you were the most likely to prevent the "quarter-evil."

In reply to Mr. James Davis, Mr. TRETHEWY said he thought the stomach of a calf would not take linseed at first; the milk of the cow was necessary as food for some time. The linseed should be boiled, and given as gruel.

Mr. KARKEEK believed it was recommended to mix half milk and half gruel at first.

Mr. TRETHEWY understood treacle or sugar mixed with it had a good effect; but he had never tried it.

Mr. KARKEEK said, the object of mixing treacle or sugar was to supply fatty matter. Milk contains both the muscle and fat-forming principles—the cheesy as well as the fatty matters. When the raw milk given to the calf is replaced by scald milk, they should begin to give linseed or gruel of some sort, accompanied with treacle or sugar. The linseed would supply the muscle-forming principles, and the treacle or sugar the fatty matters. He might also allude to the manner in which Mr. Trethewy and Mr. Kendall kept their young stock, to which he believed they were indebted for preserving them in such perfect health. They kept them on what was called the "hammel" system, in small yards with comfortable sheds attached, which was much to be preferred to tying them up in close stalls during the winter months. However they might ventilate such stalls, they could not keep the cattle so healthy as in the yards with small sheds attached. When the weather is dry, you hardly find one in the sheds, but when it rains they go in.

Mr. KENDALL spoke strongly in favour of the same system, and said if one lot were tied up during the winter, and another lot kept in the yards, not having so many turnips as those in the houses, yet when they were both turned to the field in May month, those that had been kept in the yards would thrive more in one month than the others would in two.

Mr. TRETHEWY said his object in the present lecture was to show the evil of what they so frequently see practised, the keeping young cattle in a starved condition. They are very well kept by some people up to a certain point; and then they are left to shift for themselves, and to "run;" and fine exercise they get! They lose by degrees the flesh previously put upon them, and go on for some months till they can be conveniently kept better. They are at length taken in and kept well, but it

then takes two or three months' feeding to get them to the condition from which they had gone back. What he wished to impress was, that they should always keep their young cattle in a progressive state.

Mr. KENDALL agreed with that remark, and added that when young stock were put into the house in autumn, and tied up, they were often then of more value than they were in the following spring; whereas if they were kept in yards, and had a small quantity of turnips two or three times a day, and as much straw as they could eat, they would afterwards go out to grass, and in two months would be fat. There were perhaps 20 per cent. of sheep carried off by the scour; and he believed that was owing to badness of keep.

Mr. TRETHEWY said it was a prevailing notion some years ago, that you must not keep your hog sheep well at a certain season—that they must be kept back at that time. But he could speak from experience, that if you keep them well throughout, you may avoid the scour altogether. For upwards of thirty years he had never lost a sheep by the scour, which was more than many could say.

Mr. KARKEEK had seen some fine steers brought into Truro, belonging to Mr. Doble, and asked what was his course of management.

Mr. DOBLE said he reared some calves on the cows, and some by hand, chiefly on scald milk. Those reared on the cows rather go back when taken away; and the others, after some time on grass, get up with them. In rearing by hand, he gave the calves oil cake when they were about a month or six weeks old, and by that means kept them in good condition. When they were turned to grass, he had linhays in the fields, where they go in and out as they please. In the second winter they were kept in the yard; in the third year they were fat. Sometimes he gave them oil cake, and sometimes not; he sold two cross-bred steers the other day, under three years old, for £49, that had nothing but hay, straw, and turnips. He scarcely ever lost a calf, and did not see that any other person's plan answered better than his; with the scald milk they sometimes mixed wheaten or oaten flour.

The CHAIRMAN asked how much oil cake Mr. Doble gave his calves per day. Mr. Doble replied from 1lb. to 2lbs. He also said he gave them milk till they were from three to four months old, and they had then from 2lbs. to 3lbs. of oilcake per day; 2lbs. was about the average. This point occasioned some discussion. Mr. James, of Merthor, thought it was too expensive; 3lbs. of oil cake a day would cost about 4d., and come to about £6 a year. Mr. Karkeek said Mr. James had forgotten to estimate the increased value of the manure, from

feeding with oil cake. Mr. Kendall said that increased value was estimated by many farmers at one half, therefore Mr. James's £6 must be reduced to £3. Mr. William Trethewy thought Mr. James must have misunderstood Mr. Doble. Supposing the calves had even so much as 4lbs. of oil cake a day, it would not be for more than three or four months, and amount to 4 cwt., which at 12s. per cwt. (8s. or 9s. was about the average) would only come to £1 12s. It was only given, he understood, for about three months, and 2lbs. a day was then the average. Mr. Doble said, if a calf were born in the fall of the year, he gave oil cake during the whole winter; but 2lbs. a day would keep them in very good order. Mr. James agreed with Mr. Karkeek that they had a great portion of the expense of oil cake back again, in the increased richness of the manure. Mr. Kendall said, if the Russian Czar did not soon give in, he believed they must grow their own linseed.

Mr. HENRY DOBLE, on being asked his method of rearing, said he had never used oilcake or corn. He gave the calves raw milk till they were two or three months old, and then scald milk till they were from four to five or six months old; he gave them also turnips and hay. He had reared some good ones, but still had been rather unfortunate in losing stock. He should be glad if Mr. Karkeek could tell them what would stop the attacks of the "quarter-evil."

Mr. KARKEEK was of opinion that the "felon" in young cattle at the outset is a febrile condition, induced from sudden excess of food at a period when the tone of the vital principle is unequal to the work. During the early period of life, there is a great quantity of blood produced for the purposes of growth, and if it is properly used up in the system, there is little danger of the "felon." The great point then in the rearing of calves is to take care that the vital powers are predominant, which condition is only obtained by a proper supply of food, proper temperature, and proper exercise. If you let an animal be low in condition, and then force him on greatly by good keep, you are likely to produce the "felon." Mr. H. Doble said cattle were sometimes lost by that disease when they were a year old, and in a thriving way. Mr. Karkeek said they were still not in a strong condition. The object should be to strengthen the vital system of the animal when young as much as possible; their digestive organs and system generally will then be able to withstand the influences from the sudden change of food. Where there was disease of that sort on a farm, he would put all of them in the poorest land, and let them work for their living, though it was true that could not be done in winter.

Mr. H. DOBLE said he had some cross-breds of Devons and short-horns, of which he approved, and would recommend farmers to cross their cattle more, as he thought it would strengthen their constitutions.

Mr. TRETHEWY observed that prizes had been offered for essays by the Bath and West of England Agricultural Journal, "On the most economical and profitable method of growing and consuming root crops," and that these three contended, Mr. Spooner of Southampton, Mr. Davy of Southmolton, and Mr. Webb King, near Bridgewater. He remarked that all three of the competitors particularly recommended a mixture of food, and that less turnips should be given to the cattle. Mr. Webb King was with him (Mr. Trethewy) some time ago, and looking at some farms, he considered that we all use too many turnips; if other sorts of food were given with the turnips, he thought more cattle might be kept, and they would thrive better. The white turnips have a tendency to scour, but the Swede turnips not so much. The mangels have also very much of that tendency; but they are very fattening. There should be a mixture of oil cake, corn, hay, cut chaff, or something of the kind, more than is generally given, and the same with sheep.

In answer to another question, Mr. Trethewy said the use of oil cake had now become general in many counties; even where there were the best pastures,

they supply the cattle with it. They break it and sift it, drop the knobs down for the cattle, and the fine for the sheep. The larger number of cattle that was in this way enabled to be kept on the land, they say pays amply for the oil cake, to say nothing of the improvement of the manure in the droppings on the land.

Some remarks were also made on the use of salt in feeding; but the opinion seemed to be that it was not required in this county, which has so much sea-cast. It was recommended by Mr. Trethewy to be mixed with hay, when indifferently saved. Mr. Kendall stated an experiment he made to prove the value of salt applied to grass land, and it turned out a failure. Mr. J. Brewer introduced the subject of giving rape to young sheep. Mr. Kendall had found rape caused the wool to fall off. Mr. Trethewy said the mischief might be in some degree prevented by mixing the rape with hay, cut chaff, oil cake, or some dry food. Mr. W. Trethewy thought that on poor land sheep might be kept on rape; Mr. Stephens, of Golden, had done so on the downs. Mr. Brewer said he had kept bullocks on rape more than two months, and they did very well.

The proceedings were concluded by a vote of thanks to Mr. Trethewy for his able and interesting lecture, and to Mr. Tresawna for presiding over the meeting.

CULTIVATION OF FLAX IN THE UNITED KINGDOM.

In consequence of the war with Russia, from which the principal portion of our supply of hemp and flax is drawn, the energetic people of the United States are turning their attention to the growth of hemp. That of flax will, without doubt, be taken up with equal alacrity, both there and in British America.

With our usual deliberate and conservative mode of proceeding, and our veneration for things as they are, we shall probably follow, in this matter, the same course of action which has characterised the education question, the sanitary question, and the agricultural application of the refuse of towns. We shall discuss it for the next twenty years, shall proclaim the attempt to be visionary, theoretical, hopeless; and shall only set ourselves at work in earnest to grow a larger breadth of flax by the time peace shall be proclaimed, and the Americans shall be in possession of the void which Russia has left in our market.

Even before the war commenced, there was a desire on the part both of the agricultural interest

and those engaged in the linen manufacture, that the supply of home-grown flax should be increased, but there the matter has hitherto ended. In the meantime, our flax-spinning machines have continued, year by year, to devour more foreign fibre. Our importation of flax, for the ten years ending 1851, amounted to 70,000 tons annually. In the three years 1840, 1841, 1842, the average annual importation was 62,500 tons. For the three years 1848, 1849, 1850, it had increased to 83,800 tons. The difference may be considered equal to the produce of 84,000 acres. The number of spindles employed in the United Kingdom in spinning flax amounted, in 1851, to 1,068,000; of which Ireland had 500,000, Scotland 303,000, and England 265,000.

The greatest number of spindles out of Britain is in France, which has 350,000; but on the continent, in general a vast amount of flax continues to be spun by hand. Belgium has 100,000 spindles, Holland only 6,000, Russia 50,000, Austria 30,000, the States of the Zollverein 80,000, Switzerland

12,000, and the United States of America 15,000.

America is our best customer for linen. Thirty-nine millions of people in the States consume annually more than two yards each to the value of 1s. 3½d. sterling, Canada takes to the value of 1s. 6½d. per head; while Europe, with a population of 228 millions, takes only 1-38th of a yard each. The difference between the demand from the New World and the Old arises from two causes—the first is the pertinacity with which high duties on imported linen are maintained in most of the countries of Europe; the second is the preference for cotton garments which prevails in Asia and Africa.

Besides the extensive and continually increasing quantities of flax fibre which we receive from other countries, we import annually 650,000 quarters of linseed and 70,000 tons of oilcake. As one of the first commercial effects of the war, our flax mills are running short time for want of flax; and in addition to the loss which our farmers will sustain from a diminished supply and an increased price of guano, they will soon suffer from a deficiency of oilcake. These difficulties must be overcome by an increased growth of flax, and the consumption by cattle on the land of the linseed grown upon it.

The flax culture, as practised before the revolution which spinning machinery effected in the linen trade, was a domestic manufacture. The grower prepared the fibre for market. In many cases he spun it and wove it at home. In Ireland, the linen trade combined with other causes to produce that excessive subdivision of land which has been the bane of that country. The Irish farmer, in the most flourishing districts, was merely a weaver, holding land enough to raise his own food and raw material. The linen trade, thus conducted, has deserted those districts, and left them burthened with the subdivided farms and a pauper tenantry, till the potato rot, and the emigration which has followed in its train, produced another social revolution.

The great obstacle to the growth of flax in England is the want of an intermediate interest to buy the straw from the grower, and to prepare the fibre for the spinner. Conducted on the old system, it is only adapted to small occupations, like those of Belgium and Ireland. Even in Ireland, the want of this intermediate interest is strongly felt, and strenuous exertions are being made to supply it. New processes of preparing the fibre are moreover being introduced, which cannot be carried on upon the farm, but require separate establishments, and which appear likely to supersede the old method of steeping, just as the steam-driven spindles and powerlooms have superseded the spinning wheel and handloom.

Two years ago the most promising of these new processes appeared to be that of Schenck, which consisted in steeping the flax in hot water, and thus effected in from 72 to 96 hours what under the old system occupied from two to three weeks. In 1852, 20 reterries on this system were established in Ireland, besides several in England.

Since then two other processes have been patented, which as far as trials on a small scale have gone, appear to be superior to Schenck's, both as regards the saving of time and expense. One of these is by Watts. It consists in steaming the straw, instead of steeping. The other method is Buchanan's, who operates by means of repeated immersions (about 10) in hot water, kept by a very ingenious contrivance from exceeding a certain temperature. The process is conducted by means of cheap and simple machinery, by which labour is saved, the risk of loss from carelessness avoided, and the time required for the preparation of the fibre is reduced to 12 hours. The system is now being tested on a commercial scale in Scotland.

It has been well observed that the chief impediment to the growth of flax consists in the question "Who is to begin?" The farmer does not grow flax for want of the reterry, and the reterry is not established for want of the flax. Another difficulty arises out of the continued improvements which are going on in the processes for preparing the fibre, and the perplexity which this occasions among those who are disposed to embark in the undertaking, as to which they shall adopt. The scarcity of flax, however, which the war is producing, will probably lead to a cutting of the knot. The manufacturers, in their eagerness to obtain a supply, will be inclined to make a little dash in establishing reterries.

They will commence with Schenck's, as that which has been the most tested; and if they find that either of the new processes prove better, they will, with the usual manufacturing enterprise, remodel their establishments and adopt the new processes without delay and regardless of cost.

The manufacturers are the parties who should make the first move, by establishing reterries and offering a liberal price to the farmers for their straw. The districts best suited to the experiment are those in which the cultivation of flax formerly flourished, and in which the agricultural population are not wholly strangers to its management.

Besides the impediments to the extensive cultivation of flax in the United Kingdom, to which we have already adverted as arising out of the absence of an intermediate interest between the grower and the spinner, there is another, occasioned by a traditional prejudice that flax is an exhausting crop.

This error, which has been handed down, without investigation, from the times of Virgil and the

Georgics, has long entrenched itself among the musty leases and precedents of the lawyer class of land-agents; and we have of late witnessed the anomaly that, during a period of low prices, landlords, in after-dinner lectures at agricultural meetings, in forgetfulness of this, were recommending their tenants to cultivate flax as a substitute for cheap wheat, while the leases under which those tenants held their farms prohibited the growth of flax, hemp, weld, and woad. Science and practice, amidst all their jarrings and jealousies, are now agreed in repudiating this vulgar error. The chemist led the way by analyzing the plant, and showing that the fibre, which is all that need be removed from the land, contains scarcely any matter but what it has derived from the atmosphere, and that the inorganic constituents, which are furnished by the soil, reside in the seed, the woody refuse, and the steep water, all of which may be returned to the land.

In confirmation of these views, practical men who have grown flax for many years, consuming the seed as cattle food instead of purchased oilcake, declare that they find flax anything but an impoverishing crop. The late Mr. Milburn, than whom we knew no higher practical authority, urged this point at a meeting lately held in Leeds, at the instance of the Leeds and Yorkshire Flax Society, for the purpose of giving explanations to landlords, farmers, manufacturers, and others interested in the growth of flax, as to the present prospects of demand and remuneration, and the best methods of growing flax. At this meeting, a report of which lately appeared in our columns, Mr. Milburn declared the opinion to be gaining ground among all who understand farming operations, that the consumption of the seed by stock upon the farm forms one of the best modes for the improvement of strong land. As an example, he appealed to the practice of Mr. Hutton, of Sowber Hill, who grows flax for the sake of the linseed as cattle food; and he expatiated on the high condition of the cattle and horses on this farm—for Mr. Hutton's horses share the linseed with the other live stock—and also on the state of cultivation of the land, which he declared to be perfectly astonishing, and attributable chiefly to the valuable manure obtained from the flax-seed. He was satisfied, he said, that if the farmer who grew flax fed his cattle with the cooked seed, he would find it one of the cheapest and most effective feeding agents procurable, and that landowners would not object to the cultivation of flax on this system. It was the sale of seed, as well as straw, which was objected to. The evidence of two flax-growers, of twenty and forty years' experience respectively, was to the same effect. As to the manufacturers, they held out at this

meeting every temptation to the growth of flax, which the *prospect* of high prices could afford. Mr. Wilkinson, who was in the chair, insisted on the increasing demand in England, and declared that even before the war commenced, it had become evident to him and most other flax-spinners, that the price of their raw material, particularly of the kind which might be grown in England, would range high. He did not think the price had been much increased by the war; it would be high even if peace were declared to-morrow; the demand would continue such that prices would be kept remunerative, and it would be the interest of every farmer to grow as much flax as he could. There were difficulties, he admitted, from the want of knowledge among the farmers, as to the best mode of cultivation, and the want of a market for the crop in the straw. To remove these difficulties, various plans were, he said, in contemplation; and he should not be surprised to see manufacturers in a position to pay a really good price for the straw. Of course, the nearer the straw was to the market the greater the price it would command; but he was of opinion that the straw would be found to sell at a good price, even if carried fifty or sixty miles. At that distance from Leeds, he believed straw would be worth £4 to £5 per ton, upon the spot. The climate of England, and Ireland too, he considered more favourable to the growth of flax than that of Russia. The flax of Russia was the weakest in the world—that of England the strongest. The flax of England was worth 60 or 70 per cent. more than that of Russia; while the grain of Russia was worth nearly as much as that of England.

This is all very encouraging; but it is evident that the spinners are firing guns of distress, in anticipation of a short supply; and it may be that when the farmers have embarked largely in the flax culture, the bright side of the picture may be reversed; they may then find that the market is glutted, and that the spinners are acting upon the commercial principle of buying where they can buy at the lowest rate. When engaged in some inquiries on the subject of flax a year or two ago, we found £2 10s. a ton talked of as the average price for flax in the straw; and the £4 and £5 a ton, now *impossible*, may be found in practice to melt down to £2 10s. again. If, therefore, the manufacturers wish to promote the cultivation of flax at home, they must give hostages to the farmers, by coming forward with the capital to establish reterries, and thus open a market for the flax-straw at the farmers' own doors—that is, within such a distance as that which he carries his other produce to market. Farmers will have no faith in reterries fifty or sixty miles off. On the other hand, the manufacturers will not set up establishments for the preparation

of the fibre, except with a reasonable prospect that they may depend upon a supply of straw. The districts in which they are most likely to be successfully established are those parts of Great Britain and Ireland in which the linen trade flourished under its old phase, when the fibre was prepared, and even spun and woven, by the grower, but in which the cultivation has ceased, or at any rate diminished, since the application of machinery to the spinning and weaving of flax as well as cotton. In such districts the farmers and the labourers are not wholly strangers to the flax culture, and the peculiar manipulation which it requires; and there it will again take root and flourish under the new system, whenever a market shall be opened for the flax crop as soon as it is pulled. We know of landowners possessing extensive estates in such districts, who are prepared to give every encouragement by providing sites for reterries on moderate terms, to be conducted either on Schenck's system, or that of Watts or Buchanan, leaving the choice to the manufacturers themselves, and who will also recommend to their tenantry the revival of the culture. All they ask is that the flax spinners, who may be reasonably supposed to abound more in money than either farmers or landowners, shall give pledges of the sincerity of their belief in remunerating prices, by embarking their own capital in the establishments necessary to effect that division of labour, the want of which is admitted on all hands to be one great obstacle to the home growth of flax.

In those districts where the flax culture has yet to be introduced for the first time, it will be necessary for those who desire to become less dependent on the foreign supply of raw material, to teach the farmers the cultivation. This might be done in the way practised by Mr. Marshall, when he established a retery on Schenck's system at Patrington, by hiring land of the farmer ready prepared for sowing, the manufacturer taking upon himself the processes of sowing, weeding, and harvesting.

The flax spinners must remember that so long as the present high price of wheat prevails, or even a lower price than the present, but high compared with that to which farmers have for some years been accustomed, there will be little inducement to quit the beaten track for the purpose of raising a crop, to the management of which they are strangers. They must be tempted into it by liberal offers, and they must be convinced that the flax spinners are in earnest, by their coming forward to provide local establishment, for the preparation of the fibre.

It has been well observed, that the real difficulty in the culture of flax lies in the question, *who is to begin?* The farmers do not grow it, because they have no market for it in the straw; and there are no establishments formed for preparing the fibre, because the farmers do not grow flax. The manufacturers are now the most interested in an extension of the supply of their raw material, and they are clearly the parties who should begin by coming forward to establish reterries wherever the farmers are willing to grow the flax.

THE BATH AND WEST OF ENGLAND AGRICULTURAL SOCIETY.

MEETING AT BATH.

"I well recollect attending, four years ago, what I considered will in all probability be the last meeting of this society—when it was waning to its least possible furrow; when the animals exhibited had dwindled down to about thirty-four; when your morning meeting was attended by some thirty persons, and your table graced by not more than sixteen or eighteen." So said Mr. Miles, the president for the year of the West of England Society, on Thursday, June 8, when comparing what this association has been, with what it is. Signal, indeed, has been the success which has attended its resuscitation. Year after year now, for the three at least during which the experiment has been tried, have the gatherings continued to increase in importance and attraction. If Taunton was a good opening, Plymouth gave yet more promise; while

Bath furnishes a result still further in the ascendant. It is long since the ancient city has known such a week: few can recollect it so thoroughly filled, and none, we believe, the time when its visitors came to pay their tribute to a better object.

Extending the influence of its action over a district almost entirely devoted to the pursuits of agriculture, the wonder is not so much that such a Society as this should prosper, but rather that it should ever have been so close on the verge of extinction. It is only, however, within a comparatively recent period that we have been taught how to ensure something like becoming support to an agricultural gathering. It is not, either, the management alone who have gradually shown themselves more alive to the manner in which this is to be accomplished. Those they have had to

address have proportionately increased in their appreciation of the aim attempted, and thus more readily and generally afforded those two grand items in the arrangements—their assistance and their presence. It is not too much to say that the Royal Agricultural Society of England led the way here; and that, however earnestly other similar institutions may have previously struggled on, they had little to boast of until they had such an example to imitate.

"The Bath and West of England" is essentially one of these. Without, as we think, being likely in any way to encroach upon the sphere of the national society, it must be again recorded as proceeding almost entirely upon the same plan. Not only its chief features, but many of its leading authorities and members, are equally associated with the working machinery of the other. The president for the year, for example—Mr. Miles—is just elected, and very deservedly, to the same distinguished position in the Agricultural Society of England. Many other gentlemen, too, give their services in the Council of either; while—to their credit must it be spoken—the successful exhibitors of the West of England Shows are, not uncommonly, successful exhibitors all the world over.

Dating, then, the career of the West Country Society from the time of its judicious reconstruction, we find that it has only had one grand impediment or opposition to contend against. Everything but the weather was most encouraging. This, on the other hand, had been indeed a damper. The drooping, tearful welcome at Taunton smiled not auspiciously on the opening day; the dragged finery and washed-out smartness of Plymouth came equally out of place with what had been intended. It remained but with the parent city of the society to make the triumph complete. It wanted but fine weather to ensure the presence of countless visitors; and when the fine weather came, the visitors, truly enough, came with it. Dependent only on this proviso, the West will always have its Galawee, and Bath acted quite up to its pristine fame for taste and gaiety. A little more noisy, it may be, in its demonstration than its every-day denizens might be accustomed to; but no less earnest, if not quite so staid, in the fashion of its pleasure-taking. Hearty welcomes, inscribed in all varieties of colour, and in verse sufficiently curious to show that many of our Bath friends, like Audrey, might "thank the gods they were not made poetical"—Triumphal arches, bearing in their evergreen embrace highly-ornamented scrolls of toast and sentiment, wishing prosperity to everybody—all this, with the sun to light it up by day, and a general illumination to give it further glory by night, told the stranger of

the victory achieved in the cause of "AGRICULTURE, ARTS, MANUFACTURES, AND COMMERCE."

It is with the first of these that we have chiefly to deal; and cheerful is our testimony as to what the West of England Society is now doing for agriculture. The show in every respect was still further in advance. There were larger entries, both in the implement and stock departments, than at either of the previous meetings. This increase was the more especially remarkable in the former of these divisions, the exhibitors again coming from distances far beyond the limits of the West—as, for instance, Hornsby from Grantham, Howard from Bedford, Busby from Yorkshire, Barrett, Exall, and Andrews from Reading, Dean and Dray from London, Coleman from Chelmsford, Tuxford from Boston, Turner from Ipswich, Smith and Ashby from Stamford, Crosskill from Beverley, Burgess and Key from London, and Clayton and Shuttleworth from Lincoln. With these celebrated firms came many of more local repute; and few, we are glad to say, in any way disgraced by the strong competition to which they were opposed. Here, indeed, the trial was often quite as severe as it can be in the meetings of the Royal Society of England; the manufacturers we have named taking equal care, of course, to enter none but implements they could rely on.

We heard of nothing particularly novel, the chief interest appearing to centre in the trial of the portable thrashing machines, in which the Messrs. Hornsby obtained an award that should be equally satisfactory to themselves and their customers. We are assured the means for testing the real worth of these machines was never before so complete or thoroughly searching. Mr. Amos, the consulting engineer, referred to this at the dinner, and bore testimony to the admirable manner in which the prize machine bore the scrutiny to which he had subjected it. For excellence of workmanship, consumption of fuel, and general adaptation to its purpose, it would seem to be equally commendable. The reaping machine, on the other hand, now so commonly an attraction in the trial of implements, was but poorly represented. Crosskill's "Bell," though expected, did not appear; while neither of those at work was, we believe, admitted by their exhibitors to be yet perfected in its construction. Sharing the public attention with many longer-established favourites, we had the rival liquid manure drills of Messrs. Chandler and Spooner, about the merits of which there has of late been so much discussion, and that both look now like obtaining that best of all decisions—a fair and general trial.

It is, however, in the cattle-show that we come

to recognize more easily the character of a West of England meeting; and it is here, in this character, that the Society so greatly excels. We are almost afraid, indeed, that it includes in the ranks of its exhibitors names, if anything, a little too renowned for the common strength of a comparatively local display. This was rather more apparent than usual at the present meeting. In the Devon classes, for instance, Somerset last year made a very good stand, even so far down as Plymouth. They now make a much worse fight of it nearer home; and, as will be seen, it is George Turner first and George Turner second—with here and there just a seasoning of a Quartley or a Davy—over and over again. Certainly these gentlemen won their honours fairly enough; for seldom has there been a more excellent entry of this kind of cattle. They were deservedly the great attraction of the yard; and one bull, the two-year-old prize of Mr. Turner's, was a perfect specimen of the pure thorough-bred Devon. There were others in both bull and cow classes well worthy to stand comparison with him—the weakest point in a very strong show being the pairs of yearling heifers. At Plymouth, on the other hand, they were amongst the best.

What Mr. Turner is with the Devons, Mr. Stratton is with the Shorthorns—first and first, not only at the West of England gatherings, but at most of the great meetings in the kingdom. Our only surprise is that in the large sums we hear now so frequently given for this fashionable breed of cattle, not to find this gentleman's name. It must be surely his own fault that it is not so. It will be remarked that he again carried everything before him at Bath. His first and second prize cows, standing side by side, must surely take “a deal of beating” in any company. For form, quality, and colour, they were pronounced alike perfection; and it was amusing to watch those who could scarcely appreciate the neat but *petite* proportions of the Devon, turn to the more fully-developed beauties of these really beautiful animals. Mr. Stratton's pair of yearling heifers were equally well matched, and as well prepared to stand the test of those “points” by which this breed is judged. We have seen better bulls; but taken generally, the Bath show of shorthorns, like the Devons, was a fine treat to the breeder, whichever way his prejudices might lean, or his early taste have been directed.

The few Herefords sent said little for the sort, and we should be loath to judge the breed by those we saw here. We do not profess to understand why this variety of beast should not be better represented.

We may pass over the horse classes with as little

comment, and that little hardly more favourable. The first prize in cart-stallions was a very moderate-looking horse; and of the two we certainly preferred the Suffolk, which took the second, to him. Mr. Bailey's brood mare was far better—in fact, the pick of what there was, we had here. The premium for the thorough-bred stallions, “suited for country purposes,” brought just one entry! And to this one the prize was awarded—a pretty little, half-Arab, park hack looking thing, that must have wofully puzzled the judges when they distinguished him on account of his fitness for “country purposes.” In a West of England meeting, we should much like to have seen a class of Exmoor ponies. They would have been just in place at such a show. There was one, very clever and very handsome; and judging by him, we should have had more of the sort.

Of sheep, perhaps the best, as a lot, were the Hampshire Downs—the worst certainly the South-downs. We seldom saw a more ragged lot than the latter; and great indeed must have been the joy of the winners over the forlorn hopes they sent in. The Dorsets, as is usual at these meetings, were generally good, though not up to the excellence of Plymouth. The long-wools, Leicesters, and Cotswolds, on the contrary, ranged from good and bad to indifferent. There appeared moreover to be considerable difficulty in classing them, and some of the best (belonging to Lord de Mawley) were excluded by mistake from where they should have been, and specially commended afterwards. What is a long-wooled sheep which is “not qualified to compete as a Leicester or a Cotswold?” Is he a cross between the two? Both the management and the public seemed somewhat puzzled over the distinction.

Berkshire for large, Leicester for a medium, and Essex for small, make up a very good show of pigs—the improved Essex coming in great numbers from the county of Devon, where the leading agriculturists are more and more taking to the sort. The only exception would seem to be the Rev. Mr. James, who, in a larger class, carried off a prize for a boar of “the old Lancashire” breed—certainly the ugliest and most unpromising-looking pig we ever remember to have seen.

We do not know whether we are called on to notice “the Grand Poultry Show in connection with the Bath and West of England Agricultural Society, but with a separate entrance and subscription.” If we are, it can only be to express, or rather, repeat our dissent to the manner in which it is conducted. Since what is termed “the poultry mania” first broke out, we have visited every agricultural meeting of importance in England and Ireland, and we have but to say that the West of England is the

only one "with a separate entrance and subscription." If the breeding of poultry is a matter of importance to the farmer—and we believe when treated by the rules of common-sense that it is—by all means let him have every advantage of progressing in this direction. Endeavour more and more to associate it with his other pursuits, instead of dividing it from him with separate entrances and subscriptions. At Plymouth, hundreds who saw the cattle never saw the poultry; at Bath, thousands who paid to the poultry never did for the cattle. The poultry-show becomes accordingly a more encouraging thing than ever. The mania at its highest never drew such crowds as it did at Bath. And this is the way it was made to work. The poultry-show, after all, was but the anti-room to the fancy-fair; and the fancy-fair, with its laudable object and crowds of "beauty and fashion," was, there is no denying it, the centre of all attraction. To get to the fair you must first pay to the poultry-show; and we saw hundreds on hundreds who walked straight through from one door to the other, without the slightest heed of the challenge offered them by Chanticleer. Even in the terrible crush of Wednesday, few would lose their turn to look at him. As at present conducted we have no doubt the poultry show is a most successful speculation; but at the same time we can in no way recognise it as a legitimate way of aiding the object of an agricultural association. It is our desire to give every credit to so useful and so praiseworthy a Society as the West of England; at the same time, we shall have no hesitation in pointing out a weak place; and this is one of them.

The dinner, which took place on the Thursday, in the Assembly Rooms, though fairly attended, did not reach the number expected. Few men know better how to conduct the business of a meeting of this character than Mr. Miles; and despite a terribly long-winded orator at starting, who appeared to think it his duty to talk about everything, the toast-list, under so able a president, went well through to the end. We can but select from those addresses more pertinent to the occasion, or more especially devoted to the columns of an Agricultural Journal. Amongst them we may call especial attention to some very practical and valuable remarks from Mr. Whitaker, in returning thanks for himself and the other judges of stock. We would wish to impress them upon all such of our readers as may have to act in a similar capacity. The judges here, however painful it might be, really did their duty, as many a pen of artfully shorn sheep, with the condemned note above them, fully testified. It is speeches like these, and practical suggestions from such men as Mr. Whitaker, that give a real interest and importance to these

after-dinner debates. We could wish to have seen him more generally reported by our contemporaries.

JUDGES.

DEVONS AND LONG-WOOLLED SHEEP.—Mr. William Babb, of Ashbrittle; Mr. Samuel Anstey, of Mianabilly Farm, Fowey, Cornwall; Mr. John Passmore, South Molton.

SHORTHORNS, HEREFORDS, and HORSES.—Mr. Thomas Wills, of Hampnett, near Northleach; Mr. Samuel Bloxidge, of Warwick; Mr. George Pope, of Kingston Deverill, Warminster.

SHORT-WOOLLED SHEEP AND PIGS.—Mr. Rawleene, of Heale, Woodford, near Salisbury; Mr. J. Whitaker, of Bratton, near Westbury, Wilts; Mr. Edward Little, of Sheldon, near Chippenham.

LIST OF PRIZES.

CATTLE.

DEVONS.

For the best bull, above two and not exceeding four years old, £12, Mr. G. Turner, Barton, near Exeter; second prize, £5, Mr. T. Miller, of Castle Farm, Sherbourne.

For the best bull, not exceeding two years old, £12, Mr. George Turner, of Barton, near Exeter; second prize, £5, Mr. Jas. Quartly, of Molland, near South Molton.

For the best bull, not exceeding twelve months old, £5, Mr. James Quartly, of Molland, near South Molton; second prize, £3, Mr. John Tanner Davy, of Rose Ash, near South Molton.

For the best cow in calf, or in milk, £8, Mr. George Turner, Barton, near Exeter; second prize, £4, Mr. Samuel Farthing, Stowey-court, Bridgewater.

For the best heifer, in milk or in calf, £8, Mr. J. Quartly, of Molland, near South Molton; second prize, £4, Mr. George Turner, of Barton, near Exeter.

For the best pair of heifers, £5, Mr. James Hole, of Knowle House, Dunster; second prize, £3, Mr. William Hole, of Hanaford, near Barnstaple.

SHORTHORNS.

For the best bull, above two and not exceeding four years old, £12, Mr. William Fowle, Market Lavington; second prize, £5, Mr. C. H. Abbott, of Long Ashton, near Bristol.

For the best bull, not exceeding two years old, £12, Mr. R. Stratton, of Broad Hinton, near Swindon; second prize, £5, Mr. W. Hewer, of Sevenhampton, near Highworth.

For the best bull, not exceeding twelve months old, £5, Mr. R. Stratton, of Broad Hinton; second prize, £3, W. Miles, Esq., M.P., of Leigh Court.

For the best cow in calf, or in milk, £3, and second prize, £1, Mr. R. Stratton, of Broad Hinton.

For the best heifer, in milk or in calf, £3, and second prize, £1, Mr. R. Stratton.

For the best pair of heifers, not exceeding twelve months old, £5, Mr. R. Stratton; second prize, £3, Mr. G. Sainsbury, of the Priory, Corsham.

HEREFORDS, OR CATTLE OF ANY OTHER PURE BREED.

For the best bull, above two and not exceeding four years old, £12, Mr. John Feaver, of Wellow; second prize, £5, Mr. W. Melsom, of Norton Bavant, near Warminster.

For the best bull, not exceeding two years old, £12, Mr. Thomas Little, of Biddlestoke, near Chippenham.

For the best bull, not exceeding twelve months old, £5—no entry.

For the best cow in calf, or in milk, £3, Mr. F. Craddock, of Lyppat, near Radstock.

SHEEP.

LONG WOOLLED.

(Not qualified to compete as Leicester or Cotswold.)

For the best yearling ram, 5*l.*, and second ditto 3*l.*, Mr. Thomas Kingdon, of Netherex, near Bramford Speke.

For the best ram, not exceeding three years old, 5*l.*, Mr. John Radmore, of Thorverton; and second prize, 3*l.*, Mr. Thomas Potter, of Thorverton.

For the best pen of five ewes, of the same flock, 5*l.*, Mr. Thos. Potter, of Thorverton.

For the best pen of five two-teeth ewes, 5*l.*, James Wentworth Buller, Esq., of the Downs, near Crediton.

LEICESTER AND COTSWOLD.

For the best yearling ram of the Leicestershire breed, 5*l.*, James Wenthouse Buller, Esq., of the Downs, near Crediton; second prize, 3*l.*, Mr. Thomas Potter, of Thorverton.

For the best yearling ram of the Cotswold breed, 5*l.*, Mr. Edmund Ruck, of Castle Hill, near Cricklade; second prize, 3*l.*, Lord de Mauley, Hatherop Castle, near Fairford, Gloucestershire.

SOUTH DOWNS.

For the best yearling ram, 5*l.*, His Grace the Duke of Beaufort; second prize, 3*l.*, Mr. John Moore, of Littlecot Farm, Pewsey.

For the best ram, not exceeding three years old, 5*l.*, Mr. John Moore, of Littlecot Farm, Pewsey; second prize, 3*l.*, His Grace the Duke of Beaufort.

For the best pen of five ewes, of the same flock, 5*l.*, His Grace the Duke of Beaufort, of Badminton; second prize, 3*l.*, Richard King Meade King, Esq., of Walford House, near Taunton.

For the best pen of five two-teeth ewes, 5*l.*, His Grace the Duke of Beaufort.

DORSETS.

For the best yearling ram, 5*l.*, Mr. Thomas Danger, of Huntstile, near Bridgwater; second prize, 3*l.*, Mr. George Coombe, of Creech St. Michael, near Taunton.

For the best ram, not exceeding three years old, 5*l.*, Mr. Thomas Danger, of Huntstile, near Bridgwater; second prize, 3*l.*, Mr. George Coombe, of Creech St. Michael, near Taunton.

For the best pen of five ewes, of the same flock, 5*l.*, Mr. George Coombe, of Creech St. Michael, near Taunton; second prize, 3*l.*, Mr. Thomas Danger, of Huntstile, near Bridgwater.

For the best pen of five two-teeth ewes, 5*l.*, Mr. George Coombe, of Creech St. Michael, near Taunton; second prize, 3*l.*, Mr. Thomas Danger, of Huntstile, near Bridgwater.

MOUNTAIN SHEEP.

For the best ram, not exceeding three years old, £4, and second prize £2, Mr. John Nurcombe, of Hopecott, near Minehead.

For the best pen of five ewes, of any age, £4, and second prize £2, Mr. James Quartly, of Molland House, Southmolton.

PIGS.

LARGE BREED.

For the best boar, not exceeding two years old, £4, Mr. William Hewer, of Sevenhampton, near Highworth; second prize, £2, the Rev. Charles Thomas James, of Ermington, near Ivybridge.

For the best breeding sow, £4, the Rev. Charles Thomas James, of Ermington, near Ivybridge; second prize, £2, Mr. William James Sadler, of Bentham Porton, near Swindon.

For the best pen of three breeding sows, £2, and second prize £1, Mr. Wm. Hewer, of Sevenhampton, near Highworth.

SMALL BREED.

For the best boar, not exceeding two years old, £1, Mr. John Partridge, of Nymett Rowland, near Crediton; second prize, £2, Mr. William Northey, of Lake-farm, Lifton.

For the best breeding sow, £4, and second prize, £2, Mr. William Northey, of Lake-farm, near Lifton, Devon.

For the best pen of three breeding sows, not exceeding eight months old, £2, and second prize, £1, his Grace the Duke of Beaufort.

HORSES.

For the best stallion, for agricultural purposes, £15, Mr. E. Jefferys, of Hill Deverill, near Warminster; second prize, £5, Mr. W. Melsom, of Norton Bavant, near Warminster.

For the best mare in foal, or with a foal by her side, £10, Mr. H. Bailey, of Woollaston Farm, Berkeley; second prize, £5, Mr. W. Powle, of Market Lavington, near Devizes.

For the best two years old colt or filly, for agricultural purposes, £10, Mr. Robert Hart, of Mark, near Bridgwater.

For the best thorough-bred stallion, suited for country purposes, £15, H. D. Seymour, Esq., M.P.

COMMENDED AND HIGHLY COMMENDED.

* Those thus marked are highly commended.

DEVONS.

Mr. Samuel Farthing, Stowey Court, Bridgwater, for a 3 years 1 month and two weeks old Devon bull.

James Wentworth Buller, Esq., of the Downs, near Crediton, for a pair of Devon heifers, 1 year and 1 month, and 1 year old.

Mr. William Mullings Gibbs, Bishop Lydeard, for a 3 years and 6 months old Devon cow.

*Mr. Thomas Webber, Halberton, near Tiverton, for a 7 years and 3 months old Devon cow.

James Wentworth Buller, Esq., of the Downs, near Crediton, for a 2 years and 4 months old Devon bull.

Mr. James Davy, Flitton, near North Molton, a 1 year and 11 months old Devon bull.

SHORT-HORNS.

Mr. Sainsbury, for a 1 year and 6 months old heifer.

LONG-WOOLLED SHEEP.

*Mr. George Radmore, of Thorverton, for 1 year and 4 months old long-woolled ram. *Mr. Thomas Webber, of Halberton, near Tiverton, for a 1 year and 4 months old long-woolled ram. Mr. George Radmore's yearling ram.

*Mr. John Bodley, of Stockley Pomeroy, near Crediton, for a 1 year and 2 months old long-woolled ram. *Mr. Thomas Potter, of Thorverton, for a 2 years and 3 months old long-woolled ram.

*Mr. Edmund Ruck, of Castle-hill, near Cricklade, a pen of long-woolled ewes, 1 year and 3 months old.

LEICESTER AND COTSWOLD SHEEP.

Mr. George Radmore, of Court Hayes, near Thorverton, a 1 year and 4 months old Leicester ram.

*Mr. Edmund Ruck, Castle-hill, near Cricklade, and Lord de Mauley, for yearling Cotswold rams.

EXTRA STOCK.

Mr. E. Jaques, Rushmead-farm, Monckton Farley, Bradford, a shorthorn cow, 4 years and 3 months old.

Mr. Jeremiah Linklater, Southcot-place, Bath, for a Shetland stallion, 3 years old.

Mr. H. St. John Maule, Newton St. Loe, for a Shetland mare.

Joseph Neeld, Esq., M.P., Grittleton-house, Chippenham, for a 7 year and 3 months old Suffolk stallion.

JUDGES OF IMPLEMENTS.

Mr. I. Nalder, of Alvescote, near Lechlade; Mr. Thomas Scott, of Broom Close, Ripon; Mr. Mark Farrant, of Growing, Collumpton; Mr. T. P. Outhwaite, of Bainesse, Catterick.

IMPLEMENT PRIZES.

For the best plough for deep ploughing, £3—Mr. John Eddy, Kennford, Exeter.

For the best plough for general purposes, £3—Howard, Bedford.

For the best paring plough to be worked by two horses, £2—Arthur Silcock, Chippenham.

For the best subsoil plough, to be worked by not exceeding three horses, £3—Carson, Warminster.

For the best turn wrest plough, £2—Eddy, Kennford, Exeter.

For the best heavy harrow, £3—Prize divided between Cambridge, Bristol, and Howards, Bedford.

For the best light harrow, £2—Cambridge, Bristol.

For the best cultivator, grubber, and scarifier wide), £2—Charles Hart, Wantage, Berks.

For the best ditto (narrow), to be worked by two horses, £2—Coleman, Chelmsford.

For the best roller, £2—Wightman and Denning, Chard.

For the best clod-crusher or clod presser, £2—Fowler and Fry, Bristol.

For the best corn drill, first prize, £5—Hornsby and Son, Spittlegate; second prize, £2—Fowler and Fry, Bristol.

For the best turnip and manure drill, first prize £5—Hornsby and Son; second prize £2—Holmes and Son, Norwich.

For the best and most economical small occupation seed and manure drill, for flat or ridge work, first prize £5—Bowhay, Modbury, Devon; second prize £2—Holmes, Norwich.

For the best horse hoe for green crops on the ridge, £2—Busby, Newton Bedale, Yorkshire.

For the best ditto on the flat, £2—Busby.

For the best machine for setting out turnips on the ridge or flat preparatory to singling, £5—Hackvale, Chipping Norton.

For the best haymaking machine, first prize £2—Smith and Ashby, Lincoln; second prize £1—Wightman and Denning.

For the best horse rake for hay or corn, £2—Howards, Bedford.

For the best portable steam-engine, not exceeding 4-horse power, £10—Hornsby and Son, Spittlegate.

For the best portable thrashing machine, with straw shaker, to be driven by steam, not exceeding 4-horse power, £5—Humphries, Pershore.

For the best portable threshing machine, with straw shaker, not requiring more than four horses, £5—Webber, Newton Abbot.

For the best straw shaker, £1—Brinsmead, St. Giles, near Torrington, Devon.

For the best portable threshing machine, not requiring more than two horses, £5—Cambridge, Bristol.

For the best clover seed drawer or sheller, £2—Holmes, Norwich.

For the best one-horse cart, for general purposes, £3—Busby, Newton Bedale.

For the best 2-horse waggon, £3—Milverton, Thorverton, near Collumpton.

For the best and most economical rick stand, £2—Cambridge, Bristol.

For the best chaff cutter, worked by horse or steam power, £5—Corney, Nantwich.

For the best chaff cutter, worked by hand £2—Corney, Nantwich.

For the best turnip cutter for sheep, £2—Marychurch and Son, Haverfordwest.

For the best corn and pulse bruiser, £2—Turner and Co., Ipswich. A special award of £1 to Barrett and Co., Reading.

For the best oil-cake crusher, suited to crush every description of cake, £2—Hornsby and Son, Spittlegate.

For the best churn, £1—Burgess and Key, London, Anthony's American churn.

For the best cheese-press, £1—Wightman and Denning, Chard.

For the best collection of draining tools, £2—Burgess and Key, London.

SPECIAL AWARDS.

To S. Rowsell, Buckland St. Mary, 20s. for an American horse rake.

To W. Pearce, Queen-street, London, 40s. for a vertical turnip cutter and root slicer.

To J. Bailey, Nynhead, Wellington, Somerset, 20s. for a turnip cart and cutter.

THE DINNER

Took place on Thursday evening, June 8, at the Assembly Rooms, where accommodation was provided for upwards of five hundred persons. W. Miles, Esq., M.P., presided, and was supported by the Right Hon. Lord Portman, the Lord Lieutenant, the High Sheriff, J. C. Somerville, Esq., the Ven. Archdeacon Gunning, the Mayor of Bath, W. Pinney, Esq., M.P., Capt. Scobell, M.P., W. H. P. G. Langton, Esq., M.P., W. F. Knatchbull, Esq., M.P., Major Pickwick, G. Norman, Esq., F. Popham, Esq., W. S. Wait, Esq., T. T. Knyfton, Esq., &c., &c.

At half-past four the President, who took the chair at four o'clock punctually, according to the announcement publicly given, proposed that, although only a portion of the company had arrived, those who were ready should commence their dinner, as many gentlemen were compelled to leave early in order to take the train.

The cloth having been cleared, the President rose and proposed the usual loyal and patriotic toasts.

The PRESIDENT then said: The next toast is the one, I may say, of the evening, namely, "The Bath and West of England Agricultural Society" (cheers). In returning thanks for the Army and Navy, my friend Capt. Scobell rather cut the wind out of my sails; but still I must speak a little on the subject which he alluded to, namely, the difference between this Society when its meetings were held in Bath alone, and now, when it has become ambulatory. I well recollect attending, four years ago, what I considered would, in all probability, be the last meeting of the Society, when it was waning to its least possible furrow, when the animals exhibited had dwindled down to about thirty-four, when your meeting was attended by about thirty persons, and when your table was graced by not more than sixteen or eighteen persons, including reporters. I think the Duke of Bedford and Mr. Billingsley, and other magnates of former days, would smile if they could see the present gathering, and if they had been in the Show Yard this day; for I cannot but conceive that, though we have possibly the *élite* here, yet we should have had more present if this dinner had been held in the immediate vicinity of the Show Yard, for, previous to leaving the Show Yard, I saw what was very pleasing to my eye, the honest farmer, with his wife and daughters, taking on the grass their dinners (laughter and cheers). From the remarks I have heard I am satisfied that the efforts of the Society are duly appreciated, and that it is becoming to be perfectly in consonance with

the originators of the society, and that it is becoming the centre from which improvement will emanate throughout the west of England. You will forgive me if, before alluding to the sheep and cattle, I refer to the number of implements, because, since I have been cursed, as I may say, in the Royal Agricultural Society, I have learned to feel the benefit which the production of a new implement does in the cultivation of the soil. I saw the implements first produced when the society met at Oxford; I have seen to-day the implements brought to your notice; and I feel that the improvement in fifteen or sixteen years has been productive of a reduction in the expense of these almost perfect instruments, as to show the judgment which induced the Royal Agricultural Society to adopt the motto, "Science and Practice." That motto has been so carried out by us that I think any man possessing capital, and wishing to obtain a good implement, might have gone to the field to-day and made a judicious and useful selection from the stalls of those who had attended there from Lincolnshire, Beds, Yorkshire, and other distant counties. We are much indebted to those manufacturers; and of the good which their inventions have produced, we have only to look at the improvement among our own local implement makers. And I have to record this one fact, that an instrument maker, whose attention was first called to ploughs when the Royal Agricultural Society met at Exeter, in two years carried away the society's first prize against the two most renowned implement makers who show at the Royal Agricultural Society; and this year, for the heavy plough, he has again carried away the first prize. There is also a reaping-machine, which, though it has not obtained a prize, has been much commended; but it is brought here for sale at the price of £11—(Hear, hear)—the cheapest hitherto produced being as high as £20 to £22—and I am informed it does its work well. The maker told me his mind was turned to it by seeing the difficulties which existed as to the pair of scissors which cut the corn; and he thought that the system brought out in America had failed, and the common scissors was not sufficiently applied. I saw two sheaves of rye which had been admirably cut; and I am told it did its work to the satisfaction of the judges of implements. Now, this is a fact; this is how the society is bringing home science to our own west country. What we want is, to show our implement makers and cultivators how they may improve the implements and the land; and then God bless those who do the best they can to help themselves (cheers). At the council, this morning, a gentleman addressed us on the subject of artificial manures; and when I state that the consumption of these artificial manures has become so large that it is considered that not less than £1,500,000 per annum is spent by the British farmer in these manures, it must be seen to be of the greatest moment that the British farmer may know that he should have a proper artificial manure, and that the manure is worth the money given for it. I am happy to say that old prejudices are wearing away, and that new light is springing up; but if you read the publications of the society, you will see that the farmers,

in purchasing these manures, have often been imposed upon. (Hear, hear.) But in this matter the Royal Agricultural Society has taken the lead; and not only the members, but any farmer may send a sample of the manure which they wish to apply, to have it tested. This is a great fact. It is unfair to say to a farmer, Do this, and do that, unless he knows that, when he pays his £6, £8, or £10 per ton, he has a legitimate article. If he gets a good article, of this I am sure, that he will find himself immensely benefited. I am happy to say that the Bath and West of England Society will take the subject into consideration; but you must not expect it to do too much, because we have not that funded property which I hope it will be eventually our lot to possess, so that we may be able to pay a man an annual salary for testing these manures. That will be the only mode to which you, as members of the society, can possibly resort, to enable you to tell whether, having paid say from £7 to £12 per ton for these manures, you have one which you can put with everything which will eventually become serviceable to your cultivation. I have now to say a few words on the animals which were shown, and I am very anxious to do this, because, though I may pass by many classes, still I shall have something to say on one, namely, the sheep. I hope I may be addressing disappointed competitors in this department, because it has been thought necessary that certain rules should be adopted, and that the shearing, not the clipping, should take place at a certain time. Now the judges thought it their duty, from their determination to carry out the rules of the society, to exclude many lots of sheep worthy of commendation, and probably worthy of premiums, because they were clipped, and not shorn. I merely mention this to show you that those whom you appointed endeavoured to do their duty. As to the implements, I am indeed proud to say that, however good we may have conceived the exhibition to have been at Taunton—however good we may have conceived the exhibition to have been at Plymouth, this exhibition in Bath exceeds them both—(loud cheers)—for I find that the number of implements shown at Taunton was 446, at Plymouth 464, those which you have inspected this day are in number no less than 749—(cheers)—showing that the efforts of the society are appreciated by the implement makers, and that much may be hoped from the trials which have been conducted under the auspices of a gentleman to whom we cannot be too much obliged, Mr. Amos (cheers). I am informed that in the trial of two rival steam-engines, of ten hours' duration, it was found that their merits were so equal that one consumed only two pounds of fuel more than the other, and that the excellence of working was so similar that the only mode which Mr. Amos could adopt for testing their excellence was by taking them to pieces, and awarding the premium to the best made engine (cheers). This showed that implements sold with the stamp and authority of being good; and you cannot do better than purchase such when thus assured of their excellence. In conclusion, I am happy to say that, through the incessant applications and persevering energy of my friend, Mr. Acland—(loud cheers)—and it is right, indeed, that

praise should be given where praise is due—(renewed cheering)—we see results in 1854 which we had no reason to anticipate in 1852 (cheers).

LORD PORTMAN gave, as the next toast, "The Health of the President." The toast was received with hearty, prolonged, and renewed cheering, taken up again and again from all parts of the room. When he found the opportunity, his lordship proceeded to say: I believe that if I did quite right I should sit down at once, for it is quite clear that no words are wanted from me beyond the magical words I have already uttered. But it would be scarcely right that I should not be allowed the opportunity of congratulating myself that I, who began life with my friend at Eton, who rode hunting with him in Lincolnshire, and worked a great many years with him in agricultural pursuits, should have the happiness of saying what a delight it is to see him in the chair, and received as he has been by every one in the room (cheers). In drinking his health you not only drink the health of the President of the Bath and West of England Agricultural Society, but of the President-elect of the Royal Agricultural Society of England (loud cheers). And if any one man in the kingdom believes there is the slightest jealousy, the slightest tinge of feeling other than that of the most harmonious concordance between the two societies—that which, I may venture to say (as he and I were originally promoters of the Royal Agricultural Society of England), is the child of this society, and the parent; should such an idea be entertained, the error of it is shown in the fact that they have taken from us for their next year's president the man who has done us such good service, that we can scarcely express our thanks sufficiently for the way in which he has devoted his time and his talents to our good (loud cheers). So much for the man: now let me say one word for the society. I had the good fortune to be the expiring president of the old society; and I saw, on my appointment, that it required invigoration. This has been accomplished not by various chemical or instrumental experiments, but by that good sense which induced the men of the Bath and West of England Society to open their doors to the other agriculturists of the whole of this part of the country; so that by the assistance of our Devon friends we have a society which will do credit to all who assist in working it out; and I think we may reasonably contemplate that next year the numbers will be increased, for the many farmers who have seen our exhibition will go home and say, "Is it not a shame that I don't subscribe to this society?" (Cheers and laughter.) Am I to get the opportunity of seeing these instruments and the cattle brought from various districts to enable me to improve my own stock and pay nothing for it?" I shall say no more, but ask you to drink with enthusiasm the health of our excellent friend the President (loud cheers).

The CHAIRMAN, who was received with loud cheers, said: Gentlemen, I thank you for the kind manner in which you have received my health. It has always been my ambition to do as much as I can for the benefit of my fellow-creatures—(Hear, hear)—and when I recollect the position of this country thirty or forty years

since, and the position in which we now see the generality of the community, I cannot but think that much good has been done by this description of assembly, and that at any rate we have the advantage in the spread of morality and Christianity over antecedent times. As for the little I have done to promote the welfare of this and other societies, I have always found in Englishmen a sterling spark, which a very little will awaken. Show them an advantage, and they will embrace it. They ask but to be guided to the fount of knowledge, and more and more as they acquire experience they wish to drink still deeper. Let us then do the most we can to bring all classes to a superior civilization, and let us be assured we shall have an ample reward.

MR. SILLIFANT, of Combe, Devon, proposed the "Industrial Classes." Drunk with three times three, the cheers being led in gallant style by the Chairman.

MR. W. B. NAISH, in a brief speech, proposed "The Mayor and Citizens of Bath," a toast received with general enthusiasm, and responded to by the Mayor.

MR. KIDNER, of Taunton, proposed the "Health of the Exhibition Committee," coupling with it the name of Mr. J. H. Cotterell. (Cheers).

MR. COTTERELL returned thanks.

The PRESIDENT said, he was about to propose a toast which was not in the list, but one which if it were not given would occasion deep regret connected with their own exhibition; there had been a Poultry Show, and seeing that that had been the main attraction, he could not but propose the health of the gentleman who originated it. He therefore begged to propose "The Health of Mr. Jonathan Gray." (Cheers).

MR. GRAY returned thanks, and remarked that the subject of poultry was a most important one to the country, for it was a fact that within the last six or seven years the importation from France had amounted to nearly a million a year. The reduction, since the exhibitions of poultry had been brought about, had been nearly one half. The amount of success which had attended the present show he was almost afraid to state. He believed that between 3,000 and 4,000 visited it on Wednesday, and on Thursday not less than 12,000. (Cheers). This unexpectedly large attendance, he hoped, would be taken as an apology for any want of accommodation which might at first have been experienced.

MR. T. D. ACLAND was received with reiterated cheering on rising to propose "The Judges and Stewards of the Yards." He said, before he proposed the toast with which he had been entrusted, he would congratulate the company, not on the attendance at the dinner, which he confessed somewhat surprised him, but on what they had seen and heard in the show-yard that day. As regarded their numbers at the dinner-table, he could only account for their being so small on the suggestion which had been already thrown out—that the wives and other attractions at the show had kept some of their friends in the yard, who would otherwise have been present on that occasion. They all knew the charm of

the chairman's name—not only in East Somerset, but all over England—too well to be aware it was from no diminution or want of intense cordiality towards the chairman as president of the Bath and West of England Society, or as William Miles, the friend of the farmers, that the room was not full (Hear, hear). The hon. gentleman then alluded to the change which had taken place in the plan of the society, in making its meetings moveable instead of confining them to Bath, and corrected an error into which Captain Scobell had fallen as to the title of the society having always been the same as at present, its original title having been the Bath Society, which was ultimately changed for that of the Bath and West of England Society. Mr. Acland then noticed the idea which prevailed in some quarters that this society was intended as a rival to the Royal Agricultural Society; and showed that, omitting Middlesex and Yorkshire, there was only one other county in England which had more members of the Royal Agricultural Society than the two counties of Devon and Somerset, and that county was Norfolk—the number of members being, in Middlesex 266, Yorkshire 229, Norfolk 256, Devon 208, and Somerset 187. In conclusion, Mr. Acland bore testimony to the essential services rendered to the cause of agriculture and the society by the judges and stewards of the yards of the show, whose healths he called upon the company to drink.

Mr. AMOS and Mr. PITMAN having briefly responded, Mr. J. WHITAKER was called on, and in the course of his remarks, in thanking the meeting on behalf of himself and his colleagues, the other judges of stock, said: that their task as judges had been in some respects a painful one, inasmuch as they had been obliged to disqualify so many of the Down ewes for not being closely shorn, according to the rules of the society; but that in doing this, they felt they had only done their duty; that they had much pleasure in saying that the whole of the class of horned sheep presented a marked contrast, in being most fairly and closely shorn; that they begged leave to suggest to the society the propriety of removing the restriction as to the time of shearing; that in their opinion the certificates given by exhibitors should contain as few restrictions as possible, as, however stringent they are, the unscrupulous will disregard them, and thus

place judges in the painful dilemma of either shrinking from their duty, or impugning the integrity of exhibitors. They consider, therefore, that the question as to the time of shearing should be left to the discrimination of the judges; that the judges also recommend the removal of the restriction as to the age at which rams are shorn, as in restricting them to three years many superior sheep are excluded from competition, besides that it is open to the objections before stated; they also recommend the society to extend their premiums to the Cotswold and Leicester classes, to ewes of the two ages, and to old rams, giving the same premiums in these classes as are given for long-woolled sheep, Down, and horned sheep classes. They noticed some very superior rams and ewes, belonging to Lord de Mauley, excluded from competition, and placed as extra stock in consequence of their being shown as Cotswolds, and thus excluded from the long-woolled class.

Mr. LUSH proposed "The Local Committee," coupling with the toast the name of Dr. Falconer, who appropriately responded.

Mr. BELFIELD briefly gave "The Health of the Secretary, Mr. Henry St. John Maule."

Mr. MAULE, in rising to acknowledge the toast, was received with cordial cheers. He expressed the happiness he felt in finding that, in his own city, there were so many gentlemen from neighbouring counties who were kind enough to give him so warm a greeting. It was gratifying in this sense, that it assured him that he had done his duty. He had received in all the counties connected with the Society the most hearty welcome, and everywhere a most hospitable reception. In carrying out the arrangements for the present show, he had received the greatest assistance from their director, Mr. Widdicombe, and from the local secretary, Mr. J. D. Bush, who had shown the greatest activity in working out the necessary details.

Mr. ACLAND, having briefly proposed the health of Mr. Fry, the builder of the sheds, &c.,

The CHAIRMAN gave "The Health of the Earl Fortescue, the President elect," and then vacated the chair.

The company broke up about eight o'clock.

ON THE CULTURE OF THE TURNIP.

The turnip crop is the foundation upon which good husbandry is built. Without this crop, or those analogous to it, modern husbandry would stagnate, and all the various and almost innumerable appliances that have been brought to bear upon the improvement of this crop would be lost, to the incalculable injury of the community. We make this not very trite remark for the purpose of showing that so far as the great bulk of the farmers of this country are concerned, this loss is to a very great extent annually experienced. Farmers cannot—will not—be persuaded to make

use of the adventitious aids which are so essential in promoting the speedy and healthy development of the young turnip plant. We are well aware, painfully aware, that great imposition is practised in the manufacture and sale of artificial manures; but that fact does not invalidate the value or importance of artificial manures of genuine character. The great expense and trouble are urged against the adoption of these manures: this is untenable, if not futile. Many such useful mixtures and truly effectual applications may be drilled in with the seed at a trifling

cost. Who would object to a really efficacious preservative of his turnip crop for the cost of a few shillings per acre? Many very good and cheap composts may be made on every farm without much trouble or expense. I have for many years used a homely but an excellently valuable compost, made from collections on my farm—it consists of night-soil, pig manure, poultry and pigeon's dung, dead animals (decomposed), cess-pool or kitchen drainings, and the like; these collections are laid up together in a heap for an indefinite time, and dried for drilling as required. This compost, mixed with ashes made from sods, twitch, &c., in the proportion of $\frac{1}{2}$ bushels of compost to 30 or 40 of ashes, forms a very effective dressing at a cost of about 12s. per acre, including every expense, *i.e.*, sifting ashes, drying composts, and carrying to the drill. And, with the addition of about 1 cwt. of superphosphate of lime or $\frac{1}{2}$ cwt. of Peruvian guano, forms the most satisfactory and effective dressing to put in with the seed that my experience has led me to adopt, and I have great pleasure in recommending it to those of my brethren who object to expense and are afraid of imposition. To those farmers who habitually use the more popular artificial aids, I need not say a word: their experience has borne ample testimony to their usefulness. I only beg them to withstand most determinately every temptation to do without such aids; I unhesitatingly assert that no turnip crop ought to be drilled in without artificial aid of some kind—it is milk to the babe; the better the kind, in accordance with its design, the more speedy will be the growth and development of the turnip plant.

SOIL AND MANAGEMENT.—Any soil of open character will do for turnips, if properly managed; the richer and more loamy the better. We are tired of describing how land should be prepared. Everyone knows that to prepare land for the turnip crop is to bring it into as fine a tilth as it is possible to bring it, and this can only be done by the various ploughings, harrowings, scarifyings, rollings, pickings, &c., &c., which the farmer's judgment will dictate to him, and this should be accomplished early in the season; far better for land to await the proper season for sowing, than not to be in readiness when the season arrives. When all is ready and the weather suitable, then let every appliance of the farm be put in requisition and every department of the work go on simultaneously, if possible; so that the manure is laid on, ploughed in, rolled down, and the seed and composts drilled all within the hour; at all events, let this be the aim, if it cannot be at all times attainable.

On all rich loams, clean and beautifully cultivated, it may be desirable to put the Swedish crop in "on the flat;" but on the far greater majority of soils the ridge system had better be adopted. I believe

the greatest weight of crop has been found to grow from the sowing on the flat on particular soils—fine loams and the like; but on all those of inferior character the ridge system upon the average of years has been found to excel. It has also many advantages: it may be sown earlier in the season, as the ridge-hoe and harrow can continue the fallowing throughout the summer, the manure is more readily covered in, the hand hoeing and singling are more easily accomplished, and the advantages derived from the artificial aids are greater, as the deposit may be proportionately larger than on the flat, &c. The ridges are usually at 25 to 27 inch intervals. The common varieties of turnip should on all good soils be put in on the flat, and drilled in at such intervals between the rows as will admit of their being set out at equal distances or in squares throughout the field, according to the variety sown, and the judgment of the farmer may determine as to the space the variety may require to perfect the bulbs; the larger the variety sown, the greater space will it require on setting out. My usual practice is to drill at 12 inches apart, and set out with an 11-inch hoe. The workmen cannot always strike to an inch, so that the average would be about equal to 12 inches square. On poor soils ridging for common turnips is often practised with great success. In ridge hoeing, the horse-hoe invariably precedes the hand hoe; both, however, should be in very early requisition, if the season is a growing one; and, indeed, if it is an unpromising one, and the fly makes its appearance, I know of no remedy equal to continual hoeing, taking care not to disturb the plants unnecessarily and expose them to drought. In flat hoeing, it is usual to hoe the space between the drills in the first hoeing, and to set the plants out in the second hoeing; no specific directions can be given as to the number of hoeings—that must entirely depend upon circumstances: no fear need arise of doing too much, except in a really dry season.

My object in reiterating an idea or two upon turnip culture is to call general attention to the many aids put forth to secure the turnip crop. I do earnestly trust it will not be in vain. One feels almost ashamed to urge farmers of the present day to pay more heed to such things. I offer my apology to every intelligent farmer for calling his attention to them: I can only say that I have more than once suffered from such inattention, and for the future am resolved to use the best aids I can depend upon as suited to the soil I cultivate. Adopt only such manures as are satisfactorily established, except on a small scale. The young plant cannot grow in guano or manures of corresponding strength: they require large admixtures or dilutions of ashes, virgin soil, or liquid manures of moderate strength.

P. F.

AGRICULTURAL BIOGRAPHY.

LIVING AUTHORS, OR SUPPOSED TO BE LIVING.

(Continued from page 526, vol. xl.)

CCCCXLVIII.—BLAIKIE, 1819.

Francis Blaikie, a native of Tweedside, was first noticed as a gardener in the Royal Gardens at Kew, whence he was appointed to be manager of the farming and horticultural establishments of the Earl of Chesterfield, at Bretbey Park, in South Derbyshire. At the abandonment of that establishment by the death of the Earl, Mr. Blaikie became land-steward to Mr. Coke of Holkham, where he found scope for enterprise, and was largely employed in the improvements of that property. He wrote "An essay on the conversion of arable land into pasture, by transplanting turf; also the method of preserving Swedish turnips by placing; and a descriptive account of Norfolk ploughing;" London, 1819, 12mo. "An essay on the management of farm-yard manure, and formation of compost; with a plate, and description of the inverted horsehoe, invented by the author;" London, 1819, 12mo. "A treatise on the management of hedgerows and hedgerow timber; pointing out the injury done to the timber trees by close pruning, and describes the pruning by shortening luxuriant branches;" London, 1820, 12mo. "A treatise on mildew, and the cultivation of wheat; including hints on the use of lime, chalk, marl, clay, gypsum, &c.;" London, 1821, 12mo. "On smut in wheat;" London, 1822, 12mo. Mr. Blaikie's practical intelligence is distinguished by a very sound judgment and a reasonable observation. It is to be regretted that the author did not compose a systematic work of agricultural comprehension, which would have contained his extensive and varied knowledge, and relieved his mind of an accumulated burden. Essays, treatises, and pamphlets are with difficulty made known, and looked on as insignificant. For our own part, we regard such authors of enlightened practice as greatly advanced before chemical theorists and vague idealogues.

CCCCXLIX.—COOKE, 1819.

Layton Cooke, land and timber surveyor, has written "The grazier's manual; being tables showing the nett weight of cattle, calves, sheep, and swine, on new principles;" London, 1819, 12mo. A neat volume of most useful materials, and has passed into several editions.

CCCL.—BLAND, 1827.

William Bland, jun., has written "The princi-

ples of agriculture;" London, 1827, 8vo. The volume is in 10 chapters of 128 pages, and treats the processes of cultivation in a very concise and enlightened manner. The author holds to practice, and observes the results.

CCCL.—JOHNSON, 1830.

Cuthbert W. Johnson, Esq., F.R.S., barrister-at-law, has written "On the uses of salt for agricultural purposes;" 8vo., price 5s., London, 1820. "On the use of bones as a manure;" 8vo., London, 1836. "On the advantages of railways to agriculture;" London, 8vo., 1837, price 1s. 6d. "On liquid manures;" 1837, 8vo., London. "On fertilizers;" 8vo., London, 1839, price 8s. "On increasing the depth of soils;" 8vo., London, 1840. "On gypsum as a fertilizer;" 8vo., London, 1840. "On saltpetre and nitrate of soda as fertilizers;" 8vo., London, 1840. "The farmer's encyclopædia and dictionary of rural affairs;" 8vo., London, 1842. "The farmer's medical dictionary for the diseases of animals;" 12mo., London, 1845. "The English rural spelling book;" 12mo., London, 1846. "On guano as a manure;" 8vo., 1s. 6d. "On increasing the demand for agricultural labour;" 8vo., 1s. 6d. "On the cottages of agricultural labourers;" assisted by Edward Cresy, architect, 8vo., price 1s. 6d. "Agricultural chemistry, for young farmers;" 12mo., price 1s. "The cottage farmer's assistant in the cultivation of his land, and book of the household;" 12mo., price 1s. "Calendar for young farmers;" 12mo., price 1s., containing directions for every month of the year. "The modern dairyman and cowkeeper;" containing the cow, her breed and points, treatment, cleanliness, food, land, diseases, suckling, dairy, cow-house, milk and butter, cheese making, Cheshire, Stilton, &c., &c."

The works of Mr. C. Johnson contain a mass of very valuable intelligence that has been well selected by the author, and clearly set in order for the public use. The essays are short and pithy, containing what is necessary, without any useless adhesions to create bulk without adding knowledge. The larger works, "The farmer's dictionary" and "The dairyman," are not surpassed by any works on the subject of agriculture that have yet issued from the bubbling press of rural authorship. The information is most correct, well

arranged, and handsomely expressed; the authorities are quoted for each demonstration, and the author's opinion concludes. He seems most at home on the subject of manures, which is certainly the most inviting part of agricultural practice to the person who looks at the sources of its operation. The author much resembles Mr. Rham in steadily weighing the best practice with an innovating theory; he advances further in the path of chemistry, but his conclusions are not violent, or wholly void of foundation. He has the art of selecting the strong parts of any proposition, and of placing it in a comfortable position. He has read and thought to much purpose, and used well the power of discrimination. Not having been bred in the dogmas of agriculture, he has escaped its trammels; and not having run into the opposite extreme of scientific disengagement, his works form a medium of great value, and a source of important knowledge to the enlightened practitioner. This statement is the expression of a general opinion.

CCCCCLII.—Low, 1834.

David Low, Esq., is Professor of Agriculture in the University of Edinburgh: he has written "Elements of practical agriculture; 8vo., Edin., 1834. "The breeds of domestic animals of the British islands;" 2 vols., folio, London, 1842. "An inquiry into the nature of simple bodies of chemistry;" 8vo., London, 1844. "On landed property, and the economy of estates;" 8vo., London, 1844. "On the domesticated animals of the British islands; comprehending the natural and economical history of species and varieties—the description of the properties of external form, and observations on the principles and practice of breeding;" 8vo., London, 1845.

The first-mentioned work has reached the fifth edition, and will continue to be a standard book on the subject of general agriculture. The arrangement is clear and definite, and the different objects are allotted the due extent of consideration. In the division of the subject, this work exceeds any predecessor. The work on landed property conveys much valuable information, which is applicable to most cases of occurrence. There may be a want in not treating the qualifications and duties of the manager of estates of land, in which we believe the author is employed. The investigation of chemical bodies does not interest the farmer, and the breeds of domesticated animals is removed by the price and extent of the subject far beyond the common entertainment. But the merit is acknowledged. Mr. Low writes very practically, clearly, and sensibly. His name is deservedly popular.

CCCCCLIII.—BAXTER, 1834.

J. Baxter, Lewes, has compiled and published "The library of agricultural and horticultural knowledge, with a memoir of Mr. Ellman, of Glynde, and an appendix containing a farmer's and a gardener's calendar, and a collection of useful tables;" London, 1834, 8vo. The work is alphabetically arranged, and contains much useful matter that is interesting to the farmer and gardener. Mr. Ellman may have been the chief person concerned, and his very enlightened practice could not fail to produce something good in the profession which he had long adorned. The work has passed through several editions, and enjoys a very considerable reputation. Its deservings are above mediocrity.

CCCCCLIV.—LAWSON, 1834.

Peter Lawson and Son, seedsmen in Edinburgh, have written "The agriculturist's manual; being a familiar description of the agricultural plants cultivated in Europe, including practical observations respecting those suited to the climate of Great Britain, and forming a report of the Agricultural Museum in Edinburgh;" 1838, 8vo. The book contains 430 pages, and describes the cereal grasses scientifically and practically, the leguminous plants, the herbage and forage plants, the leguminous forage vegetables, cruciferous plants, root plants tuberos and fusiform, plants used in the arts, for timber, and for horticulture. A list follows of models and implements, garden productions, and list of contributors. The scientific grower of vegetables will be much delighted with this book, which pleases his fancy and directs his art. Even the mere practitioner will derive advantage by the possession of the work, the object of which is science with practice, and the purpose is well performed. The scientific portion of the work is plainly worded, and easily understood.

CCCCXV.—POPPY, 1834.

Charles Poppy, farmer at Wilnesham, Suffolk, has written "Practical hints on burning clay and sods; surface soil of fallows; also on the employment of the poor;" London, 8vo. The essay extends to 28 pages, detailing the mode of burning clay and sods, the expense and advantages. No doubt can exist that all surface lands will be benefited from being heated and torried; and it may be conceived that incinerated substances, as lime and clay, impart the benefit by raising the temperature of the ground by means of the heat retained from the combustion. And the quantity or degree of benefit conferred will depend on the power of the burnt substance to retain heat, and on the capability of the soil to which it is applied to imbibe and retain caloric for future use. Clay being a very

bad conductor, will convey little benefit as a manure, as experience has shown; caloric will separate the particles, but will not remain in the sundered fragments. Our own practice often proposed to reduce into ashes the surface clods of clay fallows, by mixing with lime cinders, and igniting with the use of water. The ashes would be of two kinds, and convey caloric to the soil in combination. The benefit will be proportional with its powers of imbibing and retaining the heat.

CCCCLVI.—RENNIE, 1834.

James Rennie, A.M., professor of zoology, King's College, London, has written "The handbook of agriculture in principle and practice, for the use of schools and allotment tenants;" London, 1834, 16mo., price 1s. 3d. stitched. The pages are 92, detailing the science, art, and practice of agriculture in the cultivation of plants and management of animals. The directions are very sensible and judicious, but contain nothing new or worth any remark. The plan of a labourer's cottage is given from those devised by Mr. Menteth, of Closeburn, in Dumfriesshire, with the sleeping-apartment on the ground floor, the ideas not being able to ascend to the height of ten feet in a second storey of apartments. This moderate height stops all northern ideas on the subject of cottages.

CCCCLVII.—HUTT, 1838.

William Hutt, Esq., M.P., wrote "Key to agricultural prosperity—state and prospects of British agriculture;" price 2s. 6d., in 247 octavo pages. This essay resulted from an inquiry into agricultural distress, in 1836, by a committee of the House of Commons, and forms a compendium of their labours. After the general peace, many keys were found to open the lock of agricultural depression, which arose from the altered circumstances of the civilized world: not one succeeded, and the handle has yet to be made. Our own opinion always coincided with that of the late Earl Grey—that a prompt adjustment of rent was the only key to solve the difficulty, and experience has confirmed the just sentiment. It has been done of necessity, and might have come from a sure prescience.

CCCCLVIII.—MORTON, 1838.

John Morton, Whitfield, near Berkeley, Gloucestershire, has written "On the nature and property of soils, and on the rent and profits of agriculture;" London, 1838, 8vo. And, along with Joshua Trimmer, "An attempt to estimate the effects of protecting duties on the profits of agriculture;" London, 1845, 8vo. These works have raised the name of the author to a high place in the agricultural world, which has been supported by every

attachment of practice. Mr. Morton is known as the projector and conductor of Earl Ducie's example farm, where, from an almost tenantless waste, a farm of 240 acres has been converted into a productive ground of no common quality. The outlay of money was very considerable, and done to show that land will repay every judicious expenditure, and can be continued in that remunerative condition by an enlightened routine of cultivation. Draining and manuring have been the chief agents of operation; and when judiciously performed, a certain success must attend. The most reputed improvements have been executed on the land, and upon the farm buildings, roads, and water-courses. The success has been most splendid; perhaps no parallel exists in Britain to the quantity of green crops which grow upon that farm, and which yield the profits and support the fertility. An increased rent of 15s. an acre amply pays the interest of the capital expended, besides an annuity for the gradual extinction of the outlay. Much more labour is employed, and in making the improvements activity was employed and remunerated.

A most important lesson is taught by the example of Mr. Morton—to concentrate the means on any point that are superior to the resistance that is opposed, and by dint of power and pith, to compel success, and rob fortune of its favours. By this method, any lands will yield a similar product in proportion to quality and circumstances. The value of land may be doubled, and the national resources indefinitely increased.

In the book "On soils," the author shows an extensive geology, and a most enlightened practical acquirement. On these subjects the work will continue a standard production. In the work on protective duties and profit, the principles are set forth which experience is daily confirming. The author beheld a steady horizon.

CCCCLIX.—MAIN, 1839.

James Main, A.L.S., Chelsea, has written "Poultry, breeding, rearing, and fattening;" the contents are—introductory remarks, pea-fowl, history and breeding, swan, turkey, goose, duck, fowl, capering of fowls, guinea-fowl, pheasant, section of a turkey-house, fowl-house, fattening-house, crops for poultry, &c., &c.; London, 8vo., price 6s. "The young farmer's manual; showing the principles and practice of agriculture, as applicable to turnip-land farms in the south of England, with observations and remarks on cattle, plants, and implements;" London, 1839, 8vo. The author has written some works on botany and forest planting.

The book on poultry is one of the best of the kind, and may justly claim a superiority over larger and more vaunted works. Plain truthful practice is the recommendation of it, which forms the chief merit of any work on practical matters. "The young farmer's manual" contains the routine business of common farming in a most eligible form, in small compass, and appropriate language of expression. No book in the agricultural world conveys a greater quantity of sound intelligence, which has been gathered from enlightened practice and attentive observation. The author makes brief statements, but ample for use, and sufficient for the purpose. Our mite of approbation has never been better bestowed.

CCCCCX.—HODGES, 1840.

Thomas Law Hodges, Esq., M.P., has written "The use and advantages of Pearson's draining plough;" price 1s. Plough draining of land may be very legitimately placed alongside the machine reaping of corn crops; in some very few particular cases both applications will be somewhat serviceable, and render an assistance that will be scarcely remunerative of the cost. The subsoil of lands being rocky, stony, compact, and hardened, will defy the power of the draining plough, and confine its use to soft strata of every denomination. So will the reaping machines be confined to level grounds and upright standing crops, and banished from hilly lands and ridged surfaces. These objections are irremovable.

CCCCCLXI.—SPOONER, 1840.

W. C. Spooner, a veterinary surgeon, near Southampton, has written "A treatise on manures, their comparative and economical qualities, with the principles which should influence and regulate their application;" London, 1840, 8vo. There is contained the prize essay, by the author, on the use of the superphosphate of lime produced with acid and bones for manure. The author is known as a distinguished member of the veterinary profession, and in the above essay he has added to the reputation on that head. The remarks and sentiments are very just, correct, and practical.

CCCCCLXII.—JACKSON, 1840.

James Jackson, of Pennycuik, near Edinburgh, author of several prize essays in Scotland, has written "A treatise on agriculture and dairy husbandry;" Edin., 1840, 8vo. This work is in 116 large octavo pages, and treats arable management only, with a short treatise on dairying. The animals of the farm are not entered. It is a very

sensible production, plain, correct, and simply practical; so much so, that no analysis is given of any manuring substance, except of bone dust, and that is subjoined in a note. The writer seems to have thought that the value of the article can be conveyed without the appendage of the chemical constituents; and he is right. His practical opinions and directions need no recommendation beyond the perusal.

CCCCCLXIII.—SPOULE, 1842.

John Sproule, Ireland, editor of Irish Farmer's Journal, has written "A treatise on agriculture; comprehending the nature, properties, and improvement of soils, the structure, functions, and cultivation of plants, and the husbandry of the domestic animals of the farm;" Dublin, 1842, 8vo. "An essay on the growth and management of flax in Ireland," which obtained the gold medal of the Royal Dublin Society; Dublin, 1844, 8vo. The first work is a most respectable performance, well arranged, correct in the description, and ample in the detail. Ireland has not produced any equal work, and Britain has not many that are far advanced beyond its worth. It comprehends the whole business of the farm, and is therefore superior to many works that treat one part of the farming business. The enlightened practice of agriculture has never been more described for common adoption.

The essay on flax is a pamphlet of 40 octavo pages, and well deserved the prize which it gained. The author does not encumber any work with scientific quotations of analytical contents; he prefers the use of practical results and illustrations, and gives in the appendix the statements of chemistry on the subject of description. The body of the work is thus clear, and the appendix may be used or not.

CCCCCLXIV.—SQUARRY, 1842.

Charles Squarry has written "A popular treatise on agricultural chemistry, intended for the use of the practical farmer;" London, 1842, 8vo., price 5s. This author is thought to have simplified the relation of chemistry and agriculture with great skill and ability, and rendered the subject less abstruse for the common comprehension. But a subject may be very fully comprehended, and still remain beyond application; the connection may be too fine and minute for the tear and wear of utility. The author describes the usual scientific subjects—soil, and manures, and plants. Lime is very briefly mentioned, and nothing added to its former character. The same may be said of other matters,

LONDON CENTRAL FARMERS' CLUB.

The London, or, as it is now written, "the London Central," Farmer's Club, closed its session on Monday, June 5, with another discussion on the condition of the labourer. The text-word on this occasion was made to refer more especially to any real advantage to be derived from the incentive to exertion, or the force of example. "Character" is certainly everything in this country; but is it worth while making this in any way public property? Does it become us to at all distinguish the man whose pride it is to have led a life of honest industry? Need we trouble ourselves to say how we appreciate his conduct, or how we would have others learn from him to go and do likewise? Is it not, rather, simply a matter of business between him and his employer, who have managed to agree so long and so well? To them let us still leave it, or, if called on by any chance to notice this good and faithful servant, let us pass him on with the cool, matter-of-fact compliment of Tom Thumb in the play—

"You have done your duty, but you have done no more!"

The gentleman who opened the discussion on Monday evening appears to consider these Labourers' Friend Societies—that is, as here interpreted, societies for the encouragement of good conduct and skilled industry in the farm servant—to be something very like mistaken notions. He admits the good intention, while at the same time he but too often condemns its being carried into practice. With every respect for the ability and evident attention he had given to his subject, we cannot help thinking that he essays to prove this by some rather special pleading. He takes, as our readers will gather from his opening address, the rules and regulations of some hundred or so of these Labourers' Friend Societies, and from these he carefully selects every ill-considered or impolitic condition he can possibly find. These are all duly arranged to read on, one after the other, until the astounded auditor comes to picture one of these Labourers' Friends as little short of a mass of absurdity, and wrong-headed benevolence. The notion, for instance, of giving a man a prize for going to church—simply, as Mr. Morton comments, "a premium upon hypocrisy." This, it seems, is one of the items in the clergyman's prize of the North-East Hants Association. We name this society, as Mr. Morton instances it; but no doubt such a reward is pretty generally offered in the other hundred or so, with the particulars of which the

speaker had furnished himself. Is it so? Or, rather, is not this "premium upon hypocrisy" only an isolated case, to be found in East Hants, and hardly anywhere else? Or take, again, the Wiltshire Society, which distributes its twenty coats by lottery. How many other such societies do the same? One or two more (but certainly very few comparatively) manifest some occasional negligence or injudicious allotment of their funds. We are quite prepared, though, to treat all this as exceptional rather than general. We have very little doubt that, despite its premium upon hypocrisy, Mr. Morton might, had he desired it, have discovered many a redeeming feature in the proceedings of the North East Hants Association. All the good intended in North Wilts, too, we should trust is not left entirely to chance for its results, despite the great-coats quoted against it. This would be a hard world to live in, was one flaw found sufficient to condemn; for few of us, indeed, are to be found without one.

On the question of prizes for long and good service, we are very much at issue with the introducer of the subject at the Farmers' Club. We do place some reliance on the benefit of example, and we believe that no one private person, however high his position or great his influence, could impress this example to anything like the same extent which would follow its recognition by a public body. To argue that any man only retains his place "upon compulsion," merely to carry off the two or three pounds at the end of his thirty or forty years, is of course to argue a palpable absurdity. To maintain, however, on the other hand, that to evince an appreciation of this conduct by the offer of some testimonial, can convey no good moral with it, we hold to be almost an equally ridiculous assumption. Did the Duke of Richmond and his soldiers, when fighting their way through the Peninsula, think of nothing but the medals they might receive when they got home again? And yet, has there been no good attendant on thus honouring them? Does the clergyman who, by many years' attention to their wants, has earned the respect of his parishioners, think of nothing but the teapot they will present to his wife? The good landlord of nothing beyond the piece of plate he will have offered him by his tenantry? There are, no doubt, but too many testimonials now-a-days that are little merited by those who pocket them. We do not rank, however, the premium for good service to the farm-

servant to be amongst these. We cannot but consider it as an honour fairly earned, and one the recognition of which carries all the force of a good example with it.

We could have wished that more practical men had taken part in this discussion. It will be observed that such as did were all ready to dispute the wholesale condemnation which they gathered to be the intent of Mr. Morton's paper. This, though, was denied by that gentleman, and the practical benefit instanced of rewards offered for skilled industry. We can speak ourselves personally to the striking improvement in many districts, mainly attributable to the establishment of these societies. By their influence the labourer has become not only a better workman, but a better man; and what we take to be Mr. Morton's mistake is, that while he admits the one end, he does anything but due justice to the other. We may test his conclusions by the experience of one of his own correspondents:—

"I have been in the almost sole management of the Roding Labourers' Friend Society for twelve or thirteen years, and have never found any reason to abate the favourable opinion I have always entertained of its beneficial operation, both upon masters and labourers, for I do not think the effect is solely confined to the labouring class. I think one great good has been in drawing the employer and the employed more closely together, and thereby more intimately identifying their mutual interests, from which has been fostered a greater kindness of feeling towards each other, which has to a great extent resisted the disassociating spirit of the age. My own feeling on the subject is borne out generally by the farmers of the district—that the labourers are more skilful, they have a more tender regard for character, and they value a good name, especially connected with this society. I can safely aver that scarcely a prizeman amongst us has ever been found to disgrace the recommendation of his master, based, as it strictly is with us, on good moral conduct."

Our own opinion, we must say, is altogether in accordance with the reverend gentleman who thus writes, and with "the farmers of the district."

ON THE PRESENT POLICY OF OUR LABOURERS' FRIEND SOCIETIES.

The usual monthly meeting took place on Monday, June 5th, at the Club House, Blackfriars; Mr. Pain, of Felmersham, in the chair. The subject—"On the present policy of our Labourers' Friend Societies"—was introduced by

Mr. MORTON, who said: I confess it was not because of my belief in the great influence of Labourers' Friend Societies on the condition of the labouring population that I ventured to suggest their present policy as being worthy of the attention of this club. Scattered, as such societies are, at such wide intervals over the country—with such an extensive field, therefore, to each, over which it has to administer what power it may possess—their influence cannot be very great. And I believe that there are few

gentlemen resident in country localities, who have taken an interest in the welfare of the labourers around them, but must feel that that has been comparatively little influenced in this particular way. No doubt the hearty union of many in pursuit of any object renders that object easier and more likely of attainment; but if the object be, as in the case of most of our Labourers' Friend Societies I professedly is, the moral improvement of the district, I believe it will be found that individual influence and example, and not that of societies, is the only really useful and efficient agent. No one, I think, will dispute the opinion that a single energetic man, an employer of labour, whether he be a farmer or a manufacturer, with a personal character for rectitude and benevolence—kind enough to wish his neighbours well, and wise enough as well as able to work for that end, as well as wish it—will exert a far more powerful and successful influence for good upon the labourers around him, than any society, with its system of direct rewards, could hope to do, though it held its meetings in the market town close by, and was supported by all the gentlemen in the country. Although, however, the power of such societies may not be great, yet it is something; and being directed to an object which we all feel to be of the very highest importance, it is greatly to be desired that it be directed aright; and as it is certain that the discussions and the resolutions of the Central Farmers' Club do exert a considerable guiding influence on many of the local Agricultural Societies, I hope that the present policy of these societies, in reference to the agricultural labourer, will this evening receive full and dispassionate consideration. In the first place, then, what is the present policy of our local Labourers' Friend Societies? That is to be gathered from their prize lists and their rules; and in order to answer this question I have gone through the rules and the reports of upwards of 50 of the local societies of England, and of many more in Scotland and in Ireland. I do not refer to farmers' clubs and discussional societies, of which there used to be many, and are still a few in this country, but to local agricultural societies, established, if we adopt the title of the South Cheshire Association, "for the encouragement of agricultural enterprise, and the promotion of industrious and moral habits among the labouring portion of the community." The fourth general rule of the Cowfold (Sussex) Association puts the objects and the policy of these societies still more plainly. It is as follows—"That two classes of prizes be offered by the association: Class I., for the encouragement of enterprise amongst the farmers; Class II., for good conduct and skill amongst labourers." On the any-class of means employed I am not about to say first thing; the subject on the card confines me to the second—the means employed by agricultural societies for the benefit of the labourer. These means have, as the words quoted indicate, two objects in view—the promotion, namely, of good conduct and of skill. It so happens, that among upwards of 100 letters which I received two or three years ago from the secretaries of these societies, in answer to a request for information, only two referred to the influence which it was believed such societies

were exerting in this country. The one letter referred to their influence on the skill of the labourer, and the other to their influence on his moral standing; and as these letters state pretty fairly the opinion on the subject which I should like to see embodied in this evening's resolution, I will read them. The first is from the secretary of the Isle of Thanet Sheep-shearing Society. He states—"The object of this society is to improve the labourers that perform such work, and to encourage them, by rewarding them with prizes; and I certainly can state that they have very much improved since this and similar societies have been formed." Here, I take it, is a testimony to the success of these attempts, by exciting emulation, to increase the skill and the efficiency of the labourer. My second testimony is from the hon. secretary of the Northallerton Agricultural Society. He states that that society is supported directly by the best names amongst the well-known agriculturists and breeders of Yorkshire, and that it thus has advantages over many other local societies; but as to the influence of its rewards for good conduct, for long servitude, or avoiding parish relief, he says—"Having an opportunity of witnessing the practical working of the society, I am enabled to say that the premiums to agricultural labourers produce little or no good, either to the labourers as a body, or to their employers; and, in my opinion, there would be far more wisdom in offering premiums to the best cultivated gardens or plots of land than in the present supposed method of rewarding the poorer classes. Probably the best proof of this view of the case is, that there is scarcely any competition for the premiums at present offered, and the labourers can only be induced to compete at the suggestion of their masters. I may add, in corroboration of the last remark, a sentence which I find at the foot of the prize list of a Cheshire association: "Members of the association are particularly requested by the committee to endeavour to induce cottagers in their respective neighbourhoods to become candidates for the premiums offered for their competition." Well then, the second letter bears, I think, a testimony to the inefficiency of the system of money rewards as incitements to improved moral conduct. These two letters, then, state plainly enough the usefulness of attempting, by money rewards, to excite to greater skill; and the uselessness of attempting, by money rewards, to induce a higher moral standing. They exactly state the opinions on the subject which I hold myself, and which I should be very glad to see embodied in a resolution of this club. These letters are, as I have said, of several years ago; but it is plain that their value as evidence is altogether independent of their date. I may mention, by the way, that the greater number of the reports of these societies which I have examined within the last few days are of two or three years ago; but those of the past, and even of the present season, which I have also seen, maintain their original character; and I believe, therefore, that I am safe in reading the present policy of our Labourers' Friend Societies in these reports a few years ago, as well as of the present time, which I have in my possession. First, as to prizes for evidence of skill, [A prize list was

here read, in which rewards to ploughmen, shepherds, hedgers, thatchers, hoers, barnsmen, hop-dryers, dairy-maids, chaff cutters, shoeing smiths, allotment tenants, and cottagers (for bread, domestic economy, neatness, &c.), were offered for skill in their respective operations and proceedings.]

The second division includes premiums for good conduct. I see the Cowfold Society has a rule, "That no labourer is entitled to receive premiums who cannot produce a printed certificate of good conduct from their respective ministers at the annual meeting." I see, too, that what are called clergymen's prizes are or were offered by the North-East Hants Agricultural Association:—

The Clergymen's Prize of 3*l.* 3*s.* will be given to the agricultural labourer, or the now disabled cottager, who was an agricultural labourer, who, living within the circle of the North-East Hants Association, shall obtain from his parochial minister, and one churchwarden, the highest character for honesty, industry, sobriety, attention to his children's education, and his own religious duties; the certificate must particularly state, if he and his family are regular in their attendance on divine worship, at his own parish church.

The Clergymen's Prize of Two Guineas in like manner to some single woman, widow or spinster, above the age of 55 years, &c., in like manner.

I cannot but think, notwithstanding my full sympathy with those who offer such prizes, in the object which I presume them to have had in view, that this way of attaining it is altogether mistaken. I would submit to you that a money reward for honesty is an absurdity; that a money reward for industry should be given in the form of wages; that a money reward for attention to religious duties is apt to be a premium upon hypocrisy. Let us now, however, go through the ordinary list of premiums offered by these societies in encouragement of good conduct. [The second division of the prize list was here gone through: it included prizes to the labourer who has brought up "the largest number of children born in wedlock without parish relief"; to him who has "placed out the greatest number in respectable service"; prizes for "long servitude in the same family"; for widows who have maintained families without parish relief; for those who have required the least aid during "the visitation of sickness"; for the oldest men who can prove they have not been convicted of crime; for those who "have supported impotent relations"; for those who have put by most money, or who have subscribed longest to a benefit society.]

This, then, I think, pretty fairly represents the course pursued by our local agricultural societies, so far as their efforts for the benefit of our labourers are concerned. I am afraid that I must now for a few minutes still further try your patience, while I allude to the alterations which might, I believe, be usefully made in it. First, however, I should say that the rewards for good conduct are confined to England. I find them as far south as Cornwall, and as far north as Kirkby Stephen, and Penrith; but they do not cross the border. The nearest approach to anything of the kind in Scotland is a prize given for neatly-managed cottages and gardens, which I see announced in the list of an East Lothian society.

I am informed, however, by Mr. Hope, of Fenton Barns, that no rewards of any kind are now offered to labourers in East Lothian. And I am informed by Mr. Hall Maxwell, the Secretary to the Highland Society, that while they encourage cottages, gardens, hedge-cutting, draining work, &c., they never had prizes for long service or numerous families, and their premiums, such as they are, consist of medals and money, not of coat and buttons. In Ireland, again, no such rewards are offered. In most districts there, indeed, there is not generally that distinction between labourers and occupiers of the land that there is with us, and the prizes are confined to £2 and £1 rewards for small plots of well-managed crops, whose cultivation it is desired to encourage. Well, then, having thus stated what the methods adopted by our English societies for the benefit of labourers are, we are in a position to criticise them. As to the first division of their efforts, no difference of opinion will exist. The excitement of emulation is the best way of increasing skill; and the only thing of importance will be to direct the rivalry aright, so that it shall include all the processes and operations in which the agriculture of the district is interested. Mr. Bailey Denton, a member of this society, I believe, was the first to start draining matches, and I see they are now advertised pretty generally as a feature in the local agricultural meetings. Digging matches, too, are not uncommon at Irish meetings. I see, too, an offer by a Cheshire society which I think deserves to be generally made—"For the invention or improvement of any implement in husbandry, £1," thus directing the attention of labourers to the means of facilitating their own work. On the second head, however—*i. e.*, as to the rewards bearing upon good conduct—excepting possibly those relating to benefit societies and savings' banks, both my own feeling and judgment would be for sweeping the whole affair away, as being generally mischievous, and always mistaken. I am entirely ignorant as to what the feeling of this society may be upon the subject, and do not know, therefore, what detail of argument or persuasion may be needed in defence of my position. I may, however, say that it is one which is held by many gentlemen well known in the country generally as agriculturists, and well known by labourers, as well as others in their own localities, as *good neighbours*. Perhaps sufficient credit is hardly given to those who are for upsetting this system of rewards, not only for the perfect sympathy which certainly they feel in the benevolent object for which this premium system is devised, but also for the experience which many of them undoubtedly possess in all the circumstances and peculiarities of English country life. I could quote a letter which I lately received from Mr. Hope, of Fenton Barns, in East Lothian, a well known Scottish agriculturist, condemning the practice—which is altogether opposed to the general feeling there—of money rewards for long servitude, and so on; but it would be said that he does not understand the circumstances of English village life, and being altogether ignorant of the kind of feeling out of which this practice has arisen, of course his opinion ought not to influence us. This cannot, however, be

said of many an English opponent of the plan—some of whom, I hope, are present now—and I will be bold to say it cannot be truthfully said even of myself. I have had the good fortune to know something of many English farmers, in various grades of intelligence and wealth, from the small occupier up to the leading tenant in a parish. I don't know where any happier picture of intelligent and useful social life could be obtained than was for many years presented in a quiet country village, not far from where I lived, where the leading occupier—and therefore the leading man in the parish—was an enterprising agriculturist, in extensive business, gaining prizes at the local and the county shows—a wise and kind-hearted master too, winning the affections as well as securing the services of his men, and a Christian gentleman, influencing for good his equals as well as his inferiors. Those who were fortunate enough to be frequent visitors at the hospitable old court-house, which was the residence upon his farm, cannot be called ignorant of the character of English country life, as it is when at its best. This gentleman was, I suppose, the advocate of the money rewards for good conduct in labourers—at least, I have, on looking over some old society books within the last two or three days, seen his name as recommending labourers for such premium; but I am quite sure it was his personal character alone that made that village what it was—his personal character, and that of his family, and not the influence of the society whose rewards the labourers received, that made them what they were and are. I am afraid you will think that in making this allusion I am running away from the subject, but I have referred to this instance simply in order to show that it is not in ignorance of the relationship of master and servant, as seen in many an English farm, that I hold the opinion I have expressed on the impolicy of these prize lists of many an English society. I will now state my objections in succession. (1.) The first probably would be to money rewards or material advantages of any kind as excitements to moral improvement. Of course the morality of any conduct depends altogether upon its motive; and if you say that it has been with the view of gaining this £3, £2, or £1 reward that such a man has supported his impotent father, punctually attended his parish church, or abstained from crime, or even retained his place upon the farm, or struggled on without parish relief, then I say that, compared with another who has done none of these, he is not necessarily the better man of the two. If you say this money is not offered as a prize for competition, but as a reward in acknowledgment of services rendered, then I would reply, first, it is in effect a prize, for candidates appear, and a few only are successful; and, secondly, unless it be a prize, *i. e.*, unless it act as a stimulant to good conduct in others, it is utterly useless. For this is the professed object of the society, the promotion of industrious and moral habits among the labouring population. (2.) Let me say, too, that I think this supposed object is not sufficiently kept in view, to the entire exclusion of everything else, by some of the societies whose rules I have read. It is not altogether clear, from some of these prizes, that the interest of the occupiers, as much as of

the labourers, has not been the leading motive in the offers made. It is a very good thing for the labourer, no doubt, to strengthen the independent feeling which shall lead him to avoid parish assistance; but the offer of money to him with that end in view, and that too by an association of rate-payers, must, at the best, be a very doubtful method of attaining it. (3.) It may be a good thing (I do not think it necessarily is) to encourage labourers to remain for a length of time in one place; but that is not to be done by a county association: it is to be done by the master himself when he has got a good servant, and by the servant himself when he has got a good master. The thing is as merely private and mutual arrangement as can be conceived; and it is, I think, placing it in a wrong position to bring it out before a public society. It is as much a thing for the benefit of the master as it is for the benefit of the servant; and it is as much a thing to the credit of the master as it is to the credit of the servant. Let them be satisfied with their own mutual advantage and private friendship, which are in themselves their own true reward. If any other reward must be given, the master deserves it as much as the labourer; and I was glad to see this acknowledged by the Devon Agricultural Society, in whose report of several years ago I read:—"To the Rev. W. H. Arundell, of Cheriton-Fitzpaine, with whom John Cockram has lived during a servitude of 43 years, a silver medal. To John Cockram, aged 82, who has lived with the Rev. W. H. Arundell, as above, and has always been strictly honest, industrious, and sober, 1*l*. 10*s*." If Mr. Arundell and John Cockram were mutually satisfied with their position, no reward was needed; if not, then, any merit belonging to either must have been that of patience under dissatisfaction. That may have been a proper subject for reward or not. (4.) But even if it was, I cannot believe that rewards of this kind, offered to old age, can have an influence on younger men at the age when character is forming, and when alone such influences are of any use whatever. (5.) They are not only of no use to others, but how paltry and meagre, inadequate, and altogether unfit an acknowledgment they are in the case of the individuals themselves, every one must feel. How many instances might be gathered up of this. Here are some:—"To the oldest agricultural labourers, above the age of 65 years, who can show by full and well-authenticated testimonials that they have been of good character, Rees Hopkin, Tythegstone, 87 years of age, 3*l*; David Davies, Ewenny, 81 years of age, 2*l*; Evan Hopkin, Margam, 78 years of age, 1*l*. To the aged labourer, who shall have brought up the greatest number of his own legitimate children to the age of seven years, without parochial relief, John Mathew, Laleston, 3*l*., having brought up 19 children, above seven years of age, without parochial relief; John Jones, Coity, 2*l*., having brought up 10 children above seven years of age, without parochial relief. The society's rewards of 2*l*. each for long and faithful servitude: to Wm. Little, servant to H. N. Goddard, Esq., of Cliff House, 45 years; to Thos. Picknell, servant to Mr. Daniel Tanner,

of Shipton Moyne, 45 years; to Thos. Packer, servant to Mr. Wm. Henley, of Thornhill, 45 years; to Wm. Harding Hawkins, servant to Mr. Isaac Salter, of Kington Langley, 38 years:" and so on. Of course, the men were glad enough to get the two sovereigns a-piece; but as to any addition to their self-respect in receiving the money, in acknowledgment of half a century of faithful service, or as to any influence on the younger men around them, which these rewards are supposed to have, I believe them to be utterly useless. No wonder, I should say, that the competition for these rewards is diminishing. I should think the higher of any district when it had altogether ceased. There is no lack of competition for prizes offered for skill in ploughing, or in other agricultural operations; but there is for those for servitude, and for not coming on the parish, and for benevolence. I see at last year's meeting of the Oxtou (Derbyshire) Agricultural Society, 13 competitors entered at the ploughing match, 10 for hedging, but no competition existed for the prizes offered to women for long servitude; and although the names of men receiving prizes under similar circumstances are given, no intimation is given of the number of competitors for these prizes. Their probable influence, however, may be gathered from the following terms, in which one of them is announced:—"To the most meritorious labourer—1st prize, 15*s*., to William Steemson, 37 years servant to H. Sherbrooke, Esq., and his predecessor; 2nd, 7*s*. 6*d*., to William Gregory, 3 years and 8 months servant to Mr. Thurman." It is only fair to add here, however, that I this morning received a letter from the Rev. W. Shepherd, of Margaret Roding, Essex, giving an account of the doings of the Roding Labourers' Friend Society, and that they present a striking exception to the general experience of such societies, so far as I have seen their reports; indeed, the whole affair presents such an extraordinary picture of what, it would appear, may be done by means of this kind, when under careful and attentive management, that the notice which it deserves here would be much better for some one who is prepared to defend such means than from myself. He says:—

"Margaret Roding, June 3, 1854.

"I have been in the almost sole management of the Roding Labourers' Friend Society for 12 or 13 years, and have never found any reason to abate the favourable opinion I have always entertained of its beneficial operation, both upon masters and labourers—for I do not think the effect is solely confined to the labouring class. I think one great good has been in drawing the employer and the employed more closely together, and thereby more intimately identifying their mutual interests, from which has been fostered a greater kindness of feeling towards each other, which has to a great extent resisted the disassociating spirit of the age. My own feeling on the subject is borne out generally by the farmers of the district—that the labourers are more skilful, they have a more tender regard for character, and they value a good name, especially connected with this society. I can safely aver that scarcely a prizeman amongst us has ever been found to disgrace the recommendation of his master, based, as it strictly is with us, on good moral conduct. This is our first requirement. Wanting this, all the other qualifications are as nothing; they are ex-

cluded from competition. We have had, of late years, an average of about 500 certificates yearly, and every certificate is closely scrutinized by an open committee, before admitted to further trial. The prizes are all given in money. In some societies tickets are given, not payable for some days; in others, clothes, or both. My own feeling is, money is the best, accompanied in the principal classes with a memorial of merit. If the man is deserving to be recommended, he ought to be trusted that he will make a good use of his money. If not trustworthy, the reward is a mockery. The system is now so generally understood and acted upon, that the preliminary committee—the grand jury—are seldom called upon to reject a candidate. That a spirit of emulation is excited and kept up, is very apparent. That a man feels himself of more importance after receiving a mark of public approbation, is not to be doubted. Every prizeman becomes a public man; and a sense of that adds to his feelings of responsibility, that he should not lose his elevated position. I would add, in reference to length of service (divided into three classes, as you will see in the accompanying bill), we had last year in the Old Class 35 candidates, whose average length of service was 35 years; in the Middle Class 22 candidates, averaged 21 years; and the Youths 16 candidates, $10\frac{1}{2}$ years' service. The previous year presented a similar average, and this, too, after the society had been in operation 14 years. Our prizes are distributed in the field from a waggon, and the attendance, last year, in spite of a drenching rain, was several hundreds of people of all classes."

I have thought it fair to read this letter, as of course I want to obtain a victory only for the truth in this matter. My own opinion in reference to such a case as this is, that it is the personal influence of such a man as Mr. Shepherd, and not that of the association, that is here the really acting cause of the success; or if that be not strictly the state of the affair, that at any rate it is personal and not society influence that produces the result. It is not a county society—it includes only two or three parishes; the candidates are known to one another, and to the men who are assembled to reward them; and I can imagine a prize and testimony to character under such circumstances to be valued by labouring men, when one of a merely official character, such as would be awarded by a lot of strangers, would be valueless. Be that as it may, I suppose Mr. Shepherd's experience ought to have some influence on our decision, and I therefore give the account as he has forwarded it to me. It does not at all alter my opinion as to the much lower status of the labouring man, in a district where these rewards are sought, than in one where they would be despised. The question raised as to the men being trusted with money rather than clothing, I think confirms this view. It is somewhat as if they were a lot of children—good indeed, but still whom it was advisable to keep out of these little temptations. Certain it is, that no rewards of such a kind, or of any kind, are offered in East Lothian, for instance; where, if they were offered—I allude to those for large families of legitimate children, and for benevolent attention to impotent relations, and for abstinence from parish relief—they would be looked upon as a positive insult; and yet in East Lothian Mr. Stephenson bears this testimony to the character of the working men:—

"Nowhere does there exist more of that community of feeling and that friendship of relation which ought to subsist between the employer and the employed than in this county. The servants not only occasionally suggest improvements, but endeavour to carry out what is novel, whether in the adoption of new implements, or of what is new in practice. On some farms the same families have sustained the relation of masters and servants for at least two generations, and it may be mentioned, as a striking proof of the general trustworthiness of

the men, that a considerable proportion of the grain is sold by them in the stock markets, they giving delivery and receiving payment. We have heard of one instance only where this trust was misplaced, every sixpence of the money being always faithfully accounted for."

Now of course English management must be adapted to English circumstances, but I think it deserves the grave consideration of the managers of our Labourers' Friend Societies whether they will adopt a system which does, I submit, tend to stereotype the present position of our men, which is that of obedient and almost child-like dependence where they are good, and of course, therefore, ignorant and reckless blackguardism where they are bad; or whether, on the contrary, they ought not to aim rather at the encouragement of manly self-reliance, not only in the matter of personal support, but in intellectual standing and mental independence, without which all other sources of independence are but artificial props undeserving of our confidence. Such are the props, in my opinion, supposed to be erected by these prizes for long servitude, and not coming on the rates. I will make a last remark on this point in answer to an objection which may perhaps be raised. It may be said, "You are altogether mistaken in the character of these rewards; no one thinks of them as prizes except yourself. They are testimonials of respect—expressions of goodwill and gratitude—certificates of character, or what else you please: they are not premiums or rewards for good behaviour. A master has had a servant for years in his own service and that of his father before him; sincere esteem has long been entertained for his character, and gratitude for his services; he looks about for some way to express the sense he entertains of his value as a servant, and of his character as a man; and he finds no way so well adapted for the purpose as recommending him to the county association which stands thus ready to his hand. Now, in answer to that, I take it that the gratification of the employers' gratitude, and the improvement of the labourer's character, are two entirely distinct objects. If I were asked to subscribe to any such county association, and were convinced that the latter of these objects was likely to be forwarded by the methods it employed, I would heartily lend what assistance I could; but if I were told it was a machinery which had little more than the effect, whatever its professed object might be, of dividing amongst a number of members the task of expressing the gratitude of a few of that number, I should certainly have nothing to do with it. Surely if any one feels this gratitude he is bound to express it himself, without the assistance of a society. I hope that nothing that has been said will appear as if spoken either in ignorance, or in disregard of the real worth of character one often finds amongst agricultural labourers, especially, I would say, amongst those who have been long in the service of the same family. It is because its worthiness is high above, and altogether out of the field of £ s. d. considerations, that I would do away with these money rewards; and it is because its influence is unaffected by society—certificates of abstinence from crime, or from parish relief (apparently the next worse thing)—of length of

servitude, freedom from intoxication, and so on—that I would leave our labouring men to the rewards of conscience, and to the respect of friends and neighbours, as the natural and only proper testimonial—one, however, which a long and useful life will always secure for them. There will be plenty of scope for Labourers' Friend Societies though all the money rewards for good behaviour were swept away. All rewards for skill should be retained, and for the rest they can not do more for the interest of the labourer than by encouraging enterprise amongst the farmers. If 12 tenant farmers—Mr. Mechi's neighbours—were locked up till they should arrive at a verdict upon the agricultural merits of Tiptree Hall Farm, it is possible that they might sustain some considerable length of imprisonment; but place 12 of the labouring men of Tiptree Hall in that position, and I will engage their foreman shall have their verdict ready in five minutes. There can be no doubt that agricultural energy and enterprise is greatly for the benefit of the agricultural labourer. That I can say from some experience, for I will claim this credit for the Whitfield (so-called) Example Farm, that the character of the labourer in its neighbourhood has been greatly altered for the better, as the result directly and indirectly of its establishment. The blackguardism of that neighbourhood is very much reduced; the public-houses are the places of information about that, and they will tell you. The gamekeepers will report less poaching; the shoemaker, baker, and grocer make a little better living than they used; cottages are improved, their inhabitants are improved as well; evenings are spent in the allotment ground that used to be spent in the tap-room; and friendly societies, and savings banks, and building societies have increased their hold upon the people; and yet no Labourers' Friend Society, that I know of, has ever done anything for that neighbourhood—no money reward, that I have ever heard of, has been received by any person in the place; nor has any one been encouraged to maintain his independence, by the offer of a prize to him who should bring up the largest family without assistance from the parish. The facts are these:—A greater quantity of labour has been employed, and wages have been paid as much as possible by the piece; and for the rest, thanks to the wise benevolence of the late Earl Ducie, a chapel and a school-room were erected, and day and Sunday schools established; and influences there were put in exercise, compared with which, in their effect upon the rising young men of that neighbourhood, any system of money rewards offered, whether for servitude or independence, can be little better than a mockery. Apart from the strictly agricultural societies, I would regard the British and Foreign School Society and the National Society, and probably the Emigration Commission, as the best societies which had yet been seen. They have all had a hand in the alteration for the better which the neighbourhood of Whitfield Example Farm exhibits, indirectly, as I have said, as the result of its establishment. I would say, in conclusion, that every Local Labourers' Friend Society should endeavour to encourage education within its limits; that it should encourage the operations of benefit societies, of savings banks, and

especially of that best of all savings banks for the employment of scraps of time, the allotment system; that it should avoid everything having a pauperising or dependence-producing tendency, keeping in view the maxim which involves a most important truth in material things, as well as in others—"that to him that *hath* shall be given;" that on this ground it should devise means for encouraging the payment of wages by the piece; that it should try to guide, and possibly to encourage the spirit of emigration in its district; that it should direct its chief attention to the offer of rewards for evidence of skill, whether in agricultural, horticultural, or more domestic operations; and lastly, that it should abstain from all attempts to influence by money rewards such matters as religious duty, benevolence, or personal morality, where higher motives alone ought to have an influence. I shall be exceedingly glad if any experienced member of this society shall see his way to the proposal of a resolution having especial reference to the last of these points.

Mr. ACTON said he wished some more practical member of the Club had risen before he attempted to explain the rules of Friendly Societies. The gentleman who opened the question for discussion seemed to consider the policy good; but it was a mere act of simple charity, having no moral influence, and that money should be given to them in the shape of wages rather than as premiums. Now, he entirely differed with him, because he thought we were greatly indebted to those societies for establishing prudent habits amongst the labourers, and by means of those premiums, however small, and which the opener seemed to cast a slur upon as being more applicable to those aged persons who had brought up the largest number of children, than to the young and skilful in industrial pursuits. Now, he considered that those premiums, owing to the small rate of wages which they earned in many counties, formed nest-eggs for savings' banks and benefit societies, towards a provision for sickness and old age; and as the gentleman had mentioned those societies, he would refer to Mr. Tidd Pratt's book on Friendly Societies. Ever since the year 1828 the Government had had societies like those referred to by the opener of the question—it did not matter what was their precise name—under their care. The 9 and 10 Vic. ensured the payment of money on the death of members to their wives and families, and prevented frauds in the management of the funds; and the law gave also a priority of payments of debts, in case officers of a society should become bankrupt or insolvent; and enrolment was very necessary, and was about to be amended by a bill introduced by Lord Goderich. We now come to the question of wages, which has a great deal to do with this discussion. We find in Cambridgeshire, Bedfordshire, and Essex, wages are 10s. a week, whilst in Dorsetshire wages are 8s. Labour, we know, is capital, and depends upon the supply and demand for it; and the greatest misfortune that could befall the labourer is a scarcity of labour, and his consequently being without the means of obtaining subsistence. I believe, then, although these Labourers' Friend Societies might be better managed in some

respects, still they have a good tendency in supporting a moral influence, greater skill and industry amongst them, and the present policy is good in making them better members of the community. He rejoiced that in Dorsetshire, as well as in some other places, wages had now risen to such an extent, that men could live without resorting to crime or the workhouse.

Mr. NESBIT said there were circumstances in Dorsetshire, as regarded the question of wages, which were almost confined to that county; at all events, they were not to be found in more than one or two others. The labourers were paid to a great extent in kind. He knew a gentleman residing about six miles from Dorchester who compromised his wages for about 11s. a week, and he said his men were not so well off as many others; the perquisites received by labourers on many other farms being more than he paid himself. He entirely agreed with Mr. Morton on the question of offering money rewards to labourers. No doubt in such games as cricket and football, in which the animal part of man was developed, credit could be given where it was really due: the same might be said with regard to intellectual excellence. In these cases nearly every man was a competent judge of what the parties could do, because the result was visible. In any intellectual pursuit, in any pursuit requiring bodily skill, in any kind of machinery, there was room for judging what degree of skill was displayed. But who could say who were the Pecksniffs or Joseph Surfaces of any particular locality? It was impossible to award with precision a prize for religious or moral excellence, because it was impossible to enter, as it were, into the interior of the man, who while in appearance he was very moral and even religious, might in fact be the very reverse. All that could be done by pecuniary rewards was to assist men in exhibiting or concealing their peculiarities of character.

Mr. SKELTON said, before the discussion proceeded any further, he wished to ascertain whether in the subject of Labourers' Friend Societies they were to include local agricultural societies; because they were of a similar character to friendly societies, and occupied a large share of the attention of agriculturists.

The CHAIRMAN was very glad that this question had been put to him; for he had felt from the commencement of the discussion that nine out of ten of the gentlemen present probably did not understand the question in the manner in which it appeared to have been understood by Mr. Morton. He (the Chairman) certainly thought that when they spoke of Labourers' Friend Societies, they spoke of societies which labourers had formed among themselves. He did not call a local agricultural society a Labourers' Friend Society. (Hear, hear). It gave rewards, indeed, to labourers, in the manner spoken of by Mr. Morton; but still it could hardly receive such a designation. There was, however, great difficulty in distinguishing, in this case, between societies formed by labourers, themselves and societies formed for the encouragement of labourers. (Hear, hear).

Mr. MORTON observed that the question submitted was the policy of societies formed by others for the purpose of benefiting labourers, not the policy of societies

formed by labourers themselves for their own benefit. In order to obtain the correct designation he went to the societies, and asked them what they called themselves. He had in his hand the title, "Riding Labourers' Friend Society."

Mr. MECHI said there was a society with a similar designation at Witham.

A MEMBER observed that the difference was only in name (Hear, hear).

Mr. MECHI said he entirely concurred in the remarks made by Mr. Morton. He agreed with him that local agricultural societies, in offering rewards, should be careful in making distinctions; and that the money contributed—though subscribed with the most benevolent intention—was frequently not applied at present to the only proper object, namely, the elevation of the moral and social condition of the agricultural labourer (Hear, hear). With regard to the distribution of rewards for skill, no one could doubt that the more the labourer was stimulated by the hope of reward, the more likely he was to be skilful in his employment. When, however, he observed the moral, social, and educational condition of labourers generally, he could not help feeling that there was great need for improvement. The condition of the agricultural labourers of a large proportion of the district with which he was especially connected presented many sad features. They were offering rewards for good conduct; but, as education was wanting, the labourer had no means of obtaining a good social position. The grossest ignorance prevailed among agricultural labourers. This was one point to which the Labourers' Friend Societies should devote their attention; for it was quite clear that no man could be a better friend to the labourer than he who endeavoured to fit him for being a more intelligent servant in his own neighbourhood, while he would at the same time be qualifying him for other occupations in other districts to which the improved law of settlement would enable him to apply himself. To show the necessity for exertion in this direction, he would mention that in his own parish, which comprised five or six thousand acres, the total amount raised for education had been £15 per annum. While a threepenny road-rate yielded £80, £15 was all that was raised for educational purposes. The evil of the want of education was not confined in its effects to the labourer: it reacted on the farmer. The more ignorant the labourer was, the less available would he be for improved farming operations. They were putting up new improved machinery, and adopting steam on their farms; and unless the labourer had his condition improved by education, he would not, in times like these, be able to do justice either to himself or to them (Hear, hear). He felt strongly on this point. He felt that they too often began at the wrong end, and that if the object of Labourers' Friend Societies was to be affirmed, they must pursue it by right means. He agreed with Mr. Morton that the investment and diffusion of capital in agriculture had a tendency to improve the morals of the people. On this point he could speak practically; for he knew that in his own district crime had of late been reduced below the average in other districts.

Mr. R. BAKER fully concurred in the observation of Mr. Mechi, that in this part of the kingdom they began at the wrong end in the attempt to effect a reformation of their labourers. No doubt, the proper mode of proceeding would be to give them a good and sound education in the first instance; and then, when they were introduced to works of manual skill, give prizes to those who best achieved the work they were called upon to do. Whatever encouragement could be given in that direction would be sure to return in tenfold advantage to both master and man. Without condemning the exertions of well-intentioned persons, like the excellent clergyman who had effected so much good in the Roding district of Essex, knowing, as he did, that rev. gentleman, and the great reformation he had been the means of producing in the district, he must, nevertheless, be permitted to say that he had always doubted whether it became any human being to take upon himself to reward a man for his moral conduct—the performance of that which was simply a duty to his family, his neighbour, and his country (Hear). But he would look upon such rewards rather in the light of stimulants to others to pursue the path of duty; and whatever was done with that view, whatever was done with the praiseworthy motive of advancing the general interests of society, and especially that portion of society which was so little able to judge for itself, except by the outward application of rewards and punishments, although it might not be placed exactly in the right position, or pursue its end by the best possible means, he should be the last to censure or condemn (Hear). He further agreed with Mr. Mechi that, if the sums annually spent by these societies in the award of prizes to persons who came under the general denomination of labourers were applied to the education of the children of those who competed for them, an incalculable amount of benefit would ultimately be the result. Let, therefore, the sums which were now given in reward for moral conduct, or particular displays of skill, be applied to the production of a better-educated, more intelligent, and efficient class of labourers. Let the funds which were expended in one direction be diverted to the other; and if they were not adequate for the purpose, then call upon the government and the legislature to lend their assistance towards the achievement of this most commendable aim. It was a notorious fact, and one that was disgraceful to the country, that the lower classes universally were not sufficiently educated, whilst the vast majority of agricultural labourers were scarcely educated at all. He did not deny that a few attended parish schools, and learnt to read; but time enough was not allowed them to obtain the amount of information which was necessary to enable them to discharge the duties of their calling, low as it was, in comparison with that of the skilled labourer, the artisan, and mechanic. But it was often said by farmers, if you educate the labourer you unfit him for his station in life, increase his wants without furnishing him the means of supplying them, and render him discontented with his position. He (Mr. Baker) differed from this opinion *in toto*. He believed, on the contrary, that by

educating him they would draw out his capabilities, and make him a better and more skilful workman, and a more reflective, intelligent, and moral man. His influence for good would be felt around him, and thus a higher principle would be generated and diffused amongst the whole of the labouring portion of the community. In his (Mr. Baker's) neighbourhood, the moral character of the labourer was such, that if one of them committed a theft on his employer, all the others connived at it, and endeavoured to screen the offender. This was a most distressing thing to reflect upon; but he knew it to be a fact. In contrast with this state of things, the conduct of the agricultural labourers of Scotland stood out in bold relief. A few years ago he had a Scotchman to manage his farm, who assured him that his labourers took every opportunity of robbing him, and that all connived at the practice; and he added that, in Scotland, among the labourers to whom he had been accustomed, if one man were detected robbing his master, or doing aught else that was illegal and improper, the others would at once insist upon his being removed (Hear, hear). He (Mr. Baker) also found that the men invariably combined against a bailiff who happened to be rather strict in superintending and conducting the affairs of the farm. Not having been present in the room when Mr. Morton's paper was read, he could not venture to express any opinion upon his statements; but he entirely agreed in what Mr. Mechi had said, and that farmers must look to obtain a better educated class of labourers before they could expect their efforts at improvement in other respects to be attended with the desired success (Hear, hear).

Mr. B. WEBSTER said, as regarded education, he wished to observe that, having had to employ some hundreds of labourers at different periods, he had found a large number of them almost useless because they had never attended a school of any kind. As to the price of labour in Dorsetshire, he could confirm the statement made by Mr. Nesbit. The other day, being in company with a farmer in that county, he mentioned to him the current report that only 7s. a week was paid to labourers. The farmer called to him his shepherd, who was close at hand, and said to him that he had altered his plan, and was going to give him 15s. a week instead of paying him in the manner that he did then. The man said—"Please, sir, I hope you won't!" Throughout the county of Dorset, he believed, there prevailed a system of payment by perquisites.

Mr. SHEARER said a similar system existed in Wilts. As regarded Labourers' Societies, or Labourers' Friend Societies, in his own neighbourhood almost every parish had two or three societies of that description. The point to which he wished especially to direct attention was, that in the last twelve years there had been several failures for the want of enrolment (Hear, hear). It was highly expedient that all such societies should be enrolled, and that the rules should be properly framed, by which means the misfortunes which had arisen in his own district might be avoided.

The Rev. Mr. TWELLS said he concurred in the opinion of the opener of the discussion, that it was much

better to educate the child than to reward the old man who was sinking into the grave; and he believed that an enlightened regard for their own interest would induce farmers to educate the children of labourers. The manufacturers were perfectly aware of the benefit which resulted from attention to this matter, and were doing everything they could to improve the moral and religious character of the operative class by promoting the education of the children; and, in his opinion, farmers would consult their own interest, as well as that of the labouring class, by encouraging the moral and religious education of the poor in their several neighbourhoods. It was a slow process, but an easy one, and it went to the root of the matter (Hear, hear). He also thought that the establishment of good friendly societies—by which he meant clubs enrolled according to Act of Parliament, in which the savings of the provident labourer rested on a good and secure basis, and were treasured up for his old age or sickness, or for his widow and children after his decease—was a most excellent mode of benefiting and raising the condition of the labourer (Hear, hear). Residing as he did in an agricultural district, he had observed a marked superiority in Scotch labourers; and this he attributed entirely to the circumstance of their having received a superior moral and religious education (Hear, hear). How was the defect to be supplied? The blame was not to be thrown on the Government; for it was only the other day that a Government Bill for improving the education of the poor in Scotland was rejected in the House of Commons. If the condition of the labouring class was to be improved, it must be by means of liberal contributions in aid of their moral and religious education. That would have a much greater effect in raising their condition than anything else; and his own experience tended to show that there were good schoolmasters and good schoolmistresses. The poor were disposed to make great sacrifices in order to send their children to school (Hear, hear).

Mr. CRESSINGHAM said he was living in a district (Croydon) which was partly agricultural and partly manufacturing, and where great efforts were being made, in which the farmers co-operated, to improve the educational condition of the poor. He thought that exertions were being generally put forth for that end; and he should be sorry if from what had passed that evening the inference was drawn that in the opinion of the club little or nothing was being done to educate the agricultural poor (Hear, hear). The idea that by educating the labouring classes you made them worse servants, had now almost died away (Hear, hear). It had been observed that they could not produce moral and religious conduct by giving rewards. He admitted that in the abstract that view was correct; but it must be recollected that example had its effect (Hear, hear). By bringing a man out, as it were, in bold relief before his fellow-creatures, they might create a desire to imitate him; for those who saw him would be sagacious enough to know why he was thus brought forward (Hear, hear). It was, in his opinion, useful to set a man up as worthy of receiving a testimonial of approbation. It was very desirable to collect statistics with regard to the persons who ob-

tained these rewards. As far as their appearance went, he had often been struck with admiration.

The CHAIRMAN said he must declare his conviction that too little importance had been attached that evening to the system pursued by what were called agricultural societies towards the labouring population of the kingdom (Hear, hear). It might be that in the case of the old men referred to, no great good was effected in a moral point of view; but it must be recollected that the object of such societies was to reward the skilful (Hear, hear). They had in these societies rewards of different kinds. They had rewards for drainage, rewards for hedging, rewards for sheep-shearing, rewards for shepherds who brought up the greatest number of lambs. He believed that all these rewards acted as a stimulus, and did a great deal of good; and he should be sorry if Mr. Morton's remarks that evening created an impression elsewhere that they had done no good at all (Hear).

Mr. MORTON intimated that he had not meant to produce such an impression.

The CHAIRMAN thought his remarks had that tendency (Hear, hear). He did not mean to say that it was intended, but some of the allusions assumed so ironical a form that he feared that such might be the result; and, as one who was much attached to a society of that description, he could not refrain from giving expression to his feelings on the subject (Hear, hear). He did not find fault with Mr. Morton, who had peculiar views on some points, and had, no doubt, brought forward the subject with great talent; but he thought that, while they were considering the improvement which might be derived from one source, they ought not to overlook that which had been derived from another (Hear, hear). On behalf not only of the society with which he was immediately connected, but also of others in his neighbourhood, he begged to claim credit for the best intentions in this matter (Hear, hear); and to show that in the case of deserving individuals age had no monopoly, he begged to say that, in his district, after an individual had received a reward he was not allowed to present himself again until after the lapse of a certain number of years. If at the end of that period he were still a deserving person, he might receive another reward. From Mr. Morton's remarks, it might be supposed that some of the rewards were a mere premium for getting children (laughter). He used the expression advisedly. Those, however, who had lived near an agricultural village must be aware that there was a class of persons who, at a certain period, seemed always to come to the parish for relief; and it was well that societies should show them that it was their duty, if possible, to maintain themselves and their families by their own exertions, and to keep independent of the parish. In this way, he had no doubt, rewards had a good tendency. At all events, the motive was good, whatever might have been the effect. He had made these remarks because he had thought there was a danger that agricultural societies would be considered rather at a discount from a report of the proceedings of that evening (laughter).

Mr. MORTON said he highly approved and commended the motive by which the agricultural societies

were actuated in granting these premiums. But, whilst he fully sympathized with them in their object, he thought they employed mistaken means in order to its accomplishment.

Mr. SKELTON, as a practical man, living in a purely agricultural district, could bear testimony to the immense good that arose from the present system of conducting agricultural labourers' societies. The annual meeting of the society in his neighbourhood was universally regarded as the most interesting event in the year. Employers and employed assembled together in one room; the prizes were awarded, the minister of the parish addressed the audience; and the influence of the proceedings was, he believed, deeply felt by all classes of the population (Hear, hear). That he took upon himself to assert, as the result of his own observation. Much good was undoubtedly produced—there was no use in denying that. He could not, therefore, see the

wisdom or propriety of indulging in any censure of the societies upon the subject. If there were a better way of effecting the same object, let it be adopted.

Mr. R. BAKER then moved, and Mr. BODY seconded, the following resolution:

"That this meeting is of opinion that the object of all Labourers' Friend societies should be to obtain the utmost advancement in the general conduct, skill, and ability of the labourers; that the efforts of such societies should be directed to the establishment of a better system of education than at present exists; and that they should offer suitable rewards to those who attain to the greatest proficiency and skill in their respective avocations."

The resolution was agreed to unanimously; and a vote of thanks to Mr. Morton for his able paper, and another to Mr. Pain, as chairman, terminated the proceedings.

STATISTICS OF AGRICULTURE.

The Government some time since was announced to be well satisfied with the result of the partial attempt made to collect the statistics of agriculture. Of the several systems resorted to in carrying out this experiment, none can be associated with anything like a failure. The feeling of the country was, in fact, far too favourable to the project to suffer it to fall, however imperfect or ill-devised the machinery with which it was introduced. There has been but little, though, to complain of, even here; and the point would now appear to be only which is the best of the many methods, either tested or suggested? It has already been our office to call attention to some of the more able of the latter. It may be not out of place in turn to give a little consideration to such plans as have been tried, with the further improvements which those who have been first engaged in using them would propose to adopt.

In the object so far obtained, Scotland unquestionably enjoys the greatest share of success. The experiment in that part of the kingdom may from the first be recorded as something very like a perfect one. This may be attributable to one of two causes, or rather, perhaps, to a happy union of the two. The machinery employed may have been better, or the people better inclined to work it. In England, as we know, after much threatening and great talking, some few gentlemen were actually found with sufficient strength of mind to refuse to bring ruin on their heads by filling up the papers sent them. We thus arrive at a two or three per cent. deficiency, that was certainly made the most of at the time; and example always has some effect, particularly

when it has to act on a man's fears, and those fears of the most indefinite character. In Scotland, on the other hand, there was no such impediment to deal with. As Mr. Hall Maxwell tells us—and we are almost afraid he is speaking generally of both England and Scotland—"all the leading agriculturists throughout the country were at one on this point"—as to the advantage, that is, of collecting these statistics. Happily, too, in the north at least, there were no rebels, but all cheerfully and confidently following these "leading" men. The Scotch farmer had no fear as to anything which might arise from supplying the information asked of him. The trial was, then, as we have said, a perfect one, and the establishment of a general system of statistics in that part of the kingdom a natural consequence.

This was officially announced by Mr. Hall Maxwell, at a meeting of the Ayrshire Agricultural Association. Few of our readers will require to be reminded that the especial thanks of the community are due to this gentleman, for the energy and ability he has displayed in managing the different districts—the three counties in Scotland, that is to say—placed under his superintendence. To him we have to look for the exposition of the most perfect system yet tried, and it is to this exposition as given to the members of the Ayrshire Society, and St. Quivox Farmers' Club, that we would now call attention. Mr. Maxwell, as we have intimated, does not stay to expatiate on the advantages of these statistics to the farmers; he takes it for granted they are "all at one" on this point. Others, too, it would seem are equally "at one," as to the benefits which would follow their

collection. Small indeed though the demonstration they have made, it appears

"That, during the last ten or twelve years, every government which had been at the head of affairs in this country, no matter what its political opinions may have been, no matter what differences existed between individual members of these governments on other subjects, on this point they were all at one—they all recognized the immense advantage of having such a system instituted. He (Mr. Maxwell) had himself corresponded with Lord Clarendon and Mr. Milner Gibson, when they were presiding at the Board of Trade; and they were both alive to the importance of the subject. So also was Mr. Labouchere, President of the Board of Trade under Lord John Russell. Mr. Henley, president of that board in Lord Derby's administration, would have promoted it had he been longer in power; and Mr. Cardwell, who held the same opinion as his predecessors, had last year given it an experimental trial in Roxburghshire, East Lothian, and Sutherland."

Mr. Cardwell has no reason to reproach himself for any temerity in making a beginning. The part was but a short prologue to the whole. Mr. Maxwell "could not refer to these trials without expressing his gratitude to the farmers of these counties, to whose co-operation and assistance the success of these trials was chiefly to be attributed. Indeed, it was impossible that the object sought by Government could be gained at all, unless they had the co-operation, good-will, and assistance of the farmers." They have all these, so far at any rate, and the result is, "that the inquiry this year is to be carried over the whole of Scotland." It is rarely, we must say, that we have seen a plan in which any harsh collision with the sympathies of the farmer has been more carefully guarded against, or his very prejudices more nicely dealt with.

"The whole machinery was formed on the principle of avoiding anything like an inquisition into private affairs. He would describe the process. When he had succeeded in making up a list of all the farmers in Scotland, or he would say, all the farmers and occupants of land in the county of Ayr, every one of these would receive a printed schedule. They would be put to no expense in the matter; all they had to attend to was to fill it up as speedily as possible, and return it to him. The schedule would not inquire how many bolls of wheat, or how many tons of potatoes they had raised within the year, nor anything that could bear on taxation. He asked A B what was the total acreage of his land; how many acres he had in wheat, how many in barley, oats, beans, peas, potatoes, and so on. Beyond that no question was put to any farmer, and even that was not published; it came to him confidentially. They were also asked to state the number of their horses, cattle, and sheep, subdivided so as to let them know what was breeding and what was feeding stock; but without putting any question to any sheep farmer as to how much wool, or how many lambs, he had in the year. These were the only questions that would be asked of individual farmers, and the answers were to be sent to the Highland Society's Office, addressed to him, and he would treat them as quite confidential; no official but himself would be aware of their contents. In the trials of last year the schedules were collected by officers in each district; but it was found to be a

laborious process, and moreover the farmers were as willing to send the information direct to himself. Accordingly, this year they just sent a schedule to each farmer to fill up, asking how many acres wheat he has, how many acres potatoes, and so on, for the purpose of making an estimate of the produce. He took this county and parcelled it out into districts; and, as an instance, he would take the parishes in Carrick district. He had a roll of all the farmers in these nine parishes, and from the whole returns, he ascertained that there were say 1,000 acres of wheat in that district. Now all that came out to the public was, not that A B had so much, but that in that district there were 1,000 acres of wheat."

Here, in our opinion—one we have repeatedly expressed in commenting on other systems suggested—all direct interrogatory to the farmer should stop. A knowledge of the breadth of land sown with any particular crop is the great point to be arrived at. Many are the methods for proceeding after this. Farmers are to strike their own averages—paid commissioners are to travel the country, and so on. Mr. Maxwell, without going quite directly to him, would still make the farmer his chief, if not his only agent. We must confess that, for general use, we cannot but consider this the least promising part of his machinery. It is not all who will share the enthusiasm of the director.

"They would have a committee in the Carrick district—taking it as an instance—that committee consisting of one or more farmers from each parish. That committee would have a convener called the enumerator. It would be the duty of that committee, before and during harvest, to keep their eyes upon the crops in their respective parishes, and to hear what the opinions of their neighbours were on the subject. After thrashing began, the enumerator would call a meeting of the committee at a convenient time. As every gentleman came with his note, they would consider and decide how many bushels of wheat per acre weight; and the enumerator would transmit the result to him. He would then write in his notes that a committee called together had found that the average produce of wheat per acre was, say 35 bushels. He had already got in his book that there were so many acres grown in that district; and he then sent information to Government that in district No. 1, being Carrick, 35,000 bushels of wheat had been grown. Now, he defied any man to say there was any disclosure of private affairs there; or that the returns would be instrumental in taxation, even supposing Government was inclined to make such a use of them."

It is but fair to add that this has already the approval of some of the "leading" agriculturists in Scotland, although scarcely in the specific terms in which Mr. Maxwell details his arrangements. At a recent meeting of the Kelso Farmers' Club, Mr. Dudgeon, of Spylaw, the president, read a very elaborate paper on the subject, in which he thus refers to this branch of it:—

"It was then wisely arranged, in our last year's experiment, that only the acreage extent of the distribution of his possession, as regards crops and grass, should be required from the farmer. The produce, you know, was left to be afterwards estimated by parties acquainted intimately with the

locality. In this there is nothing obnoxious, or that can be called inquisitorial. And while I think no other plan will ever recommend itself to the farmer, I am satisfied a nearer approximation to truth, as to the amount of produce, will in this way be obtained than if the estimate was left to be made by the farmer himself. But the enumerator must be a person well acquainted with the locality, and with the nature of the soil and management pursued in the district in which he is called upon to act."

We may borrow a word or two from this same practical authority, Mr. Dudgeon, as to the advantages his own class may derive from furnishing these statistics. Speaking of the possibility of supplying our own people, and establishing a "profitable occupation," Mr. Dudgeon declares that

"To effect this end and maintain this superiority, I know of nothing that can better contribute than the speedy diffusion of correct information, as to the result of the different modes of operation pursued in various parts of the country, by the publication of agricultural statistics. It is in this respect, then, it has appeared to me, that agriculture cannot fail to derive real benefit from the information embraced in statistical returns of our agricultural produce. Much, we know, is effected by example and a wholesome rivalry; and hence one great use of having set before us right information, not only as to our neighbours' progress, but the disparity in productiveness which exists in different districts of our own kingdom."

Because, as he adds, like Mrs. Candour in the play, always most terrible when most truthful—"Agriculturists are a people who remain much at home, and are somewhat limited in their range of vision; and it is notorious that they have never either acted in concert, nor have they possessed any mode of united communication for the general good."

The Ayrshire Agricultural Society and the St. Quivox Farmers' Club carried unanimously a resolution signifying "how fully alive they were to the benefits which agriculturists as a class would obtain from the scheme proposed by Mr. Maxwell, and giving their best support to the measure." Mr. Dudgeon, quite as much an enthusiast in his way, "was listened to with marked attention" by the members of the Kelso Farmers' Club; and "his views appeared to meet with the general acquiescence of the members present."

Farther north, then, in any case, we are "all at one" as to the advantage of agricultural statistics.

In the particulars of Miscellaneous Estimates, just distributed by Parliament, is the following item:—"For agricultural statistics, to be collected in the three kingdoms, the sum of £13,000 is required. There is to be a "complete system" in Scotland, carried out through the medium of the Highland Society; a "complete system" in Ireland, under the management of the Board of Public Works; and in England there are to be "further experiments," under the superintendence of the local officers of the poor law.

Sir John Walsham has made a further report on the subject

of agricultural statistics, from which it appears that he and Mr. Hall Maxwell (representing the Highland Society) have agreed upon the form of schedule that should be sent to occupiers, and generally upon the mode of proceeding. They agree that the inquiry should be at first confined within the simplest limits, and not elaborated by questions calculated to excite the distrust, and so the opposition of the farmers. They propose that the distribution of crops and the amount of stock throughout Great Britain should be ascertained on the 1st of July; that the estimates of the produce per acre, to be prepared by the enumerators of the Scotch districts and the statistical committees of the English unions, in respect of the harvest, should be lodged with the superintending authority, by whom the results of such harvest would have to be calculated, between the 20th of October and 20th of December; and that the Board of Trade should publish the estimates before the 1st of January. Sir J. Walsham believes that in England the Poor Law organization supplies the best agency for obtaining these statistics, and that a vote of 15,000*l.* would suffice to remunerate the officials for their trouble, and defray the expenses. The English vote to be proposed, however, stands in the miscellaneous estimates at only 4,000*l.* for "further experiments."

The following remarks on this important subject we take from the money article of the *Times* of Friday last:—"Arrangements continue in progress for the establishment of a system of agricultural statistics, and a supplementary report has just been presented by Sir John Walsham, stating the conclusions regarding the best methods for its introduction to which he has been led by his recent experimental inquiry in Norfolk, as well as by that conducted in some counties of Scotland, by Mr. Hall Maxwell, on the part of the Highland Society. Sir John still considers that the agency of parish officers and boards of guardians will be the most effective; and he estimates that by this means the whole work might be performed, as far as regards England and Wales, for an annual sum of 15,000*l.* It is pointed out that boards of guardians necessarily comprise a considerable proportion of the leading agriculturists throughout the country, while union officers are well known and generally acceptable to all classes within the district for which they act, and, as a body, are most intelligent and trustworthy; and that, if this organization were made available, nothing more would be needed than for the Board of Trade to delegate the undertaking to the Poor Law Commissioners. The other agencies that have been suggested are the employment of the collectors of assessed taxes, the constabulary, or the registration officers; but it is contended that the first two would be unpopular, and that the last have not the same intimate standing with the occupiers of land as that possessed by the Poor Law functionaries, to whom, moreover, the machinery of their existing duties is already mainly confided. In each case, too, the expense would be greatly increased, and perhaps doubled. In relation to the points to which the system should be directed, it is agreed that the inquiry should be at first confined within the simplest limits, and not elaborated by questions calculated to excite the opposition of the farmers, and also that the distribution of crops and the amount of stock should be ascertained on the same day throughout Great Britain, and that the 1st of July would be the most convenient period for this simultaneous operation. It is also considered that the estimates of produce per acre should be lodged with the person by whom the results of the harvest would have to be calculated during the two months ending the 20th of December; and that the publication of these estimates by the Board of Trade should take place, if possible, before Christmas, or, at all events, between

the 20th of December and the 1st of January. Finally, it is stated, with reference to the feeling with which agriculturists regard this scheme of collecting agricultural statistics through the agency of boards of guardians and their officers, that a general opinion in its favour seems to prevail among practical men. Under these circumstances, looking at the critical influence which the next harvest must have upon all the commercial and financial interests of the country, it is to be hoped that no obstacles will be permitted to prevent the entire system being put in force during the present year.

AVERAGES OF WHEAT.

SIR,—I send you a statement of the yearly general average of wheat from 1816 to 1828, and the highest and lowest average prices each year from 1829 to 1854, with the state of the harvests from 1816 to 1854. That I may not be charged with *pirating*, I beg leave to inform you I copied the statement of the weather from the *Liverpool Courier* newspaper, the general yearly average from 1816 to 1828 from Messrs. Sturge and Co.'s yearly circular, and the highest and the lowest yearly averages from 1829 to 1854 from the *Liverpool Mercury*, who had inserted it from the Corn Inspector's account, *i. e.*, a tabular statement, according to Act of Parliament. So faithful is the account of weather and harvests, that very many in the corn trade will at once bring to mind the facts and circumstances caused thereby. I do not wish to make a political question out of it; but there is one remarkable feature in it, and very observable throughout—that after fine weather and good harvests corn was always cheap, both before and since the abolition of what is called protection duties; and that since then prices of corn rose higher after bad harvests in less time, and remained longer so than formerly; but perhaps this may have been caused by some unforeseen circumstances which the framers of the bill never contemplated.

I remain, Sir, your obedient servant,

THOMAS TIPPING.

Liverpool, May 30, 1854.

The yearly average price of Wheat, from 1816 to 1828 inclusive, and from 1829 to the present time, 1854, with the harvest weather, and highest and lowest average price of Wheat in each year—

Years.	State of the Weather.	General yearly average.	
		s. d.	
1816.—Cold and wet all through; corn sprouted; black loaves		76	2
1817.—July and August cold; September fine; corn soft		94	0
1818.—Intensely hot		83	0
1819.—Hot summer; August intense		72	3
1820.—Fine and productive		67	11
1821.—Rains during harvest; sprouted corn		56	2
1822.—Splendid weather; abundant harvest		44	7
1823.—Showery and cold summer; rained every day in July		53	5
1824.—Intensely hot; good harvest		64	0
1825.—Hot throughout; good harvest		68	7
1826.—Hottest and driest on record; abundant harvest		58	9
1827.—Hot, but not as 1826; good harvest		56	9
1828.—Immense rain, floods began in July; harvest bad		—	—

Years.	State of the Weather.	Lowest and highest average in the year.		
		s.	d.	s. d.
1829.—Cold stormy summer		55	4...	76 0
1830.—Cold and wet June		55	0...	75 0
1831.—Warm, gleamy weather		59	0...	75 0
1832.—Moderate		51	0...	63 0
1833.—Very fine weather; abundant harvest		49	0...	56 0
1834.—Hot summer; rain end of July; abundant harvest		40	0...	49 0
1835.—Hot dry summer; abundant harvest		36	0...	41 0
1836.—Midsummer cold, dry; harvest not amiss		36	0...	61 0
1837.—Severe spring; hot summer; deficient harvest		51	0...	60 0
1838.—Cold spring; harvest not productive		52	0...	78 0
1839.—Heavy rains; productive harvest, but damaged		65	0...	81 0
1840.—Warm; August hot; seed deficient ..		59	0...	73 0
1841.—Warm May and June; cold July and August; fine harvest in September ..		60	0...	76 0
1842.—Fine spring; delicious summer; good grain, but not plentiful		47	0...	66 0
1843.—Fine wet spring; fine summer; good harvest		45	0...	61 0
1844.—Dry summer; no rain in April, May, June; good harvest		46	0...	56 0
1845.—Cold long winter; ungenial summer; no sun in summer; harvest plentiful, but bad corn		45	0...	60 0
1846.—Spring fine; June half wet, half dry and hot; thunder; loss of potatoes ..		45	0...	64 0
1847.—Cold wet bitter spring; fine summer; cold and wet September; beans and potatoes blighted		49	0...	102 0
1848.—Winter and spring mild; showery harvest		47	0...	57 0
1849.—Bitter spring; in summer rain at nights; day hot; good harvest		38	0...	49 0
1850.—Cold to May; harvest good		37	0...	44 0
1851.—Winter mild; spring wet; harvest precarious		35	0...	43 0
1852.—Mild winter; cold spring; fine summer; average corn harvest; potatoes diseased		37	0...	46 0
1853.—Immense wet winter; cold summer; wet July; autumn rainy; deficient harvest in France and England		43	0...	73 0
1854.—Severe winter; great winds; beautiful spring		78	0...	82 0

GORSE OR FURZE FOR CATTLE.

SIR,—Gorse has been proved for a length of time to be a most valuable food for cattle and horses, as a substitute for hay. This plant flourishes upon sharp sands with a dry sub-soil, and yields about two tons per acre. The soil should be cleansed and pulverised, as the seed is best put in with the drill, giving about 20lbs. per acre.

Being aware the slug is the great enemy when the plant just comes out of the ground, and only in its first two leaves, and at that time easily devoured, it is (for safety) best to apply 1½ cwt. sulphate per acre, which relieves all anxiety on that point. It has been proved by careful trials with a cow fed upon gorse or furze in November, that the yield of quality and quantity of cream and butter exceeded that of any other mode of feeding. The practice has already been so beneficial, that every friend of his country must wish a continuance of its success, in which we heartily join.

Yours, &c.,

RICHMOND AND CHANDLER.

COVERED STEADINGS FOR FARMS.—LORD KINNAIRD'S EXPERIMENTS.

We have occasionally alluded to the question of covered steadings for farms. Last Christmas we showed how a large area might be covered in, and the internal arrangements made portable and moveable, so as to be easily adapted to the changing fashions of farming practice, whether the loose box, the shed, or the stall-feeding system were adopted; and that almost any change might be made, if a four-squared piece of sloping ground were fenced in. With all our knowledge, the liquid manure is the real difficulty of the farmer; he knows not yet what to do with it. To save it, and cart it away, is manifestly a costly mode of disposing of it; to make compost heaps near it is very costly, and terribly expensive of horse and human labour. Few can irrigate with it; nor will those, who can, be at the expense of making the pipes and hose necessary to spread the water-refuse. Box-feeding will preserve a little; but the open yards, the manure cleaned out of the pigsties, the stables, and the various out-offices of the farm, will be found exposed in most places for a very long period to the effects of the atmosphere.

We must not, however, forget locality. In some places hardly too much rain falls; in others almost all the soluble parts of the manure are regularly washed out. Still water is far easier let out upon the manure if it run any risk of being too dry, than to stop an overflow of liquid if it exists in excess.

But we believe few animals will not make as much liquid as will keep the manure quite sufficiently wet in almost all situations; and as a covered stabling will always prevent a vast amount of evaporation quite inseparable from an open yard, we think it will not be found in practice to be so very objectionable on the head of want of moisture.

We must bear in mind, however, that there is more than manure to think of: there is the health of the animals to consider; and it will be found necessary to have the means of a very full ventilation, as well as the power of opening or closing different parts of the building at different periods of the year. Shelter and air will thus be combined; and if the animals, so often loose in our yards, with their fat and muscle washed off by the rain, and blown away by the winds, can be thoroughly sheltered, and kept at the same time in a state of equable temperature with ample ventilation, a vast saving of animal food will be accomplished. The mode of patching one building to another should be at once and for ever abandoned, and the tendency of

all improvements must be to cover in the whole, and then a little boarding or Scotch fencing fixed in lengths can be made in the inside, so as to give the complete command of space, of situation, and of change in arrangement to the farmer.

How many new buildings are found inconvenient for future working, which at the time of their erection were really thought perfect! The barn, for instance, has been placed so as to be near the stackyard; and the straw has been to carry over the whole foldyard, because it was far from the cattle-sheds; or a set of cowhouses have been erected in simple reference to a root-house, while a boiling-house ought to have been there instead of at some other corner, involving the transit of the whole food for the animals over yards and yards of distance, creating miles of travelling in the course of a season. But with covered steadings and temporary internal arrangements, the whole may be modified and re-arranged in a day.

We must give a word of caution on the new state of things this will bring upon the farmer. He must not imagine he can confine animals in such a close atmosphere without providing some mode for the escape of the foul gases attendant on close rooms. He must have double ventilation. First, there must be doors at regular distances along the bottom of the buildings, for the pure air from without to drive off the heavy carbonic-acid gas breathed by the animals; and there must be, as well, top ventilation, to let off the lighter but no less destructive gases; and a little peat charcoal and frequent lime-washings may be much more necessary than they are even now. And how easy it is for a farmer, if he pleases, to have a camera inserted in the roof, and so bring down to a looking-glass or a table in his sitting room a view of all that is doing in his farmyard both by his servants and his stock! The command of the "master's eye" could be regulated in no other way so completely.

Lord Kinnaird has made some very valuable experiments on the manure part of the subject, with grain and potatoes, which are well worth consideration. He planted 20 acres with potatoes, partly with covered and partly with uncovered dung, or rather dung produced under the above two circumstances, and measured two lots of each. Of the dung which had been uncovered the produce gave—

		Tons. cwt. lbs.	
1st measurement—1 acre gave.....	7	6	8
2nd do. do.	7	18	99

showing that very nearly an accurate plot had been selected. The covered dung potatoes were also weighed in a similar manner, and something very extraordinary resulted. The

		Tons.	cwt.	lbs.
1st measurement—1 acre gave...		11	17	156
2nd do. do.		11	12	26

Wheat followed this crop, and 3 cwt. per acre of guano were applied to the whole field. The *uncovered* dung plot produced—

	Grain.	Straw.
	Bush. lbs.	St. of 22lb.
1st acre	41 19	152
2nd acre	42 38	160

The *covered* dung portion was again successful, almost in the same ratio as before.

1st acre	55	5	220
2nd acre	53	47	210

The weight per bushel, however, was in favour of the uncovered dung, the average of that being 61½ lb., of the covered dung only 61. Half a pound

per bushel is not, however, of such vast importance compared with 10 to 14 bushels per acre more corn and some one-third more straw per acre, and may be possibly accounted for on the principle that the smallest crops often yield the *heaviest weighing* corn.

We are sorry to observe in Lord Kinnaird's covered sheds any apparatus for low ventilation, nor do we think the top ventilation by any means sufficient. We would also strongly urge the necessity of trapping all the drains, so that the animals may not be constantly subject to the confined escapes from perhaps the whole of the liquid residuum, putrefying and sweltering in some confined tank.

Mr. Fisher Hobbs has given the estimates and details of two covered homestalls, the one proposed to cost £1052, and the other £1166. We are sorry that some much less expensive were not at first selected, because it is quite possible, we are certain, to erect useful covered buildings with temporary internal fittings for half these sums.

PROGRESS OF MECHANICAL SCIENCE IN THE CONSTRUCTION OF AGRICULTURAL IMPLEMENTS.

SIR,—The period when the annual and national testing of implements by the Royal Agricultural Society is publicly carried out being close at hand, leads naturally to a reference to the Society's reports on the exhibition of implements at the Gloucester meeting of the last year. The three main features of mechanical progress in the reports may be considered as embraced by the reaping-machine, the steam-engine, and the combined thrashing and dressing machines; marked progress being also shown in other implements of farm economy.

First, in regard to the reaping-machines, much would appear to be left to the future in perfecting them. This opinion is supported by the following extract, subscribed to by the steward of field implements, the consulting engineer, and the judges, "that, by a combination of certain elements which exist in the various machines exhibited, there might be produced one surpassing anything hitherto brought before the public. Such an implement might be made to unite the advantages of simplicity in construction, greater durability, lightness of draught, and reduction in price, with the thorough capability of being more easily managed by the agricultural labourer." This remark, the combined opinion of observant and practical men, leads to the inference that mechanical skill, since the last meeting of the Society, will be found to have been directed to this important machine, and that at the next meeting evidence will be afforded of decided progress in the perfecting of that great desideratum, a truly effective reaping-machine.

Secondly, as to steam-engines, Mr. Amos, the eminent consulting engineer of the Society, in his "General Report," observes: "The fixed engines have not attained that degree of excellence which it is to be hoped will be developed; and, where *durability* is taken into consideration, the *vertical* cylinder will be found preferable to the *horizontal* one." Here we have opened a subject for grave consideration, and emanating from a source that will undoubtedly rouse the energies of engineers to stand beyond such remarks, particularly as the fixed engine will probably, sooner or later, among agriculturists, come into very extensive use. Mr. Amos also observes, in connection with the portable engine, "Economy in the fuel required to work them was carried to a greater extent than is consistent with simplicity of arrangement; indeed, the extra expansion-valves, double-action forcing-pumps, and a few other details of that character, which formed a part of the arrangement of some of the engines exhibited, are superfluous, and render the implement too complicated for the farmer's purpose." He further adds:—"In both classes of engines for the farmer's use, no other expansion is admissible than that which may be obtained by a lap on the common slide." The judges of implements, appointed by the Council, in their report "beg strongly to recommend, for the consideration of the Council, that in future exhibitions the superiority of one engine over another should be considered, with regard to their simplicity of arrangement, each part being well proportioned, and easy of access and repair, combined with steady and economical working and weight, and of course,

price." These remarks, the very essence of a long series of observations, continued year after year by the Royal Agricultural Society, involve most serious practical experience, and such only as can be determined by thoroughly practical mechanical minds—in fact, by scientific and constructive engineers; as that which oftentimes is apparently the most complete will be found in practical details somewhere or other defective: thus in carrying out extreme simplicity of arrangement, a sacrifice may be made at the cost of permanent efficiency, or for economical working, too great a sacrifice of water capacity of the boiler, for the purpose of obtaining a greater amount of fire surface—or for reducing to its minimum the weight of an engine, an inroad is made on the mass of material which is essential for safety and durability. Some of the earlier portable engines were of simpler construction than those now generally made, having horizontal and rocking cylinders fixed on the top of the boilers, the piston-rods connected direct with the crank, without guides or other intermediate apparatus, with self-acting disc-valves and flued boilers, and but little if at all exceeding the present weight of the most improved portable engines of the present day; yet it does not follow that those properties constituted them as equal to the engines now sent out by many different manufacturers. At a recent meeting of the Royal Agricultural Society, Mr. W. F. Hobbs, who has long taken a very active part in forwarding the improvements of agricultural implements, observed, "that as a steward to the implement department at Lincoln, he should be most happy if gentlemen who were connected with mechanical science would throw out hints for the occasion, which might prove useful to the judges in the discharge of their duties." Presuming on this observation, might it not be suggested that, previous to the trial of the engines, their experienced consulting engineer, either individually or in connection with other scientific gentlemen, should first review such as are intended for trial, and declare an opinion as to the arrangement of engine and boiler, and quality of workmanship, whether good, mediate, or indifferent, and afterwards the judges to decide on the merits of the trials? Going a step further, might it not be found advantageous to the agricultural world that the Society should determine, by actual observation in the farm-yard, whether the results obtained there accorded with those produced in the trial-yard by the same maker's engines? The object might be attained as follows, selecting the makers of such engines as had gone through the ordeal of the trial-yard, and whose engines might be deemed deserving of further investigation: the said makers should furnish to the Society references to two or more parties who have made *bona fide* purchases of their engines, and who have had the same in ordinary work for a given time, say two or three months or more; then let the Society communicate with those parties, and, selecting one of each maker's, at an appointed time let the Society send direct to the place their own engineer, or some other competent person, who shall ascertain that the engine is not got up for the special occasion; and who shall also witness a day's

work with the engine, seeing the coals weighed, ascertaining the quantity of water evaporated, the amount of corn thrashed, and the quantity of straw that has passed through the machine, and also taking note of the condition of the straw. By this method the public would arrive at a more correct knowledge of the comparative merits of different makers' engines than can be ascertained from the limited time devoted to actual operation in the trial yard.

Thirdly, in respect to the combined thrashing, shaking, and dressing machines, since the Gloucester show much excitement and attention have been directed to this implement, particularly in consequence of an American rival towards the close of the year 1853 having entered the lists as a competitor for public favour. This American machine has led to much discussion, as to what is the necessary strength, and how much of the weight of these modern compound thrashing machines may be dispensed with, and yet the machine be left effective in operation and durable in its parts. The judges, in their report of the Gloucester meeting, spoke well of the machines of several makers of this class of implements, but appended to their report this remark—"They again call the attention of the Council to the necessity of obtaining a supply of barley in the sheaf for these trials; for machines that will not thrash barley without injuring it for malting purposes ought no longer to be tolerated, much less rewarded and recommended by the Society's prizes." This judicious remark shows the set of the current; and that the Royal Agricultural Society of England, regardless whether implements be made by A, B, or C, is determined, to the best of its judgment, to direct the mechanical skill of the country to such points in farm-yard machinery that defects may be obviated, and a high class of perfected implements become one of the standing tests indicative of agricultural progress.

A PRACTICAL MECHANIC.

THE CRYSTAL PALACE AGRICULTURAL MUSEUM.—An apartment is provided in the north wing for the Exhibition of Agriculture; there will be a museum of geology, rocks, soils, subsoils, and their produce. The young farmer or aspiring student will find, beside every suit of specimens, in a coloured map of the country for that particular purpose, any district that produces limestone or mineral manure, chalk with or without flint, marl or green sand, and coprolite. An hour's examination will instruct more perfectly than a series of lectures. If the agriculture of any one district is required, he will find specimens with this end in view—the manure and the implements generally used; every variety of the grasses and grain in seed, and of the beautiful specimens of wheat (of which there are many in this corn district) and their uses—flour, starch, manufactured straw, and paper. There will likewise be exhibited the high products of the grazing districts—cheese, wool, &c.; also stuffed specimens of all the different sheep in this country; so that the farmer, upon his visit to this scene of wonder and delight, will find himself at home at all his exciting pursuits, and feel well repaid, even by this true representation of his daily toil. This Museum of Agriculture will surpass anything of the kind in Europe.

EXPORT OF BRITISH CATTLE.

(FROM A SUBSCRIBER.)

I have much pleasure in sending you some particulars of a valuable cargo of short-horned cattle and seven Leicester sheep, which sailed from Liverpool on the 29th May, in the ship *John Bull*, for New York: Messrs. Kendall Brothers, owners; Captain Richardson, master. They were an order for a lot given to Mr. Douglas, Athelstaneford Farm, Drem, East Lothian, by H. L. Eades, Esq., for the United Society of Shakers, Warren county, Ohio, United States, and consisted of six bulls, from 7 to 22 months old, and ten cows and heifers, from 1 to 4 years of age—ranging in price from 50 to upwards of 200 guineas. They were in healthy breeding condition, and very promising animals; are got by the following first-class sires:—*Crusade* (7,938), *Mole-catcher* (10,537), *Benedict* (7,823), *Baron of Ravensworth* (7,811), *Indubras* (10,339), *Trumpeter* (10,978), and *Pitzadolphus Fairfax* (9,124); in short, a more choice lot could not have been selected, nor better adapted for a transatlantic passage. Amongst them my attention was particularly drawn to *Crusader*, by *Crusade*, a 1 year and 10 months old bull, and *Scottish Blue Bell*, a 2 years old heifer, by *Mole-catcher*; being, in my estimation, as near as possible, two perfect specimens of this interesting breed.

Scottish Blue Bell, I learned, is from Mr. Douglas's famous prize cow *Blue Bell*, by Captain Shaftoe, and half-sister to *Cœur de Lion*, who was sold this spring, at 10 months old, for 200 guineas, to Mr. Mylne, of Kinlaidie, Aberdeenshire; she has been exhibited on four occasions, and has distinguished herself by being as frequently successful, having won the first prize in her class as a yearling in 1853, at the following important Agricultural Societies' Meetings, viz.:—The Border Union, held at Coldstream; Glasgow District, at Glasgow; Royal Irish, at Killarney; and the Highland Society, at Edinburgh.

Crusader has never been exhibited; but is quite a show bull, and will not be easily set aside at any exhibition of stock; is an animal possessing beautiful symmetry, great style, with good hair and fine quality of flesh. He is own brother to the famous heifer *Purity*, also bred by Mr. Douglas, in whose possession she was never beaten, and obtained the following prizes:—The Border Union (twice); Highland Society, at Perth; Glasgow District, at Glasgow; East Lothian, at Saltoun; Great Northumberland, at Belford; and Royal Irish, at Killarney; and also this spring her present owner Mr. Campion, exhibited her at the Royal Dublin Society's Meeting, where she was awarded the first prize in her class; also silver medal as the second best of all the prize breeding heifers in the yard.

The whole of the arrangements for and the shipment of this lot of stock was entirely left to Mr. Douglas, who was very fortunate in his selection of the *John Bull*—a substantial English-built ship, and a very dry sailing vessel, while her deck accommodation is both ample and convenient. The fitting up of the stalls and trappings on deck were executed by Mr. Hayes, of Dublin-street, who also fitted up the Bailey, which in both cases were substantial and comfortable; the only difference being a greater length of stall, obtained by the additional width of the *John Bull*. They are provisioned for 60 days, and every precaution was taken to ensure safety and comfort on the voyage. I heartily wish them a safe, and speedy passage, and notwithstanding the great risk and heavy expense that must necessarily be incurred by such exports, still believe and hope that the spirited and most respectable community who are in this case importing will not only be

amply repaid, but that they will reap permanent advantages from the enterprise.

I may mention here that one of the first prize bulls, bought by Dr. Watts and Mr. Wadille at the Royal Dublin Society's Meeting in April last, called the *Czar*, is from a heifer, bred by Mr. Douglas, named *Maid of Athens*. These shipments of our best cattle are more likely to increase than diminish, at least for some years to come; and it is not improbable that the result will be that, in the long run, breeders in the parent country will find it necessary, and to their advantage, to select their herd bulls in the New World.

The buying of the best short-horned cattle for America, together with the increased value of and demand for the best sorts of feeding cattle at home, have of late wonderfully increased the value of really superior animals, and this description are at present worth more money than they have ever been at any former period, which must have the effect of giving a direction and incentive to breeders of this most interesting and valuable species of cattle to breed from nothing but the *very best on either side*.

MR. GEO. TURNER'S ANNUAL RAM SALE was held at Barton on June 1st. The weather was delightful, and there was a large number of agriculturists present from various parts of Devonshire, Somerset, and Cornwall. Among them we observed Mr. S. T. Kekewich, Mr. G. Fursdon, Mr. J. Belfield, Mr. W. R. Clarke, the Rev. H. Palk, Messrs. T. Kingdon, T. Potter, Elliott, Wilcocks, Gibbings, E. Archer (Trelaske), Wippell, &c., &c. Mr. Turner's stock, as usual, was in prime condition; his cattle excited much attention, and were enthusiastically praised by the agricultural visitors. Previous to the sale, a luncheon was provided, after which the health of Mr. Turner was cordially drunk, and his merits as a breeder were warmly acknowledged by all the company. His breed of sheep was much commended; and we heard many eminent agriculturists present declare that it improved every year. The Leicesters, it was said, were excellent "rent-paying" sheep, and made the most mutton and wool, in proportion to the quantity of food consumed, of any other breed. The results of the sale showed how much they were appreciated by the farmers of different counties. Mr. Hussey was the auctioneer, and, as usual, discharged the duties most efficiently. The first ram was put up to be let. It was a splendid animal, and was knocked down to G. Fursdon, Esq., for 20 guineas. The next was let to Sir J. B. Y. Buller, for 25 guineas. Another very superior animal, which Mr. Turner said he intended to exhibit at the Royal Agricultural Show, at Lincoln, was let for 25 guineas to Mr. Anstey, of Coombeamancey. Another was let to J. W. Buller, Esq., of Downes, for 18 guineas. No. 10, to be let, was knocked down for 20 guineas, to Mr. Burrington. Nos. 8 and 12 were let to Mr. O'Dogherty, of Cornwall, for £11 11s. and £3 8s. The animals to be sold were then put up, and realised good prices. The first was described by the facetious auctioneer as a splendid ram, having "a back like a billiard-table, as curly as a spaniel, and as handsome as a 'pict!' " It was sold to Mr. Roberts for £10 10s. The sales ranged from £5 5s. to £10 10s.; and the whole—about twenty lots—were quickly disposed of. A couple of fine boars were then sold, the first to Mr. Roberts for 9½ guineas, and the second to Mr. Hussey, for the same sum. E. Archer, Esq., of Trelaske, purchased the third—"The Black Prince"—for 7½ guineas. Two prime yearling bulls were offered for sale, but there were no bidders for them. The auctioneer closed the sale by inviting the company to inspect Mr. Turner's prime cattle, some of which he declared were not to be excelled in all England.—*Western Times*.

S H E E P - S H E A R I N G .

There seems something exhilarating to a flock-master in the very mention of the season of sheep-shearing; it carries with it many pleasing associations, and has been from time immemorial connected with the most interesting of ancient rural festivities, whereat the master and men, household and neighbours annually joined, to celebrate the return of summer. We regret that this festival, the gayest in the year, and so conducive to promote and cement a kindly feeling between master and workmen, should have grown into disuse. We greatly admire the many ways that have arisen to give encouragement to the skill and industry of the labouring population, but we confess we should like to see a more general return to these enlivening and social festivals. These intimately concern every man's holding, and, where all is conducted upon generous and temperate principles, cannot fail to do good—to draw nearer the ties which should bind in amity the employer and employed.

Time of shearing.—This has altered very much of late years. It was the usual practice, before Mr. Coke commenced his Holkham sheep-shearings, to shear sheep between the 1st of June and the 1st of August; since the establishment of the Royal Agricultural Society the time has gradually changed to the 1st of May, and very few flocks are now left unshorn after the first or at most second week in July. The time should much depend upon the season and the state of the flocks: if the season is cold and the flock in poor condition, it is better to wait for sunny weather; but if the weather is warm, the sooner out of the wool the faster they will thrive.

Washing.—This is almost indispensable; the difference in value between washed and unwashed wool is so great that one need scarcely point out the fact: indeed, we should not have drawn attention to it, did not the practice of shearing unwashed sheep still prevail in some hilly districts—this ought not be. The best wash-dikes are those containing a large proportion of tolerably clear stagnant water, capable of being let off and replenished at pleasure. The water in which considerable numbers of sheep have been washed is found to act like soap, and more speedily removes impurities in the wool than the clear running stream. The usual mode of washing is this—The dike is of sufficient depth to swim the largest sheep; a space about 7 feet square, called “the vat,” is inclosed by a rope, or other suitable contrivance, from this vat to the landing-place, and called “the swim;” the route is also confined by a similar contrivance, so as to guide the sheep in his course.

The sheep are collected in the adjoining large pen; they are in succession brought into the smaller or platform pen, and from this platform they are individually and gently thrown into the vat by the united efforts of two men, thus—The men take hold of the sheep on either side; a broad strap or a piece of curved wood prepared is passed under the body, and laid hold of by the other; the animal is carefully lifted, and is somewhat gradually slid into the water, head uppermost. Four of the sheep are allowed to be in the vat at one time, “to steep or soak,” during which they are thoroughly wetted and partially washed by the vat-man with a “poy,” *i. e.*, a thin pole with a transverse piece of about twelve inches long fixed on the end; with this he can either thrust them under, or draw them up, or guide at pleasure as required. After being sufficiently soaked, which may take from three to five minutes, they are separately passed to the washer, who (standing in a tub considerably sunk in the water) proceeds to scrub them with his hands, squeezing the foul parts, and turning them from side to side and occasionally over, so as equally to scour every part; they are then passed down the swim, and guided out with a poy by a lad from a pathway alongside. This operation should be finished early in the day, to give the sheep time to dry before night.

Shearing.—This should not take place before the wool is not only dry, but has had time to recover “yolk” or that greasiness which appears so acceptable to the wool-stapler. If the weather is warm, it will do in about eight or ten days, and may be readily known by its softness or oily nature. The shearing should always be under cover—a barn or suitable hovel. A platform or clipping board, raised a few inches, covered with a cloth, and stuffed with straw or otherwise, is the best adaptation for the convenience of the shearer and the ease of the animals that I have seen, and is my usual platform floor. The mode of operation pursued is as follows:—The sheep is laid by the attendants along the platform or clipping boards, with his legs towards the shearer; the shearer proceeds to the throat and shear the neck, bending it towards him, and bearing it as low as he can in its reclining position; this done, he gently raises the sheep on his rump, and turning his back towards himself, he commences shearing the wool from the breast, and, proceeding down the belly, he lays all clear from the rotundity of the belly, and also bares a portion of each thigh; the sheep is now resting on his rump, with his shoulder leaning against the knee of the shearer, as his

left foot now stands on the raised platform; he commences with the other side of the neck, the shears in his right hand and the legs of the sheep towards him; in this way he proceeds to shear down the whole side, taking care not to cut further than the backbone at each stroke or course, and to cut every stroke of the same width and as evenly as possible. Having bared as far down as the thigh, the sheep is again laid down, the thigh is bared, as also the tail and a part of the now under-thigh; the sheep is again raised, the shears are taken into the left hand, and the shearing of the corresponding side is proceeded with in the same way; the legs, purse, &c., are trimmed, and the sheep is "turned off" as finished. In many districts it is customary to shear sheep lengthwise, or partly lengthwise and partly crosswise. I much prefer the method I have described; and when the shearing is done in a creditable manner, the appearance of the animal is good and business-like—looks far handsomer, I think, than the fanciful diagrams portrayed upon the backs and sides of many sheep one sees in the market.

Snips or shear-cuts.—These should be immediately

dressed, to prevent bleeding, irritation, and the attack of flies; any simple adhesive dressing will suffice, a mixture of lime and soot, in proportion of two-thirds lime to one of soot. It forms a good cover for the wound and prevents further danger. It is applied as a dusting to the wound as soon as made.

Flies.—In some districts, flies are very troublesome to the recently shorn flock. Early clipping in a late season will sometimes be an effectual preventive, but not always. The little black fly, which is by far the most annoying, does not always make its appearance at any precise period. My usual remedy has been the persevering appliance of soft sheep-dung to the bitten part, smearing over the greater part of the head of the sheep. They look dirty, but it is an effectual preventive.

Marking.—This should be done at the time of shearing. A brand made of iron, dipped in a boiling preparation of pitch and tar, in proportion of three fourths of the former to one of the latter, and applied to the skin, is the best application with which I am acquainted. It sets almost instantly, and cannot be rubbed off.

OBSERVATIONS ADDRESSED TO THE TENANTRY OF HIS GRACE THE DUKE OF DEVONSHIRE, WITHIN THE BUXTON AGENCY.

ON TOP-DRESSING FOR GRASS LAND.

That there is a great extent of grass land, both in meadow and in pasture, in the district of the High Peak, capable of being made much more productive, I think no one will venture to deny; and it is with this conviction that the following observations and suggestions are made. In doing so I am not desirous to urge any one to enter upon what may appear to them to be doubtful experiments, or to induce an outlay which will not prove speedily remunerative; but all will be ready to admit that it is to their interest to increase the quantity and to improve the quality of their hay crops, and to render their pastures capable of carrying a greater quantity of stock, if these results can be obtained by an expenditure in artificial manures, or by any other means which shall be reproductive, and shall commence to be so immediately after being applied or adopted.

The advantage of top-dressing grass lands, whether in meadow or pasture, as well as corn crops, has now become generally appreciated by all good farmers, as is practically proved by the increasing consumption of guano, bones, nitrate of soda, and other artificial manures, the demand for which at the present time is unprecedented. This is in some measure to be attributed to the great breadth of land under tillage induced by the high price of corn, but in no small degree to the general effort making at improved cultivation throughout the kingdom. The part they have acted in the rapid advance of agriculture is universally admitted.

By the use of them the produce of this country in grain and in roots has been within the last few years enormously increased. Meadow, and second-rate pasture land, has not made the same advance in improvement, while of their capability there can be no doubt. Great attention is however now being

given to this object. While such marked success has rewarded the efforts which have been directed to the improvement of arable land, surely the high price of cattle, sheep, and wool, present at this time powerful inducements to endeavour to extract the same profitable results from grass land; and there is no other district of such description of land in England so capable of improvement by the use of light manures, as the extensive upland pastures and meadows of the Peak of Derbyshire. Their height above the sea renders the time at which vegetation begins to move in spring generally rather late, and forms an additional reason for supplying to the roots of the grasses at that period the stimulus and new food which these manures afford, operating to bring the hay-crops in the meadows to earlier maturity, increasing their bulk, and improving their quality, and giving to their pastures an exuberance and vigour which will show itself in the colour and thickening of the herbage, and in the growth of stock. They offer the best means of bringing an upland grass farm out of condition up to a state of average productiveness, or of raising it to a higher level.

MEADOWS.

There are few farms, and especially grass farms, on which yard manure is produced annually in sufficient quantities to bring the meadow land to the greatest state of fertility of which it is capable; consequently much remains in a condition in which it cannot possibly yield a fair profit to its occupier, unless he has recourse to some kind of artificial manure as an auxiliary.

On large farms, the carting and spreading of dung is attended with much labour, and a considerable saving may be effected by supplying the fields nearest to the homestead with farm-yard dung, and those in more remote situations with guano or

dissolved bones, which may be carted and applied at very small cost in labour, at the same time not omitting to give to such fields an occasional dressing of yard manure. Nothing should induce the farmer to lessen his appreciation of home-made dung, but to aid it by all means in his power by the use of bones and guano; but never to lose sight of endeavouring to increase the bulk and improve the quality of this invaluable fertilizer. This leads me to remark how little this object receives that degree of attention which it deserves. Those who have not witnessed the results produced will be slow to believe the great advantage gained by protecting yard manure from the effects of weather; and this may to a great degree be accomplished by simple contrivances which are very rarely adopted; too often is the liquid likewise allowed to run to waste, instead of restoring it to be absorbed by the bulk, of which it is the essence.

Peruvian guano and dissolved bones are unquestionably the best of the artificial manures, being quick in their operation, and they are those upon which the adulterator expends his chief ingenuity. Care therefore is requisite in the purchase of them, to ensure their genuine quality. Not only does immediate loss result to the purchaser of an adulterated article, but he is deterred from the future use of it, and not unfrequently ascribes the failure of his expectations to the wrong cause. The importation of guano, which in 1842 amounted to 1,700 tons, reached in 1852 the large amount of 150,000 tons.

Peruvian guano is preferable to bones as a top-dressing for meadow land, and two hundred weight per acre may be considered a fair quantity to apply. It is of the utmost importance that a favourable opportunity should be selected for this purpose. May is the proper time of year, and in this high situation from the middle to the end of the month will, in general seasons, be soon enough; but it is of such vital importance that this description of manure should be applied during rainy weather, that perhaps no favourable opportunity at any period during the month should be lost. The most favorable time is at the moment when, from the state of the atmosphere, vegetation is just about to make a start; but guano should never be applied except in damp weather, so that it may be immediately brought into contact with the roots, and not be left to lie on the surface of the ground, to be evaporated by heat and drought.

Immediate benefit is not the only advantage to be derived from the application of artificial manures. The use of them result in affording gradually year by year fodder for a greater number of cattle, both by increasing the quantity and improving the nutritive qualities of it, and thereby at the same time increasing the supply of home-manufactured manure. By means of them the hay crops will likewise be forced on, and be made ready for mowing probably ten days or a fortnight the earlier—an object of great importance in the Peak.

PASTURES.

Great improvement is to be effected in the grass lands of this district used as summer pastures, and especially in those of inferior quality. Although at an altitude averaging from 1,000 to 1,400 feet above the sea, their substrata of limestone, general sufficiency and good quality of soil, and sweetness of herbage, render them extremely healthy runs for young stock and sheep, of which they admit of being made to carry a greater number than they do at present.

It may be looked upon as an invariable rule, that in proportion to the natural productiveness of a soil, the effects of top-dressing will be more or less advantageous. As the former approaches the highest point, the latter will recede to the lowest. For instance, if three or four quarters of bone-dust

per acre were to be applied to the rich grazing pastures of Haddon Field, little or no benefit would result; but apply the same quantity to any of the land around Newbaven, and the improvement would be manifest. It is not too much to expect that some pastures, now only capable of maintaining young stock in store condition, may be made, by top-dressings judiciously selected and carefully applied, to turn out stock in a fit state for the butcher; nor that hill-side pastures, to which it has been hitherto found impracticable to apply lime, will be found to admit of the profitable application of light manures.

Bones will in most cases be found to be the best and most enduring top-dressing for pasture land. For many years after their introduction, the erroneous idea was entertained that they should be used in the dimensions of half-an-inch to an inch. Chemistry has however disclosed that bones of such a size decompose very slowly, and that therefore, in order to obtain a more immediate return for the outlay, they should be applied in dust, by dissolving them with sulphuric acid. When used in this state they are more easily and uniformly distributed on the land, and rendered much sooner available for the use of plants than half-inch bones; and when so applied, the benefit which they are capable of affording is estimated to last for several years, 25 or 30 per cent. of such benefit being realized in the first year.

Three quarters, which will average about half a ton in weight, is a proper quantity to apply at one dressing to an acre. If in any case it should appear desirable to apply a greater quantity of bones, it would be more advantageous to do so after a lapse of two or three years, than to lay it on at one application.

The period for applying bones to grass land varies in different localities. Some advocate the autumn, and others the spring of the year, as the proper season. If applied in the shape of dust in the month of May, and during showery weather, when vegetation is on the move and ready to seize eagerly on any food that is grateful to it, the time cannot be wrong.

Some excellent authorities in practical farming (and among them is Mr. Pusey) are now advocating the use of nitrate of soda as a top-dressing for grass land, but its merits have not been fairly tested on variety of soils, and its profitable application must therefore be yet considered doubtful. The value of bones and guano is established.

I have called your attention to this subject from two motives—first, because I feel it my duty to do so in the management of the property entrusted to my charge by your noble landlord; and, secondly, because I am desirous to see you join heartily in the endeavours which are being made on all sides to arrive at a better cultivation of the soil by means profitable to the occupiers. I have adopted this mode of communication as being the most convenient; and upon the above or upon any other subject connected with the farms in your several occupations I shall be at all times willing to advise and consult with you.

I remain, yours faithfully,

Buxton, April 20, 1854.

SYDNEY SMITHERS.

SHEEP FARMING IN AUSTRALIA.—The extent to which sheep farming has been carried is surprising. In 1852, about 200,000 bales of wool were sent to this country, which, valued at £20 each, gives a total of £4,000,000. It is scarcely necessary to point out the benefits this pastoral property confers on us. Australia furnishes double the quantity of wool imported from other parts of the globe; and should there be a diminution in the supply, the operation of one of the most important branches of manufacture will be checked, and the comforts of the public considerably abridged.—*The Land Promise.*

APPLICATION OF STEAM-POWER TO FARMING OPERATIONS.

It may fairly be said that the discussion is ended as to whether a farmer, occupying say 200 to 250 acres of land, should or should not avail himself of steam power. That is now a settled and determined fact, and thousands of agriculturists are doubtless waiting to ascertain whether the steam-engine will ever be capable of doing all his operations, instead of being restricted to those which from being performed *at home* are within the ordinary reach of such power.

The manufacturer confines all his operations within a space less even than is usually occupied by the ordinary farm-buildings of a moderately-sized homestead; but in this he has the power of hundreds of horses and thousands of hands, performed by the regular, willing, and steady engine. The farmer, however, is restricted: he can only apply the power of steam to a small portion of his work. True, he can thrash and winnow, can chop straw and bruise corn, cut turnips and grind his flour—nay, he can even convey these, the straw to his cattle or the corn to his granary, without any very material increase of expense; therefore, as regards the minor operations of his farmstead he can make steam essentially subservient to his wants.

But here he stops. And yet these are but few of the many operations of farming, valuable in themselves, and economical of that most costly of all things to him—his horse power; he cannot use steam for his great operations, as ploughing, sowing, harrowing, rolling, mowing, carting, stacking, &c. In the meantime, however, he is getting his work done pretty well by some locomotive or fixture, whether future invention is or is not further to help him.

We well remember the wonder with which the portable farm steam-engine was viewed at the Liverpool Meeting of the Royal Agricultural Society. It was then a very imperfect implement, and a very different one, to what is now turned out. From that year (1841), there have been vast strides made, and the close competition and severe tests adopted by the Royal, the Yorkshire, the Lincolnshire, and other agricultural societies, as well as the vast trade done in locomotive agricultural steam-engines, show how the agricultural mind is opening to their advantages, and how mechanical talent is being exerted to meet these wants. Taking the twelve steam-engines of the portable kind, which were put to the test by the Royal Agricultural Society at Gloucester, last year, would it

be believed that there could one be found which would get up its steam in 33 minutes, and for this consumed only 31 lbs. of coal? An investigation might perhaps determine that the economy of fuel had no connexion with this short period of time in getting up the steam, and that the proportionate quantity of water in the boiler might be even less than that in the other boilers where the average of time in getting up the steam did not exceed 45 minutes; still the result is deserving of record. The most surprising fact, however, was the small amount of coal per horse-power per hour expended, to produce which effect some of the engines, where the economy was greatest, had somewhat complicated valve gear; but a caution has now been properly given to pay attention in future rather to simplicity of arrangement, proportion, and accessibility, than to any twopenny saving in coal; and this is the real light in which to look at them, after a certain minimum is obtained. Selecting five of those which consumed the smallest quantity, we have—

	lbs.
No. 1. consumed.....	4'32
„ 2. „	4'82
„ 3. „	5'5
„ 4. „	6'09
„ 5. „	6'51

Now, assuming them all, for argument sake, to be six-horse power engines, and that they worked 10 hours per day, the quantity of coals would be (omitting fractions)—

	lbs.
No. 1. consumed	259
„ 2. „	289
„ 3. „	330
„ 4. „	365
„ 5. „	390

Taking engine coals to be worth about 13s. 4d. per ton, it is just 8d. per cwt. or 1d. per stone. Between the highest and the second engine in consumption of coal per day, assuming both to be six-horse power engines, there is a difference of 30 lbs.—a very small fraction short of 2d. per day difference; while between the highest and the lowest on the list, there is a difference of little more than a hundred-weight, and not exceeding 9d. per day extra.

At Gloucester, Mr. Amos, the consulting engineer of the Society, placed the improvement in steam-engines in a very powerful light. The prize engine in 1849 consumed 11'50 lbs. of coal per horse-power,

In 1850	7'56 lbs.
1851	6'79 „
1852	4'66 „
1853	4'32 „

Fixed engines have, too, arrived at a great degree of perfection in the direction in which tests have hitherto been carried. The winner at Gloucester consumed the smallest fraction over 6 lbs. per hour per horse-power, nor was the second far behind it, while the highest was but a fraction over 8 lbs.; and thus, whilst on one side the President of the Royal Agricultural Society, Mr. Pusey, has written and reasoned in the most forcible manner on the advantages of the portable over the fixed engine, and whose views are supported by practical men in various parts of the country, there is a feeling amongst others that the portable steam-engine is faulty, and—except for job-work, for which they are now paying too highly to those who let them out—will ultimately be displaced by the fixture—that the purchaser has a vast amount to pay for a costly travelling apparatus, which might be saved

— and that a fixed steam-engine can be put up for a price, small compared with that of a locomotive.

The Royal Agricultural Society, which used to give double the prize for a locomotive they did for a fixture, have this year made them both alike, and the Yorkshire Agricultural Society has offered £50 for a fixture at the Ripon Meeting; but it must be left to time and practical operations for determining the comparative merits of the two kinds of engines.

While on the subject of steam-engines, we cannot help alluding to the vast amount of ammonia which is annually allowed to waste in our coke ovens. We saw several in the county of Durham, not long ago, where tons of ammonia are lost annually. Will not Mr. Pease or some other skilful and scientific man set to work to collect this valuable agricultural compound, and so save tons of guano, instead of allowing it to waste, and possibly in its excess to injure the vegetation around it, which its more minute doses would so much benefit? We hope so, and here leave it for the present.

SHORT-HORNED CATTLE.

The Short-horn, Durham, or, more properly speaking, “the Improved Short-horn,” is now unquestionably established as the most profitable breed of cattle we possess. The reasons for this are obvious enough; no animal arrives so early at maturity, few supply meat of as superior a quality, while fewer still have so many recommendations either in appearance or disposition, for the homestead of the agriculturist, or the domain of the amateur. It has, however, occasionally been urged that, in one particular, the Short-horn is deficient. By many the breed is yet considered to be but indifferent milkers. Perhaps the best answer to this objection would be a walk through the establishments of our London dairymen. Nearly every cow tied-up here will be found of the common Short-horn, or Yorkshire sort; though many, indeed, show much breeding, and are doubtless crossed with some of our best bulls. When the aim is to have them good milkers, they can generally be insured; on the other hand, the exhibitor at a prize-show sacrifices one quality for the other. As the beast increases in flesh, the supply of milk will decrease. It is still quite compatible, with only due observation on the part of the breeder, to successfully develop these two different qualities in the same animal. A cow that in her day may have been a first-rate milker, will, on being put up to feed, make as good a carcass, and produce quite as fine meat, as many animals that have never been used for the dairy at all. But it does so happen that no kind of cattle are so frequently prepared for public display, and hence the origin of a censure, that arises from the treatment rather than the natural capability of the beast. The selection has only to be carefully made in

favour of milk or meat, and for the production of either will the Short-horn be found eminently qualified.

It is now fast approaching a century since this improvement was first attempted. The change for the better has been remarkable indeed. The original Teeswater, found on both sides of the Tees, together with the still coarser kind of beast known in the East Riding of Yorkshire as the “Holderness,” was, especially the latter, a large ungainly animal, generally deficient in his fore-quarters, with strong shoulders, slow and unprofitable to feed, as well as being but a middling beast for the butcher. The meat was coarse to the palate, and uninviting to the eye. There was thus plenty of room, if not much encouragement, for producing something better; and the task was set about with as much spirit as discrimination by the brothers Charles and Robert Colling. To their celebrated bull, Hubback, it is the desire of most breeders, either directly or indirectly, to trace back. He is in the *Herd Book* what Highflyer is in the *Stud Book*—the foundation of our best sorts.

His origin and own pedigree is of course somewhat difficult to trace. It may be still interesting to transcribe, on the authority of Mr. George Coates, an ardent and renowned breeder, to whom is due the credit of having first collected the pedigrees of our Short-horns, the following particulars of Hubback, duly signed and dated, as will be observed, by the person from whom the information was derived. We can couple with this the full pedigree of the animal, as recorded by Mr. Coates, who was a contemporary of the Messrs. Collings.

“I remember the cow which my father bred, that was the dam of Hubback; there was no idea that she

had any mixed or Kyloe blood in her. Much has been lately said that she was descended from a Kyloe; but I have no reason to believe, nor do I believe, that she had any mixture of Kyloe blood in her.

(Signed) JOHN HUNTER.

"Hurworth, near Darlington, July 6th, 1822."

PEDIGREE OF HUBBACK,

As given in the new edition of *Coutes's Herd Book (Bulls)*, p. 52.

"HUBBACK (319), yellow, red, and white, calved in 1777, bred by Mr. John Hunter, of Hurworth; got by Mr. Geo. Snowdon's bull (612), his dam (bred by Mr. Hunter) by a bull of Mr. Bankes's, of Hurworth, g. d. bought of Mr. Stephenson, of Ketton." Snowdon's bull (612), we may remark, was directly descended from the celebrated Studley bull (626), perhaps the first recorded Short-horn we have.

Bought, however, out of a by-lane, for eight pounds, the fame of Hubback rests chiefly on the eye of that judge who had the confidence to select and test him. His success was as remarkable as it was profitable to his owners, whose subsequent career, with his descendants—Foljambe, Bolingbroke, Favourite, and Comet, and their progeny again—permanently established the breed, or variety of breed, now so widely known and celebrated as the Improved Short-horn. What these gentlemen so ably commenced, others were equally willing to follow out. Amongst these we may especially mention Mr. Maynard, Mr. Mason, Mr. Charge, Mr. Booth, Mr. Thos. Bates, the Rev. H. Berry, Major Bower, Mr. C. Champion, Mr. Grey, Mr. Hutchinson, Sir H. C. Ibbetson, Mr. T. Lax, Mr. W. F. Paley, Mr. Robertson, Mr. Smith (Disley), Hon. J. B. Simpson, Sir H. V. Tempest, Col. Trotter, Mr. Wiley (Brandsby), Mr. Jonas Whitaker, and the then Lord Althorp, better known now in agricultural history as Earl Spencer. To these gentlemen the admirers of Short-horns owe much indeed. At a period of great depression many of them continued to persevere, and while their spirit kept up the value of the animal, their judgment insured the equal preservation of its character and excellence. It is remarkable that Mr. Whitaker first took to them, and afterwards continued to keep for a period of nearly forty years, a large herd of Short-horned cows to supply the people of his manufactory, a very extensive one, with milk—a further proof, if any were wanting, of the value of the Short-horns for milking purposes.

Mr. Bates, from Tyneside, and afterwards of Kirklevington, deserves more particular mention for the pains he took in yet further maturing the breed. His labours, too, were not without their reward. Some of his favourite animals commanded extraordinary prices; the sale of the stock, on his decease in 1850, resulting in the best general average since the time of the Collings. One family, for instance—the Duchess blood that is—realized, including young calves, £1,627 10s. for fourteen lots, being an average of £116 5s. per head. To show the value of lineal descent, it may be added that this stock was descended from the heifer Duchess, purchased by Mr. Bates at Charles Colling's sale in 1810,

nearly forty years previously to his own. Contemporary with, or rather succeeding him, we may name, amongst others who have done, or who are doing, much for the breed of Short-horns, the following, distinguished in other ways, either as practical agriculturists, or for their judicious patronage of rural pursuits. First and foremost amongst them stood the late lamented Lord Ducie, a nobleman who evinced the same spirit in supporting and maintaining the breed of Short-horns, he so long did in promoting the best interests of agriculture generally. With his lordship we may honourably associate the Marquis of Exeter, Sir C. Knightly, Sir C. Tempest, Mr. Fawkes, of Farnley Hall, Messrs. J. and R. Booth, Captain Barclay (Ury), Messrs. Bolden (Hynning), Beasley, Dudding, Torr, Topham, Kirkham, Ellison, Cattley, and Wilkinson (Lenton), all of whom have long persevered with, and rendered themselves deservedly distinguished as breeders of this valuable race of cattle. Later in the field, but no less remarkable for the success which has attended the exercise of their judgment and outlay of their capital, we may put on record, from amongst other noblemen, the Duke of Devonshire, Lord Feversham, Lord Hill, Lord Burlington, Lord Zetland, and with them Mr. Towneley, of Towneley Park, Messrs. Ambler, J. C. Adkins, E. Bowly, Harvey Combe, A. Cruickshanks, Rev. T. Cator, S. Marjoribanks, H. L. Maw, R. Stratton, J. S. Tanqueray, and Jonas Webb.

There are now at least five hundred herds, large and small, of Short-horns in this kingdom, and from six to seven thousand head registered every alternate year in the *Herd Book*. The necessity for this is greater than might at first sight be imagined. Such a record tends directly to preserve the character of the breed generally, while it frequently adds to the value and repute of the individual animal thus entered. Many of the Americans, and other large purchasers for the foreign market, cannot be induced to look at a beast without the breeder has taken care to qualify him for such reference. It has its weight too at home, where from forty to fifty thousand pounds worth of Short-horned stock now annually change hands by public auction, independent of the vast amount sold by private contract.

The Short-horn is generally a good doer; he thrives equally well in almost every part of England, and was introduced with great success by Captain Barclay into Scotland. If we may believe all we hear, and take as further proof the number now exported, his hardy constitution and good quality by no means suffer in America, over the vast extent of which a great many herds, chiefly derived from our best stock, are now being distributed. Nearer home we find the breed as highly prized, and almost as much sought after—in France, Belgium, Italy, Prussia, Russia, and the whole of continental Europe. Ranging out again, we see the Short-horn annually and progressively imported into Australia, New Zealand, Canada, New Brunswick, and, in fact, to the majority of our colonies. This is as a pure breed; but, further than this, it may be said, in the words of a very high authority, that "the Short-horns improve every breed they cross with." Experiments are in the course of trial with many of our other kinds of cattle,

the most encouraging hitherto having, perhaps, been with the Scot.

The Short-horns vary in colour, ranging from pure white to a bright or rich red. The most fashionable of all, however, is a mixture of the two, forming a deep or light roan, sometimes called hazel, or strawberry. Colour, however, should never be regarded as an objection to the real value of the animal, as the same cow, crossed by the same bull, will often throw the three different colours in as many calves. We are well aware of there being some certain prejudice against white, in contradistinction to which it may be only necessary to state, that some of the very best of the improved Short-horns have been white ones. Still, to correct this, or perhaps only to act in obedience to the fashion of the time, the red is now become more esteemed; as from it, when crossed with the white, is frequently produced the most brilliant of roans.

The appearance and points of the Short-horn may be thus briefly summed-up. The head of the male animal is short, but at the same time fine; very broad across the eyes, but gradually tapering to the nose, the nostril of which is full and prominent; the nose itself of a rich flesh-colour, neither too light nor dark; eyes bright and placid, with ears somewhat large and thin. The head, crowned with a curved and rather flat horn, is well set on to a lengthy, broad, muscular neck; the chest wide, deep, and projecting; shoulders fine, oblique, and well formed into the chine; fore legs short, with the upper arm large and powerful; barrel round, deep, and well ribbed-up towards the loins and hips, which should be wide and level; back straight from the withers to the

setting on of the tail, but still short—that is, from hip to the chine—the opinion of many good judges being that a beast should have a short back, with a long frame. As a consequence of this, the hind quarter must itself be lengthy, but well filled-in. The symmetry of frame at present to be found in a well-bred Short-horn reaches as near perfection as possible, while few animals “handle” so well, or to use a still more technical phrase, have so “fine and mellow a touch.” The hair is plentiful, soft, and mossy, with a hide not too thin, and, in fact, somewhat approaching the feeling of velvet. The female enjoys nearly all the same characteristics as the above, with the exception of her head being finer, longer, and more tapering; her neck thinner and altogether lighter, and her shoulders more inclined to narrow towards the chine. Like most well-proportioned animals, the Short-horn often looks smaller than he really is. The rapidity with which he puts on flesh, and the weight he frequently makes, are facts so well known that it can be scarcely necessary to dilate on them here. Still we may mention that it is no uncommon occurrence to see steers, of from four to five years old, realizing 140 stones of 14lbs.; many ranging as high as 150 stones. Such animals frequently command from the butcher £60 to £70 per head, while others, between two and three years old, and of course of less weight, make as much as £40 a-piece. A vast number now realize even sooner than this, being slaughtered at two years old, and under—another, and still farther proof of the early maturity for which the Short-horn has long been so justly and so widely celebrated.—Morton's *Encyclopædia of Agriculture*.

THE LAW OF SETTLEMENT.

No. VIII.

In all economical and political difficulties, nothing is more common than to find a man who tells you that “it is the simplest thing in the world,” that the adoption of his principle will solve the whole and reduce the thing into order; as if economical difficulties admitted of a simple solution, as if the consideration did not, in fact, always end with the question “On which side are there the fewest evils?” The case before us is a problem of this character—the simplicity may be found in the person.

We have seen quite enough of the origin and past history of the Law of Settlement and Removal for us to form a judgment as to whether any portion of its policy may be maintained—wherein it is, in other words, adapted to our times and sentiments.

The original policy of the settlement law, as a law of police, we must consider to be obsolete; and that of the statute of Charles, so far as we can judge of it from its preamble, is certainly frustrate; because, as I have shown, the “necessity, number, and continual increase of the poor, and their exceeding bur-

den,” which it was declared the purpose of the 14 Car. II. to remedy, proceeded at a rate that in 36 years might be called a fourfold ratio. And besides this, it materially endangered our social fabric.

Then followed upon this, various legislation in the supposed interests of the poor—legislation intended or professing to mitigate the evils of removal. These, however, were merely negative, and never positive benefits. Like the government of more recent times, the statesmen of those days seem to have tried how little could be done consistently with the fact of doing anything.

There was some show of legislating for facilitating the acquisition of settlement; but if anything was ever done to facilitate settlement, it was, I assure my readers, on my own authority, founded upon my observation of the sentiments and tactics of the worthies of a past century—it was quite unintentionally (1).

(1). “Thus the four heads of settlement, by serving an office, by paying taxes, by hiring and service, and by apprenticeship, often described as created by the 3 & 4 Will. & Mar., c. 11, s.

Legislation took place also to allow of temporary residence; and certificates were introduced, the effects of which we have seen. Of later date, too, it allowed of the most unauthorized practice of non-resident relief—a practice that extended far and wide, and took its attendant mischiefs with it, against which the Poor Law Commissioners in their Ninth Annual Report inveigh, terminating their report of it with these words: “Our endeavours have been and will be constantly directed to its diminution and gradual extinction.”

In 1846, we have a provision of the Poor Law Amendment Act, 9 & 10 Vict., c. 66, making persons who had been resident five years wholly irremovable; widows resident where their husbands died, irremovable in the first twelve months of their widowhood; and persons chargeable only through temporary sickness or accident, irremovable on account of that chargeability. Sufficient time has not yet elapsed to ascertain fairly the effects of this provision; but experience leads us to a very near estimate of its tendencies. They are such as we can scarcely approve, being adverse to populous places, favourable to close parishes, promotive of opposite interests in parishes.

By 11 & 12 Vict., c. 110, 1848, the relief of irremovable poor was made an union charge. However good the tendency of this provision is in itself, it is a sure source of mischief as it stands connected with the law of removal and settlement, being productive of antagonistic interests in the parishes of the same union. If we desire the good that lies in the one element of the solution, we certainly must precipitate and render nugatory the other. “All

6, 7, 8, are falsely so described, and are, in fact, diminutions of the larger right of settlement previously enjoyed. After destroying altogether the right to make a settlement by residence, without a notice in writing of the settler's coming, to be published in church, viz.—a condition in derogation universally of the previous power to settle—the statute exempts from these conditions three classes of persons. If it had done this unconditionally, it would only have left them the right which they had before, under the statute of Charles, and subsequent to it till the 1st James II., c. 17, and would have done nothing to create a new right. But, in fact, it very greatly restrained the old right by defining the terms of its enjoyment, and gave occasion to all the mischief to employers and servants, and all the litigation between parishes, which originated in the settlement by hiring and service. As regards the first two settlements, that by serving an office and that by paying taxes, they both depend on inhabiting, for 40 days at least, which would alone have sufficed to make a settlement under the statute of Charles, without the service of the office or the payment of a tax, which are thus new conditions imposed, not new privileges conferred.”—*Mr. Coode's Report*.

All other definitions of settlement are so obviously and avowedly restrictions on the pre-existing capacity, that no doubt has ever existed as to their being made against the poor, and for the supposed protection exclusively of the parish.

these mischiefs of conflict,” says an authority, on this question, “within a union, might have been avoided by a union rate, and an abrogation of the law of removal; and, as between one union and another, the effort to cast the poor of one upon the other, a much less easy thing generally than for one parish in a union to cast its poor upon another in the same union, would have been met by the cordial and unanimous adoption by the entire union, of that administration of the law by which such an attempt could be most securely defeated.” The effects of this ill-assorted match have already manifested themselves in unexampled doubt and difficulties, a mixture that has proved a very nourishing pabulum for lawyers.

And again, as to the creation by courts of law of settlement, by marriage, by parentage and of residence for nurture, provisions for preventing the separation of families—the first two have given rise to a vast amount of legal expenses. The existing law of birth settlement is most absurd, and involves parishes in great uncertainty and expense. The absurdity is this—“that any derivative settlement from either parent is held to prevent that of the proper place of birth from arising.” As the law now stands, any order for a pauper's removal to any birth settlement, whether his own or that of his father or mother, grandfather or grandmother, may be quashed on appeal, by showing the birth settlement of a more remote ancestor. The more remote, the greater is the uncertainty and cost of proof.

Under such a view of the case, a man's settlement is no longer the place of his industrial residence, and is likely enough to be a place to which he is quite a stranger. “An agricultural labourer working, since 1834, under a yearly contract of hiring and service, from youth till old age, in the parish of his birth, will still be settled, at seventy years of age, in an extremity of the kingdom, in which his father may have happened to have been born; while, on the other hand, a mere child, if apprenticed by parish officers, and, as is generally done, so apprenticed by them into a parish *different from their own*, would even now, in 1854, by forty days' residence in such parish, acquire a permanent settlement there (1).

(1). “On a recent occasion” says a learned gentleman of the long robe, “I was counsel in a case of appeal, in which the parish of St. J.C. (not in any union) had apprenticed a parish pauper into St. L.M., the master having declined to take the child by a fee of £5 provided by some charity fund in the hands of the churchwardens. The child served and resided with his master more than forty days in St. L.M.; fell into society like that to which little Oliver Twist was exposed; was charged with felony, convicted and imprisoned. The indenture was here upon cancelled, and on his discharge from prison, he wandered back to the parish of St. J.C., within six months of the day of his original binding; whereupon an order of removal was obtained for conveying him to the parish of St. L.M., in

With all its mitigations, we therefore behold this law as bad and as odious substantially as it was fifty years ago; and as to the vaunted care that was to be taken of the interests of the poor, we find this is a farce. Subsequent legislation had in view the interests of the parishes and the rate-payers; and as far as the poor are concerned, the law in question still deserves all the reprobation which has been, and is so justly poured out upon it.

In my next letter I will attempt to answer certain statements put up in defence of this law, and we may then entertain the question, "Are there any objections to the entire abolition of the Law of Settlement and Removal?"

No. IX.

When a law inflicts such injuries as those we have contemplated upon the poor, we are inclined to inquire, For the sake of what advantages are these hardships imposed? On the one hand, the working classes are called upon to sacrifice certain rights dear to them; what benefits are meted to them in return for this act of self-denial? or, to place it in another light, what great economical object is gained, by society at large, by restricting the labouring classes? Is compensation made to the poor for this interference with their liberties, or does society find a recompence for the injury she submits to from the enthrallment of industry? No case can, I think, be made out to this effect.

If industry is fettered, if the character of the labourer is debased, and if the employer is denied the liberty of option in the matter of his work-people, then must society necessarily suffer in all its grades by the law which originates such a state of things.

But there is some mention of benefits resulting from this Law of Settlement.

I have heard it stated that it favours the *general* interests of parishes. This does not seem a very feasible recommendation in view of the *fourfold increase of poor's-rates during the thirty-six years succeeding the enactment of the law*, together with the mass of evidence, to which I have alluded, that exists to prove the enormous increase of pauperism that followed immediately upon that measure which was expressly intended to diminish the number of paupers.

Others affirm that the *special* interests of parishes are cherished thereby. Well, if these special interests of parishes in removals consist in a continued series of reprisals, in which the stronger parish filches from the weaker, and he keeps who can; in which artifice and fraud find a prolific birth-place, and

which, by virtue of the operation of the parish officers of St. J.C., a settlement had been created. The appeal was against this order of removal, which, however, on the trial, was properly confirmed, the present law undoubtedly sanctioning such a binding."

"bowels of mercy" are petrified; in which the administrative organization of the parish is diverted from its proper uses, to be an instrument of persecution to those it should protect; and some five times as much is expended in the cause of parochial rivalry and litigation as is directed to the beneficent and primary object of the poor laws—the setting of the poor to work (1)—then is the affirmation true.

Again, others maintain that this law fosters the special interests of *rate-payers*.

Is this effected by interfering with the relation between employer and employed? To most common-sensed people such an interference would seem to impoverish the sources of the rate-payers' wealth. Or is it done by compelling the landlord and cottage proprietor to reject good tenants in favour of doubtful and worthless ones, by parcelling out their property in tenements of too small a value to confer a settlement, or by inducing estate-owners to destroy the residences of the poor over large districts?—courses which as surely degrade the habits of the labouring people as they subtract from the land a large portion of its true value (2). Contrivance,

(1) See Letter VII.

(2) From the manner in which parishes are thus classed, where they are in the hands of one or two landowners, it cannot surprise us to see that the burden of pauperism is distributed most unequally. The table beneath will show, even in two lightly-burdened unions like those of Worksop and East Retford, both containing close parishes, out of twenty-six parishes belonging to the former, there are two in which the year's poor-rate amounts to only 2d. in the pound on the rental; eight in which it varies from 2½d. to 7d.; while, in eight other parishes of the union, where the burden of poor-rate is greatest, it varies from 1s. to 2s. 3d. in the pound.

Name of Parish or Township.	Population, Census 1811.	Amount of Parish Valuation for Poor Rate, 1850.	Total of year's Expenditure for Relief of the Poor, ended Lady Day, 1850.	Proportion in the pound of Expenditure to Rateable Value.
		£	£	£ s. d.
Worksop	6,129	24,642	1,667	0 1 4½
Carburton	198	838	75	0 0 10
Cuckney	625	1,273	111	0 1 8½
Horton	362	1,121	53	0 1 0½
Holbeck	266	1,234	54	0 0 10½
Langwith	443	1,507	28	0 0 4½
Carlton	1,094	4,933	285	0 1 1½
Blyth	718	3,435	183	0 1 0½
Hadsoek	225	4,118	76	0 0 4½
Styrup	634	3,729	154	0 0 9½
Harworth	546	4,176	115	0 0 6½
Whitwell	1,125	4,026	173	0 0 10½
Cloven	669	2,415	172	0 1 5
Barlboro'	800	630	320	0 1 0
Elmton	431	2,038	88	0 0 10½
Thorpe Salvin	390	2,409	55	0 0 5½
Harthill	709	4,863	200	0 0 10
Anston	863	2,313	261	0 2 3
Woodsetts	181	833	22	0 0 6½
Gillingwell	91	557	6	0 0 2½
Dinnington	279	1,160	36	0 0 7½
Letwell	129	1,153	10	0 0 2
Firbeck	191	1,492	40	0 0 6½
St. John's	60	837	7	0 0 2
Todwick	214	1,922	42	0 0 5½
Wales	810	834	25	0 0 7
Total	17,674	£32,551	£1,224	£0 1 0

fraud, and bribery; bribery, fraud, and contrivance were the only *interests* that were fattened by this Law of Settlement.

With regard to that large class of rate-payers, the farmers, such a system is most injurious. The farmer may not hire the best labourer he can get, unless he consents to keep, at his own expense, the drunken idler and his six children, whom that labourer may displace. It is true that, from habit and want of reflection (and such a stigma I am glad to say is fast passing away), the greater part of the farmers have become thoroughly imbued with the principle that the parish to which a man belongs, and not his ability to work, is the first point to be considered. Even the sense of interest has been corrupted! (1.) But now that the protection of the corn laws is removed, the farmer should experience the utmost freedom, together with the manufacturer, in the choice of labourers.

Here is a law, then, that collectively impoverishes and retards us—that individually crushes and annoys thousands of us. It is costly to all, beneficial to none.

"Are not the interests of the poor, then," say some, "in any way remembered and conserved?" And where, I reply, has there ever been a show, in the settlement laws, of positive advantage to them? I may say, with Mr. Coode, in his report to the Poor-Law Board, that "the utmost the law has ever affected to do, is to liberate them from some hardships which the law itself, and its abuses, had alone exposed them to;" for with this remark my own observation leads me most fully to concur.

That a settlement confers a claim to relief, exists only as an exploded fallacy; *destitution* alone constitutes the title to relief.

There is some talk, again, about a settlement's proving a protection against removal. What is this, however, but a defence against the hardship of the

law itself? "It is merely," as Mr. Coode says, "an abstinence from mischief, as far as relates to the people who remain where their settlement is; but to all others the settlement is the sole ground of their subjection to the liability to removal. In fact," he goes on to remark, "settlement was created as the condition for removability, not as a protection against it." And the more the labourer is provided with the same liberty everywhere, the greater the benefit—a benefit in no way attributable to the law, but to the fact of a *more entire abstinence from its severe provisions*.

Further, it is said that this law benefits the labourer, inasmuch as it secures employment to him. The benefit of a monopoly of the employment, and relief in their parish, is thus given to the settled poor. How far is this true? Where is the monopoly when abundant employment attracts flocks of strangers to share the advantage, who are purposely encouraged by employers, to keep wages to their lowest possible point, without gaining a settlement themselves? The monopoly they enjoy is this. When work is scarce, and wages are reduced to the lowest point at which body and soul can be kept together, those who are settled in the parish find employment in it—a privilege they enjoy over strangers! An exclusive monopoly to a wretched market! When wages are reduced to 6, 7, 8, or 9 shillings a week, as in any of our ten purely agricultural counties, where the settlement law has unmitigated sway, while in the other counties they range from 11 to 15 shillings—the man who has a settlement also boasts the privilege which this certificate gives him of employment! How truly thankful he must feel!

In the course of his official evidence upon the operation of the Law of Settlement in the counties of Dorset, Hampshire, and Somerset, Mr. Revans says: "Excepting during short and very busy periods in agriculture, as at harvest, a working man will be refused employment save in his own parish; for at all other times the rate-payers postpone the execution of work till those periods when employment is likely to be scarce, and when the labourers who have settlements would constantly fall upon the rates. It is nearly useless, therefore, for a working man, with the existing laws of settlement, to attempt to obtain work beyond the bounds of his parish. He will be answered with, 'We have enough to do to find employment for our own people.' Should one, however, by the force of accident obtain employment away from his settlement, the first occasion on which there shall be the slightest deficiency of employment for the labourers who belong to the parish will cause him to be removed to his settlement." And so persecuted is the poor man, that a hundred to one he pays dearly for his rash endeavour, and presents a daily warning to every labourer of the surrounding

(1) Farmers are often so sensible of the great benefit derived from having near at hand places of residence for their labourers, that they occasionally build cottages themselves. Such, however, is the perversity of this law, that, under it, landowners are known frequently to introduce covenants into leases, restricting the farmer, under penalty, from doing any act to give a man a parish settlement.

Report to the Poor-Law Board, 1850, p. 50: "Mr. May, a farmer in the neighbourhood, showed me the cottages he had built at his own cost; that is to say, he had found the labour, and his landlord had, most reluctantly, found the materials; for the latter was greatly averse to anything that might lead to the making of a settlement, while the former felt so strongly interested in having cottages for his workmen, that he had erected two habitations at an expense of £75. His landlord, who had been disinclined to the building of these cottages, is not a very large owner in Caversham, but holds a considerable quantity of property in Maple Durham, and is the same gentleman who had been plaintiff in an action against a tenant, to recover a penalty for breach of covenant, by the making of two settlements."

districts, of the folly of striving to improve his condition, by leaving the parish to which the law awarded him. Truly a valuable monopoly. At a time when the payment of labour is so miserable that the alternative of the poor-house is blessed to the poor man, in comparison with hard work and starvation abroad, and when rate-paying employers commonly take into consideration the respective alternatives of keeping their labourers by a dole of rate or a dole of wages, then is it that his settlement secures to the labourer this boon of employment! What mockery! What a bitter insult to those whom it affects to favour!—a cruel oppression to those *at whose cost it exists!* So deeply had the framers of this law the interests of the poor at heart, that they deprived them of the power to range the country in search for the best market for labour, and by way of compensation provided that a favoured one here and there may be protected in the exclusive possession of the worst!

No. X.

Furthermore, the defendants of this law urge that “it keeps down population, and keeps up the standard of subsistence.”

This is a curious defence for a sane person to set up, on behalf of a law that most evidently tends to the reverse. It is manifestly false, could it be proved, even, that the repression of population is a benefit. But the manner in which parishes favour the married above the single, because when they do fall upon the rates they fall heavier, tends directly to drive young men to embrace that estate, that they too may share its advantages. Young men are incited to early marriages; for, if there is a scanty demand for employment, a preference is given to the married over the single man. He knows that he must be kept by the rates if he is out of employ, and that it is more expensive to maintain him and his family in the Union, than to pay him the current rate of wages. Perhaps the advocates of this law will tell us that in the fact that war, plague, pestilence, famine, vice, and misery keep down population to the supposed limit of the means of subsistence, dwells the mitigation of the disasters. “To create by law the impossibility to live, or the misery which prevents procreation,” may then be supposed to be the proper and beneficent care of statesmen! If this be so, we require a new moral code. I can see in these facts only this solution—the law in question has encouraged marriage, and *perforce* births, while at the same time it has restricted the means of life by generating misery and vice!

Another argument in favour of this enactment is, that “it diminishes gluts of labourers, and the suffering from casual failure of employment.”

All evidence goes directly against such an assertion as this. One of the main reasons for wishing

the abandonment of the provision of this law is, because it regulates so wretchedly the stream of labour, and, by interfering with that natural process by which labour always finds its level, works against the best interests of the country, to their great detriment; for a labourer to be working under a non-elastic security is very much the same as a steam-engine driven without the merciful appliance of a safety-valve. Give him freedom, and he will go where his judgment or his friend tells him he has the best prospect of living.

A yet more astounding piece of assurance awaits us. The defendants of the law of settlement say that “it preserves the morality and industry of the unsettled poor” (!) The guardian of the morals of the poor!

The amount of suffering and demoralization, the injury of health, and the shortening of life, to which the agricultural labourer and his family are exposed *from preventible causes*, is even greater than that which has excited so much sympathy on behalf of the town population. The owners of property must not, I allow, be too harshly condemned for the misery thus created. The law of settlement has long tended to stimulate into action the baser and more sordid feelings of human nature. In seeking to rid himself of a permanent future charge he is tempted to be cruel and inconsiderate. He regards little whose interests he damages, in his anxiety to escape from such an affliction, like a man who runs helter-skelter when a bull pursues. Many boards of guardians have taken notice of the manner in which the law in question interferes with the proper supply of cottage-accommodation, and have considered this ground amply sufficient on which alone to seek its abolition. The Ongar guardians came recently to the unanimous resolution, “that the abolition of the law of settlement and removal would be very beneficial to the deserving labourers, by encouraging the owners of property to build cottages on their estates for the accommodation of their labourers; and that the present law of settlement and removal operates to the injury of the labourers, by limiting the market of their labour, and discouraging the building of cottages, so that the poor are crowded into miserable dwellings, at the sacrifice of health, comfort, and morality.” This is a fair sample of the sentiments of the boards generally.

This view is confirmed by Mr. Pashley. “It is undoubted and indisputable,” says that gentleman, “that wherever the deficiency of cottage-accommodation exists, as it does so generally, it entails a fearful catalogue of calamities on the unhappy labourer and his family. They usually become a subject of traffic to small building speculators, who extort a high rental for a wretched hut, and who profit by the misery and degradation of those among

whom all sense of decency is destroyed, while health is injured, and life itself is greatly shortened by their being crowded together, often, without any regard to distinction of age or of sex."

Mr. Austin, one of the special assistant poor-law commissioners, who reported on the employment of women and children in agriculture, gives his testimony to the want of cottage-accommodation, which he states to be "a want universal." "Cottages," he also remarks, "have only two bed-rooms (with very rare exceptions, and a great many have only one). This, I was told, was not an extraordinary case; but that, more or less, every bed-room in the village was crowded with inmates of both sexes, of various ages, *and that such a state of things was caused by the want of cottages.*" Mr. Austin was informed by the agent of Lord Lansdowne, that "in Studley (Wilts) it is not at all uncommon for a whole family to sleep in the same room. The number of bastards in that place is very great; the number of unmarried women is greater than in the neighbouring places. I do not think this state of things is attributable to the women working in the fields, *but more to the want of proper accommodation in the cottages.*"

I could fill sheets of paper with the recitals made by clergymen, of the miseries caused by this lack of cottage room. I could furnish evidence upon evidence from medical men to prove that disease is engendered and propagated thereby; and I need not search long for the declaimings of landowners (1) and occupiers (2), for they are about me on every hand. It is not necessary, however, that I should introduce them, or indulge in revolting details. The fact must be patent to all. The consequences of a want of proper cottage-accommodation are fearful—they are fatal. From this source flows much of the crime that disgraces our country; for it is mainly attributable to the mixture of sexes and of ages in the dwellings of the poor—a practice that debases and demoralizes the human mind, and which, unless counteracted, must effectually neutralize every effort made towards the elevation or improvement of the people. And these are as nearly as possible the words of Mr. Justice Coleridge, when addressing a Labourers' Friend Association. Yet we are asked to believe that this law, which spreads a moral death about it, preserves the morality and industry of the poor!

By way of making this egregious blunder—not to call it a palpable falsehood—a little palatable, the

writers who defend this law urge that "*it is not very mischievous now.*" And how much better does this make the case, if true? Little or nothing. But it is not true. So completely has the people, by the rigorous enforcement of this law of settlement, become conformed to it—so much has the character of the habits and feelings of the lower orders been moulded upon it for centuries—that it becomes extremely difficult for us to conceive what we should be without it. The past and present state is regarded by the labouring classes as the natural one. The bulk of them never knew any other. The terrors of the whip and the cart are not known personally to the labourer; but the spirit of subjection which these cruelties engendered in the breasts of his forefathers, is inherited by him. From generation to generation has been nursed a traditional dread of the removing constable. A freeman may more easily comprehend the bondage to which he is reduced, than a born slave this freedom to which he is remitted; more especially when this freedom is but relative and partial. Many instances occurred in South Africa, when the liberation of the slaves took place, in which those to whom freedom was given were quite indifferent to it; and in Jamaica, numbers were averse to accept the boon. M. G. Lewis—Byron's friend—to whom had fallen, by the death of a relative, a plantation in the West Indies, went thither with a most rooted abhorrence of slavery. He proposed freeing his people; but when he became acquainted with their feelings on the matter, he saw that his offer would not be received with pleasure, and that its results would be confusion, sorrow, and distress. Yet no one will say that it is natural to prefer bondage to freedom. No: it is unnatural. The first slave wore no smile: he was, most probably, a captive; and his spirit became broken, and as generation followed generation, this broken spirit passed from father to son, like an heirloom; the knowledge of liberty and the love of it was lost, and, from long association with serfdom, it became a received opinion that there was never any other condition for black people, nor ever could be, than that of serfdom.

Had we never known any thing about removals and settlements, it would be difficult, methinks, to trammel the limbs of the English people with such fetters now-a-day.

If we, as Mr. Coode says, count only the number of removals, and suppose these to be the whole effect of the law, forgetting the comparatively greater effect of the terror they inspire in the timid and ignorant multitude, we may perhaps arrive at the conclusion that "a settlement law does very little mischief now." One might as well estimate the number of lives saved, directly by the number of lives forfeited for murder; or might say that the

(1) The Duke of Bedford, Letter dated 9th March, 1849, published in the Journal of the Royal Agricultural Society, vol. x., pp. 185-187; Mr. Acland, on the Farming of Somersetshire, Journal of the Royal Agricultural Society, vol. xi., 666-764.

(2) Poor Law Reports of the Law of Settlement. 1850.

measure of popular submission to a law, is the number of those who are punished for breaking it. Few removals should show to a rational mind the perfect control in which the people are held by the law of removal.

Look, then, at the total of the pleas that can be urged in favour of the settlement law—pleas that have been urged and re-urged in some 400 different books and pamphlets! Small indeed is the mouse this labouring mountain produces.

This law of removal fails universally.

It fails in the preservation of parish interests: it fails in the preservation of the special interests of ratepayers: most miserably it fails to protect the interests of the poor—nothing but unmitigated failure. Nay, I wrong it: in one thing it does succeed, and that marvellously well. It attends well to the interests of the legal profession. In this it has not failed. In all other attempts to protect and nourish, it has.

F. R. S.

DISTRICT AGRICULTURAL SOCIETIES.

The very signal success at present enjoyed by such district societies as the West of England, the Yorkshire, the Norfolk, the Suffolk, and one or two more, should not be without its effect. By a happy infusion of fresh spirit and improved management, these few associations have really become worthy of that position they assumed to take. Extending, in most cases, the limit of their operations, they have gradually emerged from that too local repute, that spoke only to a languishing existence, and a scarcely more than negative advantage. The distinction to be achieved at such a meeting was hardly worth the attention of those who were qualified to compete for it, and thus the society struggled on from year to year, each anniversary promising little better to those who attended it than that it might be the last.

There are many such institutions that may profit by the examples we have instanced. A closely-confined area, we are inclined to think, is with the majority of these the great mistake. A judicious amalgamation of the forces of some two or three such societies might work wonders in districts where, as it is, little interest or effect is attached to the proceedings. We have the precedent we have already quoted to guide us here. By union, these societies have given importance to their gatherings, found funds equal to the objects they wished to encourage, and excited an emulation that must tell equally well on both exhibitor and spectator. A premium, under these altered circumstances, is worth taking and speaking of; and so we have something more than neighbour This sending in his bull against neighbour That, in answer to the urgent appeal of an unhappy secretary, seriously troubled as to his day resulting in any show at all.

Taking one case from the many, we may point to an agricultural society of this limited scope and means, the members of which, we assume, already think pretty much with ourselves. In the *Northampton Herald* of last Saturday, we notice the report of a meeting held on the Thursday previous, at

Banbury. The aim of this would appear to have been the resuscitation of the "Banbury Agricultural Association"; a society which, according to the chairman of the day, "was in a very languid state, and that, if something was not done, he was afraid would quite fall in." This "something" certainly strikes us as about the best thing that could be done. Instead of attempting to go on any further as they have gone on, the members propose to extend their sphere of action, by amalgamation with some other similar body in the neighbourhood. They naturally and judiciously turned at once to the chief society of the county—that now holding its meetings at, and known as "the Oxford Agricultural Association." Some communication, it appears, has already been entered into with the latter, although the result, so far, has scarcely been as encouraging as could have been desired. It is, indeed, from seeing the obstacles likely to be presented, that we are induced to call particular attention to the conference in question.

We will assume in the first place that union to the Banbury Society is everything. In the next, however, let us bear in mind that they cannot receive assistance without also giving it. Like mercy, it is a kind of aid that is "twice blessed." The moment the Oxford Society consents to receive Banbury into its arms, from that instant must it add to its own usefulness and importance. We know of few counties—and we happen to enjoy some knowledge of this—more likely to support one good central society than the county of Oxford. There is the opportunity for now proving this. With the Bath thoroughly re-established on one side of them, and Reading promising to advance on another, let not the agriculturists here be contented with limited effects and results. Let Oxford, Banbury, Watlington, and other district societies, with a "pull altogether" establish one good annual meeting, that it shall be our duty and pleasure to attend, and to record amongst the important gatherings of the year. They may rest

assured that any union like this must be for the benefit of them all.

We are not inclined to consider the question of funds as the great difficulty in the way of any incorporation of the Banbury and Oxford Societies. With a little exertion these might soon be supplied. The following extract from the report would seem to show that the members of the latter were scarcely inclined to meet their Banbury friends with that readiness we should have anticipated :—Mr. Cother, who had been deputed to attend a meeting at Oxford, said :—

That in the case of many small societies where there had been an amalgamation, they had become exceedingly useful, not only in respect of stock, but in the diffusion of agricultural knowledge generally. He instanced the Bath and West of England Society. Every good implement was to be inspected there, which they had not the opportunity of doing here. Again, enormous good had been accomplished by amalgamating in Yorkshire ; every one knew for 50 miles round where to go for the best bull, horse, or sheep. He wished to ask Mr. Middleton, however, whether, in case of an amalgamation, the Oxford Society would object to come to Banbury with their show every other year ; if not, it would be fatal to the project.

Mr. MIDDLETON thought it would be decided to the contrary ; the older members of the society residing the other side of the county, round Dorchester.

The CHAIRMAN should object if that were the case. There was an end to amalgamation unless the meeting was held at Banbury every other year.

This of course would be fatal. One of the chief features contributing to the success of these societies is the hint the management have taken from the Royal Society of England. They are nearly all peripatetic—proceeding in turn from one part of a county or district to another, and gathering fresh strength and making new friends wherever they turn their steps. It must be so with any county society in Oxfordshire. Depend upon it, no general good can come from paying continued court only to a few “ older members who may happen to reside on the other side of the county.” We would not say merely from Oxford to Banbury, and from Banbury to Oxford. There are other localities well able to entertain such a body, and almost equally deserving to profit by, and aid in such a meeting.

All this is very susceptible of a general application. Too local societies we fear do too little good ; whereas, when extended in their action, they increase proportionately in their utility. Their effect, however, as we take it, must range far beyond even a county, or any other defined influence. We look upon such gatherings as excellent “ feeders” to the national meetings of the kingdom ; encouraging exhibitors to try their footing a little deeper still, and thus giving fresh blood to a Society that could not long exist without it.

NORFOLK AGRICULTURAL ASSOCIATION.

The annual meeting of this society was held at Norwich on Friday, June 23. A variety of other engagements compelled us to abandon at the last our intention of being present. We have the more to regret this, as we learn the show was a very good one, and, in most respects, quite worthy of the county which it professed to represent. In the exhibition of stock the horses were thought to be generally good, the mares and foals particularly so—Messrs. Barthropp, Crisp, Barlow, Badham, and others sending specimens of the breeds for which they are become famous. Amongst the sheep the Southdowns had the call—Lords Walsingham, Sondes, and Leicester trying their strength against Mr. Overman, Mr. Sexton, and other gentlemen of hardly less rank as breeders. The Leicester sheep were, class for class, we are assured, by no means so good ; while with the cattle the leaning in Norfolk is still in favour of the Devon, despite the efforts of some most persevering followers of the Shorthorn in a neighbouring county.

The pens of so renowned an exhibitor as Mr.

Fairlie would alone go a great way towards making a good poultry show ; while the implement department of the yard included the stands of Messrs. Ransome and Sims, of Ipswich ; Burrell, of Thetford ; Garrett, of Leiston ; Holmes, of Norwich ; Barnard and Bishop, of Norwich ; Sparke, of Norwich ; Coleman, of Chelmsford ; Campling, of Norwich ; and Turner, of Ipswich. Beyond this, we must let the prize list speak for itself—merely premising that the show was altogether a fuller one than that of last year.

LIST OF PRIZES.

CATTLE.

JUDGES OF CATTLE.—Mr. Christopher Cattle, of Inkerdon, Northamptonshire. Mr. George Franka, of Thong, Kent. Mr. Edward Frost, of West Wrattling, Cambridgeshire.

For the best shorthorn bull, £6, Mr. Thomas Crisp, Chillesford. For the second best, £3, H. K. Tompson, Esq., Witchingham.

For the best Devon bull, £6, A. Hamond, Esq., Westacre. For the second best ditto, £3, Mr. J. Blomfield, jun., Warham.

For the best polled bull, £6, H. Birkbeck, Esq., Stoke Itoly Cross.

For the best bull in the yard, of any breed, open to all competitors, the Norwich cup, A. Hamond, Esq., Westacre.

For the best shorthorn cow, in calf or in milk, £5, J. H. Gurney, Esq. For the second best ditto, £3, Mr. S. Gooch.

For the best Devon cow, in calf or in milk, A. Hamond, Esq.'s premium of £5, the Earl of Leicester. For the second best ditto, £3, Mr. J. Blomfield, jun.

For the best polled cow, in calf or in milk, £5, Mr. T. M. Hudson. For the second best ditto, £3, H. Birkbeck, Esq.

For the best shorthorn in calf heifer, bred by the exhibitor, not under two years old nor above three years old, W. Bagge, Esq.'s, £5, Lord Walsingham. For the second best ditto, £2, Mr. S. Gooch.

For the best Devon in calf heifer, £4, the Earl of Leicester. For the second best ditto, £2, the Earl of Leicester.

For the best polled in calf heifer, £4, Mr. G. D. Badham.

For the best fat steer, of any breed, under four years old, £5, the Rev. J. Holmes. For the second best ditto, £3, the Earl of Leicester.

For the best fat cow or heifer, £4, the Earl of Leicester. For the second best ditto, £2, Mr. H. K. Tompson.

SHEEP.

JUDGES OF SHEEP.—Mr. Thos. Hawkins, of Smallbridge, near Sudbury, Suffolk. Mr. Henry P. Hart, of Beddingham, Sussex. Mr. Thomas P. Stone, of Barrow-on-Soar, Leicestershire.

For the best shearing Southdown ram, £5, and for the second best ditto, £3, Mr. H. Overman.

For the best Southdown ram of any age, H. Styleman Le Strange, Esq.'s, premium of £5; and for the second best ditto, £2, Lord Walsingham.

For the best pen of three shearing Southdown ewes, £5, Lord Walsingham; for the second best ditto, £2, Mr. H. Overman.

For the best pen of ten Southdown ewe lambs, £4; and for the second best ditto, £2, Lord Sondes.

For the best pen of three Southdown shearing ewes, bred by the exhibitor, the Earl of Leicester's premium of £5, Mr. G. Sexton.

For the best pen of three shearing Southdown wethers, Lord Walsingham's premium of £5 5s., Mr. H. Overman.

For the best pen of twenty Southdown wether lambs, Sir W. B. Folkes's premium of £5, Mr. W. M. Farrer; for the second best ditto, £2, Lord Sondes.

For the best pen of twenty Southdown shearing ewes, £5, the Earl of Leicester; for the second best ditto, £2, Mr. W. Farrer.

For the best shearing Leicester or long-woolled ram, £5, Mr. P. J. Sharman; for the second best ditto, £3, Mr. Josiah Hill, Briston.

For the best Leicester or long-woolled ram of any age, £5; and for the second best ditto, £2, Mr. Josiah Hill.

For the best pen of three shearing Leicester or long-woolled ewes, £4, Mr. Josiah Hill.

For the best pen of ten wether lambs of any breed, £4, Mr. Utting, Stanninghall; for the second best ditto, £2, Mr. H. Wrightup, of Bintury.

HORSES.

JUDGES OF HORSES AND PIGS.—Mr. H. Kersey Cooper, of Euston, Suffolk. Mr. Joseph Mann, of Rockland, Norfolk. Mr. Samuel French, of Great Holland, Essex.

For the best cart stallion, not under four years old, having covered at least thirty mares in Norfolk during the present season, £10, Mr. E. Cottingham; for the second best ditto, £5, Mr. J. H. Holley.

For the best two years old cart stallion, £4, Mr. Thomas Crisp.

For the best stallion, for saddle or harness, £7, A. Hamond, Esq.

For the best cart mare, G. P. Bentinck, Esq.'s, premium of £5, Mr. N. G. Barthropp; for the second best ditto, £3, Mr. F. Barlow.

For the best three years old cart filly, £4, Mr. N. G. Barthropp; for the second best ditto, £2, Mr. J. Smith.

For the best two years old ditto, £4, Mr. N. G. Barthropp.

For the best cart foal, £4, Mr. G. D. Badham; for the second best ditto, £2, Rev. J. H. Steward.

SWINE.

For the best boar, £3; and for the second best ditto, £2, Mr. Thos. Crisp, Chillesford.

For the best breeding sow, £3, H. Birkbeck, Esq., Stoke Holy Cross; for the second best ditto, £2, Mr. Thos. Crisp, Chillesford.

For the best pen of eight store pigs, not exceeding four months old, being of the same litter, £3, Mr. R. Gillett, Tunstall.

IMPLEMENTS.

JUDGES OF IMPLEMENTS.—Mr. E. Blyth, of Burnham, Norfolk. Mr. H. B. Caldwell, of Hillborough, Norfolk. Mr. John Ferguson, of Wretham, Norfolk.

To the exhibitor of the best newly-invented implement, for the purpose of agriculture, the utility and price whereof shall be approved by the judges, £5, patent revolving horse-hoe, Garrett and Son; to the exhibitor of the second best ditto, £3, patent universal horse-hoe, Mr. R. H. Nicholls; to the exhibitor of the third best ditto, £2, registered manure distributor, Holmes and Sons.

SHEEP-SHEARING.

The following obtained prizes for clippers for sheep-shearing:—1st, Mr. Thos. Sharpe; 2nd, Jonathan Battaby; 3rd, Thomas Shaul; 4th, Robert Gathergood.

THE STEWARDS OF THE YARD were Mr. Charles Etheridge, of Starston, Norfolk. Mr. Isaac Everitt, of Limpenhoe, Norfolk. Mr. George Read, of Plumstead, Norfolk.

THE DINNER.

Which took place at the Assembly Rooms, was attended by about 150 gentlemen, including the Earl of ALBEMARLE, who presided, Lord Walsingham, Lord Berners, Lord Hastings, Lord Suffield, H. N. Burroughes, Esq., M.P., B. Gurdon, Esq., Wyrley Birch, Esq., Hon. B. De Grey, Hon. and Rev. F. De Grey, Hon. and Rev. E. Keppel, W. Burroughes, Esq., Hon. Harbord Harbord, J. Everitt, Esq., F. Irby, Esq., Col. Fitzroy, H. Stracey, Esq., J. B. Caldwell, Esq., J. S. Musket, Esq., H. E. Blyth, Esq., J. Hudson, Esq., J. Warner, Esq., Rev. P. Gurdon, Rev. J. W. King, Mr. F. Astley, Mr. J. Reeve, Mr. Cattle, Mr. Frost, Mr. Nuncks, Mr. England, Mr. J. Kendle, Mr. C. Hart, Mr. G. Eaton, Mr. J. Porter, Mr. C. Mayes, Mr. Layton, Mr. Bagge, Mr. Thorold, Mr. W. P. Salter, Mr. J. J. Palmer, Mr. L. Rodwell, Mr. H. Overman, Mr. G. Read, Mr. Mann, Mr. T. M. Hudson, Mr. K. Cooper, Mr. Barthropp, Mr. H. Overman, jun., Mr. H. J. Hitchcock, Mr. R. Leeds, Mr. H. Kendall, Mr. J. Savory, Mr. J. Collins, Mr. Hawkins, Mr. Stone, Mr. Hart, Mr. Wrench, Mr. Catling, Mr. W. M. Farrer, Mr. Abbott, Mr. Fergusson, Mr. Beck, Mr. Atkinson, Mr. H. Chamberlin, 'Mr. Seaman,' Mr. S. Sharpe, Mr. B. H. Baker, Mr. H. Baker, Mr. Oswald, &c.

We regret that we have not room this month for the different addresses of the evening, though we hope to refer to them hereafter.

TRADE WITH RUSSIA AND OTHER COUNTRIES, FOR TALLOW, HEMP, FLAX, AND LINSEED.

A return has just been published of the imports, during the last 10 years, of the various articles, exclusive of grain, which make up the chief portion of the trade of Russia, namely, tallow, hemp, flax, linseed, hides, and wool. From this it appears that, as regards hemp, flax, linseed, and wool, the quantities taken last year from Russia exceeded those of any former year; but that Russian tallow, on the contrary, shows a diminution, owing partly to the competition of Australia and the River Plate, as well as to the increasing supply of palm oil from Western Africa. The following is a comparison of the quantities in 1844 and 1853:—

TALLOW.

	1844.	1853.
	Cwt.	Cwt.
Russia	865,381	845,901
Australia	37,415	125,186
United States	52,799	24,542
River Plate	100,617	162,443
India	3,755	5,050
Brazil	4,409	..
Turkey	3,000	687
Other parts	12,291	11,945
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	1,079,667	1,175,754

The increase in the supply of tallow from all parts, during 10 years, looking at the general extension of commerce, has thus been remarkably small. The year of the greatest importation was 1848, when it reached 1,498,359 cwt., owing to the total from Russia having been 1,149,157. The subsequent falling off has been chiefly from the ports in the Black Sea, which 10 years back sent 152,312 cwt., and last year only 21,408. In the quantity from Australia the increase during the 10 years has been very great, although the last two years show a decline from the highest point, which was reached in 1851, when the total was 174,472 cwt.

As regards articles analogous to tallow, the imports of palm oil, which is derived almost exclusively from the west coast of Africa, have increased from 414,648 cwt. in 1844 to 636,628 in 1853. Of train oil, which is principally supplied from North America, the totals between the two periods show little variation, 15,838 tons having been imported in 1844, and only 15,757 tons in 1853. Of spermaceti, also, the figures have been nearly stationary, namely, 5,006 tons in 1844, and 5,180 in 1853; the chief quantity being now obtained from the United States, owing to a diminution in the Australian and South Sea supply.

Of hemp the following are the comparative totals:—

	1844.	1853.
	Cwt.	Cwt.
Russia	655,954	806,896
India	211,392	320,672
Austria	15,431	30,286
France	2,707	25,368
Philippine Islands	14,122	19,550
Other parts	13,627	16,498
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	913,233	1,218,770

Although the importations of hemp from Russia last year were larger than on any former occasion, the aggregate from all parts was not equal to that in 1851, when, owing to 590,623 cwt. having been received from India, the total was 1,293,411 cwt.

Of flax the following are the comparative totals:—

	1844.	1853.
	Cwt.	Cwt.
Russia	1,112,024	1,294,327
Prussia	249,404	229,407
Holland	106,658	123,691
Belgium	44,967	99,558
Egypt	30,266	85,105
Hanse Towns	17,463	29,789
Other parts	22,712	27,100
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	1,583,494	1,889,477

The above importations of flax for 1853, amounting to 1,889,477 cwt. (erroneously computed in the return to amount to 1,902,477), are in excess of any former year, both as regards the quantities from Russia and the general aggregate.

Annexed are the totals of linseed:—

	1844.	1853.
	Qrs.	Qrs.
Russia	448,393	765,019
Prussia	90,383	57,848
India	29,745	151,113
Turkey and Egypt	22,386	17,523
Other parts	26,040	43,827
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	616,947	1,035,935

These also, both as regards Russia and the general aggregate, are beyond those of former years.

Of hides and wool the quantities obtained from Russia are not of much importance, as compared with the general supply, the number of hides imported thence in 1853 having been only 11,115, out of a total from all countries of 750,309; while of wool it was 9,675,199lb. out of 119,396,449lb. Ten years back the importation of Russian hides was 23,605, and of wool 4,765,957lb.

Among the most satisfactory features of the above returns is the evidence they afford that in those articles in which India competes with Russia the comparison of progress is much in favour of India—a course of affairs destined to be greatly stimulated by the present war.

MEXICAN GUANO.—NEW DISCOVERIES.—It

appears that the government of Mexico have recently granted for ten years to Senor Jose O. Pons and others, representing a body to be called the Mexican Guano Company, an exclusive privilege for the exportation of guano from all the coasts and islands belonging to that country, with the exception of three islands in the Pacific known under the name of the Marias. Circulars have accordingly been issued, notifying the conditions on which it may be obtained, the professed object of the proprietors being to leave the trade as open as possible consistently with their own claims for remuneration. The quality of the guano existing on the Atlantic side of the coast has been more thoroughly examined than that on the other, owing to several cargoes having already been taken thence to the United States, as well as a few to Liverpool, and is stated to be entirely distinct from the Peruvian descriptions, its richness consisting in 60 per cent. of phosphate of lime. That which exists on the islands and promontories of the Pacific coast and in the Gulf of California is described as of a more varied character, some parts which are rainless being expected to supply high qualities, while in others the descriptions are inferior. Thus far, however, there seem to be no accurate classification of the respective sorts, nor any reliable estimates as to the quantities obtainable. The discovery of these deposits as regards the Atlantic portion is only of recent date. The islands containing the principal amount are called the Triangles, near the coast of Yucatan; and no knowledge of the circumstance seemed to have been possessed by the Mexican Government until very lately, when, after two American vessels had filled there, one of them, with more than 200 tons on board, was stranded in a storm on a neighbouring point, and the matter was brought to light.—*Times*.

WAR PRICES.

In spring the Poor Law question, Agricultural Statistics, and the influence which war was likely to have upon agriculture and the nation generally, were topics which excited an amount of interest almost such as to eclipse the important operations of seedtime altogether. Of these the declaration of war against Russia, with the many perplexing difficulties involved in the satisfactory and permanent settlement of the Eastern question, certainly occupied the most prominent place in the public mind. Groaning under the enormous load of taxes occasioned by the last war, parties naturally looked upon the present with some suspicion, and on that account manifested a willingness to entertain hopes of peace which otherwise would not have been cherished. If Turkey, for instance, had conceded to her christian population civil and religious liberty, Russia proposed to withdraw her forces from the Principalities; and therefore many, despite the arch duplicity and cunning practised by the Czar, hoped that some modification of this proposition would have become the basis of an amicable arrangement through the intervention of the German powers; others, with too much reason, concluded that such a settlement would only place the eastern question "out of the frying pan into the fire," and that the commercial resources of the country would be affected accordingly. From the animosity, for instance, that exists between the Greek and Latin churches, the persecuting spirit which both of them entertain, not only towards Moslems but also Protestants, the fact that Protestantism is safer under Islamism than under the hierarchical domination of either of those churches, owing to the spirit of inquiry and toleration which has lately arisen among Turks as to the authenticity and use of the Bible, the foundation on which the christian religion is established, in comparison with that of the Koran and Sunna, the source of Islamism itself, the harmony of Protestantism and the Bible, and the opposite of the popery of the Eastern and Western churches, whose hierarchical governments, as well as life and conduct, have long since been condemned by Mahomedans as contrary to scripture, with the equally interesting fact that the final settlement of the East is dependent upon the triumph of Protestantism, and the establishment of civil and religious liberty on Protestant principles, or in accordance with the sacred institutes of the Bible—from these things, we say, they conclude that concession to the proposition of Russia would only be throwing Turkey open to the fanaticism of the Greek church, including Russian propagandism, and therefore leaving the question as far from settled as ever, if not further. In short, they look upon the reformation of Turkey as a work of time, requiring the active intervention of the Western powers during this period, in order to bring it to a successful termination; and as such a work involves in

some measure the civil and religious liberty of Russia also, it is not likely that it will meet with the approbation of the Emperor Nicholas; consequently the question arises—How long and in what manner will the commerce of the Baltic and Black Sea be affected by this state of things? What influence are they likely to have upon the agriculture and corn trade of Britain? Are we to conclude the present century as we began it, with high prices?

In answering these questions, we have first to observe that progress has been made in the science of war as well as in other sciences since 1815, so that the results of hostilities at present will be different from those of the past. In other words, we have no reason to suppose that because we are at war with Russia we are therefore to have the high prices of the former war, while it is manifest that expenses will be greater at the same time—a shot which then cost 5s. now costing 20s.

And besides progress in naval and military affairs, politics, &c., war confined to the Russian shores of the Baltic and Black Sea, or to Russia and Turkey; or if we even take a more unfavourable view of things still, by supposing the Emperors of Austria and Prussia to join the Czar in opposing the progress of civil and religious freedom in Turkey and Russia, for fear of its extension into their own dominions, even then war, confined to northern Europe and Asia Minor, would have a very different effect upon the corn trade and agriculture of this country from what the last war had; for in it the whole world was embroiled in one sanguinary struggle. When France and England let loose "the dogs of war" against each other, havoc and destruction devoured both sea and land, so to speak; but on the present occasion, granting that Germany sent into the field along with Russia the boasted force of "400,000" men (which by-the-by is just what the ex-patriots of Poland and Hungary desire), still the naval affairs of the whole world would be comparatively at peace; for however protracted things may be on land, it is manifest that the fleets of the Western powers will soon silence all opposition to the shipping interests of both seas. Russia may prohibit the export of corn; but what will that avail her when her exporting sea-board falls into the hands of England and France, the two great importing states? and when Georgia, Bessarabia, Poland, and Finland become independent states, and the Danubian provinces free from blockade?

In answering this question the martial rules and maxims of the last century cannot be trusted as guides to the present, however favourable such may appear to the interest of individual parties, for nations are now almost unanimous as to the impolicy of allowing war to interfere with the ordinary affairs of commerce. The public manifestoes of England, France, and the United States to put an end to privateering, and

otherwise improve international laws, prove this. Now if these three states join hands together as to the maritime policy of nations, it ought to convince the most sceptical alarmist that not only the shipping interest of the Baltic and Black Sea is safe in their hands, but also that of the whole world. If, therefore, the shipping interest remain undisturbed or undiminished in tonnage, the effect of war upon the corn trade is limited to the power of Russia to prohibit exports, and the policy which France and England, the two importing states, may think fit to extend towards such a prohibition.

That the fleets of the Western Powers will cripple the commerce of Russia by a close blockade need not be questioned; but that they will comply with the prohibitory measures of the Czar, so as to starve Paris and London on the one hand, and allow the enemy to retain an abundant supply of cheap bread corn on the other, is a proposition not so easily reconciled to the general policy and interest of either of the two governments. Revenge is no doubt sweet, but self-interest sweeter still, and the more prudent course for them to pursue is to render nugatory the attempt on the part of Russia to prohibit the export of corn, for this would enable thousands to sell out and seek for safety in more promising climes than she now affords, while it would place those left behind in a position of the most dangerous kind. It is a well known fact, for instance, that the strength of the Russian army is drafted from her peasantry, that farther conscriptions are contemplated in magnitude such as the agricultural resources of the country will admit of, and consequently the more old corn the Emperor succeeds in retaining on hand, just so much the greater an army can he bring to bear upon Turkey and the defence of the principalities he has so unceremoniously wrrenched from her, and which he cannot now much longer retain, if he has not by this time been driven like a wolf from his prey; that the laws of conscription and export of corn can only be enforced by military authority, so that when that authority is called into active service, such laws are liable to be set at naught by a disappointed populace on the first reverses which Russia may experience in the campaign she herself recommenced by crossing the Danube this year as she did the Pruth the last; and consequently the moment such reverses are experienced, as doubtless they soon will be, both in the Baltic and Black Seas, the greatest enemies which Nicholas will have to encounter will be those of the late Emperor Paul—*his own subjects*! What, in short, he most dreads is the importation of those civil and religious principles which govern England. Aware of their dangerous character, and alarmed at the progress they are now making in Turkey, he is afraid lest they cross his own frontier next, as such a result would inevitably put an end to arbitrary rule at home, at variance with public interest, such as prohibiting the export of corn, and aggressive government towards other states, as the long-cherished dismemberment of the Turkish Empire, where for the last ten years the Czar has been, in the language of the poet,

“Nursing his wrath to keep it warm;”

and these are the very sort of materials we would therefore suggest sending him, not on the principle of sowing sedition in an enemy's country, but of sowing the seeds of permanent peace and prosperity; materials which would bind the northern autocrat more tightly than parchment treaties have hitherto done or ever can do; indeed the only materials by which the fanaticism of the Greek Church of Russia can be successfully checked, and the Eastern question finally and satisfactorily settled.

Supposing these to be the facts of the case about to be revealed by the war, facts which are daily becoming more apparent as the stormy elements of war-gathering cloud the horizon of all the Russias, facts which, in point of fact, are already beginning to be realized, for in the very capital of the empire itself the most arbitrary and tyrannical measures are necessary, to confine the slumbering elements of rebellion within the breasts of an ignorant and already disappointed populace, who are becoming sensible of their position, and the absolute necessity of a change of government before redress of grievances can possibly be expected, and while the Greek church of Turkey and Greece is showing unmistakeable signs of Russian propagandism; such, therefore, being the facts of the case, we say we have the greatest difficulty in arriving at the conclusion that war with Russia will advance the price of corn so as to benefit the landed interest and the corn trade of this country, even granting that the government of Turkey shall virtually devolve upon France and England for the next twenty years. Indeed the very idea of its doing so is repugnant alike to common sense and humanity; so that landlords, tenants, and corn merchants, with others interested, may make up their minds to share the calamities of war in common with the rest of her Majesty's loyal subjects, and the higher the price of corn the greater will be the expenses entailed upon the country. The impolitic increase of the malt tax, so justly condemned in the leading columns of this paper—the increase of the property tax, and expenditure of the landed interest generally, without a corresponding increase in rents, produce, and profits, fully confirm this, and even more than this, for it is manifest that this class will be saddled with more than a fair share of the expenses of the war.

We must, therefore, look to other causes for the fluctuations which have taken place in the price of corn, and continuation of high prices expected, than to the actual commencement of hostilities with Russia; for it is supply and demand which can only legitimately affect price. Now the fluctuation which has taken place in the price of corn during the last twelve months is such, that supply and demand cannot legitimately account for it; so that it must be attributed to speculation or something else. No doubt more statistical information is necessary than we now possess, to enable us successfully to regulate supply and demand to the greatest public advantage; but we question very much, if after we have obtained such from every county in the kingdom, as was this year done from Edinburgh, Roxburgh, and Sutherland

shires, that fluctuations in price will become the exception; for certain it is that farmers at least cannot plead ignorance of the deficiency of last year's crop, so as to impute the fluctuations which have taken place to a want of information, for by last midsummer the deficiency of crop 1853 was nearly as well known as at present. But we are not left without more tangible evidence in support of our proposition than deductions of the above kind, for when the export of corn was prohibited from the Russian shores of the Black Sea, prices there immediately fell, and by sequence ought to have risen here. Did they do so? Quite the contrary! The first effect of war, therefore, has been to lower the price of corn in both Russia and England. How then is such to be accounted for, seeing it is diametrically opposite to the credence of so many?

At Odessa the question is easily answered; for the demand was reduced, and consequently the price fell, according to the ordinary course of commerce. But in England it was otherwise; for here, although the natural supply was diminished, yet from speculation being unable to hoard up any longer, she was compelled to make forced sales both in France and England, and therefore filled the market with a temporary supply, upon the whole greater than the previous demand, and hence reduced the price. Speculation, therefore, was the cause of the depression in the English markets at that time, and not war as formerly stated; and the depression would in all probability have been greater but for the prohibition of exports from the seat of war; while high prices generally have been occasioned by the deficient harvest of last year, and not war. Indeed, since the declaration of war against Russia, prices have been lower than they were previously, proving, in the plainest manner, the soundness of the conclusions we have advanced, and also accounting for the short supply of breadstuffs from America. The high prices of spring might easily be accounted for were it now necessary, as well as some other anomalies; and since that time, the country has reason to congratulate itself on the pretty uniform level at which things have remained, the Finland Gulf and Black Sea being both under blockade.

We have even some difficulty in concluding that the prohibition of the Czar and blockade will very much diminish supplies from the Black Sea; for if Odessa and the other exporting places fall into the hands of the Western Powers, as they doubtless will, they will become Anglo-French provinces during the period of war, or free States not subject to the laws of Russia; consequently there is nothing to prevent their corn being shipped to this country and France, if required. If Paris and London want corn, we say it can hardly be supposed that a *veto* will not be put upon the prohibition of the Emperor Nicholas, and the welfare of captured or liberated provinces duly protected. Indeed, it is manifest that Russia will soon not have a port in the Black Sea to blockade.

So far as the present crop is concerned, therefore,

we have been unable to arrive at the conclusion that war will have that influence upon the price of corn which many appear willing to attribute to it. The high prices and fluctuation of this year are occasioned by a short crop, and consequent speculation, and not by the war on the Danube. But increasing the malt-tax, and taxing the incomes of landlords, tenants, &c., to pay the expenses of war, will, we fear, be productive of very different results. The agricultural resources of the theatre of war will no doubt be affected so that there may be a deficient supply from the Black Sea next year, and this may render speculation at present somewhat less hazardous to those whose credit will permit of long storage; but the destinies of the ensuing crop, upon which the price of next year depends, we leave in higher hands than those of speculation, observing that, so far as gone, the season is propitious to France and England, now called upon to perform an important mission in the East in favour of civil and religious liberty. Harvest, it is true, will not be quite so early as at one time expected; but, although this is now fact, the yield may yet be as great as otherwise would have been.—W. B.

CONSUMPTION IN FOWLS CURABLE.—A correspondent of the *Poultry Chronicle*, a new publication devoted to the poultry interest, announces consumption curable among fowls. Cod Liver Oil, whose virtues seem to be unlimited, is in this instance the saviour and fattener of skiany Cochins cockerels. We are told that "the best way to exhibit this medicine is in Scotch oatmeal, for, singularly enough, it mixes with it much better than in barley flour. The dose is a full teaspoonful three or four times daily. After about two days, the circulation seems improving, for gradually the livid character of the comb and wattles, as also their general appearance, gives way; and from this time (the medicine still continued) the bird improves alike in flesh and spirits. I repeat, I am not friendly to much doctoring of poultry; but finding not a single instance has come to my knowledge of recovery by the many other means adopted, and where the oil was freely administered *not a death occurred*, I have ventured to forward my experience for the benefit of your readers."

CAUTION TO SERVANTS.—ABSCONDING FROM HUSBANDRY SERVICE.—Abraham Merritt was charged with having misconducted himself, by running away from the service of Mr. Pike, farmer, Bucklebury. It was proved that the defendant was hired at Aylesbury last Michaelmas, at 5s. per week, and 3l. at the end of the period of his service; that he entered on his service on October 10th, and continued there until the 14th of May, when, without asking permission or any notice being given, he absented himself. The defence urged was, that the wages had not been raised according to the increase in the price of bread; but it was shown that there was no agreement of that kind made between him and his employer, neither had he made any complaint in that respect. The Bench sentenced him to be imprisoned for one month, and ordered 20s. to be abated from his weekly wages, and 5s. from his yearly allowance.

ARE SMALL OR LARGE SHEEP THE MOST PROFITABLE ?

SIR,—Ever since the days of the far-famed Mr. Bakewell, of Dishley, Leicestershire, there have been two opinions, whether large or small sheep are the most profitable. The breeders of small sheep say, that an animal may be good and not great, and great and not good, and that size has nothing to do with profit. It is not what an animal makes, so much as what it costs making; and that a larger number of small sheep can be kept upon a given number of acres than larger sheep, the lesser sheep not consuming so much food per head as the larger.

The breeders of large sheep say that they can produce more wool and mutton per acre by breeding large sheep than small; and that Mr. Bakewell lived when fat flesh or tallow made as much per lb. as lean flesh. Since that time, through the gas, one pound of lean flesh has made as much as two pounds of fat when pared off as tallow, and that there is more lean flesh in proportion upon large sheep, such as Lincolns and Cotswolds, than upon the true-bred Leicesters, that are now, and have been, famous for fat flesh, small bone, and a great propensity to fatten at early maturity. Many people have an idea that the sheep are all small that are bred in Leicestershire, which is erroneous. Last year I travelled through several counties, to find wool, mutton, and size combined. I found at Drayton-on-the-Welland, in Leicestershire, four miles from Rockingham Castle, 140 rams belonging to Mr. Bryan Ward, an eminent grazier, who feeds yearly upon grass from 500 to 600 oxen, and shears 2000 sheep. Mr. Ward's rams have plenty of wool, size, and lean flesh, clipped all through their backs, with small, fine thin heads, which denote a well-bred animal, and a propensity to fatten at an early age. Mr. Ward's sheep are styled, by many, Old Leicesters, because they have more wool and size than the pure-bred New Leicesters, and have a great semblance to the best long-woolled Lincolns. There are now many flocks in the county of Leicester that have been crossed with Lincolns and Cotswolds, to increase size and wool; and there are many flocks left of what they style pure-bred New Leicesters. By the ram sales at Peterborough fair, last year, the Lincolnshire sheep seem to be gaining ground, as they made more money than any other kind of long-woolled white-faced sheep. S. A.

86, Fauxhall-street, Fauxhall, Surrey, June 14, 1854.

THE POLICY OF LABOURERS' FRIEND SOCIETIES.—A discussion on this subject took place at the London Central Farmers' Club last week, which cannot fail to be interesting in this county, covered, as it is, with a net-work of these societies. The subject was introduced by Mr. Morton, who took a review of the prizes usually given, dividing them into two classes—those offered for skill in the various departments of husbandry, and those awarded to honesty and good conduct. The great benefit of the first he admits; in fact it would have been rather a bold course to deny it, with the evidence we have before us of the great improvement that has taken place in the districts in ploughing and land-draining, for instance, since these societies have fostered the skill and called forth the emulation of the labourers. The second class of rewards Mr. Morton as decidedly condemns. His opinion may be gathered from the assertion that "a money reward for honesty is an absurdity; that a money reward for industry should be given in the form of wages; that a money reward for attention to religious duties is apt to be a premium upon hypocrisy"—a wholesale denunciation that may, perhaps, be

right in principle, since honesty and a consciousness of duty well discharged to God and man ought to carry with them their own reward. But do they do this among the village poor? If not, ought we to adhere to the cold severity of a principle, and disdain the use of those expedients calculated to arouse in the cottager a sense of his own dignity, and to restore his feelings on this subject to a healthy state. We believe if Mr. Morton had been present at so many of the annual meetings of these societies as we have, and had marked the effect on the assembled poor—if he had entered the cottages of Essex, and had noted the feeling of pride with which the younger members of the family pointed his attention to their father's memorial of merit, he would not have been so ready to conclude that these marks of distinction, for they are not given as rewards, fall upon stony ground and produce no fruit.—*Essex Herald.*

RURAL POLICE BILL.—Lord Palmerston's Rural Police Bill has been printed. The magistrates in the next quarter sessions are to elect from their body the "police board" of the county for the year, the number not to exceed 1 for every 10,000 of the population of the county, exclusive of the boroughs, and in no case to exceed 20 in the whole. For the purposes of this act, counties with a population of less than 60,000 are to be united to adjoining counties, and boroughs with less than 20,000 are to be consolidated with their county, but to be represented in the police board by the mayor, and (if the population exceed 10,000) a member of the council. The police board, who are to appoint a clerk at such salary as they think fit, are to have the direction and management of the police of the county, and, where a constabulary has not been already established for the whole of the county, they are to proceed forthwith to establish or complete a sufficient police for the whole county. This force, which is to include the existing police in any consolidated borough, will have authority in such boroughs, and in boroughs not consolidated will have the powers the police now have in adjoining counties under the Police Act of 2nd and 3rd Victoria. The requisite police rate is to be raised according to the provisions of the (Police) Amendment Act of the 3rd and 4th of Victoria. In boroughs not consolidated with a county, the watch committee are to appoint a head constable, and he is to appoint the number of constables fixed by the committee; he to have the general disposition and government of the force. The Secretary of State is to have power to make regulations as to the pay, &c., of constables; and Her Majesty in Council, on his report that their number is insufficient, may order an additional number to be appointed. The appointment of head or chief constable is to be subject to the approval of the Home Secretary.

HOW TO CLEAN ANIMALS AND PLANTS OF VERMIN.—The "Agriculture" publishes a letter from M. Raspail, giving an account of a plan for destroying vermin on animals, and also trees and plants. The process he recommends is to make a solution of aloes (one gramme of that gum to a litre of water), and by means of a long brush to wash over the trunks and branches of trees with this solution, which will speedily, he says, destroy all the vermin on them, and effectually prevent others from approaching. In order to clean sheep and animals with long hair, they must either be bathed with this solution, or be well washed with it. The writer mentions several trials which he had made of the solution with the most complete success, and very strongly recommends it to general use.—*Paris Correspondent of Morning Advertiser.*

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR JUNE.

At this particular period of the year, an accurate and unbiassed report on the subject of the growing crops must prove highly interesting. The inquiries we have instituted on this head are calculated to inspire great confidence, as regards the probable yield of wheat; but they prove beyond a doubt, that we have passed the highest period of value, unless, indeed, a very decided and unfavourable change should take place in the general appearance of the crop between this and the close of harvest work. From what may be termed the leading wheat-growing counties—viz., Essex, Kent, Cambridgeshire, Lincolnshire, &c.—our advices, with very few exceptions, are to the effect that the wheats have rapidly, but not prematurely, come into ear (in some districts the bloom has begun to make its appearance), that the plants have tillered well, are strong, and otherwise healthy. Statements have got abroad that blight has been very prevalent and destructive; but we have been unable to trace them to any authoritative source. In some other parts of England, although resowings have not been of an extensive character, the crop is described as rather thin on the ground; nevertheless, our informants intimate that there is every reasonable prospect of an average yield. The generally-acknowledged poor districts show signs of only a moderate return, although in some particular localities, which of late years have shown a great improvement in the mode of cultivation, the wheat is looking remarkably well. So far, therefore, as the season has already progressed—and it must be admitted that the weather has been anything but fine ever since the beginning of April up to the first week of this month—we see every reason to be satisfied; but, as a matter of course, much will depend upon the state of the weather during the next three weeks; in other words, we have now arrived at the most critical period as regards the safety of the whole crop. This, however, we may safely venture to assert, viz., that in the event of our having only a moderate amount of moisture, seasonably warm weather, and very few gales, together with an absence of blight, we shall reap one of the most abundant crops on record. And here we are particularly alluding to the acreable yield; and were we to make due allowance for the immense breadth of land under cultivation, and that too with the *best* wheats, compared with several previous years,

especially with 1853, we might calculate upon a supply which would render us almost wholly independent of Russian produce. So far, therefore, there is everything in favour of the consumer, as regards the probable supply.

We have now a few observations to offer in reference to spring corn. The high prices of barley, oats, beans, and peas, as well as of rye, have been instrumental in breaking up large tracts of inferior grass lands, which are now bearing the germ of heavy crops. Both on light and heavy soils, the two former articles are exhibiting a splendid appearance; in point of fact, they have never looked better than at this moment; but we regret to observe that the three latter show the possibility of a short crop, as they have not recovered from the effects of the severe frosts, which evidently inflicted severe damage on them just prior to the blooming period.

We now come to the consideration of another important portion of our report: we allude to the potato crop. In the four or five preceding seasons we have had occasion to call attention to the great ravages committed by blight and disease about this period; and we have frequently seen the stems completely rotten and destroyed by the first week in June. This year, however, no serious cases have presented themselves to our notice; and nearly the whole of our correspondents have informed us that "the crop is progressing remarkably well;" and yet the potatoes which have made their appearance in the various markets have been of a poor watery quality—owing, no doubt, to the want of dry, forcing, weather. At present we have nothing to urge against the condition of the tubers in the ground, as they exhibit no signs of rot; neither does the haulm tend to lessen our confidence as regards the total growth, which bids fair to be unusually large. The want of statistical information on the subject of the yield of grain and other produce in this country is being severely felt, not only by the importers of grain, but likewise by the growers themselves. In addition to this want, we are almost wholly in the dark as to the supplies of foreign food in warehouse at our outports. Had such information been published annually, much loss and disappointment would frequently be avoided. Of course, it would be impossible to ascertain the extent of foreign importations until after they have taken place; but we do raise our protest against the foolish and exaggerated statements which have frequently found

their way into print on the subject of the growth of food. Last year we were told that nearly the whole of the potato crop had been destroyed by disease. The losses, no doubt, were great; yet we grew a sufficient quantity for consumption; in proof of which, we may observe that old potatoes are now offering for sale in rather considerable quantities. Had the growers generally been aware that the produce was as great as it proved to be, no doubt present supplies would have been long since disposed of at higher rates than can now be obtained for them.

The grass crop is by no means a heavy one. As yet only a small portion of it has been cut, and the swathe is turning out light. The severe frosts in the early part of last month have tended to lessen the produce in the whole of those counties where they were experienced in the greatest intensity.

Our advices from France, Spain, and Germany, state that the wheat crop is forward, and looks extremely well; but that the produce of rye will be comparatively small. The potato crop in Holland is turning out large. The imports from that country have been on a very liberal scale; but new English qualities have been selling at high rates, owing to their scarcity.

The stocks of home-grown corn, especially of wheat, now on hand, are perhaps smaller than for many years past. This feature in the trade, however, owing to the immense supplies of foreign wheat and other articles which continue to be imported, notwithstanding the war with Russia, has failed to keep prices on the advance. The fall in them during the month has been fully 2s. per qr.; but the depressed state of the markets has, in a great measure, been caused by the favourable reports on the subject of the growing crops.

The wool trade has continued in a most depressed state. A further rather serious decline has taken place in the value of English qualities; whilst so little has been doing in foreign and colonial parcels, that the quotations have ruled almost nominal.

The fat-stock markets have been but moderately supplied, and prices have ruled unusually high, arising from the great comparative falling off in the importations, and the increased consumption.

In Ireland and Scotland, fat beasts and sheep, as well as store animals, have realized very high rates. The corn trade, however, has ruled very inactive, and the quotations have not been supported, if we except oats, which have produced rather more money, owing to the blockade of the Russian ports.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Notwithstanding that there has not been quite so much activity in the demand for fat stock as in the preceding month, a very extensive business has been again transacted. The supplies of beasts in Smithfield have fallen off; but of sheep, lambs, and calves the arrivals have increased to some extent. From the continent, too—though they have fallen short of some corresponding periods—the imports have improved in number, but not in quality. In the provinces store animals have realized unusually high figures; yet, as a matter of course, the business doing in them has not been extensive. Altogether, the trade has been in a far more healthy state than for many years past: as regards its future course, we may venture to observe that it will continue active, though, as a matter of course, much will depend upon the extent of the supplies we are likely to receive from the north and the continent. Our Lincolnshire correspondents state that the number of beasts now in the marshes, as well as in the homesteads, is a full average one; but we have every reason to believe that the supply on the continent destined for our markets is very moderate. Butchers, generally, loudly complain of the present high prices, and of the light weights of both beasts and sheep. They have, perhaps, lost more money by the rise in the quotations than they gained during the two years of depression: consequently they are most desirous of lower prices, in order to enable them to dispose of their inferior joints at something like a fair profit, which they are unable to do at present prices. We have received scarcely any unfavourable advices respecting the health of the stock in any of our large breeding districts. This is a most satisfactory feature in the trade, and one which is calculated to keep prices in check, although we see no chance of any decline in them.

The following are the imports of foreign stock into London during the month:—

	Head.
Beasts	2,657
Sheep	9,873
Lambs	575
Calves	2,113
Pigs	995

IMPORTS AT CORRESPONDING PERIODS.

	June, 1850.	June, 1851.	June, 1852.	June, 1853.
Beasts	1,515	1,413	2,035	2,293
Sheep	7,398	7,937	9,784	10,529
Lambs	302	593	965	1,233
Calves	1,600	1,331	2,145	2,621
Pigs	125	651	227	191

The total supplies exhibited in Smithfield have consisted of—

	Head.
Beasts	18,921
Cows	530
Sheep and lambs	131,660
Calves	2,999
Pigs	2,670

SUPPLIES AT CORRESPONDING PERIODS.

	June, 1850.	June, 1851.	June, 1852.	June, 1853.
Beasts	16,608	17,805	18,209	20,137
Sheep & lambs	182,620	169,420	134,160	130,500
Calves	2,453	2,275	2,781	3,328
Pigs	2,475	2,611	2,820	2,565

The arrivals from Norfolk, Suffolk, Essex, and Cambridgeshire have amounted to 9,000 Scots and short-horns; from other parts of England, 2,700 of various breed; and from Scotland 1,400 Scots. About 100 beasts, 200 sheep, 100 calves, and 150 pigs have arrived direct by sea from Ireland, in good condition. The high prices realized in Smithfield, and the increasing supplies of stock in Ireland, will no doubt be productive of an improved trade.

Newgate and Leadenhall markets have been very moderately supplied with meat, which has sold steadily, as follows:—Beef from 3s. to 4s. 4d.; mutton, 3s. 2d. to 4s. 8d.; lamb, 4s. 8d. to 5s. 8d.; veal, 3s. 4d. to 4s. 10d.; and pork, 3s. 4d. to 4s. 8d. per 8lbs. by the carcase.

WEST GLOUCESTERSHIRE.

Since our last report the dull and generally cold influences of the atmosphere have been unpropitious to the rapid progress of vegetation, which we are accustomed to hope for at this season of the year. The cold dry winds which prevailed for the most part during the months of April and May, a time when the verdure of the meadows is wont to burst forth with luxuriance, checked rather than promoted the prospect of an abundant produce. The sheltered meadows on the margin of the Severn, and the numerous brooks which wind their course through this county, have escaped the effects of the drought; yet the crops of grass in those favoured positions do not approach an average. The showers of rain which fell in the early part of May did not come in time for the upland meadows, on which the crops are very scanty, and will be late ere they are fit for the scythe; the quality, however, will be good, providing a propitious time ensues for harvesting; and thus we may hope that quality will be some compensation for quantity. Hay-making commenced in forward situations about the 19th, and some of the fields are cleared—the hay from which cannot fail to be excellent. This busy process will be in full operation during the current week. The crops of clover are tolerably fair—in some places luxuriant. The fruit, on which the Gloucestershire farmer is greatly dependent, is a total failure; the blossom was prodigious, but the cold frosty nights which we experienced about the 25th of April, succeeded by much blight, destroyed all hopes of a crop. The wheat promises to be abundant in most places; the rains which have fallen at intervals during the last six or seven weeks have been highly favourable to that important crop, which bears the cool weather better than any other kind of grain, and, with the blessing of a good harvest, we may anticipate the most cheering prospect. Barley varies greatly its condition, depending entirely upon the period when it was sown: that which was consigned to the earth very early had to lie in the ground for want of rain and that which was sown late appears very weak; the intermediate is most promising;

but an average crop cannot be anticipated. This, in conjunction with the failure of the fruit, and the additional duty on malt, will render those necessary, wholesome, and invigorating beverages produced therefrom difficult of access by the labouring classes. The oats and peas generally look well; but the beans, which are in full blossom, shedding their delightful perfume, are short, and except on land in high cultivation are weak. The flattering hope that the potato had overcome the disease, which has made such fearful ravages during the past six or seven years, appears likely to be disappointed. Till within the last week no evidence of the evil had shown itself; but on close inspection those unmistakable symptoms are too plainly visible. It has not, however, as yet assumed that sudden and universal character which in former years accompanied the attack, and we may therefore yet entertain reasonable hopes that at least a modification of the malady will spare a greater portion of the crops. A larger breadth of land than usual is under cultivation with this esculent. Bygone disappointments seem not to have checked the earnest endeavours of those who till the soil, from the wealthy landowner to the poorest cottager, to procure a supply of this useful vegetable. The grain markets have experienced the same slight fluctuations which have been noticed in other parts of the kingdom; but the rick-yards denote unequivocal evidence that there is not much store in the farmers' hands, and nearly three months must pass before we can calculate upon a supply—the result of the ensuing harvest. A decline in prices cannot under such circumstances be expected. Mutton and beef are scarce, without alteration in value. Store stock is not easily sold, few persons having any superfluity of keep; nor is there a probability of much improvement until the aftermath is ready for consumption. The turnips on the hills, which were sown early, came up vigorously, and were as vigorously attacked by the fly; thus the prospect of a crop is not very flattering. The value of labour continues unaltered, and good workmen demand from 10s. to 12s. a week. The operations of the dairy are in full work, but complaints are made that the cows do not yield their accustomed quantities of milk; the chilly state of the atmosphere is doubtless the cause.

HERTFORDSHIRE.

As the season approaches which will enable us to form some opinion of the growing crops, a more than usual anxiety is felt, from the generally admitted fact that a very small portion of last year's produce remains in the hands of the farmers. With the exception that the cold spring has retarded the growth of the wheat, and caused the period of coming into ear to be a week later than usual, circumstances generally have been favourable to the production of a good crop. It is generally considered to exhibit a strong and healthy appearance as it regards colour, and the shortness of the straw will tend to keep it erect, thereby improving the quality and increasing the yield; but, the result depending more on the future influences of weather than on the present condition, we can only hope that it may please Providence so to mature the fruits of the earth that the farmers may be able to afford to sell them at a price at which all may be bountifully fed. The barleys that were put in well in the month of March promise well, and those in the latter end of April; but such as were put in after the sheep in the beginning of April came up very badly, and still exhibit two stages of growth on the same land, yet the welcome rains in the beginning of May will probably prevent that uneven ripening that is so injurious to malting barley. Oats are also very short in the straw. The winter variety is fully in ear, and one or two such days as to-day will have a similar effect on the wheat, not more than half of which can be said to be in ear. The season has been favourable to mangel-wurzel; also to the sowing of swedes. There have been complaints of seed in some cases, but it is probable the slowness of vegetation consequent on the low temperature may require the exercise of more patience than common, and that two or three warm days, especially with a little moisture, may remove the disappointment experienced by some who have sown their seed nearly a fortnight without having a full plant. Crops of grass are particularly light, and clovers are thin on the ground; this, without any good old hay on hand, will ensure a full price for all description of food for stock. The effect of this prospect is already being felt in the price of store stock, which is not so brisk a sale as it was a few weeks back.—June 22.

NORTH NORTHUMBERLAND.

After a long continuance of dry withering weather, the first drizzling rain fell over this district on the evening of May 27; a part of the following day was also wet, and in some localities the rivulets and brooks were flooded. The wind almost directly veered to N.E., and continued to blow quite a gale, cold and ungenial for several successive days. Land became hardened, and some fear was entertained for the newly-sown turnips; the fine tilth of the soil became entirely crusted; light rolling, with other means, was put in practice, to assist the tender plant to sustain existence. The excessive dry state of the land previously, prompted the farmer to avail himself of every facility to push forward field labour, and seldom do we recollect a season when turnip-sowing has been finished to such an extent over the broad acres of this county. Although the atmosphere continued cold and ungenial up to the 17th, when it rained nearly the entire day, with a driving cold N.E. wind; since that evening the wind has shifted to S.S.W., and the temperature assumes something like summer. There are complaints of the turnip-fly; and at this early stage it would appear premature to venture any opinion, but we must admit there is a full and fair chance for a crop. Potatoes, which were all but stunted by the dry cold weather, are much refreshed by the rain; and, where not thinned by the frosts, are generally a full healthy plant. Old meadows will improve; the rain was, however, too late for the clover and annual young grasses, which will certainly fall a very deficient crop. Our earliest autumn-sown wheats are just showing the ear; and for the last three days the weather has been very fine and forcing, yet we can add nothing more favourable to the prospect than in our last report. From extensive and very close observation we have noticed large fields that seem to have lost plant, and on the fall of the shoot-blade will not be so bulky as appearances led us to anticipate. On almost all cold weak soils, and wherever sown after beans, turnips, or ley, with the land in a poachy state, the plant is invariably weak and thin. The tillering season is now past, and all depends on the weather for the next six weeks for maturing the plant. Barley and oats are each improving since the late rains: there are still many fields of the latter that never can approach half a crop. It is quite the season for docks, thistles, and all deep-rooted filth to tiller and luxuriate; while the seed for crop lies near the surface, and cannot vegetate for lack of moisture. We hope our allusions may prove only exceptions and not the rule; but, up to the day we write, taking a ride of 20 miles across the country, or a run on the rail five times that distance, it is indisputable that very large breadths of land may be seen (under crop) with very large patches entirely bare, except weeds. Beans have made little progress for some weeks past, although up to May 12 we had a full, vigorous, strong plant. The continuance of dry, cold weather seems to have cut off further growth. They have for weeks past been full of blossom, with a stem barely a foot high. Where an admixture of peas has been put in, they will now improve and fill up the blanks in the drill, which has a naked appearance. Pastures continue very short of feed; unless where the grazing stock could be removed after a shower of rain, the grasses have never afforded the animals a full bite. Sheep have generally been turned from the shears in poor condition. Lambs, on the contrary, are good, and mostly in fine, healthy, store condition. Beef and mutton for a few weeks past have sold unusually high in our fat markets, but seem now to give way a little. We have full employment for all spare labourers; indeed, in many localities a sufficiency of field-workers cannot be had. Pastures require to be cleaned of thistles, and many corn-fields will not be easily freed from such filth.—June 23.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

ALPHINGTON FAIR.—The proceedings were, comparatively speaking, of a dull character. The show of stock was moderate throughout, and business was slack. The attendance of buyers was small; notwithstanding which, more money was in some instances paid for prime beef here than at Exeter market on the previous Friday. As much as 11s. 6d. per

score was realized for very prime animals, but the average market price ranged from 10s. to 11s. per score; cows and calves, £12 to £17 each; working oxen, £25 to £35 each; barreners, 6s. to 7s. per score. Sheep: Wethers, shorn 6d. to 6½d., unshorn 6½d. to 7d. per lb.; ewes, 5d. to 5½d.; lambs, 6½d. to 7d. The attendance of buyers was fair, and the show of horses numerous. There was, however, a great lack of good animals, and scarcely anything first-class was to be seen. The "screw" description of horse was predominant, and the average price of everything was the utmost that could be got for it.

APPLEBY MARKET.—The show of sheep was by far the largest ever seen on the ground, particularly the white-faced. Stagshaw-bank was a bad fair for sheep, but Appleby has been a great deal worse. Dealers in white-faced sheep were losing from 4s. to 8s. per head. Black-faced sheep sold readily at former prices. Unfortunately for this district, the great body of the white-faced exposed belonged to our own dealers. Little or no business was done the first day, but, from the want of buyers, most of the dealers had to give way on Wednesday. A good many lots, however, remained unsold at the close of Wednesday, and are now on their way to summer Stagshaw. The cattle were a large show, but very poor in condition. They sold readily at high rates. The beasts bought at Dumbarton, after paying all travelling expenses, yielded a fair profit to the dealers.

BOROUGHBRIDGE FAIR.—There was a very large supply of lean stock; those in good condition made late rates, but Irish and inferior qualities were in slow sale, at a reduction of from 20s. to 30s. per head. Fat stock were in moderate request at late rates. In the horse fair there was a large attendance of dealers. First-class horses were in great demand, but for second-rate and inferior animals the sale was less brisk than heretofore, and lower rates were taken.

BRECHIN FAIR.—The supply of sheep exceeded the demand, and prices receded from 1s. to 1s. 6d. per head. Three-year-old bill wethers brought from 20s. to 24s., according to quality; two-year-olds of the same class sold at 18s. to 21s.; black-faced ewes and lambs ranged from 18s. to 22s.; best fat wethers in the fleece sold at 7d. per lb. A large number remained unsold. The cattle market was largely supplied with beeves, a large number of which were in excellent order. Dealing went on briskly at the commencement of the fair, but a lull took place about mid-day, and small beasts were difficult to sell for an hour or two; but bargains were resumed with more spirit in the afternoon for cattle in good order. Prices rather gave way, on the whole. Prime fat brought from 9s. to 9s. 6d. per Dutch stone to sink the offals, and were much worse to sell than some of the large holders expected. Three-year-old stots and queys, bred in the district, brought from £14 to £20; two-year-old ditto, from £8 to £15; and year-olds, from £5 to £9 per head. Drove cattle were a stiff sale, and brought from £9 to £15, according to weight and quality. Farrow cows and small cows in lean condition were a stiff sale at reduced rates. Good cows near calving were in request at rates similar to the best fat. The north country dealers complained that small beasts were a losing market, and a large number of this description were left unsold. The result of the market has been in favour of the best kinds of animals, but the very best fat did not command the rates expected, and the fall was much greater in small drove beasts.

BREAGE FAIR was thinly supplied with cattle, but such beasts as were offered for sale met with purchasers at high rates.

CARLISLE FAT CATTLE MARKET.—The display of sheep, lambs, and calves exceeded any other market we have had for many months; in fact, not one-third were disposed of. Those sold were at a great reduction on former prices. Top lots, 6d. per lb.; lambs, no demand at 7d. per lb.; calves, 7d. per lb., but few sold. Beasts in no request; prices on the decline; good fat, 23s. per stone. No speculation in sheep or lambs.

GIFFORD FAIR.—The stock was principally composed of black-faced three-year-old wethers, which were principally sold to farmers and fleshers, and a few lots of half-bred and Cheviot wethers and ewe hogs. The general stock was about an average, but in consequence of the high prices asked in the morning the market was stiff, and few or no sales were effected until

the forenoon. Clipped sheep were a shade lower than last year, but good three-year-old black-faced wethers brought about 2s. a head above last year, although some lots of this kind did not exceed last year's prices. The cows were composed of milkers of all ages, and one and two-year-old store cattle. The really good milkers were in demand; and two-year-olds in calf, or lately calved, brought from £10 10s. to £11 10s. First-class aged cows ran from £12 to £15; second-class, £8 to £12; third-class, at various prices up to £7. What was good in the above description of stock was in demand, and sold readily at the above quotations, but a few of the inferior animals remained unsold. In the horse market the show of draught horses was splendid, in point of numbers and quality. The sale was dull, but a few exchanges were made amongst the draught horses, at prices under recent markets.

KIDDERMINSTER FAIR.—There was an excellent display of sheep and lambs, far more than generally. The show of cows was very short; prices were much lower. Buyers would not give the former rates, and sellers did not like to give way. Beef was sold at 6d. to 6½d., and the best 6½d.; sheep, 6½d. to 6¾d.; lambs, 7d. to 7½d. The show of horses was far better than for some years, but trade was very flat, even at reduced prices.

KINROSS FAIR.—The attendance and show of cattle were above an average, and there was a fair demand for stock of every kind, prices being upward. The best was fully 9s. 6d. per Dutch stone, sinking offal. For grass beasts high prices were obtained. The show of horses was fair; good work horses, from £35 to £40; medium qualities, from £25 to £33; inferior at all prices.

NORTHAMPTON FAIR.—There was a very short supply of fat sheep, with a dull trade. Best wether mutton made from 4s. 6d. to 4s. 8d. per 8lbs.; good fat ewes, from 4s. 2d. to 4s. 4d. The supply of fat beef was also short, but quite equal to the demand, buyers being rather scarce, and high prices being asked; what was sold made from about 4s. 4d. to 4s. 10d. per 8lbs. The supply of store beasts was also scanty, with a thin attendance of buyers and a limited business. In new milch cows there was a good show, but an exceedingly bad trade, at about £2 per head less money than at our last fair. In barren cows also prices were considerably lower. The horse fair was well supplied with horses of almost every description; trade dull, and prices lower.

PENZANCE FAIR.—The cattle fair was thinly supplied, and cattle fetched high prices. Horses and foreign cattle were sold by auction, and realized good prices.

ROSLEY HILL FAIR.—There was a large show of horses, and though those of a good class were not difficult to dispose of, still their owners could not realize for them more than their actual value, consequently the falling off in price, as compared with prices for some time past realized, was very considerable. There has been no difficulty of late to dispose of a £25 horse for £40, but yesterday the sellers were compelled either to take the value of their animals or carry them home again. Inferior horses were difficult to sell, even at a great reduction in price. Messrs. Hall and Frear were the only extensive horse dealers on the ground. The show of cattle was numerous, especially young ones, but sales were not easy to effect, even though a great reduction was offered to be submitted to. Altogether the fair was a dull one, the attainment of the late high rates being entirely out of the question. The weather being favourable, the attendance of people from a distance of many miles round the fair ground was unusually large.

ROSS FAIR was abundantly supplied with every description of fat and lean stock, but sales were dull. Fat sheep averaged from 6½d. to 7d., and prime beasts from 7d. to 7½d. There was also an unusual quantity of good cart horses, many of which realized high prices, but few nag horses found fresh owners.

ROWELL FAIR.—It is said that the fair this year was the least fair that had been known for many preceding ones. There was a decent sprinkling of cattle, but trade was dull. Stirks realized exorbitant prices.

SHEPTON-MALLET FAIR was very thinly supplied with stock, which fetched good prices. Sheep had rather a down-

ward tendency. The horse fair was small, and those offered were of an inferior description, and there was but little business done.

STAMFORD FAIR.—There was a large show of beasts for the time of year, the cause being the scarcity of keep; on this account, too, the sale was very slack for store beasts, scarcely any animals being sold; the few disposed of changed owners at a reduction of fully £1 per head. A few fat beasts were offered, and this description of stock maintained recent high rates, beef making 8s. 3d. to 8s. 6d. per stone. A few sheep were offered, but the trade was flat, and of the limited number shown scarcely any found purchasers. There was a moderate show of horses, the majority being of the middling and lower class. About half-a-dozen good animals were offered, and sold at high prices; one small cart mare was sold for £33.

TAUNTON FAIR was tolerably well attended. There was an average supply of stock, except sheep and lambs, of which there were more than an average number penned. Dealers were not so numerous as usual, or at least they were not generally disposed to do business at the prices asked. In the horse fair good animals were by no means numerous, and sales of horses that were effected of the class named were at very high rates, but in the sale of the inferior animals prices varied as usual.

TEWKESBURY FAIR was but a small one, very few beasts being offered. Beef fetched 7d.; mutton, in the wool 7½d., shorn 7d. There were not a dozen horses in the fair.

TIVERTON FAIR.—On the whole, stock sold very well. In the cattle fair the bullocks have seldom been surpassed, and in many cases high prices were realized. Cows and calves sold at from £11 to £13 10s. each; fat bullocks, 11s. to 11s. 6d. per score. Ewes, 36s. to 42s. per head. Of Lambs there were not so many as on some previous occasions. Saddle horses fetched high prices; two or three were offered at from 35 to 40 guineas. Ponies would not sell at any price, and cart horses lay on hand.

USK FAIR.—The fat cattle, of which only a small supply was offered, averaged 7½d. per lb. There was a good number of store cattle, but they met with a dull sale. Fat sheep averaged 7d., lambs 7½d. per lb. Very few pigs were offered; those sold fetched good prices. There were more horses than usual, some of a useful description, but prices very much down.

IRISH FAIRS.—**ARDNAREE** was very badly supplied with stock, in consequence of the wetness of the day; but any transactions effected were advantageous to the seller. **CROGHAN** has not proved so favourable to the seller as had been expected; few persons disposed to purchase attended, and the consequence was a considerable reduction in price. Yearling bullocks were in demand, and brought from £3 to £4; sheep not in request; milch cows on the decline. **RATHKEALE.**—There was a good supply of stock, and a numerous attendance of buyers. Beef rated at from 56s. to 60s. per cwt. for prime; two-year-old heifers sold at £6 to £9 each; yearlings from £4 10s. to £6 10s.; two-year-old sheep, 6d. per lb. sink; hoggets, 5d. to 5½d. per lb. sink; for lambs there was little demand, and the average price for any sold was from 10s. to 14s. each; pigs were in good request at from 56s. to 68s. per cwt. **LEITRIM.**—So great was the demand that almost every beast offered for sale was disposed of. Milch cows, and young stock of every description, were in good request.—*Boyle Gazette.* **NAAS (COUNTY KILDARE)** was well supplied with springers and stores, which sold freely at remunerative prices. The following may be considered the average prices:—There were a few fat beasts of a rather mediocre description, which realized paying prices. Springers were in great demand, and brought from £14 to £18; all in the fair sold at the above prices. Strippers fetched from £8 to £12. Two-year-old heifers and bullocks sold from £9 to £11. Mr. Dodd purchased, for Sir Edward M'Donnell, a prime lot of eighteen, at a high figure. Yearlings from £4 10s. to £7. The business done in the horse and sheep fair is not worthy of a quotation. Fat pigs were scarce and in bad demand, and brought from 44s. to 50s. per cwt. Stores were in great request, and sold at prices from 30s. to 40s. each.

METEOROLOGICAL DIARY.

BAROMETER.			THERMOMETER.			WIND AND STATE.		ATMOSPHERE.			WEAT'R.
1854.	8 a.m. in. cts.	10p.m. in. cts.	Min.	Max.	10p.m.	Direction.	Force.	8 a.m.	2 p.m.	10p.m.	
May 23	29.55	29.67	47	62	48	S. or by West	airy	cloudy	fine	clear	showery
24	29.66	29.79	44	65	51	S. or by West	brisk	fine	sun	cloudy	dry
25	29.81	29.80	42	60	49	S. Westerly	brisk	fine	sun	clear	dry
26	29.70	29.72	47	61	49	W. by South	lively	cloudy	sun	fine	dry
27	29.70	29.73	45	58	47	W. by South	lively	cloudy	fine	fine	hail
28	29.73	29.73	45	60	49	S. by E. & W.	lively	fine	cloudy	cloudy	showery
29	29.67	29.66	41	55	49	S. West	lively	fine	cloudy	cloudy	showery
30	29.69	29.87	44	62	50	S. West var.	lively	fine	cloudy	clear	showers
31	29.99	29.98	45	69	54	S.W., East	gentle	fine	sun	fine	dry
June 1	29.94	29.83	50	69	58	N. East	strong	fine	sun	cloudy	rain
2	29.73	29.73	52	58	50	N.N.E.	brisk	cloudy	cloudy	cloudy	wet
3	29.74	29.90	48	62	52	North	brisk	cloudy	cloudy	cloudy	dry
4	30.02	30.12	47	66	52	N.E.	fresh	fine	sun	fine	dry
5	30.14	30.11	50	62	50	N.E.	gentle	cloudy	cloudy	cloudy	dry
6	30.05	30.05	48	56	50	North	brisk	cloudy	cloudy	cloudy	dry
7	30.10	30.10	48	56	51	North	brisk	cloudy	cloudy	cloudy	dry
8	30.10	30.02	48	62	54	S.E., var.	calm	cloudy	fine	fine	dry
9	30.00	29.98	49	65	56	Everyway	gentle	fine	fine	fine	dry
10	29.92	29.93	51	68	53	N.W.	lively	fine	sun	fine	dry
11	29.92	29.75	47	64	56	S. West	strong	fine	fine	fine	dry
12	29.69	29.65	56	69	52	S. West	brisk	cloudy	sun	clear	showery
13	29.65	29.70	50	64	52	S. West	brisk	cloudy	sun	fine	showers
14	26.75	29.73	52	68	56	S. West	gentle	cloudy	sun	cloudy	dry
15	29.72	29.77	52	63	58	East	gentle	cloudy	cloudy	cloudy	wet
16	29.79	29.69	54	63	57	Variable	gentle	cloudy	cloudy	cloudy	showery
17	29.58	29.68	53	68	52	S. West	lively	cloudy	sun	clear	dry
18	29.77	29.87	48	70	55	S. West	gentle	fine	sun	fine	dry
19	29.94	29.95	49	67	53	S. West	brisk	fine	sun	fine	dry
20	29.91	29.93	45	68	55	Westerly	lively	fine	sun	fine	dry
21	30.02	30.05	49	66	57	W., S. by W.	gentle	fine	sun	cloudy	showers

ESTIMATED AVERAGES OF JUNE.

Barometer.		Thermometer.		
Highest	Lowest.	High.	Low.	Mean.
30.46	29.60	90	37	58.7

REAL AVERAGE TEMPERATURE OF THE PERIOD.

Highest.	Lowest.	Mean.
61.484	46.645	54.064

WEATHER AND PHENOMENA.

May 23. Showers, chiefly in the previous night. 24. Sprinkle; fine gleams; a fine sola halo 25. Fine, a steady current; lulling. 26. Fine clouds; change at hand. 27. Showers and hail. 28, 29, 30. Showery—thunder on 30th. 31. Fine; Eastern change.

LUNATION.—New Moon, 26th day, 8 h. 47 m. evening.

June 1. A beautiful but forcibly windy day, ending in wet night. 2. Small rain many hours. 3. Variable. 4. Cold steady current. 5. Variable; gleams. 6 and 7. Overcast; current of cold wind. 8. more genial, with gleams. 9. Variable. 10. A few drops. 11. Double current, lower clouds passing rapidly. 12. A few drops of rain. 13.

Showers and thunder at 1 o'clock p.m. 14. Genial much cirrus, and a half solar halo. 15. Drizzle all day. 16. Several showers; a most gloomy season. 17. Fine and genial; cool evening. 18. Finest; red N.W. glow at sunset. 19. Cloudy masses; gleams; a few drops. 20. Fine genial day. 21. Fine forenoon, damp and drizzling evening.

LUNATIONS.—First quarter, 4th day, 0 h. 40 m. morning. Full, 10th day, 11 h. 30 m. night. Last quarter, 17th day, 2 h. 14 m. afternoon.

REMARKS CONNECTED WITH AGRICULTURE.—Here we find a cool but equable temperature. three or more degrees below the average of June. There has been a plentiful supply of rain, but rather a paucity of sun. Aphid blight abounds upon garden produce, and on fruit-bearing shrubs: I hear of none upon field crops. On the 1st of June, I observed wheat clearly showing the seed joint, and on the 10th many ears had emerged. Barley on every fine plot (and many there are) was in ear on the 15th. Oats more in arrear. At this turn of day, when the sun passes into Cancer about 7 o'clock p.m., if fine warm weather comes on, there will be a rapid progress. Much hay is being made, and some is nearly fit for the rack.

Croydon, June 21st.

J. TOWERS.

REVIEW OF THE CORN TRADE DURING THE MONTH OF JUNE.

Though the weather has been favourable during the last week or two, the temperature has been below what is usual in June; indeed, the first fortnight was so cold that vegetation made comparatively little progress, in proof of which we may instance the late period at which hay-making was commenced. In the neighbourhood of London very little grass was cut before the 19th, and a large quantity is scarcely yet fit for the scythe. The want of rain in April, and the absence of sunshine in May and a part of June, prevented the growth of grass at the proper period, and the crop will, we apprehend, be generally light in quantity, even if the whole should be well got in. The shortness of hay may be expected to tell hereafter on the value of spring corn, and other feeding stuffs; and we much fear that we are not to be favoured with so abundant a year as was at one period calculated on; even wheat, for which the season has been more auspicious than for any other kind of corn, is not nearly so well spoken of as it was a month ago. The thinness of the plant on the ground is very generally complained of, and we are sorry to say that rumours of blight, and other defects, are by no means rare. The principal cause for uneasiness in our opinion is, however, the backwardness of the season, a late harvest being in our variable climate always precarious.

In travelling through the country about the middle of the month, scarcely a wheat-ear was to be seen; and as it is generally allowed that at least two months are required from the time the ear is formed before the corn can be expected to arrive at maturity, reaping is not likely to be commenced before the second or third week in August, if we except a few early pieces of Talavera. The estimates of the probable result of the harvest are not nearly so sanguine as they were some time ago, but to this we do not attach much importance, as opinion on this subject usually runs to extremes. The probability is, that should we be favoured with a hot July, we might have a good average crop of wheat, notwithstanding the admitted thinness of the plant, and some other defects, as the breadth of land under wheat is certainly greater than in ordinary seasons.

The spring-sown crops have certainly suffered owing to the want of rain during the spring and early part of the summer, and can hardly, under the most propitious circumstances, yield a large return.

The foregoing remarks are all that can at present be said on the subject of the growing crops, and are only applicable at the time being; a month may make a decided change either for the better or worse—indeed, opinion at this period, when wheat is not yet in bloom, and other articles are proportionately backward, can be of little real value, and we therefore deem it useless to go very minutely into the matter. The course of prices has been chiefly influenced, since we last addressed our readers, by the state of the weather; and this is likely to be the case from the present time up to harvest; still it may be interesting to enter into other subjects which may have some influence, such as the stocks on hand, and the probable extent of the imports. In regard to stocks nothing has occurred to induce us to alter our previously-conceived idea in respect to the smallness of the quantity of grain of home growth remaining in the country. The test which we have at different periods employed, to prove that the deficiency of the last wheat crop was fully as great as estimated at harvest-time, viz., the sales at the towns returning the averages, continues to show similar results as before. The returns for the last four weeks, with those of the corresponding period of last year, stand as follows—

	1854.	1853.
Week ending May 27	65,791	83,327
" June 3	66,083	76,640
" " 10	51,182	87,633
" " 17	47,780	93,824

At the same time the reports from all parts of the kingdom agree in stating that the rick-yards have been nearly cleared out; and when we take into consideration the strong inducement which the high prices prevailing throughout the year must have held out to farmers to realize—more especially as it has been very generally thought that these would probably not be maintained after the new crop should have been secured—it can hardly be questioned that, as far as home-grown wheat is concerned, stocks are all but exhausted. In reference to foreign the case is, however, different: large as have been the requirements of Great Britain, the supplies from abroad have more than kept pace with our wants, and at several of the principal ports fair stocks are still held; but it must be recollected that old wheat will be required *after* harvest, and that we have still eight or ten weeks' consumption to provide for, before the

new can be brought into use, even in moderate quantities. It strikes us, therefore, that in case any material decrease should take place in the imports, the quantity at present in warehouse here, at Liverpool, Bristol, and a few other ports, would scarcely suffice to guard against scarcity; and it consequently becomes a question of importance to ascertain, as far as possible, whether there is any prospect of such decrease in the foreign supplies. We made a somewhat similar examination to that we are now about to enter upon, last month; but circumstances have since occurred which make a material alteration in the position of affairs. At that time shipments of wheat and flour were still being made from France and Belgium to England. These have now ceased, and about the middle of the month purchases to some extent were made in the English markets on French account. We are not disposed to attach any great importance to what may be actually taken for France from hence; but the mere fact of supplies from thence being entirely stopped, must have a material influence, more especially as a portion of what might otherwise have reached us from other countries is likely to be directed to French ports, where prices are more remunerative than in the English markets. In the neighbouring kingdom of Belgium the stores have already been cleared out by French purchasers, and the latest advices from Hamburg state that buyers had also made their appearance there, who had outbid the limits of the few English orders received. Whether this state of things will continue, or whether the French demand will prove only transitory, we are not in a position to determine; but that no further shipments will in the first instance be made from thence appears tolerably certain.

Meanwhile nothing has occurred to lead to the belief that the northern ports of Europe will be able to afford us further aid of importance until after the new crop shall have become available. In the Baltic stocks are, we are told, reduced into a narrower compass than on any previous occasion for years past. From the south, more particularly from Spain and Portugal, we have lately received some supplies; but, as France is now paying higher prices than England, these can scarcely be expected to continue. We have, therefore, only America to look to; and, though we are induced to receive the reports from thence of the almost total exhaustion of stocks with some degree of caution, still the official shipping lists cannot admit of doubt, and by these it is plainly proved that the exports had greatly fallen off.

Our position appears to us to be this: The prospect for the harvest not particularly promising; though, on the other hand, sufficiently so to war-

rant the expectation of a good average yield of wheat. Stocks of home-grown corn of all kinds unusually low; those of foreign good, but not more than may, and probably will, be needed, with little prospect of a large addition being made to the same by foreign importations this side of harvest.

With favourable weather, prices might nevertheless give way, more or less, for wheat, flour, and Indian corn. Barley, beans, and peas, being little required at this period of the year, will probably not vary in value until the fate of the forthcoming crops shall have been ascertained; but oats will, we think, bring higher prices during the next month or two than have yet been realized.

Here we will close our remarks in regard to the probable future, and proceed to give our usual monthly statement of the changes which have taken place at Mark Lane.

The arrivals of English wheat into the port of London have been even smaller than they were last month, the receipts coastwise having scarcely averaged 1,500 qrs. per week. The supplies received per railway have fallen off in the same proportion, and the millers have had to depend mainly on the arrivals from abroad for what they have needed from day to day. Notwithstanding the insignificance of the supply, buyers have shown no signs of being in want; and the tendency of prices has, on the whole, been downwards. The little business which was done in English wheat on the 5th inst. was at barely the rates of that day se'nnight; and on the succeeding Monday a decline of 1s. per qr. was in partial instances submitted to. The following week some slight influence was produced by the animated accounts from France, and the reduction was recovered. The weather, which had up to that period been dull and cold for the season, improved about the 21st inst., and the advices from France having become more subdued, the trade opened very heavily on Monday last. Factors for a time refused to lower their pretensions, but the millers succeeded ultimately in purchasing at an abatement of 1s. to 2s. per qr.

The arrivals of wheat from abroad have not much exceeded one-half of the quantity received in the month of May, but we have not had so active a country demand, and the granaried stocks have scarcely been diminished so much as might have been expected. A considerable proportion of the supply has been from quarters from which we are not generally in the habit of receiving imports. This tends, in our opinion, to prove that those countries which in ordinary years furnish us with supplies have nearly exhausted their resources, and that the expectation of high prices has led parties not usually in the habit of sending to

England to embark in the adventure. The total import has fallen short of 50,000 qrs.; whilst the exports to France have amounted to 15,000 or 20,000 qrs.

During the first fortnight in the month, the trade in foreign wheat was very languid; and though prices were not generally quoted lower, they gradually gave way about 1s. per qr. On the 19th inst. an inquiry for France—of which there had been symptoms for some days previous—became more decided, and several purchases were made at rates which could not previously have been obtained; even this failed, however, to induce our millers to act, and as soon as the export demand subsided, which was the case before the close of the week, the slight advance realized during the temporary excitement was again lost. Since then the anxiety to effect sales has increased, and on Monday last, the 26th inst., holders were disposed to accept lower terms than they would have taken at any previous period since we last addressed our readers, a decline of 1s. to 2s. per qr. being generally submitted to, without leading to important transactions.

The arrivals of wheat off the coast from ports east of Gibraltar have been comparatively small since the close of last month, and most of the cargoes which have come to hand have been disposed of one way or the other. Some have been taken for the Continent, others for Ireland, and the remainder has been consigned, on owners' account, to London, Liverpool, &c. The operations in floating cargoes have been altogether on a moderate scale, and the prices obtained have not been equal to those current in May. The finer descriptions have commanded relatively better prices than the common sorts, and the last sale of Marianopoli we have heard of was at 74s. per qr. There are at present not more than about a dozen cargoes off the coast undisposed of, and the arrivals from the east will in all probability be very trifling. A few vessels have lately been chartered to fetch wheat from Syria, but these cannot return for at least two months.

The sale for town-manufactured flour has been exceedingly difficult throughout the month, and the millers have found the competition with American very annoying. The nominal top price has not varied; but that lower terms have in many cases been accepted cannot be doubted. London household flour has been generally offered, within the last eight or ten days, at 1s. to 2s. per sack below the rates current in the commencement of the month, and country marks have receded during the same period fully 2s. per sack. The arrivals of flour from America have not been large; but having had a fair quantity from Spain, the supply has about

kept pace with the demand. In consequence of a few purchases on French account about the middle of the month, an advance of 1s. per brl. was established on superior qualities of American; but this improvement has since been lost, and quotations are nearly the same at present as they were at the close of May, viz., 39s. to 40s. for good, and 41s. to 42s. per brl. for fine brands. Stocks in granary at this port have been materially reduced, and superior sorts are becoming scarce. At Liverpool the quantity of American flour in warehouse is still considerable; but as the receipts from the other side of the Atlantic will in all probability be small, the quantity is likely to be speedily diminished.

The receipts of English barley have been perfectly insignificant: this grain is, however, little needed during the summer months, when the brewers and distillers are out of the market. Unimportant therefore as have been the supplies, they have proved amply sufficient to provide for the demand; and though no quotable alteration has taken place in prices, the turn has been decidedly against the seller. The supply of foreign barley has been quite moderate. In the early part of the month about a dozen small cargoes arrived from Denmark, &c.; but during the last fortnight the receipts have been trivial. There has, however, been a total want of activity in the demand, and importers have been compelled to land the greater part of what has come to hand, for want of buyers; indeed, so little has been done, that it has become difficult to give quotations with any degree of accuracy; but that purchases might have been made on easier terms than would have been accepted last month cannot be questioned.

Malt has met with very little attention, and its value has undergone no change requiring particular notice.

Arrivals of oats from our own coast and Scotland have almost ceased; and though the wind has been mostly from the westward, barely 20,000 qrs. have arrived during the entire month from Ireland. The foreign supplies, which were previously tolerably good, have within the last fortnight fallen off materially, and we have reason to believe that the quantity now on passage from Denmark, Sweden, and Holland is comparatively trifling. No blockade of the White Sea having as yet been enforced, it is possible that a moderate supply may reach us from Archangel under neutral flags, but the quantity will certainly be much less than usual. Many of the vessels which have gone out will, if allowed to return, bring flax and other commodities; but it is not by any means certain that the blockade may not have been established in the intervening time. The oat trade opened somewhat languidly in the

beginning of the month, owing mainly to the announcement made by Sir James Graham in the House, that it was not the intention of Government to institute an immediate blockade of the White Sea. The possibility of supplies reaching us from thence induced the dealers to operate more cautiously than they might otherwise have done; and good arrivals having about this time come to hand from the Dutch, Danish, and Swedish ports, prices gave way at least 1s. per qr. From this point there has been a gradual improvement. The chances of Archangel supply being received are not considered to be very great; and as it is almost certain that the stocks in Holland have been exhausted, the conviction is gaining ground that there will be a scarcity of old oats before the new can be fit for use. Good Danish and Swedish feed, such as were sold at about 28s. to 29s. per qr. at the period when the depression was greatest, are now worth 30s. per qr., and there are but few free-on-board offers from any quarter. The dealers' stocks have been materially reduced within the last two or three weeks, and the quantity on board ship undisposed of is insignificant.

Beans have met with very little attention; and, though the home supplies, as well as the arrivals from abroad, have been small, considerable difficulty has been experienced in making sales at about previous prices. The growing crop is variously spoken of; within the last few days the complaints of blight have increased.

The inquiry for peas has been of a strictly retail character; and, in the absence of business of importance, quotations have remained nominally unaltered.

The arrivals of Indian corn off the coast have not been particularly large; but good supplies from America are calculated on, which, together with the drooping state of the wheat trade, have rendered importers rather anxious to sell, and the tendency of prices has been decidedly downwards.

By the most recently received advices from the continent we learn that the weather, which had been cold and ungenial in the early part of the month, had become highly auspicious for the growing crops.

The favourable change appears to have taken place previous to wheat coming into ear, and therefore just in time to be of immense service. The reports as to the appearance of the crops of all kinds of grain are very satisfactory from the countries bordered by the Baltic; and, if nothing should occur to mar the bright prospect, a large yield and fine quality may be calculated on in that quarter.

The advices from France and Belgium are not so favourable. Very heavy rain appears to have fallen in those countries up to the commencement of last week; and vegetation being more forward there than

in the northern parts of Europe, the wet came very inopportunistly, a considerable portion of the wheat crop being then in bloom. What may be the result cannot be known for some time; but some of the farmers, both in France and Belgium, entertained rather gloomy forebodings.

In Italy harvest was about to be commenced, and a good return was expected, notwithstanding the extreme drought which had been experienced in the early part of the summer.

The accounts from America do not enter very minutely into the prospects for the ensuing harvest; but in the absence of complaints, we may conclude with tolerable safety that the prospects were considered pretty good. The reduced state of the stocks of old corn in almost all the principal grain-growing countries in the world render the foreign markets less sensitive to the fluctuations in prices here than usual; the flat reports from Great Britain in the beginning of the month failed therefore to produce much effect abroad.

In the Baltic former terms were steadily maintained; whilst in France, prices continued to rise, in the face of falling markets here.

From Danzig, we learn that equal to 75s. to 80s. per qr. free on board had been paid for good to fine high-mixed wheat, and that the commoner descriptions had realized corresponding rates. The entire quantity in warehouse at that port on the 1st inst. consisted of 30,000 qrs., of which only a comparatively small proportion was of suitable quality for shipment. During the month, more than half the available stock had been sent off, partly to Holland and France, and partly to Great Britain, leaving very little on hand.

The supplies down the Vistula had been exceedingly small, higher prices having been paid at Warsaw than had been obtainable at Danzig.

From Stettin, Rostock, Stralsund, &c., we receive the most favourable reports, in regard to the appearance of the growing crops; but owing to the reduced state of the stocks, less influence had been produced by this state of affairs on the markets than usual; in fact, prices had rather risen than otherwise, in consequence of the receipt of a few orders for the purchase of wheat from France at high limits. It would therefore not be easy to buy wheat at any of the Lower Baltic ports under 70s. per qr. free on board at present; and from Rostock we learn that contracts had been entered into for delivery after harvest, at the high rate of 72s. per qr. free on board.

The near ports have been more under the influence of the advices from hence; and at Hamburg, on Tuesday last, wheat was offered on lower terms than had been paid on that day week; it would, however, scarcely pay to import from thence, as

equal to 74s. per qr. continued to be paid for Mecklenburg wheat for home consumption.

There appears to be very little barley, and no oats, at any of the places above referred to; but in Denmark some quantity of both these kinds of grain remains: Danish barley weighing 53 to 54lbs. per bush. might be bought at 30s. 6d. per qr., free on board; but oats cannot be purchased either in Sweden or Denmark below 28s. per qr., cost and freight, for 39 to 40lbs.

In the early part of the month, a rapid rise took place in prices of wheat in almost all the French markets, and though the upward movement has within the last ten days received a check, quotations are higher in that country than in England. Stocks of flour at Paris, which a couple of months ago amounted to upwards of 40,000, have dwindled down to 15,000 metrical quintals, and at Havre and the other ports where the great bulk of the American flour was held, the quantity has been reduced fully *one half*. At the markets in the interior dependent on the growers for supplies, the rise has been greater than at those places where foreign stocks were held; indeed, the farmers throughout France appear to have parted with all they have been able to scrape together, and the new crop will have to be commenced upon as soon as harvested.

The advices from the other side of the Atlantic confirm what had been previously stated, in regard to the smallness of the supplies from the interior to the ports on the sea-board, and though the demand for wheat and flour for export had been slow at New York, Philadelphia, Boston, &c., the enquiry for local use had been sufficiently active to prevent prices giving way materially, and it would certainly not pay to import from thence. From New York, we learn that duty had been paid on part of the flour which arrived from time to time from Canada in bond, for local use, instead of being (as would have been the case under ordinary circumstances), reserved for exportation.

IMPERIAL AVERAGES.

FOR THE LAST SIX WEEKS.

WEEK ENDING:	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
May 13, 1854..	78 9	37 1	29 5	52 1	43 9	46 9
May 20, 1854..	78 2	37 2	29 4	48 6	49 3	47 2
May 27, 1854..	78 9	37 1	29 11	53 11	49 4	44 7
June 3, 1854..	79 11	36 9	29 10	48 7	48 6	46 10
June 10, 1854..	78 9	37 1	30 8	49 3	49 1	47 4
June 17, 1854..	78 3	37 3	29 5	48 11	49 10	46 6
Aggregate average of last six weeks	78 9	37 1	29 9	50 3	49 3	46 6
Comparative avge. same time last year	44 1	30 2	18 10	33 0	37 0	33 6
DUTIES.....	1 0	1 0	1 0	1 0	1 0	1 0

CURRENCY PER IMPERIAL MEASURE.

		Shillings per Quarter	
WHEAT, Essex and Kent, white.....	76 to 78	fine	80 86
Ditto ditto.....	—	—	fine 86 88
Ditto ditto red.....	74	79	" 82
Ditto ditto.....	—	—	" 85
Norfolk, Lincoln, & Yorksh., red..	70	76	" 80
BARLEY, malting, new..	40 41	Chevalier..	41 43
Distilling ..	37 39	Grinding..	36 39
MALT, Essex, Norfolk, and Suffolk, new	71	72	extra 74
Ditto ditto	old 69	70	" 73
Kingston, Ware, and town made, new	75	76	" 77
Ditto ditto	old 73	75	" 76
OATS, English feed ..	28 31	Potato..	31 34
Scotch feed, new	32 33, old 34 35	Potato	35 37
Irish feed, white	30	31	fine 33
Ditto, black	23	29	fine 31
RYE	none	—	—
BEANS, Mazagan.....	42 44	"	47 50
Ticks.....	44 46	"	48 52
Harrow.....	46 48	"	50 54
Pigeon	46 52	"	54 62
PEAS, white boilers	57 58..	Maple	47 49
FLOUR, town made, per sack of 280lbs.	—	Grey	44 46
Households, Town 61s. 62s. Country	—	"	63 68
Norfolk and Suffolk, ex-ship	—	"	53 60
	—	"	55 56

FOREIGN GRAIN.

		Shillings per Quarter	
WHEAT, Dantzic, mixed..	80 to 81	high mixed	84 86 extra 89
Konigsberg.....	78 80	"	81 84
Rostock, new [.....]	80 81	fine	82 " 85
American, white.....	81 86	red	78 81
Pomera, Meckbg., and Uckermark, red	76	79	extra 81
Silesian.....	" 76	79	white 80 81
Danish and Holstein	" 76	81	" none
Rhine and Belgium	"	—	old —
Odessa, St. Petersburg and Riga..	69 72	fine	72 75
BARLEY, grinding 35 38	Distilling..	39 41	
OATS, Dutch, brew, and Poland 30s., 33s. ..	Feed ..	27 29	
Danish & Swedish feed 29s. to 31s.	Stralsund	30 32	
Russian.....	31 32	French..	none
BEANS, Friesland and Holstein	42 48		
Konigsberg..	47 50	Egyptian ..	45 47
PEAS, feeding	50 54	fine boilers	55 58
INDIAN CORN, white.....	45 48	yellow	45 48
FLOUR, French, per sack (none)	—	—	—
American, sour per barrel	37 39	sweet	40 44

COMPARATIVE PRICES AND QUANTITIES OF CORN.

Averages from last Friday's	Averages from the correspond-
Gazette.	ing Gazette in 1853.
Qrs.	Qrs.
s. d.	s. d.
Wheat.... 47,780 .. 78 3	Wheat.... 93,824 .. 45 0
Barley.... 3,508 .. 37 3	Barley.... 4,104 .. 29 1
Oats 9,347 .. 29 5	Oats 15,180 .. 13 11
Rye..... 87 .. 48 11	Rye..... 309 .. 30 11
Beans 2,424 .. 49 10	Beans 3,854 .. 33 11
Peas 218 .. 46 6	Peas 272 .. 34 6

DIAGRAM SHOWING THE FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT DURING THE SIX WEEKS ENDING JUNE 17, 1854.

PRICE.	May 13.	May 20.	May 27.	June 3.	June 10.	June 17.
79s. 11d.
78s. 9d.
78s. 3d.
78s. 2d.

LONDON AVERAGES.

	£ s. d.		£ s. d.
Wheat .. 1,128 qrs. 4	1 5	Rye	— qrs. 0 0
Barley .. 162	1 15 0	Beans....	154 2 6 7
Oats 3,617	1 9 10	Peas	52 2 10 3

PRICES OF SEEDS.

BRITISH SEEDS.

Linseed (per qr.).. sowing —s. to 76s.; crushing 60s. to 64s.	
Linseed Cakes (per ton).....	£10 0s. to £10 10s.
Rapeseed (per qr.).....	70s. to 80s.
Ditto Cake (per ton).....	£6 15s. to £7 5s.
Cloverseed (per cwt.)..... (nominal)	00s. to 00s
Mustard (per bush.) white new 10s. to 14s., brown old 10s. to 13s.	
Coriander (per cwt.)..... new 10s. to 15s., old 10s. to 15s.	
Canary (per qr.).....	50s. to 54s.
Carraway (per cwt.)..... new 42s. to 44s., old 44s. to 48s.	
Turnip, white (per bush.) —s. to —s....	Swede 24s. to 38s.
Trefoil (per cwt.).....	00s. to 00s.
Cow Grass (per cwt.).....	00s. to 00s.

FOREIGN SEEDS, &c.

Linseed (per qr.)... Baltic, 64s. to 68s.; Odessa, 66s. to 70s.	
Linseed Cake (per ton).....	£9 10s. to £10 10s.
Rape Cake (per ton).....	£6 15s. to £7 5s.
Hempseed, small, (per qr.).. —s.,.....	Ditto Dutch, 44s.
Tares (per qr.)..... new, small 58s., large 61s.	
Rye Grass (per qr.).....	28s. to 35s.

HOP MARKET.

BOROUGH, MONDAY, JUNE 26.

Throughout the past week the accounts from the plantations have continued to come unfavourable. The market has been active, and considerable business has been done. Prices have been firmly maintained, and fine qualities have realized an advance on last week's rates. HART & WILSON.

The import of hops into London, last week, amounted to 4 bales from Rotterdam, 140 from Hambro, 18 from Ostend, and 16 from Antwerp.

WORCESTER, (Saturday last.)—The blight is making sad havoc amongst the hops in our plantation, and before another week is past, unless we have a great change for the better, a large portion will have sunk under its effects. The market has advanced 10s. to 12s. to day, and prices may now be quoted from £8 to £9 9s.; choice £10.

MAIDSTONE, June 22.—The weather has, during the last few days, been somewhat more favourable; but even should it continue, which is doubtful, very much remains to be done before the hops can at all recover the ill effects of the high winds and cold nights, and the ravages of the vermin. The bine grows vigorously at places, and in most plantations (including the far-famed College ground) there is an evident improvement. Still there is a wonderful quantity of fly and lice, together with some honey-dew. The duty is variously estimated; but the general opinion seems to be that it will not pay more than £100,000, some think not so much.

FARNHAM, June 22.—We have not much alteration to report. The flies seem as thick as ever, and in a great many places the hops are very dark; in most places they are topping the poles. We have had one or two very fine days.—*Sussex Express.*

PRICES OF BUTTER, CHEESE, HAMS, &c.

Butter, per cwt.	s.	d.	Cheese, per cwt.	s.	d.
Friesland	88	90	Cheshire, new.....	66	80
Kid.....	94	98	Cheddar	68	80
Dorset	100	104	Double Gloucester	60	70
Carlow	—	—	Single do.	60	70
Waterford	—	—	Hams, York, new....	76	84
Cork, new	84	94	Westmoreland.....	72	82
Limerick	—	—	Irish	66	76
Sligo	—	—	Bacon, Wiltshire, green	68	68
Fresh, per doz. 11s. 0d. 13s. 0d.			Waterford	66	68

ENGLISH BUTTER MARKET.

JUNE 26th.

We note our trade as firm, at former prices.

Dorset, fine weekly	96s. to 98s. per cwt.
Do., middling	84s. to 88s. "
Fresh, per dozen lbs.....	9s. to 11s.

BELFAST, (Friday last.)—Butter: Shipping price, 86s. to 90s. per cwt.; firkins and crocks, 8½d. to 9½d. per lb. Bacon, 54s. to 60s.; Hams, prime 68s. to 74s., second quality, 60s. to 64s. per cwt.; mess Pork, 87s. 6d. to 90s. per brl.; beef, 105s. to 112s. 6d.; Irish Lard, in bladders, 66s. to 70s.; kags or firkins, 62s. to 64s. per cwt.

June	Butter.		Bacon.		Dried Hams,		Mess Pork.	
23.	per cwt.		per cwt.		per cwt.		per brl.	
	s.	d.	s.	d.	s.	d.	s.	d.
1850..	67	0	37	0	56	0	60	0
1851..	70	0	45	0	62	0	64	0
1852..	74	0	44	0	56	0	77	6
1853..	80	0	58	0	74	0	85	0
1854..	86	0	54	0	68	0	87	0

COVENT GARDEN MARKET.

SATURDAY, JUNE 24.

All kinds of Vegetables are now abundant. New Grapes are cheaper. Cherries realize from 6d. to 2s. 6d. per lb. French Cherries have been poor in quality, and consequently the sale for them has been slow, even at low prices. Strawberries are much more plentiful. Cucumbers vary from 3d. to 1s. each. Very good Potatoes are coming in from Kent and Cornwall, at prices varying from 13s. to 20s. per cwt. Asparagus continues to come in at 5s. to 5s. per hundred. Carrots and Turnips are cheaper. Among salad vegetables are Radishes at from 1d. to 2d. per bunch; and Lettuces at 5d. to 1s. per score. There are also excellent Carrots, Globe Artichokes, and Peas from France; likewise Tomatoes at from 9s. to 12s. a dozen. Cut flowers consist of Azaleas, Cyclamens, Heaths, Lily of the Valley, Pinks, and Roses.

FRUIT.

Pincapples, per lb., 4s. to 10s.	Apples, per bush., 7s. to 12s.
Grapes, hothouse, per lb. 3s. to 7s.	„ des., per doz., 6d. to 1s.
„ Portugal, per lb., 1s. 6d. to 2s.	Oranges, per 100, 5s. to 14s.
Peaches, per doz., 8s. to 20s.	„ bitter, per 100, 20s.
Nectarines, do., 8s. to 20s.	Almonds, per peck, 6s.
Melons, each, 3s. to 6s.	„ sweet, per lb., 2s. to 2s. 6d.
Strawberries, per lb., 1s. to 3s	Waln., dried, p. 100, 1s. 6d.
Gooseberries, green, per half sieve, 2s. to 3s.	Nuts, Bar., per bush., 22s. to 24s.
Lemons, per doz., 1s. to 2s.	„ Brazil, p. bush., 16s. to 20s.
	„ Spanish, per bush., 22s.

VEGETABLES.

Peas, per bushel, 3s. 6d. to 6s.	Shallots, per lb., 6d. to 8d.
Cauliflowers, per doz., 2s. to 4s.	Garlic, per lb., 8d. to 1s.
Cabbages, per doz., 9d. to 1s. 6d.	Endive, per doz., 2s. to 4s.
Greens, per doz., 2s. to 4s.	Radishes, per doz., 1s. to 2s.
French Beans, p. 100, 9d to 2s 6d	Lettuce, Cab., p. score, 9d to 1s 8d.
Asparagus, per bundle, 2s to 5s	„ Cos, per score, 9d. to 1s.
Rhubarb, per bund., 3d. to 6d	Small Salads, p. pun., 2d to 3d.
Potatoes, per ton, 180s. to 240s.	Horseradish, p. bundle, 2s. to 4s.
„ per cwt., 7s. to 10s.	Mushrooms, p. pott., 6d to 1s 3d
„ per bush., 4s. to 5s.	Sorrel, p. hf. sieve, 6d. to 1s.
„ frame, per lb., 9d. to 1s.	Artichokes, each, 4d. to 6d.
Carrots, French, per bunch, 6d. to 1s.	Fennel, per bunch, 2d. to 3d.
Turnips new, do., 6d. to 9d.	Savory, per bunch, 2d. to 4d.
Cucumbers, each, 3d. to 1s.	Thyme, per bunch, 6d. to 8d.
Spinach, p. sieve, 1s. to 1s. 6d.	Parsley, p. bunch, 1d. to 6d.
Beet, each, 4d. to 6d.	Basil, green, per bunch, 9d. to 1s.
Onions, per bush, 8s. to 10s.	Marjoram, green, do., 9d. to 1s.
Leeks, per bunch, 2d. to 4d.	Watercress, p. 12 bun., 4d to 6d.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.

MONDAY, JUNE 26.

The supply of old potatoes continues seasonably good, but the demand is heavy at from 100s. to 190s. per ton. New qualities are coming freely to hand. New English are selling at from 10s. to 12s. per cwt.; and foreign, 7s. 6d. to 8s. 6d. per basket.

COUNTRY POTATO MARKETS.—YORK, June 17:

At this day's market we had a very small supply of old Potatoes, which sold at 6s. 6d. per bushel—1s. 6d. to 1s. 8d. per peck. A moderate show of new Potatoes sold at from 10d. to 12d. per quart. LEEDS, June 20: We had a very small show of old Potatoes. Wholesale, 22d.; retail, 24d. per 21lbs. A few new Potatoes sold at 3d. per lb. MALTON, June 17: We had a short supply of Potatoes, which sold at 16d. DONCASTER, June 17: A small supply of old and new Potatoes, with plenty of buyers. Old, about 2s. per peck; new, 3½d. to 4d. per lb. RICHMOND, June 17: Old Potatoes, 1s. 2d. per stone; new ditto, 5d. per lb. MANCHESTER, June 20: Old Potatoes, 14s. 6d. to 22s.; new ditto, 21s. to 48s. per 252lbs. SHEFFIELD, June 20: Old Potatoes, 16s. to 24s. per load of 18 stones; new ditto, 18s. to 21s. per 100lbs.

HAY MARKETS.

SATURDAY, JUNE 24.

SMITHFIELD.—A moderate supply, and a dull trade.
CUMBERLAND.—Supply tolerably good, and trade rather dull.
WHITCHEAPEL.—Both hay and straw moved off slowly, at our quotations.

At per load of 36 trusses.

	Smithfield.	Cumberland.	Whitechapel.
Meadow Hay	50s. to 100s.	52s. to 105s.	50s. to 100s.
Clover.....	70s. 120s.	70s. 120s.	70s. 120s.
Straw.....	36s. 42s.	36s. 42s.	36s. 42s.

CHICORY.

LONDON, SATURDAY, JUNE 24.

Since our last report, several rather large parcels of Chicory have reached us from the North, and we have had an import of 200 bags from Guernsey, and 240 do. from Harlingen. Generally speaking, the demand is in a sluggish state, at our quotations.

Foreign root (in £ s. £ s.)	Per ton.	Roasted & ground	£ s. £ s.
bond/Harlingen 10 11 0		English.....15 0	20 0
English root (free)		Foreign.....30 0	36 0
Guernsey.....9 15 11 0		Guernsey.....26 0	28 0
York.....9 15 11 0			

TIMBER.

(Duty paid.)

	£ s. d.	£ s. d.
Baltic Timber, per load of 50 cubic feet...	3 8 0	to 4 10 0
Yellow Deals per standard 100.....	15 0 0	to 20 0 0
Deck Deals, per 40 feet 8 in.	1 2 0	to 1 10 0
Pipe Staves, per mille	130 0 0	to 190 0 0
Lathwood, per fathom of 6 feet	10 0 0	to 12 10 0
Petersburg, Riga, and Archangel.	19 0 0	to 23 0 0
Yrw. Deals, per stand. hundred.	15 0 0	to 17 0 0
White	19 0 0	to 21 0 0
Yellow Battens	3 10 0	to 5 0 0
Stettin Staves, per mille of pipe	70 0 0	to 180 0 0
Swedish Timber, per load	3 5 0	to 3 10 0
Gothen. Yrw. Deals, per hun. 12 ft. 3 in. 9 in.	26 0 0	to 30 0 0
White ditto	23 0 0	to 27 0 0
Yrw. Battens, per hd. 12 ft. 2 3 in. 7 in.	14 0 0	to 17 0 0
Christiania Yrw. Deals per hd. 12 ft. 3 in. 9 in.	27 0 0	to 35 0 0
White ditto	26 0 0	to 33 0 0
Quebec and St. John's Spruce Deals,	22 0 0	to 25 0 0
per hundred, 12 ft. 3 in. 9 in.	18 0 0	to 21 0 0
1st quality yrw. Pine Deals, per st. hd.	15 0 0	to 16 10 0
Second do.	14 10 0	to 15 0 0
Third do.	14 10 0	to 15 0 0
Red Pine Deals per hd. 12 ft. 3 in. 9 in.	23 0 0	to 26 0 0
Red Pine Timber, per load	4 10 0	to 6 0 0
Yellow ditto	3 15 0	to 5 10 0
Birch ditto	4 10 0	to 6 10 0
Elm ditto	7 0 0	to 8 0 0
Oak ditto	7 0 0	to 9 0 0
Standard Staves, per mille Standard....	67 10 0	to 80 0 0
Puncheon Staves, per mille	17 0 0	to 24 0 0

MAHOGANY, &c.

Mahogany, St. Domingo.....	8d. to 1s. 9d. per foot
Cuba	7 1 6
Honduras	8 1 6
Cedar	6 8 0
Rosewood	12 12 0
Bahia	8 10 20

HIDE AND SKIN MARKETS.

SATURDAY, JUNE 24.

Market Hides, 56 to 64 lbs.....	s. d. s. d.
Do. 64 72 lbs.....	0 3 10 3 3 1/2
Do. 72 80 lbs.....	0 3 1/2 0 0
Do. 80 88 lbs.....	0 3 1/2 0 3 1/2
Do. 88 96 lbs.....	0 3 1/2 0 4
Horse Hides.....	6 0 0 each.
Calf Skins, light	2 0 3 0
Do. full	5 6 0 0
Lambs	2 0 2 10
Shearlings	1 5 1 6

WOOL MARKETS.

ENGLISH WOOL MARKET.

MONDAY, June 26.—A few parcels of English wool have been disposed of for shipment to Belgium; but so few transactions have taken place for home use, that the quotations are almost nominal. The stock in London is accumulating, and

to effect large sales, further depressed rates must be submitted to.

	s. d.	s. d.
Southdown Hoggets ..	1 0	1 1
Half-bred Hoggets ..	0 11	1 0
Ewes, clothing ..	0 11	1 0
Kent Fleeces ..	1 0	1 0 1/2
Combing Skins ..	0 10 1/2	1 0
Flannel Wool ..	0 10	1 1
Blanket Wool ..	0 7	1 0
Leicester Fleeces ..	0 10	1 0

YORK WOOL MARKETS, June 22.—At this the sixth market for this year's clip we had about 430 sheets of wool, being about 100 less than last week. The market was, perhaps, one of the duller ever witnessed, yet nearly all the wool was sold, at from 9d. to 12d. per stone below last week's rates; no doubt caused by dear provisions, the state of the Eastern war, the imposition of war taxes, the high rate of discounts, and the many and heavy failures in Bradford, Halifax, and the neighbourhood, which is the seat of the manufacture of our Yorkshire, Lincolnshire, and English wools generally. Cotted fleeces, locks, and moor wools have slow demand, and, except in very clean condition, are very difficult to sell, because East India wools, which always come over in the very cleanest condition, take their place in our blanket manufactories.—Yorkshire Gazette.

LIVERPOOL WOOL MARKET, JUNE 24.

SCOTCH WOOL.—There is decidedly more doing in Laid Highland Wool; several parcels held over since last clip have been forced on the market, and the prices are lower in consequence. White Highland has also, under similar circumstances, found buyers. In Crossed and Cheviots there has been likewise some business done.

	s. d.	s. d.
Laid Highland Wool, per 24 lbs.....	9 0	10 0
White Highland do.....	12 0	13 0
Laid Crossed do.....unwashed ..	12 0	12 6
Do. ....washed	13 0	14 0
Laid Cheviot do.....unwashed ..	13 0	15 0
Do. ....washed	14 9	17 6
White Cheviot do .. ...do.....	22 0	24 0

FOREIGN WOOL.—There was a large attendance of buyers at the public sales this week, where 10,000 bales were offered; but, with the exception of about 6,000 East India, which went off at former rates, all the other sorts were withdrawn. There is, however, a better feeling gaining ground that the lowest point has been seen, and that, although no immediate advance is anticipated, there will be a fair business at present rates.

MANURES.

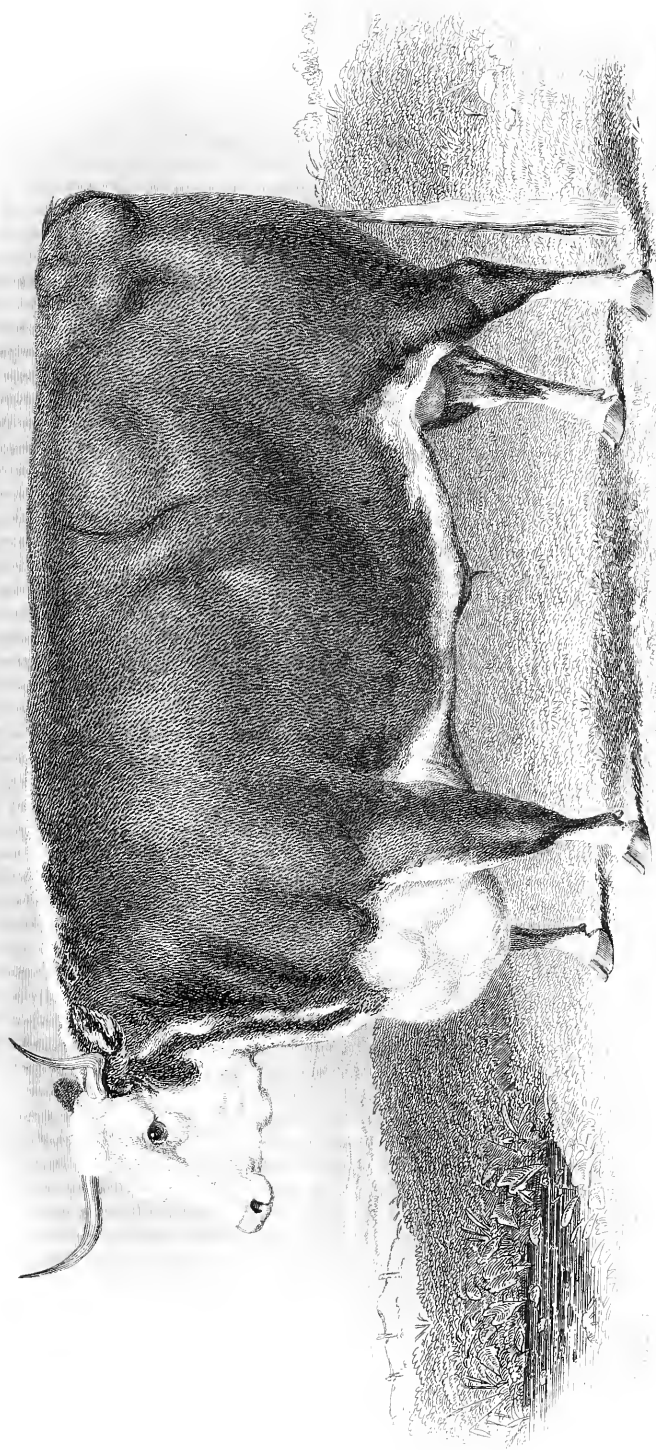
LONDON, Monday, June 26.

PRICES CURRENT OF GUANO.

Peruvian Guano	per ton £11 0	0 to £11 10 0
" D. first class (damaged) ..	" 10 0	0 to 10 10 0
Bolivian Guano	" 0 0	0 to 0 0 0

ARTIFICIAL MANURES, OIL CAKES, &c.

Peat Charcoal	" 0 0 0	0 0 0
Nitrate Soda	" 19 0	0 to 20 0 0
Nitrate Potash or Saltpetre	" 46 0	0 to 50 0 0
Sulphate Ammonia	" 18 0	0 to 19 0 0
Muriate ditto	" 22 0	0 to 23 0 0
Superphosphate of Lime	" 6 0	0 to 0 0 0
Soda Ash or Alkali	" 0 0 0	8 0 0
Gypsum	" 2 0	0 to 2 10 0
Coprolite	" 5 0	0 to 0 0 0
Sulphate of Copper, or Roman Vitriol for Wheat steeping....	" 44 0	0 to 0 0 0
Salt	" 1 5 0	2 0 0
Bones 1/2 inch	per qr. 0 18 0	0 to 0 19 0
" Dust	" 0 18 6	0 to 0 19 0
Oil Vitriol, concentrated	per lb. 0 0	1 0 0 0
" Brown	" 0 0	0 1/2 0 0
Rape Cakes.....	per ton 6 15 0	7 0 0
Linsed Cakes—		
Thin American in brls. or bags ..	" 10 17 6	11 10 0
Thick ditto round.....	" 9 15 0	10 0 0
Mareilles	" 10 0 0	10 5 0
English	" 10 15 0	11 0 0



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*Willm. Brown, Engraver
1850*

THE FARMER'S MAGAZINE.

AUGUST, 1854.

PLATE I.

HEREFORD STEER.

THE PROPERTY OF MR. WILLIAM HEATH, OF LUDHAM HALL, NORWICH.

The subject of our first plate obtained, at the Birmingham Cattle Show, in December last, the first prize of Ten Sovereigns, in class 2; also the Gold Medal and the extra prize of Twenty Sovereigns, as the best ox or steer in the yard. The breeder, Mr. Thomas Carter, of Dodmore, Ludlow, Salop, obtained the Silver Medal.

PLATE II.

CATHERINE HAYES,

A CELEBRATED MARE, BRED BY MR. WAUCHOPE,

In 1850, was got by Lanercost, out of Constance, by Partizan, her dam, Quadrille, by Selim—Canary-bird, Whisker, or Sorcerer—Canary by Coriander.

Catherine Hayes is a brown mare, standing fifteen hands two inches high; she has a light clean head and neck, splendid shoulders, and great depth of girth; good ribs and barrel, with a famous back, and quarters well let down, drooping a little towards the tail, which is large and bushy. She has very powerful arms, short gaskins, and beautifully clean hocks. Not over large in the bone, but wiry and very sound. One striking peculiarity in her formation is the immense depth and size she is found to be round the heart. She is indeed a very beautiful mare—one of the low and lengthy sort—with capital temper and action.

AGRICULTURAL METEOROLOGY.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

It is not, perhaps, in bright and unclouded seasons that we are the most willing to inquire into the mysteries of meteorology. It is rather in such years as the present—times of cold springs, and long continued summer showers—that we are led to ponder over the laborious observations, and, perhaps, sometimes rather too poetical dreams of the meteorologist. It will not be uninteresting at this time if we address ourselves to the subject, enquire into the probable effects of lowered mean temperatures, and we may even glance, with some practical usefulness, upon the indications which the barometer and other natural phenomena present for our instruction.

OLD SERIES.]

There is, indeed, an increasing spirit of enquiry now abroad on this branch of science—a knowledge of the most intense interest to the farmer—and on the foundation which the Royal Agricultural Society of England suggested, and which Mr. Whitley, of Truro, so well laid, in his valuable prize essay on the climate of the British islands, a large accumulation of important facts is gradually rearing. A useful paper on this subject is contained in the last number of the Transactions of the Highland Society of Scotland, by Sir J. S. Forbes, of Pitsligo—an essay which, in common with many others contained in that excellent journal, will well re-pay the careful perusal of the young farmer. He tells us,

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when commenting upon the close connection which subsists between the success of our farming and the meteorological phenomena of this country (ib. 291) that "all our crops usually cultivated have been originally imported, and are to be considered exotics. Though now domesticated, the effect of acclimatising is uncertain, and of very limited action, which is ascertained only by long experiment, with the aid of science, as to the circumstances under which we may safely trust to receive a remunerative return. Wheat is, probably, a native of Asia minor, and in Lombardy, where it is completely naturalized, it enjoys a summer temperature of 73° ; in Sicily, the ancient granary of Rome, 77° . In 1727 a small field of wheat near Edinburgh was considered a marvel; and for steady good crops of wheat a summer heat of at least 59° is required in ordinary seasons. Below that temperature, in the west of England, it requires a very dry season. Thus, in 1840 the spring was cold, which made the plant tiller; and though the summer heat was one degree below the average, it was dry, and produced a fine crop. The cultivation of wheat is nowhere pushed at so low an average temperature of summer heat as in this country; and the consequence is, as a table of good and bad crops for 70 years shows, a deficiency of only 2 or 3 degrees of summer temperature puts the whole crop in jeopardy. In Scotland, where the summer heat rarely reaches 59° —the average of twenty-six years, at Hopetoun House, for example, being only 58° —the length of the day appears in some degree to compensate for a low degree of heat; and the crop can be pushed, in good situations, with tolerable success even at $56\frac{1}{2}$ or 57° ."

It is then the mean *summer* temperature which exerts the greatest influence in ripening the fruits of the soil—in fact, as Mr. Whitley remarks *Jour. Roy. Ag. Soc.* vol. xi., p. 3), the *annual* mean temperature of a country is but a slender criterion from which to form an estimate of its climate, and is especially defective when the influence of climate on vegetation is considered. Penzance and Vienna have the same mean temperature; but the country around Vienna—the upper Hungarian plain—has a summer temperature 10° above Penzance. In the excessively cold winter of 1796, when the Thames was frozen, the temperature of the year in this country fell short of the *average* by only 1° . M. Arago states that, in the two years 1815 and 1816, the latter of which was destructive to the crops in a great part of France, the annual temperature varied only 2° from the standard. It is more a change in the distribution of the heat through the different months, than a change in the mean temperature, that disappoints the expectation of the husbandman, and causes a scanty crop.

When these observations come before the readers of this extensively circulated magazine, the probable nature of the harvest weather to be expected will be the most interesting of questions, and it will be now that any aid, however slight, in this way, will be highly valuable.

The best aid to our enquiries as to the probable nature of the weather to be expected at any period, must be derived from a careful observance of the barometer. The late Mr. John Dalton, of Manchester, gives us as the result of his long continued meteorological observations in that portion of the island (*Essay*, p. 195), the following results: The barometer, by which we may, in general, be warned of the approaching weather, is highest during a long frost, generally rising with a N.E. wind. It is lowest of all during a thaw following a long frost, and it is as commonly brought down by a S.W. wind. When the barometer is near the highest extreme, for the period of the year, there is very little probability of immediate rain. When the barometer is low for the season, there is seldom a great fall of rain, though a fair day in such a case is rare. The general tenor of the weather, at such times, is short, heavy, and sudden showers, with squalls of wind from the S.W., W., or N.W. In summer, after a long continuance of fair weather, with the barometer high, it generally falls gradually, and for one, two, or more days, before there is much appearance of rain; if the fall, for the season, is sudden and great, thunder will probably follow a depression. Dark and dense clouds will often pass over without rain when the barometer is high; whereas, when the barometer is low, it sometimes rains, almost without any appearance of clouds. All appearances being the same, the higher the barometer is, the greater is the probability of fine weather. Thunder is almost always preceded by hot weather, and followed by cold and showery. A sudden and extreme change in the temperature of the atmosphere, either from heat to cold, or cold to heat, is generally followed by rain within 24 hours. In winter, during a frost, when it begins to snow, the temperature of the air generally rises to 32° , and continues there while the snow is falling, after which, if the weather clears up, severe cold usually follows. The aurora borealis is often a prognostic of fine weather. From a still more extended and laborious series of observations, Mr. J. H. Belville, of the Royal Observatory at Greenwich, concludes (see his valuable *Manual of the Barometer*) that "the barometer is periodically, though slightly affected, during the 24 hours. At 9 a.m. and at 9 p.m. it stands higher, and at 3 a.m. and at 3 p.m. it stand lower, the mean annual difference amounting to nearly .03 of an inch. The greatest monthly

mean pressure occurs in June, the lowest in November. It declines from June till November—then rises till January—then falls till March, whence it rises till June. The annual mean at Greenwich at noon is 29.872 inches. Strong westerly winds in winter, with a steady high pressure, bring a high temperature, but little rain; with easterly winds, a low temperature and frost. Nearly all our high winds from the south west come with a falling barometer. If the mercury fall suddenly and rapidly during a westerly wind, a violent storm may be expected from the N.W. or N. If the fall takes place when the wind is W., N.W., or N., a great decrease of temperature will follow—severe frost in winter, cold rain in summer. If the fall is steady and considerable during an E. wind, the wind will go round to the S., unless heavy snow or rain follows. If the fall takes place during a S.E. wind, rain invariably follows. The worst weather comes with a falling barometer during a N. wind—a rare phenomenon, however. In summer, it brings rain and storm; in winter and spring, deep snow and severe frost. If the fall is during a frost, a thaw will follow, which will continue if the wind is S. or S.E.; but if S.W., the frost will be likely to return with a N. wind and a rising barometer. In summer, great depressions are succeeded by storms; cold unseasonable weather generally following. After great depression, at all seasons, follow changing winds and much rain. When the mercury is unsteady during calm showery weather, thunder will follow. Rain more or less attends all storms. In England, continues Mr. Belville, the winds which blow for the greatest number of days together, without intermission, are the W. and S.W.—they blow chiefly during the winter months, and are the principal cause of our mild winters. The E. and E.N.E. winds are the next most prevalent. The great antagonist winds, the N. and the S., are the origin of our most violent storms. The westerly winds surge mostly by night, and their average force is twice that of the easterly winds. The easterly winds are commonly calm at night, but blow with some power during the day. There is generally least wind at sunset and sunrise—the most wind an hour or two after noon. As a general rule, when the wind turns against the sun, or *retrogrades* from W. to S., it is attended with a falling barometer; when it goes in the *same direction* as the sun, or turns direct from W. to N., the mercury rises, and there is a probability of fine weather. If the weather during harvest time has been generally fine, and a fall of the mercury with a shower occur—if the wind turn a few points to the north, and the barometer rises above 30 inches, the weather may be expected to be fair for some days. One current of air in the atmosphere is usually attended with a steady barometer—when two or more currents exist, great fluctuations in the quicksilver occur. In high pressures, the *upper* current usually sets from the N.; in low pressures, from the S. or S.W.”

The mean height of the barometer at noon, at Greenwich, in the 30 years from 1815 to 1844—60 feet above the level of the sea—is given by Mr. Belville, for each month, as follows (*Manual*, p. 16)—the difference is much less, it will be noted by the reader, than might reasonably be expected—

January	29.909
February	29.859
March	29.857
April	29.865
May	29.884
June	29.910
July	29.894
August	29.890
September	29.872
October	29.851
November	29.801
December	29.884

As to the supposed influence of the moon on the weather—“Notwithstanding the ridicule which sometimes attaches to the vulgar belief in it,” observes Lord Lovelace (*Jour. R. A. S.*, vol. ix., p. 335), “the celebrated Arago did not disdain to examine the question. At Carlsruhe, Orange, and Paris, the registers concur in marking a slight predominance of wet during the whole of the first quarter. He found, from a careful comparison of various European tables, that the rain falls oftener during the increase than the wane of the moon, by 6 to 5. This is more particularly the case from the first quarter to the full moon. In regard to the supposed connexion of the weather with the hours of the day or night at which the moon becomes new and full, it appears, from some observations made during the first nine months of 1816, that in 19 times this hypothesis was right or nearly so 13 times, once doubtful, and 5 times wrong.” That supposed influence of the moon upon the weather is given in a well-known table, which the reader will find at page 54 of the *Farmers’ Almanac*, by Johnson and Shaw, for 1854; it is there stated that, if it shall be new or full moon between certain hours given in the first column, then, according to the season, the weather will be as given in the second and third columns.

Of the signs of future weather derived from the phenomena of the natural world, much has been said, in all times and in all districts; and much of those popular observations, so common to us all, is founded more or less in truth, however doubtful the value of that truth in a practical point of view may be to the farmer. Of the signs of rain for in-

stance, in the phenomena of the vegetable world, may be named the closing of the small white flowers of the common chickweed or stitchwort (*Stelaria media*), and of the beautiful pink flowers of the purple sandwort (*Arenaria rubra*), of the brilliant red flowers of the pimpernel (*Anagallis arvensis*), of the germander speedwell (*Veronica Chamaedrys*); the reverse of these appearances indicating fine weather.

In the animal world, the signs of rain are particularly regarded as many. When horses, sheep, pigs, and fallow-deer, are more than usually restless; or, when rabbits come out to feed early in the evening; when ducks, geese, or swans fly, it portends, according to the same popular authority, rain. When larks fly much, or when crows

fly high, and in regular order, fine weather will follow; when the missal-thrush sings long and loud, storms and rain are said to be prognosticated.

The influence of good cultivation—of improved drainage—upon the climate of a country, is known to most farmers. That the drying of a district banishes fogs, lessens the humidity of the atmosphere, and increases the mean summer temperature, is evidenced by the more successful cultivation of grain. We have, therefore, many reasons to encourage us, in our efforts to promote the improved cultivation of the land; our crops are hence increased, not only in bulk, but in quality also; our harvests are rendered more certain; the health of our domestic animals, and of our families, become improved, and the general good promoted.

GRASS AND NITROGEN.

In the fourteenth volume of the Royal Agricultural Journal, part 2nd, pp. 374-391, there is an article "On the Natural Law by which Nitrate of Soda acts as a Manure," &c. It is not my present object to trespass upon the paragraphs of that excellent treatise, or upon its appendix, farther than to refer to both as highly instructive. After a careful perusal, it occurred to me that a series of experiments, carefully conducted, might serve to confirm Mr. Pusey's opinion of the superior efficacy of the *nitrites* over any other of the saline chemical salts which have been used to promote the growth of meadow and pasture grasses.

The experiments that I proposed to myself have been carried through, and so successfully (though on a very minute scale) that I now proceed to describe them in the order and according to the dates registered in the diary of observations:—

April 15.—Three grass turves, about six inches square, were cut from some loose pieces that had been thrown up in marking out intended freehold allotments. The herbage and earth adhering had become parched, and thoroughly dry. After paring off some of the lumpy mould, they were laid on the ground, just loosened by a hand-fork, about a foot in front of a laurel hedge, in a line pointing east and west, and fully 16 inches asunder; they were thus screened by the hedge from the south sun. The turves I number, 1 at the east, 2 central, 3 at the west end; they were pressed level, and merely watered, for the weather continued perfectly dry, with a powerful sun. Vegetation was speedily excited, and then No. 1 received a solution of *nitrate of soda*, prepared *ad libitum*, by neutralizing 40 minims of pure nitric acid with carbonate of soda—a strong dose—diluted with four fluid ounces of water; No. 2 had thirty grains of refined saltpetre (*nitrum purificatum*) in a like quantity of water; and No. 3 had thirty grains (29 minims) of *nitric acid*, equally diluted. The reader will understand that, in the above and all future applications, the quantities of fluid were measured

by the four-ounce graduated glass, and carefully poured (by its lip) over the grass surfaces *only*.—The dry weather of the late remarkable spring continued till the 21st; on which day the mean temperature was given at 11 deg. 6 cents. in excess of the usual average mean. Rain fell on the 22nd, and more followed in the four last days of April, with great reduction of heat.

May 1.—Repeated the watering, only reducing the nitric acid to 13 falling drops in the four ounces of water. The grasses had now become quite green and thriving.

May 13.—The herbage of the squares yielded proof of the efficacy of the two waterings; but the grass of No. 2 was in all respects inferior to that of Nos. 1 and 3: in them, it was rich in verdure, and of luxuriant growth.

May 14.—I had prepared a dry *nitrate of soda*, by neutralizing diluted nitric acid with its equivalent of crystallized carbonate of soda, and evaporating gradually to dryness in a Berlin capsule, and then, for the last time, they were moistened again in the same order, but with a slight abatement of the three stimulants. Thus No. 1 received only twenty grains of *nitrate of soda*, No. 2 twenty grains *nitrate of potash*, and No. 3 only nine falling *drops* of nitric acid, all combined as before, with four fluid ounces of very pure rain water.

May 22.—The experiments had been carried on during more than five weeks. The grass of Nos. 2 and 3 was very strong, the seed-stems being six to eight inches high; but that of No. 2 was inferior in growth, more weedy, and of an inferior verdure. I therefore removed the daisy and weak dandelion plants from it, cut over the young grass, and substituted a solution of *sulphate of ammoni*, twenty grains, in four ounces of water. No speedy effects followed; but now (July 10), after the frequent supplies of rain, the grass has become strong, but still inferior to that of Nos. 1 and 2, *even at the end of May!*

Whatever may be thought of the value of experiments made upon a scale so minute, certain it is that nitrate

of soda produced (with me) definite and marked results; it is equally so, that *very strong* nitric acid, applied at three times, to the extent of at least 42 drops in 12 fluid ounces of water, over the surface of a small piece of old turf, so far from doing injury, did, in reality, so stimulate the withered grass as to justify Mr. Pusey's deductions from his own more extensive operations. I may add, by way of suggestion, that agriculturists who contemplate the forming of a pasture by the process termed "inoculation," will have full opportunities to try any and every kind of saline manure, with little or no risk or outlay, by only observing to mark each piece of medicated turf, noting the quality and quantity of the liquid manure so applied. Much valuable knowledge might thus be obtained.

Dr. Anderson, of Glasgow, has written an excellent article "On the Recent Progress of Agricultural Science." It is just published in the Transactions of the Highland Society (Quarterly Journal of Agriculture, July), p. 306. I would recommend the perusal of this article, and particularly the paragraph under the head "Artificial Manures," p. 324. At the 16th line from the bottom of that page, we read, "But I apprehend that, had Mr. Pusey put the question to any of those persons who have *recently* directed their attention to agricultural chemistry, he would have received for reply, that the value of *nitrate of soda* is most unequivocally due to its *nitric acid*, and not to its soda."

Croydon.

JOHN TOWERS.

A LOOK INTO FOUR COUNTIES.

Alighted at Reigate, in Surrey, from the London and Dover railway, I journeyed eastwards along the valley of the Greensand, which accompanies the north down-range of chalk almost throughout the entire course. There is not a more curious and interesting locality in England in a varied geology than this district of country. The north boundary is the range of chalk rising at Botley Hill to the height of 880 feet above the sea level; the top of the Downs is in many places covered with the plastic clay, which also occupies the southern slope in a most intractable and viscous soil; the valley at the foot of the hills is occupied by the London clay in a considerable width; the ridge of the third, or quartz sandstone is upheaved, which covers the oolite and supports the chalk—it occupies a parallel direction with the chalk but with little variation, and the southern escarpment overlooks the Wealden formation of clay, which occupies the flat country between the North and South Downs of chalk, over which the last deposit of lime had formerly extended. A vast denudation had swept eastwards the chalk deposit, and the London and Wealden clays had been subsequently interpolated—the last argillaceous bed being a mixed production of marine and fresh-water agency. The sandy deposit is divided into the green or upper bed, and the iron or lower bed—the separation being done by the gault clay, which is known at Godstone as black land, but lies mostly in narrow valleys, and used in grass. The upper bed forms the surface ground at Reigate; the gault or intermediate deposit appears at Godstone; and the lower iron stone is developed at Limpsfield, where several sections exhibit the bands of iron very conspicuously. Along the whole course eastwards, the valley between the chalk range and the sandstone ridge is occupied by the London clay, and on the south side the Wealden formation occupies the ground. These deposits constitute very intractable clay fallows for wheat, and the turnip soils are derived from the decomposition of the quartz sandstone.

The agriculture of this district is not less remarkable than its geology. The clays are universally tilled with

the strong and heavy turn-wrest plough of Kent, as no other implement yet found is capable of overcoming the resistance in ploughing the stubborn lands. And the heaviest forms of that implement are not at all beyond the strength that is required in breaking up the leys and stubbles of these clay deposits. The last summer working of the fallow lands, and the earthing up of the ridges for seed, are done by a swing plough with a wooden mouldboard, to which the waxy soil does not adhere so tenaciously as to cast-iron.

A modification of the turn-wrest plough has been adapted to two horses abreast, and is used on the sandy lands, which retain from the iron constitution a very considerable degree of battered hardness in the under-soil, and also in the upper ground after much rain has fallen. Swing ploughs with two horses abreast are fully equal to the cultivation of these soils, and better with a share of cast-iron, which wears equally on both sides of the point, and pierces the quartz subsoil better than the wrought-iron share that wears chiefly on the under side of the point, and throws the plough upwards. This fact is well established on these concreted substrata.

Between Reigate and Godstone, my attention was arrested by the process of sowing turnips on a field of fallow land, of fair quality and extent. The turn-wrest-plough of two horses was employed in opening and reversing the drills, in the hollows of which a sprinkling of dried farm-yard dung was spread to a large extent uncovered; in which employment one person was engaged. The plough was most inefficient for drilling land; the round share pierces, like a mole, the ground in front, but raises no earth laterally; the wooden mould-board, formed of one disjointed board, and placed high, merely pushes aside the upper surface of the pulverized soil, no part of which is received from the share as in the proper continuation of a furrow. The drills thus formed are lumps of land pushed together, and the intervening hollows are wide trenches, nearly of equal width at top and bottom. One plough and one horse performing the turnip season on a field of medium extent, appeared quite a novelty, and must be either a

child's conception—making a beginning, or an expiring relic of some abortive attempt. In the present damp season a braid of turnips may be got by such means; but in dry weathers, the long exposure of soil and dung would forbid any expectation.

In the eastern progress near to Tunbridge, the appearance of extensive fields in cultivation betokened an enlargement of mind. The wheat crops were very superior, and better implements were lying about. The superiority did not however continue. A field of fallow land was bearing a green crop of sprouted couch-grass, lying on the surface ungathered after being harrowed; and a field of beet-root showed a very unseemly condition, with weeds abundant, and the plants singled in threes and fours together. This description of soil is wholly green crop land, and wheat fallow is ridiculous. Such culture of lands on which auxiliary manures are most proper, and now so very abundant, and of tried efficacy does not argue any pre-eminence in imported farming, and reflects no credit on the country which has given it birth. The grubber stuck into the headland shows an antiquated form; and a wooden roll, in the thickness of a man's waist, was provided with a frame much more in weight than the roll itself. The view was cursory, certainly; but from few objects an idea may be formed of larger matters.

Near to the border of Kent there was seen, on rather inferior soils, the system of vetch-farming in all its deformity. Sheep consuming the herbage, refuse to eat, and leave standing, like young trees, the stems of docks and thistles, as are everywhere seen. The annual weeds rise thickly behind the consumption, and the land being wrought for turnips, is imperfectly cultivated, and affords but a late chance of a crop. If turnips are sown with artificial manures on one ploughing, the surface weeds are buried, and though checked by the hoeings of the crop, the future reappearance is certain. No doubt the vetch is a valuable plant on these iron sands of a scorching quality; but the farming is always foul, and requires to be frequently joined with a clean fallow. Two crops in a season do not admit of a good cultivation.

In the county now mentioned wheat is a superior crop; barley a full average; oats a fair growth on these soils. Hay late and light, both on meadows and sown grasses. The wet weather had not inflicted any serious damage there.

Through Sevenoaks to Tunbridge, in Kent, the country is closely wooded in meadows, fallows, and hop grounds; the latter showing a bare growth, and almost gone. Grain crops good; wheat very superior. From Tunbridge to Hastings, near the sea, the soil is a very poor, meagre clay, used in wheat fallows, oak copses, and the best quality in hops—equally deficient this year as in Surrey. These lands are poor, and badly treated; portable manures are not proper, and draining is very expensive. Lime and deep trenching would be the remedy, and the employment of capital upon it, by the residence of wealthy persons who hold the land at nominal rents, and at no rent at all for some time. It would ultimately reimburse the proprietor to give the possession in this way, as the poverty which will live on such

lands, and fight to scratch a pittance from the surface, will never be able to effect any lasting benefit, or even a temporary alteration. Capital and intelligence must be induced to live upon it; and if the present proprietors cannot, or will not, make such arrangement, let others have the land who will do it.

The coast line from Hastings to Portsmouth showed good crops, and wheat in an especial superiority; turnips few, and miserably cultivated. Potatoes, none from Reigate as a field crop; the garden crops excellent. The prejudice is yet unabated against potatoes as a cultivated crop—a pitiful barbarism of the mind!

The alluvial flat country by Arundel, Chichester, and Havant is rich by nature, and grows heavy crops with small assistance from art. The declivity of the chalk hills in the back-ground affords an agreeable and very useful variety in turnip lands, and rearing and fattening sheep; a system of farming is thereby obtained which makes a very profitable use of capital. A mixture of soils and productions constitutes much the best chance of remuneration.

The crossing from Portsmouth into South Hants finds a large extent of alluvial soils in an undulating country, possessing immense advantages, and a most encouraging prospect of cultivation. From Portsmouth to Fareham the soil rises from alluvial depth into a thin stratum. Between Fareham and Southampton the vegetable stratum is very shallow, and a very large heathy common extends; the adjacent grounds are of excellent quality for turnips and barley. At Bursledon Pontage and vicinity the quality is excellent for all green crops, which bring grain crops in their rear. The turnip crops are few, and most miserably managed. The land, ridged or flat, is sown by some light seed-barrow, which never goes straight; and the rows of turnips are ranged in the most ludicrous manner—waved, cornered, wide, and narrow. Some are sown broadcast, but none are drilled over the dung: such mode seems wholly unknown. The grain crops in this district were excellent, both in wheat and barley; hay indifferent, both natural and artificial.

From Southampton by Bishopstoke the same or better green crop lands are found, but they are used in the same awkward and unprofitable manner. Around the latter place there are large fields of superior deep and dry loamy soils, which want only the exercise of moderate skill to render a triple value. The sowings of turnips are most contemptible. Pigs were the first ploughmen, and had no idea of a straight line with their noses grubbing the earth in search of roots and insects—so the South Hants farmers appear to have no idea of a straight line in drilling turnips, they have not yet raised their minds so high. Experience grants that turnips do best on the flat ground in the dry arid climate of South Britain, on the lands of the clayey, crumbling, cloddy nature, which are converted into small irreducible clods by the action of the harrow and the roller. But the case is wholly altered on the close loamy soils that have been mentioned; the drilling is most beneficial by one deep furrow of the common swing plough, and sown by Hornsby's drop drill with artificial manures and seeds mixed, and

deposited by long coulters which split the drill to the bottom, and place the manure and seed among the fresh tilth. In this way, and after being rolled, the ground is almost flat, and secured against drought; but the drills must be straight.

Throughout this fine country the wheat crop, if safely harvested, will be beyond an average; barley above an average, and oats an average crop. Turnips cannot be judged so early, as few were sown. Clover hay much damaged, and some laid upon the dunghheap to rot.

A good country continues by Twyford almost to Winchester, where the Down lands prevail. Good turnip lands are seen in preparation for wheat, notwithstanding the general use of artificial manures and their known efficacy. On the chalky turnip lands the turnip farming is rather better than in South Hants; the drilling is

better done, and the care is more evident. The large crops of wheat everywhere give evidence of a good soil, and that the means are not applied in other respects. Much fine land is found over the joining of the chalk and the lower grounds, which produces in abundance the varied crops of cultivation. The soil of the Downs is not so kindly for turnips as fresh-water alluviums of South Hants, yet the management is better. The Down lands continue by Basingstoke into the London basin, where a fresh system prevails. The wheat crops are universally good, but the hay somewhat damaged. The chief feature of remark is the bad management of turnips, the best of which is scarcely tolerable. Drilling by the plough is altogether unknown, and on the flat ground the performance is most incomplete.

July 14th, 1854.

J. D.

ON THE USELESSNESS OF REARING-REINS.

BY VISCOUNT DOWNE.

It is said that when his Majesty George III., with a view to some improvement in military uniform, asked a life-guardsmen, who had done good service in the battle of Waterloo, what sort of dress he should prefer had he another similar battle to go through, he received for answer, "Please your Majesty, I should prefer my shirt-sleeves." Now, though we should be much surprised to see our cavalry regiments turn out for parade in shirt sleeve order, there can be no doubt the life-guardsmen's principle is a sound one. If a man wants to do a hard day's work—if he wants to exert his muscles and sinews, either in walking, running, fighting, digging, felling trees, or carrying weights—he must have those muscles free and unconfined by straps and ligatures and tight clothing: no one can gainsay this. But how is it, then, that a principle which every one, whether soldier or sailor, farmer or labourer, would insist upon in his own case, should be, in England at least, so universally disregarded in the case of our hardworking, patient, and too often ill-used beasts of burthen? How is it that the ignorance of "common things," which Lord Ashburton so justly complains of, should be so lamentably conspicuous in a matter so constantly before our eyes in our towns, in our fields, in our crowded streets, in our rural lanes; namely, our draught-horse appointments? It must be owed that one class—all honour, therefore, be to it—that of cab and omnibus proprietors, have set a good example in one respect, viz., in doing away with that hateful instrument of torture the bearing-rein. But, alas! in 99 carts and waggons out of 100 (carts and waggons, which are to move at a slow and steady pace) we still persist in crippling unnecessarily our motive power, and gagging our unhappy horses by tying up their heads, as if in the very tyranny of wantonness. On the continent the bearing rein is rarely used, and then only as a servile English imitation; but in horse-racing, hunting, horse-loving England, it must be confessed its use is all but universal. In Yorkshire, in the midland counties, in the southern, up the steep hills near Scarborough, as up the not less steep downs near Brighton, we may see heavy-laden waggons at all hours of the day dragged miserably along by horses—on one hand urged forward by ever-restless whipcord; on the other, as if in the veriest spirit of contradiction, curbed in by senseless bearing-reins; and yet, if the attendant cartier's attention be drawn to the

unnatural cruelty of the proceeding, he generally appears fully alive to it.

On seeing, the other day, a poor horse tugging a cart full of sand up the cliff at Brighton, of course with his head tied tightly to his back, we observed to a labourer near, "What a shame not to undo the bearing-rein with such a load!" "Oh yes, sir," was the reply; "I likes myself to see 'em free, but it's custom, sir, custom; they thinks they looks well." However, it is to be feared the truth is, thought has little enough to do with it; if people did think, the days of bearing-reins would soon be numbered. The folly of the practice was, some years ago, very ably shown by Sir Francis Head, in his "Bubbles, by an Old Man," where he contrasted most unfavourably our English custom of tying tightly up, with the German one of tying loosely down, and both with the French one of leaving the horse's head at liberty—(and a man of his shrewdness and observation, a distinguished soldier, who has galloped across the South American pampas, and seen there herds of untamed horses in all their native wildness and natural freedom, is no mean authority). Now, he has pointed out most clearly that when a horse has real work to do, whether slow work, as in our ploughs and carts, or quick, as in a fast gallop, or in headlong flight across the plains of America, nature tells him not to throw his head up and backwards towards his tail, but forwards and downwards, so as to throw his weight into what he is called upon to do. This is a fact within every one's observation: we have only to persuade the first waggoner we see (he is sure to have all his horses tightly borne up) to undo his bearing-reins, when down will go every horse's head, so as to relieve the wearisome strain upon his muscles, and give the weight of his body its due and natural power of overcoming resistance; and thus each horse becomes enabled to do his work as comfortably and easily as nature intended he should do: for nature never intended a heavy animal like a cart-horse to perform slow work only, or chiefly, by strain of muscle, but, on the contrary, by the power of weight as the rule, assisted by strength of muscle as the exception, when extra resistance has to be overcome. Thus, when we curb up a horse's head with our senseless bearing-reins, and make him as ewe-necked as we appear anxious to do, we are inverting the rule and order of nature; we are evidently trying to prevent his using

the full unrestrained power of his weight, and are compelling him to overstrain and over-exert constantly those very muscles which should be kept in reserve for extra difficulties—such as greater inequalities in the road, new-laid stones, &c. Now, any one can see that, to an old, worn-out, half-starved, over-worked animal, as too many, ay, by far the greater proportion, are, this must be intolerable cruelty. It is a mistake to think a bearing-rein can be of any service whatsoever, unless, as a very exceptional case, to a very young, headstrong, unbroken horse. It is a mistake to think it improves a horse's appearance—nothing contrary to nature can ever really do this; it is a mistake to think it can ever prevent a horse's falling down, though it has been the means of preventing many an old one recovering from a stumble; but until our horse-owners be taught to look at this matter in its true light, the light of common sense, and until it be taken up by the influential landowners and more enlightened and more considerate of the tenant-farmers amongst us, it is in vain to hope for any mitigation of this but too-universal cruelty. Hundreds of humane men, employers of horse-labour, there are in all our counties and our towns, who, if their attention were but called to the senselessness and cruelty of the practice, would at once see the necessity of the only prompt remedy; and in these go-a-head days Prejudice and Custom have but tottering foundations: the one is fast yielding to common sense and Lord Ashburton's much-to-be-desired "knowledge of common things;" and the other will not long stand its ground unless it has something more than the prestige of mere antiquity in its favour. We ourselves have entirely done away with bearing-reins among our own heavy draught-horses; and though our carters were at first rather astonished at being desired to discard them entirely and substitute a loose halter or rein at one side instead, they soon found that their horses were not a whit less manageable without bearing-reins, and that they

did their work with far greater ease to themselves. A great friend of ours, who has turned the sword of a dragoon into a ploughshare, and has paid great and successful attention to farming affairs, gives it as his opinion that "a pair of horses, when freed from this useless tackle and left to step in freedom, would plough 1-4th if not 1-3rd more land in a day, and with greater ease to themselves and less fatigue when the day's work was over, than when confined in their action by bearing-reins."

It does appear not a little desirable that improvements should be made generally in our team-harness, so that all unnecessary weight and useless gear, bearing-reins, &c., should be got rid of; and perhaps if the Royal Agricultural Society were to offer a prize for improved harness, and give the sanction of its authority to some improved type, we might hope to see ere long a great and beneficial change in this respect. Change is by no means desirable for its own sake, but the change from a bad system to a good one—from a bad to a good implement—cannot be otherwise than advantageous to the community; and it is only by observing and obeying nature's laws that we can hit upon improvements which may be real and lasting, whether in mechanical appliances for ploughs, carts, and harness, or with respect to the practical details of scientific cultivation, or the condition and household comforts of our agricultural labourers. Agriculture fosters and embraces in its maternal grasp the knowledge of high and noble sciences as well as that of "common things;" and it is not unreasonable to hope that that powerful Society, which pre-eminently represents the influence, the talent, the enterprise, and the humanity of our English agriculturists, will, among the thousand-and-one other improvements which it has introduced and is introducing, not deem it beneath its notice to throw the energy of its influence against the unnatural system of bearing-reins.—Journal of the Royal Agricultural Society.

SKILLED LABOUR.

Notwithstanding what may have been so often urged to the contrary, we are sanguine enough to believe that the pursuits of agriculture inculcate anything but a spirit of selfishness or mere fortune hunting. Rarely, indeed, do those most directly interested in the occupation render it a profitable one without imparting some proportionate benefit to others grouped around them. The farmer, in a word, cannot continue to prosper single-handed. It becomes an essential part of his business to have those in any way associated with him ever ready and anxious to sympathize in his success. From the landlord he holds under, to the labourer he employs, the feeling should still be the same. Independently of what the community may gain from his well-doing, there are two or three classes whose rise and fall must be always regulated more or less by his own.

We are coming day by day more generally to acknowledge this. At the meeting now about to be held at Lincoln, we shall find in that county itself one of the strongest examples of that asso-

ciated interest, which has resulted in so much common good. Landlord and tenant have here long since learnt how much they may do by cementing such an union, as how greatly the prosperity of the one class depends upon that of the other. Let us leave this desirable end, at least for the present, to point its own moral, and go in turn to the public show-yard for another illustration of how thoroughly the tenant farmer should have some others again to feel with him. As we trace the different avenues of machinery offered for his use—as we inspect, one after another, the many classes of improved and valuable stock it must be his endeavour to obtain, let us stay to consider who should have an interest, as who is it that has a direct influence, here? At whose mercy does the agriculturist place the comparatively high-priced implement he has determined upon using? Into whose hands does he deliver the perfectly formed animal that is to do so much, not merely perhaps for his own breed, but for that of a district? Who beyond landlord or tenant

is it that has so strong a claim in the advance of agriculture, and who should himself so certainly advance *puri passu* with it?

Need we stay to answer, "the labouring man"? he whose health will be duly given at that festival which celebrates the object and the attainments of an agricultural society, and which very becomingly includes him in the ranks of those that it would honour. It has, too, already done far more for him than this offer, of what some may still wish to consider but an empty compliment may appear to imply. This associated interest we have already referred to brought him at once within the influence of that progress it has been the proud distinction of the Royal Agricultural Society to direct. From this he has learnt, or is still learning, how much it will be to his own advantage to do his best. From this he begins to see that the well-doing of his employer is equally his own; and with this to guide him, he is becoming gradually freed from all the heavy *impedimenta* of ignorance and prejudice. The man who once considered it his first duty to himself and his family to smash a thrashing machine, or forbid the working of a hay-maker, has come now to acknowledge how much the use of these very implements may facilitate his own labour, and tend to his own advantage.

So far so good; but we must not stop even here. One of our great objects now is to force simplicity of detail and action upon the mind of the inventor and his machinist. Our judges are taught to consider this one of the first recommendations towards determining their award. Let them stay to reflect into whose hands that which they are approving must pass for use, and then let them ask themselves whether it be really reduced to the capacity of the class for which it is intended. The argument here is essentially practical and politic; but after all, it is only one-sided. The manufacturer is ordered to lower the character of his goods to the standard of intelligence by which they will be brought into service. May we not, on the other hand, do a little more in another direction? Far be it from us to question the attraction and advantage to be found in judicious simplicity of construction. It has long been one of our own arguments. At the same time is it not our duty to make the workman equal to the material he has to deal with? The one grand difficulty is already surmounted. The unfavourable bias we had so long to contend against is gone; and the man, we believe, is willing to learn, if we are only ready to teach. Improvement and advancement now only await our own signal—"Forward!"

We are anxious to assume there is an increasing desire to thus lead onwards the labouring man. "A little reflection," as was well said by Lord Stradbroke the other day at Saxmundham—"a little reflection would show it was impossible, in a country which was increasing in wealth, and where the upper and middle classes were every day increasing in knowledge and intelligence, to say you will resist education for the lower classes of the people. But if it were impossible to say this, he was anxious to add that if it were possible it would be unwise. He should like to ask them all this question: supposing that, by the activity and zeal of talented men who are constantly at work in improving the machinery of the country, more machinery is introduced, how could that machinery be used to advantage unless the labourers were men of intelligence and of sound education? He should wish also to ask—and there were present many gentlemen who could answer—which amongst their labourers were those whom they most valued? which amongst them were those in whom they most trusted? which among them were those in whom they placed the greater confidence, and to whom they could leave their farms with more satisfaction than they could to others? Was it not the fact that the labourers on whom they most relied, and in whom they had the greatest confidence, were those who were men of the greatest intelligence and of the most education? He certainly had anticipated no other than an answer in the affirmative. The education which he alluded to was that which fitted a man for the performance of all his duties—which taught the boy those obligations which he would have to perform when he grew up to manhood. Such was the comprehensive system which he advocated; entertaining, as he did, the opinion upon all occasions, that the best men were those who had had a reasonable and sound education; satisfied, too, as he was, that such men were the most trustworthy and the most intelligent."

There are few who read this but will echo the cheers with which it was received. There are few, we trust, but who will make it part of their business, as one of their chief boasts, to have their labourers men of intelligence and education "*that fits them for their duties.*" The cheers with which, again, we expect to hear such sentiments as these received on Wednesday must stand for the answer they should properly convey. Let it be our ambition to *stand* to them, and prove that "the health of the labourer" is no such mockery as some of our censors would have it interpreted.

AGRICULTURAL BIOGRAPHY.

LIVING AUTHORS, OR SUPPOSED TO BE LIVING.

(Concluded from page 407.)

CCCCXLV.—TORRINGTON, 1842.

Viscount Torrington has written "On farm buildings, with a few observations on the state of agriculture in the county of Kent;" price 5s. The observations on practical farming that are made in this treatise are judicious and correct, but on the subject of farm buildings his Lordship is behind the age, as he applies the power of horses to impel the thrashing machinery, and long after steam has been used much more advantageously for the purpose. Animal labour is a large advance beyond human drudgery; and a much larger progression is made when an active agent is raised from inanimate bodies, and made to perform the functions of animated life. The feeding-house, devised in the plan of farm buildings, contains too many animals, and consequently a very heated air will be respired. Nothing worth imitation has been exhibited by the design or description of the wants of farmeries.

CCCCXLVI.—GREEN, 1842.

Robert Green, farmer, has written "On under-draining wet and cold lands;" price 3s. 6d. This book has been very little noticed, though written on a most important subject, as the title comprehends all the lands that require to be drained. If the author has adopted the shallow system, or the deeper percolations, the process is much the same, only varied in the frequency and depth of drains, in order to answer the contemplated object.

CCCCXLVII.—DONALDSON, 1842.

John Donaldson has written "A treatise on manures and grasses;" London, 8vo., 1842. "The cultivated plants of the farm; containing the description, culture, and use of the grains, legumes, tubers, and esculents;" London, 12mo., 1847. "The enemies to agriculture, botanical and zoological, description and extirpation;" London, 12mo., 1848. "Land steward and farm bailiff; detailing from actual practice the duties and qualifications of both offices;" London, 8vo., 1848. "Improved farm buildings; containing 72 designs of farmeries, dwelling houses, and cottages;" London, 1851, 4to. "Clay lands and loamy soils; containing the geological character, the chemical nature, natural properties, and cultivated use of the different formations;" London, 1852, 12mo. "Soils and ma-

nures; containing the soils, cultivation, and fertilizing;" London, 1852, 12mo.

The book of farm buildings contains 72 original designs on copper, of farmeries, square, circular, and polygonal, dwelling-houses and cottages, and is the most comprehensive work of the kind. The treatise on clay lands and loamy soils gives the most extensive description of clays that has yet been made, both in a scientific and practical view. The various qualities are largely investigated. Also "The country gentleman; containing the arrangements of the park, the policy, and the farm;" 12mo. "On landed property;" large 8vo.

CCCCXLVIII.—GREY, 1842.

Robert Hyde Grey has written "Scotch farming in the Lothians; a letter addressed to the editor of the Manchester Guardian;" London, 8vo., 1842. "Scotch farming in England; a second letter to the Manchester Guardian;" London, 8vo., 1842. These letters reiterate the tales that have been often told—that superior cultivation prevails under favourable circumstances, under good soils, long leases, and capital in the hands of the farmers. The climate is also very favourable to green crops. Much of the Scotch farming may be used in England, in the north and western parts, where the influences resemble.

CCCCXLIX.—LANCE, 1842.

Edward Jarman Lance, has written "On the food of plants, in which is considered—the sources from which plants derive the elements of their composition; the mode in which farm-yard dung strengthens the growth of agricultural crops; the mode in which other manures, whether singly or combined, act upon vegetation." To which is added, one essay on the drill-husbandry of turnips; London, 1842, 12mo. "The golden farmer; being an attempt to unite the facts pointed out by nature in the sciences of geology, chemistry, and botany, with practical operations of husbandmen, to enable them to grow more corn, and increase the employment of the labourer;" London, 8vo., 1831. "The hop farmer," "The cottage farmer," and many parts of Baxter's agricultural library. Mr. Lance originated "The humus and carbon manures," and is a writer of the highest class. "The hop farmer" is allowed to be the best work on the subject.

CCCCLXX.—JOHNSTON, 1842.

James F. W. Johnston, Professor of agriculture in the provincial college of Durham, has written "Elements of agricultural chemistry and geology;" Edin., 8vo., 1842. "Catechism of agricultural chemistry and geology;" Edin., 16mo., 1844. "Lectures on agricultural chemistry and geology, with an appendix;" Edin. and London, 8vo., 1844. "Contributions to scientific agriculture;" London, 8vo., 1849. "Experimental agriculture; being the results of past and suggestions for future experiments in scientific and practical agriculture;" Edin., 1849, 8vo. "Notes on North America, agricultural, economical, and social;" 2 vols, Edin. and London, 8vo., 1851.

The author was engaged by the Agricultural Society of Scotland to give stated lectures on agricultural chemistry for several successive years. The success was as large as may be expected from the subject, and the connection of the two sciences has been illustrated probably as far as modern knowledge will allow. That it has fallen short of any valuable practical application does not argue that none will be reached, when a more intimate field has been opened, and a closer inquiry afforded.

CCCCLXXI.—RANSOME, 1843.

James Allen Ransome, of the firm of Ransome and Co., iron-foundry, Ipswich, has written "The implements of agriculture;" London, 8vo., 1843. This work is worthy of the long-established celebrity enjoyed by the above firm as makers of agricultural implements; it has no equal in the agricultural world, and outstrips all works of the kind in the arrangement of the implements, delineation, descriptions, and practical character. The author's remarks are very valuable. It may be remarked as curious that carts and waggons are not mentioned as agricultural implements; the book does not comprehend them.

CCCCLXXII.—HUNTER, 1843.

James Hunter, plough-maker, Edinburgh, has written "The improved Scotch swing-plough, with practical illustrations on plough-making and ploughing, and many other observations in connection with agriculture;" Edin., 8vo., 1843. The swing-plough is very well explained in all its parts, and correctly delineated in the skeletons. The beam appears to be very short, and the bend very near to the heel of the plough, at the back end of the sole plate. A lever power is no doubt gained by a long handle and a short beam; but it may be over done, and the just proportion destroyed.

CCCCLXXIII.—HUTCHINSON, 1844.

Henry Hutchinson, land-agent, valuer, and pro-

fessor of draining, Walcot, near Stamford, has written "A treatise on the practical drainage of land;" London, 1844, 8vo. The work contains 207 pages, with diagrams of drained lands on the shallow and deep systems, as practised by the author. The contents show a very sound professional knowledge, with a correct judgment on the practical subject. No superior work has appeared on the draining of lands on the improved system of frequent cavities, in order to render effectual the performance of drying the ground.

CCCCLXXIV.—RIGG, 1844.

Robert Rigg, F.R.S., has written "Experimental researches, chemical and agricultural, showing carbon to be a compound body made by plants, and decomposed by putrefaction;" London, 1844, 8vo. The author fills 204 pages with very learned dissertations, but arrives at no practical result, even if carbon be composed and destroyed as is represented.

CCCCLXXV.—HANNAM, 1844.

John Hannam has published "The economy of waste manures; a treatise on the nature and use of neglected fertilizers;" London, 1844, 12mo. The treatise is valuable, and the author is known as the writer of several prize essays.

CCCCLXXVI.—BURKE, 1844.

J. F. Burke has written "Farming for ladies; or, a guide to the poultry yard, the dairy, and the pigery;" 12mo., London, 1844. "The muck manual," "British husbandry;" 2 vols., which were published in monthly numbers by the Society for the Diffusion of Useful Knowledge. It is a very useful work, showing and recommending the most approved practices upon incontestable grounds of preference. The two small works above-mentioned are very concise channels of agreeable intelligence. The author is noted in the profession of agriculture.

CCCCLXXVII.—MILBURN, 1845.

M. M. Milburn, land-agent, near Thirsk, Yorkshire, has written "Prize essay on guano;" 8vo., London and York, 1845. "The cow, with the dairy and breeding cattle;" 12mo., London, 1851. "Sheep, breeds and management;" 12mo, London, 1852. These works are to be noted for sound sense, and very judicious statements. The practical information is of the highest order, and free of any affectation beyond the necessary scientific reference. Practice is never cast behind in order to follow a new path that is not yet open, and but barely accessible.

CCCCLXXVIII.—WILLIAMS, 1845.

E. Leader Williams, C.E., acting engineer to the

Severn Company, has written "On land-draining and irrigation; and on the application of drainage water as a motive power to machinery for agricultural purposes;" price 1s. 6d. This small work is very true on the subject.

CCCCLXXIX.—WILLOUGHBY D'ERESBY, 1845.

Lord Willoughby D'Eresby has written "On ploughing by steam;" price 2s. 6d. Perseverance continues the attempts to reach the point of ploughing by steam; but like plough-draining and machine-reaping of grain, ploughing in the different forms may require a more manageable agent than condensed steam let loose from control.

CCCCLXXX.—TRIMMER, 1845.

Joshua Trimmer, F.G.S., has written "Practical geology and mineralogy;" London, 8vo. "Practical chemistry for farmers and land-owners;" London, 12mo. "On the improvement of land as an investment for capital;" London, 1847, 8vo., price 1s. And, along with Mr. Morton, "An attempt to estimate the effects of protecting duties on the profits of agriculture;" price 2s., and supplement 1s. The author is known as an able practical geologist, and a person of very sound views on other subjects. Though no doubt can exist of the improvement of land as an investment of capital, yet there must be a combination of favourable circumstances which have passed away from existence, under which were effected the large improvements quoted by the author.

[CCCCLXXXI.—MARTIN, 1845.

W. C. L. Martin has written "Our domestic fowls," "The history of the horse," and "Treatise on the ox." These treatises are very valuable; probably the natural history learning of the author predominates over the practical utility.

CCCCLXXXII.—ROBERTS, 1845.

Owen Owen Roberts has written "Observations on thorough drainage, as the basis of agricultural prosperity;" London, 1845, 12mo. The author reasons well, and argues stoutly in favour of close draining and subsoil ploughing. The two pamphlets by the author, on the corn laws and agricultural economy, are not practical notices.

CCCCLXXXIII.—MECHI, 1845.

J. Mechi has compiled a thin quarto volume of letters on agricultural subjects, chiefly relating to drainage of clay lands. The author is an amateur cultivator of the soil, and has attracted much observation. His ideas show too much adhesion to one locality; and though they are not sheer idle fancies, the general application may be doubted. Such persons are useful in any art.

CCCCLXXXIV.—DICKSON, 1846.

James Hill Dickson has written "A series of letters on the improved mode of the cultivation and management of flax;" London, 1846, 8vo. The intelligence is very sound, and correctly estimated.

CCCCLXXXV.—ROBERTS, 1846.

G. Roberts has written "A catechism of agriculture, by question and answer, on the most approved modes of cultivating the earth." The work is one of Pinnock's catechisms, and bound in a volume of these collections. It should have had an earlier date, but the work did not catch our notice sooner. The extent of it is too small to contain the circle of agriculture, even in a contracted form.

CCCCLXXXVI.—FALKNER, 1846.

F. Falkner, Esq., has written "The muck manual, for the use of farmers; a practical treatise on the chemical properties, management, and application of manures;" London, 1846, pp. 318, sewed, 5s. This is a very neat and comprehensive work, and a most creditable performance.

CCCCLXXXVII.—BACON, 1846.

R. N. Bacon has written "Prize essay on the agriculture of Norfolk;" 8vo., price 10s. 6d. This work is much esteemed, and contains the sentiments of a sound practical judge, and of an enlightened writer.

CCCCLXXXVIII.—PASSY, 1846.

H. Passy has written "Essay on large and small farms;" 12mo. This essay has never got into any notice.

CCCCLXXXIX.—EYTON, 1846.

T. C. Eyton, Esq., has written "The handbook of Hereford cattle;" in two vols., 8vo. The work contains the list, pedigrees, and portraits of the most celebrated bulls of that breed, and the prices at which many of them were sold. It is a very entertaining book to those connected with Hereford cattle.

CCCCXC.—TOPHAM, 1846.

John Topham, M.A., rector of St. Andrew, Droitwich, has written "Chemistry made easy, for the use of agriculturists;" London, stitched, 16mo. The knowledge of chemistry is undoubted; the application of it in the field of agricultural practice yet remains to be found.

CCCCXCI.—ANTISELL, 1846.

Thomas Antisell has written "A manual of agricultural chemistry;" 12mo., sewed, price 2s. "Irish geology;" 18mo., price 6d., sewed; in a series of chapters containing an outline of the

science of geology, and a description of the various rocks distributed on the surface of the island, with some remarks on the climate. These little works are worth notice.

CCCCXCII.—JONES, 1847.

David F. Jones has written "Turnip husbandry; a series of papers on the culture and application of that important root, with a preface by Professor Johnston of Durham. The author describes most correctly the most approved cultivation and use of the turnip plant.

CCCCXCIII.—DICKSON, 1847.

Walter B. Dickson has written "Poultry, their breeding, rearing, diseases, and general management." This is an excellent treatise on poultry, and deserves much notice.

CCCCXCIV.—HUXTABLE, 1847.

Rev. A. Huxtable, A.M., rector of Sutton Waldron, Dorset, is author of "A lecture on the science and application of manures;" 8vo., price 1s. "The present prices;" price 1s. This writer has made his name known by scientific views on various points of agriculture. They may not prove to be fancies and chimeras when a sufficient time for trial has elapsed, and public opinion has overcome the asthma which prevents to climb a steep ascent.

CCCCXCV.—O'CONNOR, 1847.

Feergus O'Connor has written "On the management of small farms;" 12mo. Except in the London catalogue of books, no notice has been seen of this work.

CCCCXCVI.—WARNES, 1847.

— Warnes has written "On the cultivation of flax, and the fattening of cattle with native produce, box-feeding, and on summer grazing;" price 7s. 6d. The very plausible scheme of this author may not be adapted to British husbandry, however valuable the flax plant may be. The cultivation of it is a cottier performance, and adapted to an unrefined stage of agricultural advancement, and will not be able to find a place in the rotation of crops which are cultivated with less trouble, and more suitable for alternation. The feeding of one animal in a box cannot enjoy any long advantage over a yard and shed for two animals, which has been long very successfully adopted. Minute trifles confer little value.

CCCCXCVII.—DAVIES, 1848.

Hewett Davis, farmer, near Croydon, has written "Farming essays;" price 2s. 6d. Contents are—On selecting a farm; leases and tenants' rights; artificial manures; thick and thin sowing; Spring

Park farming (his own); agriculture, ancient and modern; deep drainage on arable lands; general directions for drainage; kohl rabi and French sheep; &c., &c. These essays are very particular for sound practice and enlightened judgment.

CCCCXCVIII.—SKILLING, 1848.

Thomas Skilling, now professor of agriculture in the Queen's College, Galway, has written "The science and practice of agriculture;" 12mo., cloth, with cuts, price 3s. 6d. Also "The farmer's ready-reckoner." Very useful tracts in a small compass.

CCCCXCIX.—WILSON, 1848.

Rev. J. M. Wilson has written or edited "Rural cyclopædia;" 2 vols., imperial 8vo. A large work of four octavo volumes of extra size, alphabetically arranged, and includes gardening, natural sciences, and many country affairs. The plates of animals, grasses, and implements are many, and the execution is very superior. The work claims much notice, though seldom named.

D.—FORSYTH, 1848.

Alex. Forsyth has written "Treatise on culture, and the economy of the potato;" 8vo. The author is a gardener, and treats the preservation of the potato, propagation, and cultivation, and adds a postscript on the field culture. The subjects are most judiciously handled.

DI.—NEWMAN, 1848.

Newman has written "Practical hints on land draining;" 8vo. This notice has not extended beyond the advertisement.

DII.—PARKES, 1848.

E. A. Parkes has written "On the art of land drainage;" 8vo. The most philosophical essay on drainage that has appeared, and probably too refined for the gross operation of manufacturing the ground.

DIII.—FILGATE, 1848.

Fitzherbert Filgate, Esq., has written "A practical treatise on thorough draining, accompanied by remarks on the various materials employed, their probable expenses, the comparative utility of the old and new methods, and its applicability to Ireland;" 18mo., sewed, price 1s. The author writes very soundly and practically.

DIV.—SIMONDS, 1848.

James Simonds is a professor in the Veterinary College, Camden Town, London. He has written on the small pox in sheep, the history of its introduction into England, progress, symptoms, and treatment of the disease, and how to avoid its fatal

consequences. Mr. Simonds is known as an enlightened practitioner of the veterinary science.

DV.—MURPHY, 1849.

Edmund Murphy, landscape gardener, has written "A treatise on agricultural grasses, with figures of the principal plants;" 12mo., sewed, price 1s. This treatise claims a merit.

DVI.—STEPHENS, 1850.

Henry John Stephens, Edinburgh, has written "The book of the farm;" containing the practice of agriculture placed as the details occur during the months of the year. "A manual of practical draining;" containing the most approved practice on various soils. There are no better works than these two books on draining and practical agriculture.

DVII.—RAYNBIRD, 1849.

William and Hugh Raynbird have written "Agriculture of Suffolk;" 8vo., London, 1849. This work gained the prize offered by the R. E. Agricultural Society, and very deservedly. The contents evince a thorough practical knowledge, disencumbered of scientific inutility. The writers have edited an enlarged edition of Rham's "Dictionary of the farm."

DVIII.—RITCHIE, 1849.

Robert Ritchie, farm engineer, Edinburgh, has written "Treatise on barn machinery;" royal 8vo. A large volume on farming machines and thrashing machinery of all kinds and degrees. The uses of steam power are well discussed.

DIX.—RAWSTORNE, 1849.

Law. Rawstorne, Esq., has written "New husbandry;" or a complete code of modern agriculture, drawn partly from the works of the most eminent agriculturists, and partly from practice and observation. The miscellaneous nature of this work recommends its sincerity, and the contents are valuable, though the truths have been long known. About 400 pages form the volume. The author has written on the potato disease, and the waste land of Ireland.

DX.—DEAN, 1850.

G. A. Dean has written "Construction of farm buildings and labourers' cottages, Land steward—tenant right," &c.; royal 8vo. This work is on an extensive and improved scale, and its merit is very considerable.

DXI.—MORTON, 1850.

John C. Morton has edited and partly written "A cyclopædia of agriculture;" containing the whole circle of farming under the alphabetical heads. It is not too much to say that to the scientific amateur and the practical man this work forms the largest resource yet offered to the agricultural world

for the purpose of amusement and information. No expense nor labour has been spared to render every part of the work appear in a superior manner, and the object has been attained. The book is in a quarto form, and very richly illustrated.

DXII.—DEMAN, 1851.

E. F. Deman, late technical instructor to the Royal Flax Society in Ireland, has written "Flax, its cultivation and management; with instructions in the various Belgian methods of growing and preparing it for the market;" price 2s. 6d. This essay is not inferior to the many treatises on flax.

DXIII.—DONALD, 1851.

James Donald, civil engineer, Derby, has written "Land drainage, embankment, and irrigation—their practical application, and the proper season for such undertakings;" London, 12mo., 1851. This work constitutes a most valuable addition to the former treatises on draining: the author shows a true practice, and a large comprehension.

DXIV.—MACARTHUR, 1852.

John Macarthur, surveyor, valuator, and draining engineer, Dublin, has written "An agricultural catechism," and "An essay on the roots of plants; or, an investigation of the growth of agricultural plants, as displayed by their roots in different soils, and under various modes of culture, including the results of a series of experiments made in the Vice-regal Gardens, Dublin. This essay is a very valuable appendage to the physiology of plants, and exhibits the peculiarities that are performed under ground, on which the upper development depends in a very large degree. The study must afford much interest and pleasure, and the author seems to have pushed the engagement to an extended limit. The agricultural catechism does the author very much credit.

DXV.—HAYWOOD, 1852.

James Haywood has written "Letter to farmers;" which treat on every department of agriculture, and form a useful handbook to every farmer. The food of plants, air and its composition, climate, rain, and dew, are regularly treated; followed by soils, varieties of earths, chemical qualities, and practical use; compounds of plants and animal food, manures, crops, and several combined matters. The letters are written in a very plain perspicuous style, and show the acquisition of much practical knowledge with enlightened sentiments. Public opinion has given a very favourable reception to the name of the author, in connection with subjects that are treated.

DXVI.—SMITH, 1852.

Joseph A. Smith, lecturer on agricultural chemistry, has written "Productive farming; or a

familiar digest of the recent discoveries of Liebig, Davy, and other celebrated writers on agricultural chemistry, showing how the results of English tillage might be greatly augmented;" Edin., 1852. This work is more practical than most books of the kind; but nothing new is published.

DXVII.—KEMP, 1852.

T. Lindley Kemp, M.D., has written "Agricultural physiology, animal and vegetable, designed for the use of practical agriculturists;" London and Edin., 1852. This is an excellent work, clearly arranged, and very systematically detailed. It is the ablest thing of the kind, though the use of it in practice may be distant.

DXVIII.—NESBIT, 1852.

J. C. Nesbit, F.G.S., F.C.S., analytical chemist, and principal of the Chemical and Agricultural Academy, Kennington, London, has written "An essay on the composition and fertilizing qualities of Peruvian guano, and pointing out the best mode of its application to the soil;" price 1s., London, 1852. This essay excels all the former treatises on the very valuable article of guano, both in the scientific comprehension of its properties, and the applicable value of the virtues it contains. Nothing is left to vague conjecture or to speculative trust; all is placed on the same grounds of established laws, both in chemistry and practice. The sale has been rapid and extensive, but not beyond the merits of the essay.

DXIX.—SILLETT, 1852.

John Sillett has written "Fork and spade husbandry;" how a man may get a good living off two acres of land. "A treatise on feeding and fattening pigs," and "How to build a good house for £65." These treatises are deserving of much commendation.

DDX.—SOLLY, 1852.

Edward Solly, jun., F.R.S., F.L.S., has written "Rural chemistry; an elementary introduction to the study of the science in its relation to agriculture;" London, 12mo., 1843. This author writes well, reasons acutely, and concludes safely. No writer has displayed a more correct knowledge of the parts of chemistry that are connected with the cultivation of the earth, and these branches are explained, and placed in a very concise and intelligible form.

DDXI.—COOKE, 1852.

George Wingrove Cooke, barrister at law, has written "A treatise on the law and practice of agricultural tenancies, with forms and precedents;" London, 1850, 8vo. The book occupies 554 pages, and contains a large collection of legal decisions, forms, precedents, and provincial customs. There

is much wading in order to arrive at a useful truth. The time is now come to disentangle negotiations such as a farming tenancy from all feudal entertainments, and place them on sound economical principles, and the intelligences of common sense, reason, and simple justice.

DDXII.—CAIRD, 1852.

James Caird has written "English agriculture in 1850 and 1851;" one volume, 8vo. Mr. Caird, Baldoon, Wigtonshire, attracted notice by advocating, against protective duties on foreign corn, the superior culture of the soil, along with liberal covenants and improving leases. He had met with favourable circumstances in the soil of his own farm, in the climate, and the circumstances of time and obligation under which he was placed, and he inferred that similar results would be everywhere produced by the use of the same means. It is not doubted that the results would be similar in proportion to circumstances, but not by any means so great in all cases as in one detached application. The reasoning is clear, but the strict analogy does not hold.

The writer was employed as commissioner by the *Times* newspaper, to journey over England, and make reports of the farming in each county, and of any locality or farm that enjoyed a special celebrity. The reports appeared in the daily paper, and were afterwards collected into the volume now mentioned. It contains many sensible remarks, and very shrewd observations, showing a most enlightened mind and sound understanding.

DDXIII.—NORMANDY, 1853.

A. Normandy has written "Farmers' manual of agricultural chemistry;" price 4s. 6d. The author has also written "Commercial hand-book of chemical analysis."

DDXIV.—MURPHY, 1853.

Edmund Murphy, A.B., professor of agriculture, Queen's College, Cork, has written "The agricultural calculator and farmer's class book;" a small volume of much merit, and well adapted for the intended purpose. The work is devised for young persons, and questions are placed after each chapter, with which to refresh the memory and store the recollection. The best farmer may gain by the perusal.

DDXV.—STARFORTH, 1852.

John Starforth, architect, Edinburgh, has written "Architecture of the farm; being a series of designs of farm-houses, farm-steadings, factors' houses, and labourers' cottages;" 62 engravings, price £2 2s.

DDXVI.—MORTON, 1853.

John Lockhart Morton, land agent, Edinburgh, has written "Rich farming, and co-operation be-

tween landlord and tenant." Two editions have appeared of this essay of 37 octavo pages, stitched, advocating good farming, liberal covenants, and moderate rents.

DXXVII.—CORRIGAN, 1853.

Andrew Corrigan, curator of the Royal Dublin Society's Agricultural Museum, has written "Theory and practice of modern agriculture; to which is added the breeding and management of sheep, cattle, pigs, and poultry, with some remarks on dairy husbandry." This small work is truly a *multum in parvo*, showing a very correct knowledge of the articles described.

DXXVIII.—ANDREWS,

G. H. Andrews, Esq., author of a treatise on agricultural engineering, has written "The practical farmer; a guide to modern husbandry, embracing the art and science of agriculture, and comprehensive instructions on breeding, rearing, grazing, and fattening stock;" copiously illustrated with views and plans of animals and implements; demy, 6s., and in calf 10s. 6d. This work is very creditably reported.

DXXIX.—FERGUSON, 1854.

Ferguson and Vance have written an octavo volume "On tenure of land in Ireland." This work contains a very full and detailed statement of the various modes of holding land in Ireland, the cultivation of the soil, its products, and value. A secure holding of land in cultivation is but little useful where no capital rests with the farmer; both are wanting in Ireland, and fill up the measure of the misery of the country. Every exposition of the state of Ireland only shows a picture of human misery in the superlative degree, mainly produced by the social mismanagement of the landed property, which in every age and clime has exhibited the same picture of human misrule.

DXXX.—SUSSEX, 1854.

F. S. M. Sussex, Esq., F.S.A., has written "Manures considered in relation to the crop, the soil, and the atmosphere;" Dorking, 1848. A stitched volume of 60 octavo pages, discusses the general tendency of manures very scientifically, but makes no practical advance. The substances are not singly mentioned, nor treated separately.

The date of this work should have been placed earlier in our recorded notice of writers, but the title did not occur to our research till it was too late for insertion. In order that no name be omitted, the notice is now made.

ON THE EXHIBITION OF STOCK AT THE LINCOLN MEETING.

SIR,—On looking over the stock, we saw one great evil still prevailing, and that is their being over-fed; nothing but the decision of the judges can ever remedy the evil. We always

have understood it to be a *breeding show*, but where is the common sense of calling it one? Nine-tenths or more, of the cattle shown, could neither get stock nor breed in their present condition, but will want well physicking and reducing to make them breeders; and then where is the constitution? It must have suffered, and thus the object of the society is nullified. The money expended ought to go towards improving the breeds of domestic animals, and not to hold out a premium to that man who consumes the greatest amount of artificial food. We want grass-fed animals, kept in the condition fit for breeding purposes; and if carried beyond that point, to be discarded. We consider it not enough to be told *honestly* that they have had grass, and grass only; that may be, but they have been (we are conscious of the fact) put on the best land, and one of them where more ought to have been, for the express purpose of fattening to excess; and then we are modestly told, they are so constitutionally adapted to lay on fat, they could not show them otherwise. In answer to which, we would observe, we generally see plenty of poor animals where these pets come from. We do not want the object of the society to be frustrated, and the judgment of that body of agriculturists ridiculed by men of common sense; but we want to see a show of *breeding animals*, and *not fat ones*. In the pig department partial blindness had happened to many; and were we the judges, we would tell the owners Smithfield was the place for them: the remedy rests entirely with the judges; let it be known, and the announcement acted upon, that over-fed animals would be disqualified, and very few would be foolhardy enough to make a second experiment. And then see the evil of allowing these over-fed animals to gain a prize! We live in a day in which we place no great credit to anything unless it is *profitable*; and the object of the society we always understood to be, to bring within their arena as many practical farmers as possible: but then practical men want to see measures carried out on right principles, and having for their end that which is *profitable*, or they will soon be wanting at the rent audits. We admire the efforts of the society and truly everything is carried out on a princely scale, and an honour to royalty; but let us get rid of this lamentable obesity, *giving no countenance to it*; and what would be the result? Why hundreds of practical farmers who now stand aloof would come forward, and be exhibitors and subscribers; and the society would receive an impetus it has yet been a stranger to. We want especially to see cattle, sheep, and pigs taken from the common stock of the farm as a *sample of its stock*, so that the exhibitor can say, We have plenty more such at home; and then all the extravagance, and expense attending these shows would be done away with, and the numbers exhibited would be tenfold. When this society started we expected to see something more practical, and the evil which had adhered to old ones got rid off. We hear the high sounding title of "practice" over and over again; and still let any *practical* farmer go to any of its shows, and he sees almost everything in an artificial state, and practice left at home; little or nothing there he would carry out on a large scale to enable him to meet his landlord, and give him the means of carrying out improvements on his farm. Starting to mend former societies, it has established a great difficulty, bringing with it the influence of royalty and aristocracy; the result is what might have been foreseen—loss to landlords, and ruin to tenants who attempt to tread in their steps; and thus real practical farming has had an incubus placed upon it, and fears its influence. If ever the sound constitutional qualities of an animal is to be transmitted, it must be by keeping that animal in moderate condition, and able to contend (if we may be allowed the phrase) with common life, and not housed and petted until it becomes fit for *nothing but a show*: for ourselves, we would never destroy the superior qualities of an animal for the sake of any prize or honour connected therewith. Why do we hear so much inquiry made about a want of alloy in our breeds of domestic animals? It is simply because the evil of overfeeding is continually undermining the constitution. The principle is the same, whether applied to man or animals; and until the evil is removed, we look on the society's efforts as being very much like a fancy bazaar, and of little use to agriculture.

Nottingham, July 19.

Yours, &c.,

A FARMER.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

WEEKLY COUNCIL, June 28.—Colonel CHALLONER, Trustee, in the Chair.

EARLY TARES.—The Rev. A. Huxtable transmitted a specimen of early Tares grown upon his Hill Farm in Dorsetshire, at an elevation of 600 feet above the level of the sea. The seeds furnished to him by Mr. W. H. Davis, of Marnhall, near Blandford, were sown at the end of the first week in October, and the plants were at least one month in advance of other "early" Vetches sown several days before them. The maturity of these Tares in growth and podding was in Mr. Huxtable's experience unrivalled; for, notwithstanding the severe frosts of the past April, they were in full bloom in the first week of May; and he thought it unnecessary to point out the importance of a crop which would be available for sheep feeding in the early spring.—Prof. Way remarked, that great quantities of rain fell upon the high lands in Mr. Huxtable's district, and the atmosphere there was mild but damp. Mr. Baskerville Glegg stated that in Cheshire the farmers had generally their crop of Tares by the middle of May.

APRIL WHEAT.—Mr. Iltid Thomas, of Hill House, Swansea, favoured the Council with his experience of the cultivation of April Wheat in South Wales. He preferred it to all other varieties. He had sowed it this year on the 3rd of May, and in 28 days it had grown to the height of 6 or 7 inches. The land was a miserable bottomless gravel in the coal-basin, very much exposed to every wind, at an elevation of some 500 feet above the level of the sea, where the vegetation was severely tried by the action of the copper and patent fuel smoke of that locality. The grain was strongly retained by the straw, and the Wheat therefore stood wind well. It was sown last year on the 25th April, and on account of the unfavourable nature of the season, he had a very light crop of it, otherwise it would have yielded from 32 to 35 bushels per acre. He sold the produce at 9s. per bushel, and for seed at 10s. He had found clover to succeed very well with it. He did not think it more exhausting than Barley; it was sown at the same time as Barley, with a similar yield of crop, and fetched double the price in the market. The bread made from it was brown, but very sweet and agreeable. This April Wheat was a bearded one, and he highly recommended it for soils not good enough for higher-bred varieties.—Sir Matthew Ridley referred to the objection offered by the millers in the north of England against the April Wheat, on account of its coarseness and thick skin. It was sown in April and yielded well, but it did not obtain a good price in the market.—Colonel Challoner stated his successful cultivation of the Talavera Wheat, which he sowed very early in the year, and found it escape the ordinary ravages to which the Wheat crop was liable.—Mr. Dent, M.P., alluded to the excellent crops of April Wheat grown by Mr. Thomp-

son, of Moat Hall, in Yorkshire. His was a bearded Wheat, and was sown at the latter end of April.

MANURES.—Mr. Andrews, of Cornwall, transmitted a statement and sample connected with his preparation of a manure which he considered highly fertilizing, and at the same time very cheap.—Mr. Martin, of Elgin, communicated suggestions for the collection of manure from marine animals, to be obtained at fishing villages, by dredging, and by the employment of women and children in collecting the refuse of fishing-boats.

RICK-MACHINE.—Mr. Lawes submitted the model of a machine he had found very useful in raising hay and corn to the tops of stacks, and for feeding the thrashing-machines with sheaves. It was similar in its form and mounting to the common fire-escape, but having attached at intervals to an endless-revolving web the rake-work which carried up aloft the hay or corn required to be stacked.—Colonel Challoner explained to the Council the very complete arrangements for effecting similar objects he had recently been invited to inspect at Prince Albert's Farm at Osborne; and which had been made for his Royal Highness by Messrs. Easton and Amos, the Consulting Engineers to the Society.

STEAM CULTIVATION.—Mr. Murphy, of Cork, communicated to the Council a statement of peculiarities in the construction of his single and double-action spade-cylinder machine for cutting, turning up, and pulverizing the soil 10 inches deep by the draught of a single horse.

GLASS MILK-PANS.—Prof. H. Von Blücher, of Wasdow, near Rostock (on application to him through the intervention of M. Kreep, the Mecklenburg Consul-General, in London, and at the suggestion of Mr. George Raymond Barker), favoured the Council with the following information connected with the original black-glass milk-pans of the Pine forests of North Germany, recommended to the Society by its late distinguished foreign member, Captain Stanley Carr, whose recent loss the members have deeply to regret:—

There are only few manufactories of glass in Mecklenburg. In regard to the black-glass milk-pans, the best are fabricated by Mr. Cleve, at Karow, by Plau, in Mecklenburg; and the surest and cheapest way to procure them would be to apply to the merchant, Joh. Christ. Voigt at Rostock, who deals in that article, has at present about 3,000 in store, and will send them direct from Rostock to London. The price for 100 pieces (extra embellage) is 27 Prussian dollars; the weight of each is 6—7lbs. (Hamburgh), and the diameter about 17 inches (English).

Colonel Challoner referred to the great improvement he had effected in his dairy by raising it, as Captain Stanley Carr had recommended, for the purpose of

promoting ventilation. This alteration of from 4 to 6 feet greater height had proved of incalculable value; it had cost him £25 to effect it; but he would not for four times that sum restore his dairy to its former proportions.

IMPROVEMENT IN HORSE BREEDING.—Mr. Spooner, of Southampton, recommended the Council to take measures, with the Government, as well as with the local societies of the country, for improving the breed of horses for cavalry and artillery purposes, with the view of obtaining animals possessing a combination of activity and strength in the highest degree. He thought this object would be obtained by encouraging the breeding of good saddle-horses from the best brood mares capable of carrying 16 stones, by the best stallions, well but not thorough-bred, capable of carrying a similar weight. He thought that such mares abounded throughout the country, although they were at present employed for draught and other laborious purposes: he considered that the class of male horses to be used was the one now too frequently castrated, namely, a three-part bred hunter, capable of carrying a heavy weight up to the fleetest hounds; such an animal readily commands some £200 or £300, when his excellences are known, and which may in fact be regarded as the most noble and valuable of the horse tribe. Mr. Spooner had little doubt that the system would, in a few years, result in the regeneration of the English breed of saddle-horses.—Sir Matthew Ridley referred to the Government establishments in foreign countries of Haras, for the express purpose of effecting improvements in the breed of horses (Mr. Evelyn Denison, M.P., on the French Haras, *Journal* 1, 266). In the north of England, good size, and absence of white colour, were points to which much attention was paid. Reference was made to the extensive agency at work in this country for the purchase of the best English horses for exportation to the continent, and to the constant advocacy, by that distinguished veteran, Sir Harry Smith, for improvements in our breed of horses for military purposes, by a restoration of the best qualities of the old English hunter.

DEODARA PINE.—Sir Matthew Ridley referred to the secure manner in which Deodara Pine seeds had reached him from India, and had retained all their freshness and vitality, by being enclosed in thin oiled canvas; and to the success with which trees of that Pine, 10 years old, had been transplanted from Northumberland to Warwickshire, where they were at that time growing most luxuriantly.

HAMSTER.—Dr. Calvert stated that rat-like animals of a large size, supposed to bear some affinity to the hamster, were effecting much damage in Yorkshire, and also in Hertfordshire.

Mr. Chadwick, C.B., presented the last report of the Board of Health on sanitary measures connected with agricultural operations; and Mr. Rogerson, of St. Alban's Villa, Highgate-Rise, copies of Essays on the agricultural value of the Weardale Lime.

Adjourned to July 5.

A MONTHLY COUNCIL was held at the Society's House in Hanover Square, on Wednesday, the 5th of July. The following Members of Council and Governors of the Society were present:—Colonel CHALLONER, Trustee, in the Chair; Lord Camoys, Sir John V. Shelley, Bart., M.P.; Sir Matthew White Ridley, Bart.; Sir Charles Lemon, Bart., M.P.; Sir Montague Cholmeley, Bart.; Sir Robert Price, Bart., M.P.; Mr. Raymond Barker; Mr. Barnett; Mr. Hodgson Barrow, M.P.; Mr. Brandreth; Mr. Cavendish; Mr. Foley, M.P.; Mr. Brandreth Gibbs; Mr. Hamond; Mr. Hoskyns; Mr. Kinder; Mr. Miles, M.P.; Mr. Milwood; Mr. Sillifant; Mr. Simpson; Mr. Wingate, and Mr. George Wood.

The following new Members were elected:—

Allen, John R., Lyngford House, Taunton, Somersetshire
 Andrews, G., Kilmington, Sherborne, Dorset
 Ashwin, Manley C., Stradford-on-Avon, Warwickshire
 Bailey, Henry, Wolgoston, Berkeley, Gloucestershire
 Begbie, Alexander, Lytham, Lancashire
 Bilkey, Robert, Tremenhoe, Penzance
 Bland, William James, Boston, Lincolnshire
 Deeks, George, Pembroke Villas, Bayswater
 Dixon, Thomas P., Caistor, Lincolnshire
 Dorrington, Chas., Bride's Hall Farm, Wheathampstead, Herts
 Dun, Professor Finlay, Heriot-row, Edinburgh
 Foster, William, Stourton Court, Stourbridge, Worcestershire
 Fuller, Thomas, Skendleby, Lincolnshire
 Gooch, John Valentine, C. E., Stratford, Essex
 Goose, Agas, Theatre-street, Norwich
 Hitchcock, Henry James, Horsham, Sussex
 Hollyday, J., Chapeldeleeve, Taunton, Somerset
 Hook, Adam Clarke, 13, Great George-street, Westminster
 Lee, Daniel James, 4, Bedford-row, London
 Lyall, Thomas, Gayton-le-Wold, Lincolnshire
 Mayfield, James, Dogdike, Boston, Lincolnshire
 Mullins, John Bickell, Wyke Manor House, Bruton
 Neale, Charles James, Maussfield, Notts
 Pond, J. W., Great Totham Hall, Witham, Essex
 Powell, Thomas Harcourt, Drinkstone Park, Woolpit, Suffolk
 Stanier, Francis, Silverdale, Newcastle, Staffordshire
 Stirling, William, Terrygate, Dirliton, N.B.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, submitted to the Council the report on the accounts of the Society, from which it appeared that the current cash balance in the hands of the bankers was £1,305.

LINCOLN MEETING.—Mr. Miles, M.P., reported from the General Lincoln Committee the completion of the works for the meeting, the application made as usual to the Secretary of State for the Home Department for the grant of a certain number of detective police from the Metropolitan Force, the notification from the French Government of a special deputation to the Lincoln Meeting, the arrangements concluded with the principal railways for the conveyance of stock and implements, and the details in progress connected with the Pavilion Dinner.—On the motion of Mr. Raymond Barker, seconded by Mr. Barnett, Messrs. Smith, Ellison, and Co., of the Old Lincoln Bank, were unanimously requested to act as the local bankers of the Society during the period of its ensuing country meeting.—The Council

completed the number of Judges required at Lincoln in the several departments of the show.

JOURNAL.—Mr. Pusey transmitted from the Journal Committee a copy of the new Journal just printed off, and in the course of distribution, postage free, among the members of the Society throughout the country.

PARIS EXHIBITION, 1855.—Captain Owen, R.E., addressed to the Council, from the Department of Science and Art, Marlborough House, Pall Mall, the following communication, dated the 28th of June last :—

I am directed by the Lords of the Committee of Privy Council for Trade to request you to take an early opportunity of laying before the Council of the Royal Agricultural Society the accompanying papers, relative to the approaching Paris Exhibition of 1855. My Lords are very desirous that the important department of agricultural machinery and implements should be fully represented upon this occasion, and they would be much assisted if the Council of the Royal Agricultural Society would yield them their support. Mr. Brandreth Gibbs has been so good as to undertake the general superintendence of this department, under the direction of my Lords; but, as it is to be apprehended that the space which it may be possible to allot to agricultural implements may be limited, it would be desirable that some independent tribunal should be appointed, which could decide how the space may be best disposed of, so as to secure as complete a representation as the space will admit of. My Lords would be greatly assisted if the Council would name from four to six persons to act as a committee, in conjunction with Mr. Brandreth Gibbs, for this purpose.

On the motion of Sir Matthew White Ridley, Bart., seconded by Mr. Barnett, the following committee was appointed to act with Mr. Brandreth Gibbs, in pursuance of the request of the Board of Trade :—Mr. Miles, M.P., Colonel Challoner, Mr. Hamond, Mr. Fisher Hobbs, Mr. Charles Wren Hoskyns, and Mr. Brandreth.

LINCOLNSHIRE FARMING.—Mr. Thurstan G. Dale, secretary to the local committee at Lincoln, transmitted to the Society a copy of "A Farming Tour, or Handbook of the Farming of Lincolnshire," prepared by "A Lindsey Yeoman," for the occasion of the Society's ensuing country meeting.

Adjourned to special meetings on Tuesday and Friday next at Lincoln, and to the monthly meeting in London, on the 2nd August.

MEETING AT LINCOLN.

Constance: "To Lincolnshire!
What, prithee, takes thee off to Lincolnshire?"
THE LOVE CHASE.

The Royal Agricultural Society should feel at home in Lincolnshire. The visit is that of a tutor to a pet pupil, or more appropriately, of a large landed proprietor to his model farm. It is here he finds the example for the rest of his tenantry to imitate. It is here he triumphantly comes to the proof of all he has been preaching. It is here he

shows what practice with science *has* accomplished, and how judicious outlay has arrived at profitable returns. The Agricultural Society has had to march into many parts of the kingdom, with its object but little appreciated, as its efforts but comparatively little known. The welcome has generally been hearty enough; but seldom has it been so thoroughly satisfactory, either "to him who gives or him who takes," as in the good city of Lincoln.

It is not too much to say that the most extraordinary expectations were entertained as to the success of this meeting; and it is not too much to add that they have been amply realized. It is an anniversary that must ever stand out amongst the most conspicuous of those recorded in the proceedings of the Society. In almost every way has the result been gratifying. Whether we take the increasing importance attached to these annual displays, as demonstrated by the attendance, the general excellence of the show, or the characteristic features imparted to it by the locality in which it was held—the conclusion to be arrived at is still the same. It bears, too, the most trying of all scrutinies with an equally handsome issue. It is long since any meeting has added so much to the funds of the Society; and this question of funds, it must be remembered, is one which for some time past has engaged the serious attention of those on the direction who devote themselves more particularly to the business of finance. The poor company at Lewes, and the gloomy atmosphere of Gloucester, have been well compensated for, by the still succeeding crowds, and settled sunshine of Lincoln.

A little consideration will show, that even previous to this last week's gathering, the national Society had some thanks due to Lincolnshire. Many a hint that became gradually embodied in its prize-list—many a point that the farmers of the whole kingdom were incited to achieve—might be easily traced back to the practice of this now famous county. The very President for this year, and one of the most prominent members of the Council, though coming himself from a far distant quarter, has long since declared himself as the champion of Lincolnshire farming. The tenant who wished to know how he was to do best, was told to imitate what was done here. The landlord whose laudable ambition it was to see his property made the most of, was ordered to learn his duty and take his share in the good work from his brethren in Lincolnshire. Indeed, it might even yet be written that we came more to learn than to teach—prepared rather to see what the district could show us, than what we could show it.

The event fully justifies us in saying thus much. There were few indeed present last week but who

will admit they have "learnt something to their advantage" from the sayings and doings of Lincolnshire. The Council of the Society, to begin with, may add a notion or two yet, towards the perfection of their system, from what was here done for them. The aid proffered came in the shape of no merely empty compliment. It was, on the contrary, essentially practical and serviceable—tending, in fact, in no small degree, to the uniform and complete success of the show. The Royal Agricultural Society of England owes an especial vote of thanks to Mr. Tweed, the Mayor of Lincoln. He contributed not only liberally, but he fortunately obtained permission to direct the disposal of what he had offered. And with this he filled up one of the weakest places that has too long marked the succession of the Society's meetings. He not only did this, but he added a feature to a Lincoln show, without which it would scarcely have been a Lincoln show at all.

This, however, was not the only new point observable. Another, coming more directly from the Society itself, was brought on for trial at the very commencement of that long week over which the business is now distributed. The result here was in no way so satisfactory. It afforded, indeed, cause for some very strong complaint, and to which formal expression was given at the general meeting on Friday. It has been for some time urged that the most important feature in an exhibition of implements would be the opportunity to see them at work. This was said to be especially desirable with expensive articles, such as reaping and thrashing machines, of which, in fact, scarcely any satisfactory opinion could otherwise be obtained. A large portion of the "enquiring" public, it was argued, were anxious to judge for themselves, and they were ready to pay handsomely for permission to do so. In accordance with the object of this prayer, the council decided that on the payment of ten shillings for each day, any visitor so wishing might witness the implements under trial before the judges.

It is but fair to add, that but very few availed themselves of this opportunity, and that fever still were satisfied when they did so. They rarely saw what they came to see, but were kept for hours with little or nothing doing, and often enough tired out before their turn came on. There was no chance either of filling up the interim. Much to their astonishment, the common run of the implement department was refused them, and great was the murmuring thereon. Mr. Bullock Webster brought this matter, as we have said, directly before the Society; his complaint being answered by Mr. Hammond, the senior steward of the yard. This gentleman urged, with much fairness, that it would be highly impolitic to have the judges inter-

fered with, or inconvenienced, while engaged on their really arduous, and not very grateful duties. He further stated, however, that the Society was by no means satisfied with the working of the present arrangement, and that it was in contemplation to lower the price of admission on these occasions. We are more inclined to think that the chief cause of complaint is not exactly here; it is not so much the amount of admission charged, as the assurance that the visitor shall see something for what he does pay. There should be some official programme published, announcing at what hours certain implements would be put to work, and which the public would be allowed to witness. With such a proviso, there could be no further grumbling as to waste of either time or money. A man would know what he paid to see, and when he might see it. It is not every one who will make himself the mouthpiece of the dissatisfied. Their wrongs, however, cannot too soon come on to a hearing; and we believe the management of the Society is, as it ought to be, really grateful for the gentlemanly manner in which the case of the disaffected was brought before them. There can be no question that the mistake was a grave one.

With a correspondent who has especially devoted his labours to this branch of the show-yard, we shall not here enter much further, either on the character, or trial, of the different kinds of machinery. We may yet say that the implements generally were still considered on the improvement. There were very few of at all an inferior description, while the trials were never so thoroughly, or, generally speaking, so satisfactorily taken. The only remarkable exception, perhaps, was in that of the deep ploughs, which involved so severe and long a struggle between the Ransomes' and Howards'. Eight horses to draw one, three men to hold on, and nobody knows how many to drive—the test was pronounced by the public, and admitted by the steward, to be "perfectly absurd." It was urged, though, that no better ground for the trial could be procured; whereas it was rumoured, on the contrary, that this piece had been specially selected to see what the implements were made of. As Mr. Hammond justly said, it proved there was "no gingerbread work in them;" though we trust for the future eight horses and eight or ten men will not be deemed exactly essential for a fair trial of that still standard implement—the plough. Far more conclusive was the award for the reaping machines; a race in which Crosskill's Bell was pronounced at last to be fairly beaten. The winner, Mr. Dray's machine, has from time to time been more and more improved upon, until at length it may

take a high position amongst "the farmers' friends."

We may leave to another correspondent, whose communication we are enabled to give this day, the cattle department of the exhibition. It has rarely been so strong—in some particular classes never perhaps equalled. Take the class of Shorthorn cows, or the whole of the Cotswold sheep, and we remember nothing like them in general excellence. The horses, again, though in some classes exceptional, furnished a stronger show than the Royal Agricultural Society has been able for some time to boast of. The liberality, moreover, of Mr. Tweed, proved it is yet possible, by the offer of suitable premiums, to ensure the entry of well-bred horses. There were eight or ten thorough-bred horses in competition for this prize, nearly all of some renown either on the turf or in the stud. The winner of the prize, Louthborough, a son of Camel and a good race-horse, has been for some time abroad. One of his competitors, Maroon, not even commended here, is already a prize horse in Yorkshire, and a favourite stallion there. Amongst the draught-horses, the Suffolks were of course outnumbered, though they made a very good fight of it, even in so formidable a quarter as Lincolnshire—Mr. Barthropp again leading the way with a very perfect filly.

We regret to have to echo a charge against this department of the Show of the Royal Agricultural Society, that has already been too often and too justly brought against it. The practice of over-feeding is reaching once again all its pristine notoriety. The judges did their duty as judges, and, like Tom Thumb in the play, "they did no more." They awarded prizes to Shorthorns just fit to kill. They honourably distinguished pigs that could scarcely stand or breathe; and they selected sheep as best adapted for the purposes of the breeder, when they too clearly meant the butcher. We honestly confess that we have little hope at present of any amendment here. If it comes at all, it will be from the example of others. The Birmingham Society has, in its management, already afforded a good hint to others of a more extended action. It may help us yet further, and in the Summer Show which it contemplates next year, demonstrate what we believe will be aimed at—that a breeding show may be brought within the limit of that object only it professes to attain.

It is painful, where there is so much to commend, to have to notice flaws of this kind. We are convinced, however, that the best friends of a man, or a society, are those who will not hesitate to tell him his faults; and the Royal Agricultural Society has only to fear too strong an assump-

tion of that royal prerogative that "it can do no wrong."

An important feature, it has been said, in any business of a public nature to which an Englishman devotes his energies, is the dinner with which he commences or concludes his operations. It is by no means the least so in the proceedings of the Agricultural Society. Unfortunately, Mr. Pusey was again prevented from presiding, as he was last year from occupying his place as vice-president at Gloucester. In his absence, Lord Chichester kindly took upon himself the duties of the Chair, supported by Lords Yarborough, Carlisle, Fortescue, and other distinguished men, of all nations. The most noticeable amongst these were the gentlemen representing the French deputation. It is said they have gone very minutely into the system of management adopted on these occasions; and that, having done so, they have especially requested the aid of Mr. Brandreth Gibbs towards establishing some meeting of a similar kind in their own country. There could scarcely be a better proof of how profitable a deduction they have made from what they have seen. We can hardly trust ourselves to say how much of the *systematic* success of these shows depends upon Mr. Brandreth Gibbs. Entirely independent of all personal influences, imbued with most business-like habits, and possessed of a rare knowledge of those he has to deal with, it would be difficult indeed to supply his place. Mr. Hudson's value as the secretary to so important a body is more known, perhaps, "in the chamber than the field;" while with two such allies the Council must feel how much rests on their own heads. They have only to determine discreetly, and there is no fear of their instructions being efficiently carried out. It would be unfair to withhold a word here in thanks to the stewards of the different departments. They discharged a very difficult and laborious task with much ability, temper, and discretion.

The dinner, admirably arranged and fully attended as usual, was still scarcely so successful as we have known it. The different speakers were hardly fitted to the subjects their names were coupled with. Lord Carlisle, for instance, might have been made much more use of than where he was placed. In addition to this, there was hardly a speaker but committed the fatal mistake of having too much to say; so that when Mr. Wren Hoskyns rose for the concluding oration, and equally prone, we must add, to sin in this respect, there were few who had patience to bear with him. It was only Colonel Sibthorp's challenge from Lincoln to "all the Russias" that fully restored the good humour of a long-tried audience.

This is the only evening in the week in any way occupied. It does strike us that one at least of the others—say Thursday—might be turned to some account. A very praiseworthy effort was made here to draw out the Lincolnshire men on the subject of draining, and the Town Hall was thrown open for the occasion. From being, however, but partially announced, the attendance did not exceed a hundred or so. The subject was still pursued with much interest and ability, Mr. Bailey Denton and Mr. Bullock Webster being once again “in hostile array.”

The absence of Mr. Pusey from the recent meeting at Lincoln is to be regretted for many reasons. Rarely, indeed, has any president for the year been elected, to whom the compliment was so especially suitable as to the gentleman whose name occupied that distinguished position on the present occasion. He it is who has long been the connecting link between the improved farming of Lincolnshire and the operations of the Royal Agricultural Society. Forcibly struck with the progress he here saw achieved, as fully satisfied as to how it had compensated those who effected it, his object became to induce others to go and do likewise. In leading them on to this, he showed not merely what was accomplished, but the means by which these wonders came to pass. The secret of all this success was, after all, but a simple matter of business—the increased income of the owner, the improved condition of the occupier, and the naturally good understanding that existed between them, all traced back to the plain fact of there being a good understanding to begin with. What turned the heaths and fens of Lincolnshire from barren wastes into blooming corn fields? How came the wild-fowl to give way to the sheep-fold, or the short-horn to multiply where the rabbit only had been? By what art did the magician attain all this? It is but an old story, whose moral once again has come to a profitable application. He imbued these people with confidence in themselves and each other, and then left it with them to do their best.

The presence of Mr. Pusey could scarcely fail to have given more *tone* to the festival of Wednesday last. It would ill have become such men as Lord Yarborough and others to have vaunted their own triumphs, though any such well-merited compliment would have come in capital place at the hands of a visitor. With every respect, however, for the gentlemen who did offer their tribute, it certainly struck us that the subject was a little too much for them. There was hardly one but had something to say in reference to what Lincolnshire now *is*, and what it *has been*. There was scarcely one, though, who got beyond this. The only reason, indeed, that we remember to

have heard assigned for this remarkable transformation was, the variety of soil of which the different districts were composed. This it was that had made lands never farmed at all the best farmed in the kingdom. This was the grand reason why “Lincolnshire stood forward so pre-eminently.”

Surely we all know of something more than this. If not, Mr. Pusey has preached to very little purpose. It is the farmer, as Mr. Clarke writes in his prize essay on the county, who “has *made* the soil,” and not the soil the farmer. It is the chalking, the claying, the boning, the manuring, that has become the foundation upon which the Lincolnshire man has built his house; the application of capital to the soil, that has so increased its production—the security for that capital, that alone has warranted its application.

The stranger who has completed his visit to Lincoln by a tour through the neighbouring districts will scarcely fail to be struck by the position here maintained by the farmer. Living on the best terms with his landlord, with the union between them as strong as it is possible to have it, the occupier has yet all the enjoyments of independence. Holding, as he will most probably tell you, without a lease, and yet keeping to the same ground his father did before him, his guest can hardly help asking by what happy agency all this excellence is maintained. What good spirit is it, breathing its influence over the country, which thus gives to landlord and tenant such continued prosperity? What is it that has so increased the employment of the labourer and the comfort of the people?

As we have said before, it is simply the plan of doing business in a business-like way. The good feeling between the Lincolnshire landlord and his tenant is not merely a kind consideration on the one part, or blind confidence on the other. There is the clear action of the law of right between them. This it is which regulates all their dealings, and prompts each to do his best. Skill, energy, and capital all unite where they feel they are sure of their reward.

Mr. Pusey has instanced Lincolnshire as the best farmed county in the kingdom. Will any who has just been over it be prepared to disagree with him? He has gone further than this, and given the great secret of its success in the influence of the TENANT-RIGHT principle. Will any one here, either, say him nay? Will any one, who perhaps for years has been taught to shudder at the very name, ignore its virtues now that he has seen what it has accomplished? We can only repeat the expression of our regret at Mr. Pusey being denied the opportunity of witnessing the full triumph of those opinions,

and that advice with which he has so long identified himself. The best exhibition the Society has had for many years, held in the best-cultivated quarter it perhaps ever visited, came only in corroboration of what their president has so long told them. Agriculture must depend for its advance on the judicious outlay of capital; while the use of this capital can never be commanded without due security for its investment.

LIST OF PRIZES FOR CATTLE.

SHORTHORNS.

Judges—Messrs. Thomas Parkinson, Thomas Frotter, and John Wright.

Bulls, calved previously to the 1st of July, 1852, and not exceeding four years old.—First prize £40, William Sanday, of Holme Pierrepont, near Nottingham, and Henry Smith, of the Grove, Cropwell Butler, near Bingham; second prize £20, Richard Booth, of Warlaby, Northallerton, Yorkshire.

Bulls, calved since the 1st of July, 1852, and more than one year old.—First prize £25, William Odling, of Buslingthorpe, Market Rasen; second prize £15, Charles Towneley, of Towneley-park, Burnley, Lancashire.

Bull Calf, above six months and under 12 months old.—The prize £10, Charles Towneley, of Towneley-park, Burnley, Lancashire.

Cow in Milk or in Calf.—First prize £20, Charles Towneley, of Towneley-park, Burnley, Lancashire; second prize £10, John Booth, of Killerby, Catterick, Yorkshire.

Heifers in Milk or in Calf, not exceeding three years old.—First prize £15, James Douglas, of Athelstaneford-farm, Drem, East Lothian; second prize £10, Charles Towneley, of Towneley-park, Burnley, Lancashire.

Yearling Heifers.—First prize £10, Charles Towneley, of Towneley-park, Burnley, Lancashire; second prize £5, George Sainsbury, of the Priory, Corsham, Chippenham.

HEREFORDS.

Judges—Messrs. Edward L. Franklin, John Charles Langlands, and John Williams.

Bulls, calved previously to the 1st of July, 1852, and not exceeding four years old.—First prize £40, Edward Price, of Court-house, Leominster; second prize £20, John Carwardine, of Stockton Bury, Leominster.

Bulls, calved since the 1st of July, 1852, and more than one year old.—First prize £25, James Rea, of Monaghty, Knighton, Radnor; second prize £15, W. Styles Powell, Castle-street, Hereford.

Bull Calf, above six and under 12 months old.—The prize of £10, Edward Price, Court-house, Leominster.

Cows in Milk or in Calf.—First prize £20, Philip Turner, of the Leen, Pembridge, Leominster; a second prize £10, Lord Berwick, of Croukhill, Shrewsbury.

Heifers in Milk or in Calf, not exceeding three years old.—First prize £15, William Perry, of Cholstrey, Leominster; second prize £10, the Earl of Radnor, of Coleshill-house, Highworth, Wilts.

Yearling Heifers.—First prize £10, John Walker, of West-field-house, Holmer, Hereford; second prize 5*l.*, Philip Turner, of the Leeu, Pembridge, Leominster.

DEVONS.

Judges—Messrs. Edward L. Franklin, John Charles Langlands, and John Williams.

Bulls, calved previously to the 1st of July, 1852, and not

exceeding four years old.—First prize 40*l.*, Samuel Farthing, of Stowey Court, Bridgewater; second prize 20*l.*, George Turner, of Barton, Exeter.

Bulls, calved since the 1st of July, 1852, and more than one year old.—First prize 25*l.*, Robert Wright, of Moor Farm, Taunton; second prize 15*l.*, James Quartly, of Molland House, Southmolton.

Bull calf, above six and under 12 months old.—The prize 10*l.*, George Turner, of Barton, Exeter.

Cows in Milk or in Calf.—First prize 20*l.*, Samuel Farthing of Stowey Court, Bridgewater; second prize 10*l.*, Earl of Leicester, Holkham, Wells, Norfolk.

Heifers in Milk or in Calf, not exceeding three years old.—First prize 15*l.*, George Turner, of Barton, Exeter; second prize 10*l.*, James Quartly, of Molland House, Southmolton.

Yearling Heifers.—First prize 10*l.*, George Turner, of Barton Exeter; second prize 5*l.*, Thomas Webber, of Halberton Court, Tiverton.

OTHER BREEDS, NOT INCLUDING THE SHORTHORN, HEREFORD, OR DEVON BREEDS.

Judges—Messrs. Edward L. Franklin, John Charles Langlands, and John Williams.

Bulls, calved since the 1st of July, 1852, and more than one year old.—The prize 10*l.*, Samuel Burberry, of Wroxhall, Warwick.

Cows in Milk or in Calf.—First prize 10*l.*, Captain Inge, of Thorpe Constantine, Tamworth, Staffordshire; second prize 5*l.*, Samuel Burberry, of Wroxhall, Warwick.

Yearling Heifers.—The prize 5*l.*, Captain Inge, of Thorpe Constantine, Staffordshire.

HORSES.

Judges—Messrs. J. H. Bland, William Linton, and W. C. Spooner.

Stallions for Agricultural Purposes, foaled previously to the 1st of January, 1852.—First prize 30*l.*, James Stockdale, of Hutton Cranswick, Driffield; second prize 20*l.*, Edward and Matthew Reed, Beemish Burn, Chester-le-Street.

Stallions for Agricultural Purposes, foaled in the year 1852.—First prize 20*l.*, Frederick Thomas Bryan, of Knossington, Oakham; second prize of 10*l.*, William Wilson, of Ashbocking, Ipswich.

Agricultural Stallion, foaled in the year 1853.—The prize, 15*l.*, Robert Howard, of Rise Farm, Nocton, Lincoln.

Roadster Stallions.—The prize 15*l.*, Joseph Innocent, of Rossington, Bawtry.

Mares and Foals for Agricultural Purposes.—First prize 20*l.*, Dr. Timm, of Scrooby House, Bawtry; second prize 10*l.*, Isaac Page, of West Bergholt, Colchester.

Two Years Old Fillies for Agricultural Purposes.—First prize 15*l.*, N. G. Barthropp, of Creetingham Rookery, Woodbridge; second prize 10*l.*, Charles Bayles, of Rischolme, Lincoln.

SHEEP.

LEICESTERS.

Judges—Messrs. Robert Aymler, W. Harrison, and Wm. Smith.

Shearling Rams.—First prize 30*l.*, T. E. Pawlett, of Beeston, Sandy, Beds; second prize 15*l.*, T. E. Pawlett, of Beeston, Sandy, Beds.

Rams of any other age.—First prize 30*l.*, John Borton, of Barton-house, Barton-le-Street, Malton; second prize 15*l.*, William Abraham, of Barnetby-le-Wold, Brigg, Lincolnshire.

Pens of five Shearling Ewes of the same flock.—First prize 20*l.*, George Walmsley, Rudstone, Bridlington, Yorkshire

second prize 10*L.*, William Abraham, of Barnetby-le-Wold, Brigg, Lincolnshire.

SOUTHDOWN, OR OTHER SHORTWOOLLED SHEEP.

Judges—Messrs. George Brown, John Clayden, and Edward Pope.

Shearling Rams.—First prize 30*L.*, Henry Lugar, of Hengrave, Bury St. Edmund's; second prize 15*L.*, the Duke of Richmond.

Rams of any other age.—First prize 30*L.*, William Sainsbury, of West Lavington, Devizes; second prize 15*L.*, William Rigden, of Hove, Brighton.

Pens of five Shearling Ewes of the same flock.—First prize of 20*L.*, Lord Walsingham, Merton-hall, Thetford; second prize 10*L.*, the Duke of Richmond.

LONGWOOLLED SHEEP.

(Not qualified to compete as Leicesters.)

Judges—Messrs. Hugh Aylmer, Henry Bateman, and William Hesselstine.

Shearling Rams.—First prize 30*L.*, George Fletcher, of Shipton, Andoversford, Cheltenham; second prize 15*L.*, George Hewer, of Leygore, Northleach, Gloucester.

Rams of any other age.—First prize 30*L.*, William Lane, of Broadfield Farm, Northleach; second prize 15*L.*, William Lane, of Broadfield Farm, Northleach.

Pen of five Shearling Ewes of the same flock.—First prize 20*L.*, William Garne, of Aldsworth, Northleach; second prize 10*L.*, William Lane, of Broadfield Farm, Northleach.

IMPROVED LINCOLN SHEEP.

Judges—Messrs. Hugh Aylmer, Henry Bateman, and William Hesselstine.

Shearling Rams.—First prize 15*L.*, John Clarke, of Long Sutton, Lincolnshire; second prize 10*L.*, Thomas Greetham, of Stamford, Wragby, Lincolnshire.

Rams of any other age.—The prize 15*L.*, John Clarke, of Long Sutton, Lincolnshire.

Pens of five Shearling Ewes of the same flock.—The prize 10*L.*, John Kirkham, of Hagnaby, Spilsby, Lincolnshire.

PIGS.

Judges—Messrs. H. Eddison, John Grey, and Benjamin Swaffield.

Boars of a large breed.—First prize 15*L.*, Henry Blandford, of Sandbridge, Chippenham; second prize 5*L.*, Matthew Harvey, of Balderton, Newark, and Joseph Branston, of Newark (assignees of Samuel Fryer).

Boars of a small breed.—First prize 15*L.*, William Northey, of Lake Lifton, near Launceston; second prize 5*L.*, Solomon Ashton, of Peter-street, Manchester.

Breeding Sow of a large breed.—The prize 10*L.*, Edward Robinson, of Green Bank Lymm, Warrington.

Breeding sow of a small breed.—The prize 10*L.*, George Mangles, of Givendale, Ripon.

Pen of three Breeding Sow Pigs of a large breed, of the same litter, above four and under eight months old.—The prize 10*L.*, William James Saddler, of Bentham Purton, Swindon.

Pen of three Breeding Sow Pigs of a small breed, of the same litter, above four and under eight months old.—The prize 10*L.*, the Earl of Radnor, Coleshill-house, Highworth.

SPECIAL PRIZES OFFERED BY J. T. TWEED, ESQ., MAYOR OF LINCOLN.

I. HUNTERS.

Hunting Stallions.—The prize 40*L.*, John E. Denison, of Ossington, Newark, Notts.

Hunting gelding or filly.—First prize 20*L.*, Richard Stockdale, of Skerne, Driffield; second prize 10*L.*, William Maris, of Great Limber, Ulceby, Lincolnshire.

II. IMPROVED LINCOLN SHEEP.

Shearling Ram.—The prize 10*L.*, John Clarke, of Long Sutton, Lincolnshire.

Ram of any age.—First prize 10*L.*, John Clarke, of Long Sutton, Lincolnshire; second prize 5*L.*, John Clarke, of Long Sutton, Lincolnshire.

Pen of five Shearling Ewes.—The prize 5*L.*, John Kirkham, of Hagnaby, Spilsby.

POULTRY.

Judges—Messrs. G. J. Andrews, John Bailey, and Thomas Wright.

Dorking Fowls—Cock and Two Hens—Chickens of 1854.

First prize £5 to H. D. Davis, of Spring Grove House, Hounslow.

Second prize £3 to H. D. Davis, of Spring Grove House, Hounslow.

Third prize £2 to Joseph Smith, of Henley in Arden, Warwick.

Fourth prize £1 to James Lewry, of Handcross, Crawley, Sussex.

Dorking Fowls more than one year old—Cock and two Hens.

First prize 5*L.* to H. D. Davies, Spring Grove House, Hounslow.

Second prize 3*L.* to Mrs. Towneley Parker, of Astley Hall, Chorley, Lancashire.

Third prize 2*L.* to Mrs. Towneley Parker, of Astley Hall, Chorley, Lancashire.

Fourth prize 1*L.* to G. A. Gelderd, of Aikrigg End, Kendal, Westmoreland.

Dorking Cocks of any age.

First prize 2*L.* to G. A. Gelderd, of Aikrigg End, Kendal, Westmoreland.

Second prize 1*L.* to Mrs. Towneley Parker, Astley Hall, Chorley, Lancashire.

Spanish Fowls—Cock and two hens.

First prize £5 to H. D. Davies, of Spring Grove House, Hounslow.

Second prize 3*L.* to George Botham, of Wexham Court, Slough, Bucks.

Third prize 2*L.* to H. D. Davies, of Spring Grove House, Hounslow.

Fourth prize 1*L.* to G. A. Gelderd, of Aikrigg End, Kendal, Westmoreland.

Spanish Cocks of any age.

The prize 2*L.* to James Dixon, of Westbrook Place, Bradford, Yorkshire.

Cochin China Fowls—Cock and two Hens—Chickens of 1854.

First prize 5*L.* to G. A. Gelderd, of Aikrigg End, Kendal, Westmoreland.

Second prize 3*L.* to G. A. Gelderd, of Aikrigg End, Kendal, Westmoreland.

Third prize 2*L.* to John Taylor, jun., of Spring Grove, Hounslow.

Fourth prize 1*L.* to William Sanday, of Holme Pierrepont, Nottingham.

Cochin China Cocks of any age.

The prize 2*L.* to Caborn Pocklington, of Boston, Lincoln.

Bramah Pontra Fowls—Cock and two hens.

The prize 2*L.* to the Rev. F. Thursby, of Abington Rectory, Northampton.

Game Fowls—Cock and two Hens.

First prize 5*L.* to Henry Worrall, of Knotty Ash House, near Liverpool.

Second prize 2*l*. to G. C. Adkins, of West House, Edgbaston, Birmingham.

Third prize 1*l*. to William Cox, of Brailsford, near Derby.
Game Cocks of any age.

The prize £2 to Henry Marshall, of Cotgreave, Nottingham.

Hamburgh Fowls—Golden Spangled Cock and two Hens.

First prize £2 to Wm. Sylvester, of Stamp-office, Lincoln.

Second prize £1 to John Andrew, of Waterhouses, Ashton-under-Lyne.

Hamburgh Fowls—Silver Spangled Cock and two Hens.

First prize £2 to James Dixon, of Westbrook-place, Bradford.

Second prize £1 to Jeffrey Ashcroft, of Waterloo-place, Ashton-under-Lyne.

Malay Fowls—Cock and two Hens.

First prize £2 to James Oldham, of Long Eaton, Derby.

Second prize £1 to the Rev. T. Lyon Feilowes, of Beighton Rectory, Acle, Norfolk.

Poland Fowls—Cock and two Hens.

First prize £3 to G. C. Adkins, of West House, Edgbaston, Birmingham.

Second prize £2 to G. C. Adkins, West House, Edgbaston, Birmingham.

Third prize £1 to C. Rawson, of the Hurst, Walton-on-Thames.

Turkeys—Cock and two Hens.

First prize £3 to Viscount Hill, of Hawkstone, Shrewsbury.

Second prize £2 to C. Pocklington, of Boston, Lincoln.

Third prize £1 to H. Lister Maw, of Tetley, Crowle, Lincoln.

Geese—Gander and two Geese.

First prize £3 to Mrs. Towneley Parker, of Astley-hall, Chorley, Lancashire.

Second prize £2 to Mrs. Harriet Hill, of New House, Walton-on-Thames.

Third prize £1 to Christopher Rawson, of the Hurst, Walton-on-Thames.

Aylesbury Ducks—Drake and two Ducks.

First prize £3 to W. G. K. Breavington, of Vicarage Farm, Hounslow.

Second prize £2 to H. D. Davies, of Spring Grove-house, Hounslow.

Third prize £1 to G. A. Gelderd, of Aikrigg-end, Kendal.

Rouen Ducks—Drake and two Ducks.

First prize £3 to Geo. Botham, of Wexham Court, Slough.

Second prize £2 to Thomas Teanby, of Ulceby, Hull.

Third prize £1 to Charles Punchard, of Blunt's Hall, Haverhill, Suffolk.

Ducks of any other variety—Drake and two Ducks.

First prize £2 to Henry Worrall, of Knotty Ash-house, near Liverpool.

Second prize £1 to T. M. Keyworth, of Cottesford-place, Lincoln.

LIST OF PRIZES FOR IMPLEMENTS.

The judges who awarded the prizes in the implement department were Messrs. R. W. Baker, H. B. Caldwell, John Clarke, J. H. Nalder, William Owen, J. J. Rowley, Joseph Druce, J. V. Gooch, Thomas Huskinson, Thomas Scott, Wm. Tindall, and O. Wallis.

PRIZES.

For the plough best adapted for general purposes 5*l*.—Ransomes and Sims.

For the plough best adapted for ploughing more than ten inches deep 5*l*.—James and F. Howard.

For the best machine for making draining tiles or pipes for agricultural purposes 5*l*.—Thomas Scragg.

For the best cultivator, grubber, and scarifier, 5*l*.—E. H. Bentall.

For the best drill for general purposes 10*l*.—Richard Hornsby and Son.

For the best corn and seed drill 10*l*.—R. Hornsby and Son.

For the best and most economical corn drill for small occupations 5*l*.—James Smyth and Son.

For the best and most economical small-occupation seed and manure drill for flat or ridged work 5*l*.—Richard Garrett and Son.

For the best turnip drill on the flat, with manure, 5*l*.—Richard Hornsby and Son.

For the best turnip drill on the ridge, with manure, 5*l*.—Richard Hornsby and Son.

For the best liquid manure or water drill 5*l*.—Hugh Carson.

For the best manure distributor 10*l*.—Thomas Chambers, jun.

For the best horse hoe on the flat 5*l*.—Richard Garrett and Son.

For the best horse hoe for setting out or thinning turnips 5*l*.—Richard Garrett and Son.

For the best reaping machine 20*l*.—Wm. Dray and Co.

For the best portable steam engine, not exceeding 8-horse power, applicable to thrashing or other agricultural purposes 20*l*.—Hornsby and Son.

For the second best ditto 10*l*.—Ransomes and Sims.

For the best fixed steam engine, not exceeding 10-horse power, applicable to thrashing or other agricultural purposes 20*l*.—Ransomes and Sims.

For the second best ditto 10*l*.—Wm. Dray and Co.

For the best portable thrashing machine, not exceeding 6-horse power, for larger occupations, 10*l*.—R. Hornsby & Son.

For the best portable thrashing machine, not exceeding 8-horse power, with shaker, riddle, and winnower, that will best prepare the corn for the finishing dressing machine, to be driven by steam, 20*l*.—Clayton, Shuttleworth, and Co.

For the best fixed thrashing machine, not exceeding 8-horse power, with shaker, riddle, and winnower, that will best prepare the corn for market, to be driven by steam, 20*l*.—Clayton, Shuttleworth, and Co.

For the best grinding mill for breaking agricultural produce into meal 5*l*.—Clayton, Shuttleworth, and Co.

For the best chaff cutter, to be worked by hand power 3*l*.—James Cornes.

For the best turnip cutter 3*l*.—Bernhard Samuelson.

For the best machine to reduce roots to a pulp 3*l*.—Frederick Phillips.

MISCELLANEOUS.

For a useful farmer's cart, medal—William Bushy.

Ditto, medal—Thomas Milford.

A cottage stove and cooking apparatus, medal—W. N. Nicholson.

A useful and economic drainage level, medal—Henry Atwood Thompson.

One-horse cart, medal—William Crosskill.

For corrugated piping, medal—Burgess and Key.

Improved mode of screening clay, with a high commendation of his tile machines, medal—John Whitehead.

Patent steam draining plough, medal—Fowler and Fry.

SPECIALLY COMMENDED.

For combined thrashing machine—E. and T. Humphries.

HIGHLY COMMENDED.

Drill for general purposes—Richard Garrett and Son.

Corn and seed drill—Richard Garrett and Son.

Turnip drill on the ridge, with manure—Richard Garrett and Son.

For the plough adapted for ploughing more than ten inches deep—Ransome and Sims.

For the plough adapted for general purposes—J. and F. Howard.

Hand chaff-cutter—Barrett, Exall, and Andrewes.

Ditto—Ransomes and Sims.

A useful application of tubular iron to agricultural purposes—W. N. Nicholson.

Stoves for cottage bed rooms—W. N. Nicholson.

Improved patent horse rake—J. and F. Howard.

Improved horse drag rake—Ransomes and Sims.

Bruce's patent stable fittings—Ransomes and Sims.

Hay-maker—Smith and Ashby.

For a useful plank-sided cart—John Cook.

For models connected with drainage—J. Bailey Deaton.

For his improved cauldron for preparing asphalt—John Woods.

For a useful three-ton cart, and cattle weighing machines—Richard Forshaw and Co.

Farm and village fire engine—Richard Forshaw and Co.

COMMENDED.

Horse hoe for setting out and thinning turnips—Richard Garrett and Son.

Portable Patent Iron Housed Steam Engine—Tuxford and Sons.

Reaping machine—William Crosskill.

Subsoil plough—William Smith.

Hand chaff-cutter—Dray and Co.

Ditto—Garrett and Co.

Improved cart-saddle—James Dunlop.

Seed and corn separator—John Gillam.

Useful one-horse cart—John Barker.

Iron gates—Barnard and Bishop.

Fixed Steam Engine—Tuxford and Sons.

Farm and village fire-engine—Dray and Co.

Useful stable furnishings—Mapplebeck and Lowe.

Improvement in sythe plates—Mapplebeck and Lowe.

Corn and seed drill—William Walker.

Combined thrashing machine—R. Garrett and Sons.

Plough for general purposes—William Busby.

Screw jack—John Eaton.

Plough for general purposes—William Ball.

Ditto—Burgess and Key.

Cultivator, grubber, and scarifier—R. Coleman.

Ditto—William Crosskill.

Ditto—Charles Hart.

THE DINNER

Took place at the north end of the show yard, in the pavilion already described. The arrangements of Mr. Holt, of Radley's Hotel, New Bridge-street, Blackfriars, London, were, as usual, excellent; and an abundance of glass, china, and earthenware was furnished for the occasion by Mr. W. R. Fish, of Lincoln. The doors of the pavilion were opened at three o'clock, and the rush for seats continued until the whole building, with seating for 800 persons, was nearly filled. A few minutes after four o'clock the chair was taken by the Right Hon. the Earl of Chichester (in the absence of Mr. Pusey, the President of the Society, through the severe indisposition of Mrs. Pusey), and his lordship was supported (on the right and left) by the Mayor of Lincoln (J. T. Tweed, Esq.), the Right Hon. the Earl Yarborough, the Right Hon. the Earl of Harrowby, the Right Hon. R. A. Christopher, M.P., James Banks Stanhope,

Esq., M.P., the Peruvian Minister, a deputation from the Emperor of the French (consisting of the Duc de Meille, M. Yvart, M. de St. Marie, M. Chambellan, M. Boitell, and M. Lefour), the Right Hon. the Earl of Carlisle, the Right Hon. the Earl of Mansfield, the Right Hon. Lord Dacre, Mr. Daubeney, Col. Sibthorpe, M.P., G. F. Heueage, Esq., M.P. The vice-chair was filled by William Miles, Esq., M.P., supported by A. Wilson, Esq., the High Sheriff of Lincolnshire (M. Collignon), the ex-Mayor of Lincoln (R. G. Hill, Esq.), the Town Clerk (Rd. Mason, Esq.), — Thompson, Esq., of Kirkby Hall, the Baron Laffart, of Mecklenburg Schwerin, T. G. Dale, Esq.; while amongst the general company were the Right Hon. Lord Feversham, the Right Hon. Lord Berners, Lord Doneraile, the Right Hon. Lord Wenlock, Hon. A. L. Melville, Sir C. H. J. Anderson, Bart., Sir M. J. Cholmeley, Bart., Sir H. Dymoke, Bart., Sir J. V. B. Johnstone, Bart., M.P., Sir J. Villiers Shelley, Bart., M.P., W. Barrow, Esq., M.P., the Rev. G. B. Blenkin (Boston), the Rev. W. L. Edwards (Sibsey), the Rev. H. W. Sibthorp, the Right Hon. C. T. D'Eyncourt, G. H. Packe, Esq., General Reeve, F. Cook, Esq., (Mayor of Boston), Rd. Milward, Esq., Brandreth Gibbs, Esq., F. Hobbs, Esq., J. Hudson, Esq. (Csstleacre), Jas. Hall, Esq. (Scarboro'), A. Boucherett, Esq., Capt. Boucherett, Capt. Smith, Capt. Sibthorp, Geo. Legard, Esq., the rev. T. Livesey (Stourton Hall), M. P. Moore, Esq. (Sleaford), J. Clarke, Esq. (Long Sutton), W. Skelton, Esq., S. Vessey, Esq. (Halton), H. Foley, Esq., M.P., Chandos Wren Hoskyns, Esq., Thos. Greetham, Esq. (Stanfield), the Rev. W. D. Butterfield (Nettleham), Theodore Trotter, Esq. (Sheriff of Lincoln), N. G. Barthorpp, Esq., C. Allix, Esq., R. Toynbee, Esq., — Hopkins, Esq., Australia, — Mc Vicars, Esq., W. Norton, Esq., W. Bartholomew, Esq., H. G. Skipworth, Esq., M. Redman, Esq., J. Martin, Esq., W. B. Webster, Esq. (Great Malvern), C. Clarke, Esq., Thes. P. Thirkell, Esq., J. Cole, Esq., Professor Simonds, J. Hudson, Esq. (the Secretary), and a number of noblemen and gentlemen, whose names it was impossible to obtain. At 10 minutes past 5 o'clock, Col. Sibthorp, M.P. for the City of Lincoln, entered the pavilion, when the company gave the gallant Colonel a greeting which must have been highly gratifying to him.

The dinner being concluded, thanks returned, and the usual loyal toasts having been drunk with enthusiasm,

The CHAIRMAN proposed "The health of the distinguished foreigners who had honoured the Meeting by their Presence" (cheers). It had ever been the object of the Society to cultivate habits of friendly intercourse with foreign States, which might both give them information and receive it in return. He believed that in doing so they were promoting the general improvement of England and of the world, and in this object he was proud to say that they had at various times been assisted by various foreign Ministers. It was now universally allowed that to promote not only the interests of agriculture; but the great brotherhood of nations, ought to be the object of every honest and patriotic diplomatist and statesman (cheers). On the present occasion they were only honoured with the attendance of one member of the diplomatic corps—his Excellency the Peruvian Minister (cries of "Gnaro!" and laughter); yet there were several distinguished foreigners present, and especially M. Yvart and other French gentlemen, who had been sent over by the Emperor (cheers) for the purpose of obtaining some information as to the best mode of conducting a society like the present, with the view, he believed, of forming a similar institution in France (cheers). He need not say that to them and to all intelligent foreigners who might honour the meeting with their presence, the Society

gave a hearty welcome (cheers). With respect to the Minister of Peru, he trusted that his Excellency, during his short stay in Lincoln, would take an opportunity of examining the beautiful green crops that were to be seen in the county, one great cause of which was the contribution of guano from his Excellency's country (cheers). If he might interpret the thoughts of the farmers of Lincoln at the present time, he believed it would be comprised in this sentiment, "more guano," which meant guano at a cheaper price (laughter and cheers). They were all aware that this product did not depend on the skill or industry of man (laughter); it was the product of the birds that rode on the waves of the Pacific, and had their homes on the rocky islets of Pern. If his Excellency could remove political obstructions towards its easy attainment, and if after that he should again visit Lincoln, he would find not a more hearty welcome, but his eyes would be gladdened with still more luxuriant crops; and he would behold the turnips greener and more abundant than they were even at present (cheers). The noble Earl concluded by proposing "The Health of his Excellency the Peruvian Minister and the Foreign Guests present."

His Excellency the PERUVIAN MINISTER returned thanks and apologized for the difficulty he had in speaking in the English tongue. Through the rough crust of his poor words, however, he had no doubt the company would perceive the true and loyal feelings of his gratitude for their hospitality (cheers). One of the first elements of agriculture was climate, and truly the British nation was not much obliged to nature in that respect, though he spoke on the point as a native of the south; but the English farmer, calling to his assistance science, and, confident in the help of such an ally, was not afraid to begin a struggle against nature, and in that struggle it could not be denied that he had conquered (Hear, hear). The proofs and trophies of his conquest were in that wonderful exhibition, which could only be witnessed in England, and where the produce of distant countries and tropical climates were grown in greater perfection than in their native regions. This conquest over nature was, to be sure, the great boast of the human intellect, and at the same time supplied the best school of agriculture for other countries. He begged leave to propose as a toast, "Prosperity to English Agriculture" (cheers). With respect to what the noble chairman had said on the subject of guano, he would assure them that, for his own personal part, and as far as his duties to his own country, as a loyal patriot, would allow him to realize the wishes of their president, all that he could do he would (cheers).

Monsieur YVART, the head of the deputation from the Minister of Agriculture in France, apologized for having to address them in French. He said from the present happy auspices, and the near relations in which the two countries were placed, it was very probable that the time would soon come when they could clearly understand each other's language. He, with six other friends, had been sent by the Minister of Agriculture to report upon the various implements and splendid animals which had been exhibited at this great meeting. From their first entrance into the city, they had met with the greatest kindness and courtesy from the mayor of the city, and indeed from every gentleman with whom they had been brought in contact, whether connected in any way with the society in the city of Lincoln, or neighbouring agriculturists on whose land and farms they had been permitted to have a view of matters which might be of service to them in the object for which they were sent. He begged in the name of the deputation to thank the Royal Agricultural Society, for the reception they had given to them, and to assure the meet-

ing that if any members of the society should go to France, he could promise them a not less hearty welcome (cheers).

The Earl of CARLISLE, who was received with loud cheers, said that he esteemed it a very high honour to have been requested to propose the toast which had been set down opposite his name, and which had been so emphatically recommended to their notice by their friend behind the toastmaster (Laughter). He could not flatter himself that he had earned any title to such a distinction by any great addition to his stock of agricultural knowledge which he had acquired during his recent travels in the eastern parts of Europe. On the contrary, though the inhabitants of those regions had shown that they could exhibit very considerable prowess in military matters, and though they occupied some of the finest and most capable districts of the world, yet their farming processes and implements did not exhibit much resemblance to those which were to be seen in the show-yards of Lincoln, and he believed had undergone very little change since the days of the poet Homer (Cheers and laughter). But he felt that they ought not to despond on that account, for it did happen to him in a very extensive farm, being brought into cultivation by a most enlightened and excellent English Consul, Mr. Calvert, with his own eyes to see on the classic plains of Troy implements inscribed with the respective names of Garrett of Saxmundham, and Crosskill of Beverley (cheers). He believed that this was the real solution of the Eastern question, of which they heard so much, and that neither our fleets, however well manned, nor our armies, however valorous, nor our diplomats, however skilful, could do so much as the plough, the spade, and the draining-tile to revive exhausted provinces, and to recruit a failing population (cheers). Very gratifying indeed was the spectacle presented in the show-ground at Lincoln, as compared with some of the scenes which he had lately witnessed (Hear, hear). They all knew, and they had been reminded that day, that they were at present in a state of war, and true it was that the coast of that very county of Lincoln might have to bear the first brunt of a Russian invasion. Indeed, he had been informed that the enemy had been detected in the harbour of Grimsby (Laughter). However, he trusted that the English and French Baltic fleets would preserve them from any great annoyance on that score, and he could not say that they were now assembled at Lincoln with anything like the appearance of a war congress (cheers). Those fat loamy flats and sunny slopes which surrounded them need not fear being exposed to the angry tread of an armed invader. The cattle which now filled the show—the sleek short-horn, the brawny Hereford, and fleecy flocks, ran no risk of falling the prey of hungry Cossacks or fierce Bash-Bazouks; and though all knew the implements of husbandry exhibited—the reaping-machines and clod-crushers—could cleave knotty obstacles and make sharp incisions, their action was not followed by blood, and no tears bedewed the furrow (cheers). He was right, then, in thinking that the sight in the field around them was a very pleasant one, both in actual contrast with the spectacle exhibited elsewhere, and as exhibiting a proof that though the nations might still be occasionally plunged into strife and discord, yet the tendency of the times was to foster and promote the arts and pursuits that followed in the wake of peace, and extend the triumphs of civilization (cheers). It would not become him to debate on all the merits of the present exhibition. He heard it most highly spoken of by the best informed judges, and it would even require the ingenuity which was displayed in that new machine, the dynamometer, to measure the degree of excellence to which it had reached (cheers and laughter). There was one reason which made him glad that he was on

the present occasion the organ, however unworthy, of wishing success to the Royal Agricultural Society. He had learnt that the place appointed for its next year's meeting was the city of Carlisle (cheers). Though in many respects the county of Cumberland could not—as, indeed, what county could? he had almost said what corner of the globe could—present equal attractions to the critical eye of the farmer with the county of Lincoln, with its almost unbroken continuation of rustling corn and glistening green crops (cheers)—though the county of Cumberland exhibits over a large proportion of its surface only such unfarmable crops as heath and granite, yet as it had some specialties in its scenery, there might be some also in its modes of cultivation not wholly undeserving of notice, and its agriculturists might have something to show as well as much to learn (cheers). At all events, of one thing he could assure them—that the Royal Agricultural Society could nowhere have received a more hearty warmth of welcome than he was persuaded would greet it along the whole line of the northern border, and within the walls of merry Carlisle (cheers). He had now only to add his hope that in whatever track the future progress of the Royal Agricultural Society might conduct it over the breadth of fair and prosperous England, it might in every county impart and receive fresh impulses towards the improvement and perfection of that noble science of agriculture, which perhaps was the most ancient and indispensable of all the pursuits that ministered to the welfare and insured the continuance of our race (cheers). Hoping that they would receive the toast as he should wish, he begged leave to propose “The Royal Agricultural Society of England” (loud cheers).

The Earl of YARBOROUGH next rose, and was received with loud applause. He said the council of the Royal Agricultural Society of England had requested that he would, on this occasion, propose the health of the president for this year (cheers). He had, therefore, undertaken that duty, and he could only say that he was sure he expressed the feelings of all present when he said they were exceedingly sorry that he (the president) had not been able to come to this meeting, when he believed and felt justified in saying that he would have had peculiar gratification in visiting a county the merits of which, in a farming point of view, he had himself been the special means of making known to the rest of England (cheers). He felt that his friend Mr. Pusey had been the means of letting the farmers of England know that, in his opinion, having visited this county, it presented less waste ground than any other of a similar size; and, to the honour of the tenant farmers of Lincolnshire, he had stated in his report, which appeared in the Journal of the Royal Agricultural Society, that not only were there to be found here one or two farms well managed, but large districts which displayed the superior cultivation which exists in this county (applause). They in Lincolnshire naturally felt proud of this testimony; and, as he was speaking in an assembly of farmers from all parts of England, he thought he might say, on the part of the farmers of Lincolnshire, that he hoped they (the farmers of England), on this their visit to the county, would avail themselves of the opportunity of judging whether the praise bestowed upon the county by Mr. Pusey had been well given, and was fully justified (Hear, hear). He felt exceedingly glad, as no doubt all the farmers of the county did, that this meeting of the Royal Agricultural Society had been held at Lincoln; and his only regret, and their only regret, would be that Mr. Pusey had been unable to come among them. It was almost needless for him to remind the members of this Society that that gentleman was one of its earliest friends, and that they owed to him a very deep debt of gratitude for the success

which had attended it; because, important as these meetings are, he thought they could not over-rate the importance of the Society's Journal, of which, from its commencement, Mr. Pusey had acted as honorary editor, the publication of which had been under his superintendence, and but for which, he felt quite sure, there would not have been that general improvement in farming which had become so perceptible throughout England since the formation of this Society. The Journal had been the means of diffusing successful experiments, and of encouraging persons in carrying them out; and, if the Society's operations had been confined merely to the holding of its annual meetings, unassisted by the care and attention bestowed upon the Journal by Mr. Pusey, he believed the Society would not have met with the success which had so satisfactorily marked its progress (applause). He hoped that Mr. Pusey would be able to attend the next meeting, at Carlisle, when he was sure he would be received in such a manner as would show him that the feeling of regret which he had expressed, on the part of the farmers of Lincolnshire, in this instance, was fully shared in by the farmers of England; for it ought not to be forgotten that the Royal Agricultural Society was first originated by one of the most distinguished men in this county, the late Mr. Handley, and that Mr. Pusey was introduced by him into this county, the farmers of which therefore felt, perhaps, more attached to that gentleman than they might otherwise have done (applause). “The President of the Society, Mr. Pusey” (three times three cheers, and one cheer more).

The Noble CHAIRMAN said he found it was his duty, as their president on this occasion, to acknowledge the toast which they had just drunk; and he assured them that, in doing so, he felt more than he did at first how very unequal he was to occupy the place of his honourable friend. He was almost tempted to say—in alluding to Mr. Pusey's position in connection with the Society, and in reference to the wise, and scientific, and practical remarks that would have fallen from him on this occasion—he was almost tempted to say, “If I were Brutus, and Brutus were Antony” (laughter); but he felt that his hon. friend might be angry with him for supposing either of him or of himself that they were distinguished orators, still more that they were capable of saying anything that was likely to stir up their hearts to mutiny (Hear, and laughter). But he would say this, and he could say it honestly, that if Mr. Pusey had been present, they would have heard from him the result of much research, of much scientific acquisition, of much supervision of practical experiments; and, therefore, as he was addressing a body of British farmers, he might say with truth that there was scarcely one among them who deserved more of their attention, as well as more of their gratitude, for the services he had performed towards the cause of agriculture, than Mr. Pusey (applause). As it was his business to respond to the toast, it was not his province to praise his honourable friend; but he could, and did, join with them most heartily in wishing good health to Mr. Pusey, and that his life might be long spared for the advancement and the benefit of this great society (cheers).

The Earl of HARROWBY, in rising to propose the toast of “Agriculture, Manufactures, and Commerce,” said: Agriculture, manufactures, and commerce were all sisters of one family; and, like the sisters of families, a little disagreement occurred amongst them at one time. Happily that time had gone by, and they were now united together without any feelings of jealousy or distinction. What could agriculture do without commerce, or commerce without agriculture? Thirty years ago they would have required a text to prove it, but it was not so now. Why the agriculturist was a manufacturer of a most important cha-

racter; he manufactured beef and bread for us to eat (cheers). How much commerce had to do with it, the Peruvian Minister had told them. They all thrived together, and were dependent on each other—those who provided and those who consumed. To secure prosperity, agriculture, commerce, and manufactures must go hand in hand; for it was obvious to every one that there could be no prosperity for agriculture unless they had a large consuming population (cheers). He was confident they would heartily drink the toast of "Agriculture, Manufactures, and Commerce" (loud cheers).

Sir JOHN V. B. JOHNSTONE, Bart., M.P., said, that in simple obedience to the orders of the Council, he rose to propose the toast set opposite to his name, namely, "The Mayor and Corporation of Lincoln" (loud cheers). However great the exertions of the Council and Members of the Royal Agricultural Society might be, and however well seconded they might be by their agricultural friends, still they would fall far short of securing those glorious results which they had so often witnessed, if it were not for the cordial co-operation which they always met with from the municipal authorities of the different places where the Society held its annual meetings (Hear). The city of Lincoln presented many claims to a visit from the Society besides those of a strictly agricultural nature. In the centre of a rich agricultural county stood a city dating from the Conquest, with a magnificent cathedral placed on a hill, which presented peculiar charms to the eye of the agriculturist. The cultivation of the land surrounding presented an example for every other county in England. On all previous occasions they had been well received by the municipal authorities, but never with a more hearty welcome than at the present show (cheers). The exertions of the Mayor and Corporation of Lincoln had been unceasing to render every assistance in their power to the Society and its officers. They had never met with a Mayor who united all the essential qualities requisite for affording help to them, to such a degree as they had found them in the Mayor of Lincoln (cheers). He heartily congratulated the Society that they had met with such a gentleman, and he congratulated the citizens of Lincoln on having made choice of such a Mayor. Not only had he rendered the Society every facility, but he had opened his purse strings to an extent which had hardly ever been known before (cheers). The Society had a deal to undertake, and therefore had to impose on the towns where their annual meetings were held, what might sometimes be thought hard terms. They were compelled to do this from their poverty. To the Mayor of Lincoln they were peculiarly indebted, inasmuch as he had given special prizes for competition at the present show amounting to 100*l*. Two of the prizes offered were for objects characteristic of the excellence for which the county of Lincoln is noted—horses for hunting purposes, and improved Lincoln sheep. Since the time that he (Sir J. V. Johnstone, M.P.) hunted in the county of Lincoln twenty years ago, the plough and the harrow had made great havoc, and the Mayor had given a prize for likely horses. He gave prizes also for sheep; and the local committee, desirous of having good wool, offered prizes for the best fleeces—a combination most suitable. He should content himself with begging them all to join him in drinking with the greatest cordiality the healths of the Mayor and Corporation of Lincoln, and many thanks to them for their united endeavours to facilitate the Society in their arduous undertaking (loud cheers).

The MAYOR OF LINCOLN (J. T. Tweed) said: I rise to respond to your cordial reception of the health you have just drunk, and on behalf of myself and the corporation, I beg to tender you my sincere thanks. It is with feelings of pleasure that I thank you for that genuine burst of feeling, which will

ever ring in my recollection, and tend to rivet those ties of friendship which have commenced under such auspicious circumstances (cheers). You do not know, nor can you imagine, the swollen feelings of pride which I have experienced at the result of this great meeting, pregnant with events which I venture to say must ever live in the joyous memory of every tiller of the soil within this county, to find that its agricultural position and its productions have vied with and equalled every other (loud cheers). The superbly cultivated heaths, wolds, and fens of the county, and the enterprise, energy, and industry displayed in their reclamation and culture, afford the most brilliant and striking proofs of the triumphs of science over ignorance, energy and intellectual power over supineness and lethargy, and a liberal expenditure of capital over heartless neglect and covetous frugality. This society was conceived and born for the purpose of consolidating and developing great principles, and of accomplishing great achievements in practice. It has reared its mighty and stupendous head upon the ruins of ignorance, inertness, unskilful and bigoted practices, and barbarous customs. Its trophies can nowhere be more appropriately exhibited and displayed than, when scanning the range of this county, you behold every inch of its varied soil smiling in all the luxuriance of productive nature, bidding defiance to that element which, by the aid of science, has been chained within its narrow limits, and left to perform its allotted functions of fertilizing and moistening the arid soil, instead of breeding pestilence and corruption to the beast, death and destruction to vegetation (loud cheers). Never did the Corporation of Lincoln and its inhabitants greet with such signal satisfaction and pleasure the congregation of so numerous, noble, and conspicuous a company as upon the present memorable occasion. If the exhibition has afforded that amount of gratification which from its merit it was calculated to do, we need not fear that it will increase in popular estimation and esteem, and be as much admired and appreciated by our visitors as it has been welcomed by us (cheers). Mention has been made by the worthy proposer of the toast of my having added to the list of prizes on this occasion. I should, indeed, have been wanting in that spirit which ought to characterize an officer holding my position, if I did not do my utmost to promote the interest and welfare of those who are my neighbours and friends, especially as this city is the county town, and representative of one of the largest and most flourishing, as well as the best cultivated districts in the world. The Mayor sat down amidst loud and long-continued cheering.

The noble CHAIRMAN here called upon

Mr. BRANDRETH GIBBS to read the judges' awards of Prizes, which that gentleman did, in a good clear tone, occasionally interrupted by a cheer for some fortunate exhibitor or county man.

Mr. THOMPSON, of Kirby Hall, gave the "Labouring Classes." He had never seen a better show, or one more worthy of the county in which it was held, than that exhibited to-day. It was a proof of the wisdom of the farmers, and of their judicious employment of capital and skill. But did it not also speak of the energy and industry of the working classes? (cheers). In noticing the crops as he journeyed from Peterborough to Lincoln that day, he thought the crops were perhaps too uniformly beautiful. Their appearance told him the farmers of Lincolnshire had capital and that their labourers had skill. It would not be thus if instead of having intelligent labourers they had to drive ignorant serfs. The conquests over the fen and bog were accomplished through the labouring classes, and by their aid we were enabled to repel the Russian aggressor of freedom through the willing thousands found in

our armies. It would be presumption in him to dictate as to how farmers should treat their labourers, but the triumph which the latter achieved was sufficient to show that employer and employed were on the best terms. He believed the secret of this happy issue was, that the Lincolnshire farmers treated their labourers with justice and set them a good example (loud cheers). He gave in all sincerity the "Labouring Classes."

SIR JOHN V. SHELLEY, Bart., M.P., said a duty had devolved upon him, which, until a very short time since, he hoped would have been fulfilled by Lord Hardwicke; but as he had not appeared, he (Sir John) had to perform the duty the council had allotted to Lord Hardwicke. If that nobleman had been present he would have addressed them in his usual eloquent manner; while he (Sir J. V. Shelley) should be extremely brief, and confine his remarks strictly to the toast he had the honour to propose—"the Agricultural Societies throughout the World" (cheers). There was an elderly society—an elderly sister, he should say—the Highland Society, for which the Royal Agricultural Society felt much sisterly affection. All other societies of a similar description they regarded with parental feelings, as children of their own, believing that they conferred inestimable benefits to the world at large (cheers). At their meetings, landlord and tenant met, and mixed their ideas together, and thus their experience was made available for the benefit of the community. They were now beginning to see the advantages of such societies as these. From the French deputations they had heard sentiments which must find an echo in every breast. It showed that agricultural societies were likely, at no distant day, to extend throughout the world. Such intercourse as this is more likely to produce peace and good-will amongst men, and all nations of the earth, than all the armies of the world, or all the protocols and wisdom of statesmen (cheers).

The Earl of MANSFIELD rose to reply in behalf of the Highland and Agricultural Society of Scotland. He said that the difficulty which he experienced in addressing so numerous and influential an assembly as that which he saw before him, was much enhanced by his having to reply to a toast of so large dimensions. Had he been a commercial man, he should have said, "This is a large order"—(a laugh)—for he had not only to answer for the society with which he was himself connected, but for all agricultural societies throughout the world. That difficulty had, however, to some extent, been removed by Sir J. V. Shelley, because he had stated that the toast extended to the Highland Society rather than to others of which they had not so minute a knowledge. Sir John had also informed them that the Highland Society was the parent of that (the Royal English) Society, and the other societies had sprung from that. Here, then, he felt sufficiently confident in himself to render them an acknowledgment of his thanks—there as representing before them that society which they had at first imitated, but now far excelled; because his country (Scotland) was a small country in comparison with theirs, and because they (the Scotch) had great difficulties to contend with and to overcome. They, in England, had a more favourable climate, were more fertile in resources, and possessed the capability of effecting that which, after almost a century of exertion, they had not been able to accomplish in Scotland. But if these had been great advantages to them in England, they had not been little to the members of the society in Scotland; for societies in a state of prosperity always wanted a little brushing up; and if their exertions had been great, still they had not been so great as they might have been, and the success of the Royal Agricultural Improvement Society in Ireland, as well as that of this society, had furnished them in Scotland

with fresh stimulant, and they were now assuming a different aspect. In a few days they would have a show at Berwick-upon-Tweed. He did not know whether they would have a room as large as that pavilion for their accommodation—but he would at least give them all an invitation (cheers and laughter). And if they should not have room enough for them all, their hearts were still open to receive them (loud cheers). He had heard much at the beginning of the evening of the merits of a short speech, and would therefore not detain them any longer than by expressing his warm acknowledgments. (The noble Lord sat down amidst much applause.)

THE HON. ALEXANDER LESLIE MELVILLE said, that a discussion occurred in one of Sir Walter Scott's novels, he thought the "Fair Maid of Perth," as to which was the finest county in Scotland, each of the disputants of course maintaining that was his own, though it was conceded that after going over all the others, Perth was certainly the second. That evening he might claim for Lincoln that it was in like manner the second agricultural county of England. If so, let them put to themselves the question, Why was it that Lincoln stood so pre-eminent in agriculture? The first point to which he must attribute this was, that there was found in the county so great a variety of soils; they had their fen land, their wold land, and their heath land. They were at present on the border of one; they were, moreover, in the midst of the heath; and on going on Friday to the station of the Great Northern Railway at Stixwold, they would there see the engine which had been prepared to exhibit the operations connected with their drainage, and show how they pumped out the water. Although he had been told that they might be carried into other districts, and shown an agriculture superior to their own; although, if they were to take Scotland as an example, they might not be able to go three miles out of town, and find themselves in a wrong direction; although in other countries, perhaps, they might see better herds of cattle; although Yorkshire might try what it could to heat them in horses; let them put all together the tillage, the cattle, sheep, and the horses—and there they would find the true secret of the pre-eminence of Lincolnshire. Their real profit lay in the mixture of these different classes of agriculture; the amalgamation of one thing with another brought out the true merits of each individual part. An old friend of his, and one of the best experimentalists of Great Britain, the late Mr. Fleming, of Barrochan, when he had said to him, "Give me in a nut-shell what you have learned in the course of your scientific investigations," had said to him in reply, "Mix your manure—do not trust to your guano, or to your farm-yard manure, exclusively—but put small portions of each together—admixture is the thing, I say." Much as they had gratified themselves at the present meeting, the greatest compliment which, as Chairman of the Local Committee, he had heard paid them was, when he had met a gentleman who said that yesterday he had come down to see the show, and had yesterday driven along the heath land, and returned, saying that he had seen quite enough to repay him without once entering the show-yard. He would entreat them not to leave the district without seeing the state of the surrounding cultivation. A walk up the hill enabled them to see enough. In this county, when they got hold of a slovenly fellow, they said to him, "look over the hedge" (they did not raise their hedges very high), "see what your neighbour is doing, and learn of him." The toast which he had to propose related to the name of a gentleman known and respected for years in the district, and who was president-elect for the future year; and he had the greatest pleasure in proposing "The Health of Mr. Miles, M.P., their president-elect." (All the honours).

MR. MILES, M.P., who officiated as Vice-Chairman, was received with great applause, thanked them very much for the honour they had done him. It was true he had seen Lincolnshire in different times. Other counties could boast of having a century back adopted advanced cultivation—but Lincolnshire dated its agricultural improvement but 50 or 60 years back. He himself recollected 20 or 30 years ago seeing the first cargo of bones ever landed at Hull, and the Custom House officers not knowing what duty to charge, a deputation waited upon the Chancellor of the Exchequer for the purpose of showing how necessary it was that access should be afforded to these substances in such manner as would contribute to the improvement of agriculture and commerce throughout the world, and suggested that no duty should be imposed; and in point of fact no duty was imposed (cheers). What he had formerly known as rabbit-warrens he now saw waving with crops of corn, adorning the land (cheers). What had that been owing to? To nothing but the conduct both of tenants and landlords throughout Lincolnshire. The tenants knew the men they had to deal with as landlords, and the landlords knew their tenants (cheers). They had been told that the Scotch society had been a parent to them; but he would succumb to no county in England (cheers), and would say to the visitors of that show that, as friends, they were happy to meet them, asking them to look at our cultivation and say whether it was not better than their own (cheers). He differed in so far from his hon. friend who had preceded him, and begged to state that, as his own conviction, as well as that of their president, who unfortunately was not amongst them, that Lincolnshire bore away the palm not only over every county in England, but of Scotland also, if he might so state it (loud cheers and laughter). He returned his thanks to the council of the Society for the honour they had done him by appointing him next year to take the station of president in the county described by the noble Earl (Carlisle), where agriculture was not so successful, where the bracken still lingered on the hills, but where they should have beautiful scenery, much to admire, and, he felt convinced, a hearty welcome. Then let him entreat them, as president elect, to visit them at their meeting next year, and to associate with their brother farmers of that district, and in that spirit which prevails when farmer and farmer meet. He congratulated them as having been for many years a working member of the Society on the exhibition of the day; he had never seen a finer exhibition of working implements. He had not yet seen the other yard, but what he had heard read by Mr. Brandreth Gibbs from the table regarding the competitors and the classes of animals exhibited, assured him sufficiently that the cattle-show was not less worthy of commendation than the implements. The science of agriculture had been progressing favourably year by year betwixt 1850 and 1853. The best steam-engine that could be produced for agricultural purposes in 1850 was considered to consume 7.50 odd decimals of coke per hour, but this had been reduced year after year until it was now only 4.35. He also directed particular attention to the instrument which had on this occasion been so well applied in measuring the forces exerted by the engines, and he was very proud to say that, by the ability and great energy of his friend, Mr. Amos, they had at last effected what had been long desired, in obtaining a dynamometer, and in at last being enabled to measure the effective force of implements; whilst in a few years he had no doubt they should find themselves possessed of a dynamometer which would equally well measure traction. If so, they would have only a simple arithmetical sum to do, and implements would be adjudged, not by the opinions of members, but by means of a mechanical invention, which

could not err. Alluding to the foreigners of distinction whom he saw both on the right and left of the chair, Mr. Miles then said he could not but call to mind, that in the last number of the Society's Journal, which had just appeared, a paper by a distinguished botanist had found a place, in which the author had shown that by cultivating for six or seven years a weed common in the South of France and on the shores of the Mediterranean, they might be able by such cultivation to produce wheat. He alluded to the paper of M. Barbier on *chyllops oraca*. He trusted that the communications of this gentleman to the Society's Journal would be long continued; and that we, in England, would be found always ready and willing to give every facility to foreign gentlemen, and foreigners equally willing to contribute to us whatever they knew (applause). Whatever might be the state of agricultural science in the county, there was undoubtedly much for the farmers still to know; and he was proud to think that the farmers were becoming a reading community, not only prepared to work with their hands but with their heads. Before sitting down he would beg leave to propose the health of the nobleman who had done them the honour of filling the chair during their present meeting (great applause). That nobleman had generally been a contributor of stock to the meeting. He did not know whether that was the case in the present instance or not, for he had hoped to have been enabled to congratulate him as one of the successful competitors. Having the honour of Lord Chichester's acquaintance, he was certain they would only require his name to be given to insure his health being drunk with all those plaudits which he felt sure the ability he had shown to-day entitled him. (The toast was drunk with great applause.)

The noble CHAIRMAN returned thanks, and said that he felt obliged for the kind manner in which his health had been drunk, as well as for the manner in which his honourable friend had so kindly, but so much beyond his merits, alluded to the services he had rendered the society. He felt it quite unnecessary to say more respecting the past; but he might allude, as having been an original member of the society, and as having formed sanguine expectations both of its usefulness and success, to the fact that his opinion was not altered, and he felt that the sanguine expectations of the first founders of the institution had already been more than realised. He could assure them that, however little help he might be able to give, he should take care to promote every object they had in view, and also endeavour to give every support in his power to the society. He should be an exhibitor of stock whenever he was able to send any, or willingly adopt any other means of being useful, whether as a member of their council or of the society, or in carrying out their great and various objects (applause).

MR. CHARLES WREN HOSKYNs, amidst considerable signs of impatience, said he had the misfortune to appear before the meeting after every other topic, either for a short or deficient speech, had been exhausted, and therefore he would only throw himself on their energy in endeavouring to do justice to a subject which far exceeded his powers, or those of any man to do it justice; yet he was thankful to say that it came home to the cherished feelings of their hearts and minds, and he would therefore throw himself into it, as this would enable him not only to say what he wished to say, but while he did so to convey the thanks of the society to the directors of those splendid lines of railway which had been the *primum mobile* of their assembling there, and without which they could not have been there at all. By a singular chance or accident (although all chances of accident were singular) the railway system, and the whole history of their society, had been coeval, and had gone on supporting and assisting one another. They would go on enlarging and assisting each other until he hardly knew what they should do with the superincumbent weight. The whole system of railways would advance to such an extent that he himself would require to put the high pressure on, even in making an ineffectual attempt to speak

on the subject. Symptoms of impatience having been frequently manifested, being here renewed, Mr. Hoskyns feared he was trespassing upon old ground; having already written a book on this subject, he was perhaps only repeating many things which he had already expressed. In regard to the beautiful little dynamometer alluded to by Mr. Miles, he might mention that the inventor, accustomed to commercial activity in travelling, had left behind him the parcel to be taken care of, and that it had been lost in coming to the show, and the perseverance and courtesy of the railway official, who had recovered it, had therefore added materially to the comfort and advantage of the judges, of the reporters of the society, and of all others interested in the trials—so much so, that their task could hardly be called work at all. In short, the Dynamometer had constituted the subject of interest and attention from early till late, “from morn till dewy eve” (murmurs of impatience), the judges of the trial yard having employed it in testing sixty of the most beautiful engines that could have been manufactured. He concluded by proposing “The Railway Companies, and thanks to them for their co-operation in promoting the objects of the society.”

As the meeting was about to separate, and after the noble Chairman had vacated his chair,

Col. SIBTHORPE, M.P. for the city, rose, and explained the cause of his late arrival, which was that he had been to London in order that he might have his regiment of militia embodied. He concluded, to the great amusement of every one present, by a melo-dramatic expression of his wish that the Russians would only land on the coast of Lincolnshire, in order that the corps (the trumpeter of which aided Mr. Higgs, the toastmaster, by sounding the bugle calls behind the chair) might have an opportunity of cutting them to pieces.

CONSECUTIVE ANALYSIS OF THE STOCK.

We have endeavoured to make this report as concise as possible, consistent with the requirements of so splendid an exhibition. Many animals of great merit we are compelled to pass unnoticed, and but slightly to allude to some of surpassing excellence. We have neither time nor space for a comparative analysis of every animal, nor do we think any really useful purpose would be attained by it. We did last year, in one or two supplements and otherwise, give a more extended report than usual; but the time it took, and the few words that could be used to keep within any reasonable limit in the notice given to each animal, necessarily made the analysis incomplete. We shall this year take them in order, as they appear upon the prize sheet—i. e., cattle, horses, sheep, and pigs.

CATTLE.

SHORTHORNS.

This is a somewhat singular designation, and a total stranger to the breed is to be found noticing any peculiarity about the horn. From whence this most fashionable and most valuable breed derived its name, we know not; but its great improvement, if not creation, dates from the bull “Hubback,” on the one side, and the Teeswater, Holderness, Lincoln, and other like coarse breeds, on the other. Hubback was calved in 1777, and was bought by the Messrs. Collings, out of a bye-lane; from him descended Favourite (the sire of “The Durham Ox”), Comet, and other bulls, &c. It was from this stock that the breed of cattle known as “The Improved Shorthorns” was established. We believe that it now “carries the palm.” No breed has attained like

celebrity, and this is proved by some of the late sales; none so early reach a ripe state of maturity, and but few exhibit better milking qualities. The nobility of their appearance is superior to that of any other breed, and the prices realized by some of the most popular herds and best bloods exceed belief—the celebrated Duchess tribe, for instance: nine animals from this tribe were sold at the Tortworth (Earl Ducie's) sale for 4,160 gs., or 462 gs. each. The county of Lincoln has been long celebrated for its breed of shorthorns; we were therefore prepared to witness a splendid collection of animals, and the result has fully answered our anticipations. The show was a first-rate one as a whole, but to take individual specimens of this breed we have occasionally seen them surpassed. The classes of cows and heifers we think were never better filled up, and many first-class animals are amongst them. We make honourable mention of these classes first, because we think they have the first claim. The classes of bulls, good as they are, do not equal the cow and heifer classes. We do most heartily commend them as a whole, but what we looked for was one or two specimens of still greater merit than are to be found; some “Duke of Northumberland,” or one equally surpassing his fellows. We know how great is the difficulty to commend one without implying some slight censure upon another; this is not what we mean to do; but having our own prepossessions as to form and feature, we choose to make our own selections. We begin with No. 3 in catalogue.

CLASS I.—BULLS calved previously to the 1st of July, 1852, and not exceeding 4 years old.

- 3 William Sanday, of Holme Pierrepont, near Nottingham, and Henry Smith, of The Grove, Cropwell Butler, near Bingham, “Vatican,” roan, 3 years 2 months 2 weeks and 5 days, bred by the late Earl Ducie, of Tortworth Court; sire Usurer, dam Virginia, sire of dam Petrarch. (First prize of £40.)—This is a finely formed animal, of great merit; beautiful chine and chest, with level back and good hips, his head full, good, and handsome, except a little prominence above the eye, nice neck, ribs not sufficiently springing, leaving the form less cylindrical than we like, beautiful level sides, good loin, hips wide, thighs long and full, twist full, flank and ripping parts not quite full enough in proportion, nor is he quite so noble in appearance as some of our first-class bulls of former years.
- 5 Richard Booth, of Warlaby, near Northallerton, “Windsor,” white, with red at end of the ears, 2 years and 9 months, bred by exhibitor; sire Crown Prince, dam Plum Blossom, sire of dam Buckingham. (Second prize of £20.)—This is a beautiful animal, very cylindrical in form, plenty of good lean flesh, fine appearance, head and muzzle small, good horns and well set, neck thin and short, chest very deep, with full, well thrown out shoulders, beautiful level wide chine and back, ribs well springing, forming a fine cylindrical shape throughout, hips rather too close, but good rump, thighs and flank very superior, twist good, tail fine and well set, legs rather short and fine; a very good animal.
- 12 William Fletcher, of Radmanthwaite, near Mansfield, “Champion,” roan, 2 years 3 months and 3 weeks old, bred by exhibitor; sire Lord of Brawith, dam Gaudy, sire of dam Prince Albert.—Was highly commended. His bone is thin, and general frame acceptable.

- 13 Messrs. Edward and Charles Marfleet, of Basingham, near Newark, "Trajan," roan, 3 years and 7 months, bred by exhibitors: sire Trajan, dam Princess, sire of dam Prince. —This is a bull possessing great substance and many very good points, but, as we think, but little beauty, and his general character borders upon a coarse animal; such, however, is the quantity of lean flesh denoted, that we think him worthy of notice here.

This class is very ably sustained, notwithstanding the absence of any animal of really surpassing merit; the general character was so good that we cannot do otherwise than give it our best commendation.

CLASS II.—BULLS calved since the 1st of July, 1852, and more than 1 year old.

- 23 John Kirkham, of Hagnaby, near Spilsby, "Marmion," red, 1 year 3 months, and 3 days, bred by exhibitor; sire Usurer (9763), dam Music, sire of dam Shamrock (7488). —A very compact, prettily formed animal.
- 24 John Kirkham, of Hagnaby, near Spilsby, "Albion," roan, 1 year 5 months and 19 days, bred by exhibitor; sire Usurer (9763), dam Alice Hawthorn, sire of dam Neptune (7273).—Similar description of animal to No. 23; excellent chest and good girth.
- 34 Messrs. E. and C. Marfleet, of Basingham, near Newark, "Baronet," roan, 1 year and 2 months, bred by exhibitors; sire Son of Baronet, dam Beeswing, sire of dam Waverley. —Was highly commended, and very deservedly.
- 36 William Odling, of Baslingthorpe, near Market Rasen, "Comet," roan, 1 year and 6 months, bred by exhibitor; sire Sir No Name, dam Rosemary, sire of dam Prince. (First prize of £25.)—This is well formed, and of good substance, but stands rather too low; head rather ordinary, horns fine and pointing forward, neck too thin and not quite right adjoining shoulder, back and chine very even, hips good and standing out well, ribs fairly springing, with good chest, and flank rather thin, but good thighs, tail rather high, and tuts bare; beautiful colour.
- 39 Charles Towneley, of Towneley Park, near Burnley, "Hogarh," red, 1 year and 8 months, bred by exhibitor; sire Harbinger (10297), dam Rosa, sire of dam Baron of Ravensworth. (Second prize of £15.)—This is a beautifully formed good animal, very pleasant head and horns, full neck, full good chine and back, but not quite level, hips rather short and too narrow, twist too light, thighs long, but rather thin, flanks and lower parts all good, tail rather high, tuts broad and short, ribs nicely springing, and deeply, but not quite cylindrically formed; a deep good red colour.

CLASS III.—BULL CALVES above 6 and under 12 months old.

- 44 Charles Towneley, of Towneley Park, near Burnley, "Master Butterfly," rich roan, 11 months, bred by exhibitor; sire Frederick (11489), dam Butterfly, sire of dam Jeweller (10354). (Prize of £10).—This has a good and proportionate frame; fine horn, fine neck, chine rather narrow, even back, hips fair, tuts good, twist good and full, and colour good.
- 47 John Kirkham, of Hagnaby, near Spilsby, "Sultan," red and white, 10 months and 1 day, bred by exhibitor; sire Usurer (9763), dam Sarab, sire of dam Shamrock (7488). —This is a very finely proportioned young bull.
- 50 William Sanday, of Holme Pierrepont, near Nottingham, "The Pope," roan, 11 months, bred by exhibitor; sire Vatican (12260), dam Foggathorpe 4th, sire of dam Duke of Northumberland.—This is a good young animal, denoting many excellences.

This class was so well contested, that it would appear invidious to select many animals for observation and remark.

CLASS IV.—COWS IN MILK OR IN CALF.

- 57 Richard Stratton, of Broad Hinton, near Swindon, "3rd Duchess of Gloucester," roan, 3 years and 3 months, in milk, bred by exhibitor; sire Red Duke, dam Elegance, sire of dam Lottery; and 58, "Matchless the 2nd," roan, 3 years and 5 months, in milk, bred by exhibitor; sire Red Duke, dam Old Mossrose, sire of dam Phoenix.—These are two exceedingly good and well matched cows, having every recommendation of colour and beauty, and were most properly highly commended by the judges.
- 63 John Kirkham, of Hagnaby, near Spilsby, "Coronation," white, 4 years and 9 months, in milk and in calf, bred by exhibitor; sire Lord George (10439), dam Carnation, sire of dam Post Captain (4738).—This is a very good cow, with a very large hind quarter; her neck is thin, showing a somewhat abrupt shoulder; she is a large fine made cow in every other respect; she is long in frame, and hips and tuts surprisingly large. (Commended).
- 64 W. B. Wingate, of Hareby, near Spilsby, "Trim," light roan, 8 years and 9 months, in milk, bred by exhibitor.—Broad hips and good chine; neck rather slight in proportion.
- 65 Thomas Robinson, of Burton on Trent, "Buttercup," roan, 6 years and 6 months, in milk, bred by E. Lakin, of Powyke, near Worcester; sire 2nd Duke of Lancaster (5951), dam Banksia, sire of dam Crichton (3516).—Is a large, good cow; her neck is thin, but her chine is very wide; her chest and breast extraordinary. (Commended).
- 66 Thomas Robinson, of Burton on Trent, "Vapour," roan, 6 years and 4 months, in calf, bred by Sir Charles Tempest, of Broughton Hall, near Skipton; sire Tom of Lincoln (8714), dam Lady Valentine, sire of dam Rockingham (2550).—This is a good animal, with exceedingly broad hips, almost amounting to a deformity.
- 70 John Booth, of Killerby, near Catterick, "Venus Victrix," roan, 3 years and 10 months, in milk, bred by exhibitor; sire Vanguard, dam Bloom, sire of dam Buckingham (second prize of £10).—A good, well formed animal; muzzle too dark, heavy and wide breast, thighs good; her whole frame exceedingly good.
- 71 William Fletcher, of Radmanthwaite, near Mansfield, "Jenny Lind," roan, 5 years 2 months and 1 week, in milk, bred by exhibitor; dam Lily, sire of dam Fitzwalter. —A very good cow, well formed and large frame. (Commended).
- 72 William Torr, of Aylesby Manor, near Grimsby, "Glisten," roan, 4 years and 6 months, in milk, bred by exhibitor; sire Vanguard (10994), dam Gleam, sire of dam Baron Warlabry (7813); and 73, "The Flower," roan, 6 years and 7 months, in milk, bred by exhibitor; sire Baron Warlabry (7813), dam Flower Girl, sire of dam Londesboro or Lord A. Fairfax.—Two very good cows, particularly No. 73.
- 74 Charles Towneley, of Towneley Park, near Burnley, "Beauty," roan, 6 years and 9 months, in milk and in calf, bred by exhibitor; sire Victor (8739), dam Mantle, sire of dam Marcus (2262). (First prize of £20).—A very fine animal, with hips astonishingly large and fat; the cow herself very fat, and almost a perfect cylinder in form, except her wonderful tuts and hips; neck rather light, but breast exceedingly good; her great top causes her arms, legs, and flank to look thin; colour very good.

- 80 J. S. Tanqueray, of Hendon, Middlesex, "Lady Barrington the Eighth," roan, 7 years and 7 months, in calf, bred by Robert Bell, of Kirklevington, near Yarm; sire 2nd Duke of Oxford, dam Lady Barrington the 5th, sire of dam 4th Duke of Northumberland.—A very large, well made animal; long body; fore quarter not quite proportioned to the hind quarter, which is very good.

This is a very superior class, and fully keeps up the reputation of the Shorthorned cow.

CLASS V.—HEIFERS IN MILK OR IN CALF, not exceeding 3 years old.

- 85 Charles Towneley, of Towneley Park, near Burnley, "Vestris," light roan, 2 years and 9 months, in calf, bred by exhibitor; sire Hudibras (10339), dam Venetia, sire of dam Tom of Lincoln (8714); and 86, "Butterfly 2nd," red and white, 2 years and 5 months, in calf, bred by exhibitor; sire Garrick (11507), dam Butterfly, sire of dam Jeweller (10354).—Two well proportioned fine animals, and large. No. 85 takes the second prize of 10*l*., and is a beautiful animal, having a nearly perfect form and symmetry; broad and full in every part, with fine beautiful head and horns.
- 88 James Douglas, of Athelstaneford Farm, near Drem, East Lothian, Haddington, "Rose of Summer," red, 2 years and 2 months, in calf, bred by exhibitor; sire Velvet Jacket (10998), dam Rose of Autumn, sire of dam Sir Henry (10824). (First prize of 15*l*.)—Very good and well made, but rather small; of exceeding fine quality, short and thick; neck she has none, her ears and shoulder nearly meeting; frame very deep, chine surprisingly good, hips not wide, tuts narrow; but her general form is wonderfully compact and full.

CLASS VI.—YEARLING HEIFERS.

- 92 Richard Stratton, of Broad Hinton, near Swindon, "Graceful," roan, 1 year and 4 months, bred by exhibitor; sire Waterloo, dam Stately, sire of dam Hero of the West—is very finely proportioned, and received commendation.
- 94, 95 Charles Towneley, of Towneley Park, near Burnley, "Blanche 6th," red and white, 1 year and 10 months, bred by exhibitor; sire Frederick (11489), dam Blanche 5th, sire of dam Duke of Northumberland (1940); and "Roan Duchess 2nd," roan, 1 year and 9 months, bred by exhibitor; sire Frederick (11489), dam Roan Duchess, sire of dam Whittington (12299)—two beautifully-formed heifers, particularly No. 94, which takes the 1st prize of 10*l*.. She has a beautiful head, and fine horns, a prominent good shoulder, fine chine, wide hips, and ribs well out, flank and under parts all right, tuts great and good; very fine in offal. She is of fine symmetry and quality. No. 95 is a beautiful heifer.
- 97 George Sainsbury, of The Priory, Corsham, near Chippenham, "Countess 4th of Gloucester," red and white, 1 year and 7½ months, bred by exhibitor; sire The Duke of Gloucester, dam Countess 1st, sire of dam Antonio—takes the 2nd prize of 5*l*.. She is rather too narrow in chine, back, and hips, but, as a whole, a good heifer, long in frame, and high standing.
- 100, 101, 102 John Kirkham, of Hagnaby, near Spilsby, "Singwell," roan, 1 year 8 months 21 days, bred by exhibitor; sire Hamlet (8126), dam Songstress, sire of dam Baronet (6763); "Susan," white, 1 year 9 months and 27 days, bred by exhibitor; sire Hamlet (8126), dam Snowdrop, sire of dam Neptune (7273); and "Atlanta," white, 1 year 7 months and 2 days, bred by exhibitor;

sire Usurer (9763), dam Amy, sire of dam Burglar (10007)—three very creditable animals to be shown by one breeder. No. 101 is a very prettily formed animal.

- 103 J. V. Machin, of Gateford Hill, near Worksop, "Hipsipyle No. 2," roan, 1 year and 5 months, bred by exhibitor; sire Sir Plume, dam Lady Bountiful, sire of dam Rodolph (9569).
- 105 Richard Booth, of Warlaby, near Northallerton, "Orange Blossom," white, 1 year and 3 months, bred by exhibitor; sire Vanguard, dam Hawthorn Blossom, sire of dam Leonard—a very good yearling.
- 106, 107 William Fletcher, of Radmanthwaite, near Mansfield, "Flora," red, 1 year 6 months and 2 weeks, bred by exhibitor; sire Prince of Wales, dam Flower, sire of dam Prince of Wales; and "Janette," red, 1 year 4 months and 3 weeks, bred by exhibitor; sire Prince of Wales, dam Jenny Lind—two well formed, good animals.

HEREFORDS.

We now come to the classes of Herefords. The Hereford cattle are now universally known by their peculiar colour and form. The colour is usually red, either light or dark, with white face, and a white streak along the back; generally some marks of white about the neck and along under the body: there is a grey or roan variety with similar white marks. Their form is singularly compact, full, and symmetrical. The origin of this breed of "white faces" is yet a mystery, but it is affirmed that they were introduced from Flanders near 200 years ago, and fac-similes of them are to be found in old Flemish paintings; be that as it may, it is certain that they have undergone immense improvement within the last fifty years. Many attain a large size, and the breed stands pre-eminent for that roundity of shape, that fulness of chest, and breadth of chine so essential to a good constitution; their general contour and vivacity of look are admirable. The cow is a good milker, giving large quantities of milk upon moderate provender. This department of the show has been a very circumscribed one, the number of animals altogether shown in the various classes not exceeding nineteen, and few of them of first-rate character.

CLASS I.—BULLS calved previously to the 1st of July, 1852, and not exceeding 4 years old.

- 112 Edward Price, of Court House, Leominster "Magnet," red and white, 2 years and 10 months, bred by Thomas Yeld, of Bodenham, near Leominster; sire The Knight, dam Spot, sire of dam Big Ben (first prize of 40*l*.)—He is of great substance in little room, stands wide, good form. This is a good and profitable animal, without many marks of great superiority.
- 114 John Carwardine, of Stockton Bury, near Leominster, "Malcolm," dark red, 3 years and 6 months, bred by John Turner, of Court of Noah, near Pembridge; sire The Knight, dam Nutty (second prize of 20*l*.)—A fine animal of great substance, head fair, neck large, chine very deep, great length, good hips, rump not good, thighs large.

CLASS II.—BULLS calved since the 1st of July, 1852, and more than 1 year old.

- 118 James Rea, of Monaghty, near Knighton, "Guardian," red with white face, 1 year 7 months and 1 week, bred

by exhibitor; sire Attraction (892), dam Spot, sire of dam Cholstrey (217), (first prize of 25L.).—This bids fair to make a good heavy animal, having plenty of good lean flesh.

- 115 William Styles Powell, of Castle Street, Hereford, "Brecon," red brown with white face, 1 year 7 months and 23 days, bred by Walter Maybery, of Brecon; sire Young Dewsall, sire of dam Henry the Second (second prize of 15L.).—This has a good fore-quarter, and fair cylindrical form; hind-quarter rather defective.

The other bulls shown in this class were very creditable animals. No. 117, the property of the Earl of Radnor, evidenced some very good points, and is a good and profitable animal (highly commended). Nos. 119 and 120, the property of Lord Berwick, are beautiful specimens of the breed, and show good breeding throughout (highly commended).

CLASS III.—BULL CALVES, above 6 and under 12 months old.

In this class only one animal was shown, this was the property of Mr. Edward Price, of Court House, near Leominster, "Magnet the Second," red and white, 8 months, bred by exhibitor; sire Magnet, dam Windsor, sire of dam Pembridge (the prize of 10L.).—A very useful, well-formed calf; and the prize was properly awarded.

CLASS IV.—COWS IN-MILK or IN-CALF.

- 122 Philip Turner, of The Leen, Pembridge, near Leominster, "Nell Gwynne," brown with white face, 3 years and 6 months, in milk and in calf, bred by exhibitor; sire The Knight, dam Belle, sire of dam Sir Walter (first prize of 20L.).

- 123 Lord Berwick, of Cronkhill, near Shrewsbury, "Miss Lewes," red spots on white face, 3 years 6 months and 2 days, in milk and in calf, bred by his Lordship; sire Wonder, dam Duchess of Norfolk, sire of dam Tom Thumb (second prize of 10L.).—She is well filled out in every part; large and heavy, with beautiful countenance.

In this class only two animals competed, which, however, were good representatives of the breed.

CLASS V.—HEIFERS IN-MILK or IN-CALF, not exceeding 3 years old.

- 124 William Perry, of Cholstrey, near Leominster, "Fancy," red and white, 2 years and 8 months, in calf, bred by exhibitor; sire Noble Boy, dam Gloucester, sire of dam Marden (first prize of 15L.).—A very fine broad-framed heifer, with excellent points and plenty of lean flesh.
- 125 The Earl of Radnor, of Coleshill House, near Highworth, "Stately," red and white, 2 years and 3 months, in calf, bred by his Lordship; sire Venison, dam Young Sovereign (113), sire of dam Jeffries (second prize of 10L.).—A large useful heifer.

In this class also the competition was confined to two animals.

CLASS VI.—YEARLING HEIFERS.

- 130 John Walker, of Westfield House, Ilolmer, near Hereford, "Lady," brown with white face, 1 year 8 months and 10 days, bred by exhibitor; sire Widemarsh, dam Windsor, sire of dam Governor (first prize of 10L.).—This heifer denotes fair substance, length, and good frame.
- 128 Philip Turner, of The Leen, Pembridge, near Leominster, "Gazelle," brown with white face, 1 year and 7 months, bred by exhibitor; sire Andrew the Second, dam Vesta,

sire of dam Sir Walter (second prize of 5L.).—A very pretty little heifer.

This was a rather better class-competition, though only five entries.

DEVONS.

The variety usually shown in these classes is the North Devon cattle. The South Devon is far inferior to the North Devon. He is generally of slender make, and altogether is considered a mis-shapen animal, and the quality of his flesh coarse and unprofitable. The North Devon, on the contrary, is probably the handsomest and hardiest of the English breeds, as also one of the oldest native herds. The flesh is of excellent quality, and it is produced in larger quantity on the most valuable joints than other breeds. They fatten rapidly, and their beautiful appearance and symmetrical proportions are nearly perfect. They do not come to so large weights as the Short-horns or Herefords; but their adaptation for ploughing and to thrive on inferior pasturage is so remarkable, the peculiarity of their character is so distinct, and the extent to which they are bred so great, as to fully entitle them to a distinct class in the Society's exhibitions. The cows are proverbially good milkers, and Devonshire cream and Devonshire butter are of all kinds most popular. The show this year is not equal to some of former years, but decidedly good, comprising thirty-eight animals in the different classes, and those of a character fully calculated to keep up the reputation of the breed, and the celebrity of the breeders. The prizes have been pretty equally distributed between those gentlemen whose names have long appeared before the public as breeders of Devons—Somersetshire once more coming into formidable competition.

CLASS I.—BULLS calved previously to the 1st of July, 1852, and not exceeding 4 years old.

- 138 Samuel Farthing, of Stowey Court, near Bridgewater, "Baronet," red, 3 years 2½ months, bred by exhibitor; sire Baronet, dam Dairymaid. (First prize of £40).—This is a very heavily loaded animal, possessing great substance, of good quality, in little compass, his shoulders are rather high, his back not even, good rump, capital ribs and thighs.
- 131 George Turner, of Barton, near Exeter, "Abd-el-Kadir," red, 2 years and 4 months, bred by Richard Moggeridge, of Molland, near South Molton; sire Earl of Exeter, dam Pretymaid, sire of dam Baronet. (Second prize of £20). This is a very prettily formed animal, with deep chest and great beauty, of exceedingly good quality, but rather small; his offal not much heavier than some of the large pigs.

CLASS II.—BULLS calved since the 1st of July, 1852, and more than 1 year old.

- 140 Robert Wright, of Moor Farm, near Taunton, "Protector," red, 1 year 11 months and 20 days, bred by exhibitor; sire Young Miracle, dam Fancy, sire of dam Fat Ass. (First prize of £25).—This is a bull of very even proportions, deep chest, ribs not sufficiently springing, good level back, but not wide, very handsome, and of fine quality.
- 143 James Quartly, of Molland House, near South Molton, "Napoleon," red, 1 year and 6 months, bred by exhibitor,

biter; sire Duke of Devonshire, dam Rosebud, sire of dam Baronet. (Second prize of £15).—This is a finely proportioned and compact animal, of great merit; head not very pleasant looking.

CLASS III.—BULL CALVES above 6 and under 12 months old.

In this class the competition was limited to two animals.

- 144 George Turner, of Barton, near Exeter, "The Czar," red, 7 months and 1 week, bred by exhibitor; sire Earl of Exeter, dam Sontag, sire of dam Baronet. (Prize of £10).

CLASS IV.—COWS IN-MILK OR IN-CALF.

There was a good competition in this class—the animals equal to former years.

- 153 Samuel Farthing, of Stovey Court, near Bridgewater "Lovely," red, 4 years 2½ months, in-milk and in-calf, bred by exhibitor; sire Wonder, dam Lofty. (First prize of £20).—This is a cow of very great beauty, even, deep, and full throughout, pleasant looks, capital shoulders, a perfect cylindrical frame, of excellent quality.
- 155 The Earl of Leicester, of Holkham, near Wells-next-the-Sea, Norfolk, "Beauty," red, about 8 years, in-calf, bred, by R. Merson, of Brinsworthy, near North Molton. (Second prize of £10).—A cow answering in every respect to her given name, Beauty.

CLASS V.—HEIFERS IN-MILK OR IN-CALF, not exceeding 3 years old.

Only three competitors in this class, the animals very creditable.

- 157 George Turner, of Barton, near Exeter, "Dahlia," red, 2 years and 5 months, in-calf, bred by exhibitor; sire Earl of Exeter, dam Julyflower. (First prize of £15).—This is a fine specimen of the breed as a young heifer, delicate in make, of superior quality, very proportionate frame, of great beauty.
- 159 James Quartly, of Molland House, near South Molton, "Graceful," red, 2 years and 6 months, in-calf, bred by exhibitor; sire Duke of Devonshire, dam Curly (93), sire of dam Quartley's Prince of Wales. (Second prize of £10).—This really accords with her name, "Graceful;" capital tuts and twist, very pretty.

CLASS VI.—YEARLING HEIFERS.

This was an interesting class, and several good animals were exhibited.

- 165 George Turner, of Barton, near Exeter, "Garcia," red, 1 year and 7 months, bred by John Halse, of Molland near South Molton; sire Earl of Exeter. (First prize of £10).—This is a very pretty specimen of the breed, and well worthy the distinction, exceedingly well made, being a full and beautiful cylinder.
- 163 George Turner, of Barton, near Exeter, "Daphne," red, 1 year and 6 months, bred by William Baker, of Bishop's Nympton, near South Molton; sire Earl of Exeter.—Was highly commended, which she richly deserved, being deeply formed, but of fine quality.
- 167 Thomas Webber, of Halberton Court, near Tiverton, "Jenny Lind," red, 1 year 7 months and 2 weeks, bred by exhibitor; sire Sir Robert, dam Rosebud. (Second prize of £5).—Is a beautiful little heifer, nicely proportioned, with flanks somewhat slight.

The classes 4 and 6 were generally commended.

OTHER BREEDS.

This is a class combining all breeds, except those just named. We have before expressed our doubts respecting this class. We doubt the feasibility of bringing all "other breeds" into one general competition: in order to improve the whole, every variety of Irish, Scotch, Welsh, and English, not included in the three favoured classes, are here sought to be shown in rivalry; the result is, that very few ever come at all. These classes might embrace, or be composed of upwards of 100 varieties—breeds and subvarieties of breeds. Every district of the three kingdoms lays claim to peculiar distinctions in breed, and each has as strong advocates in its favour. This cannot be right: Judges cannot adjudicate properly amidst so many kinds, and designed for so many purposes. We should prefer offering prizes for the best animals suited to certain districts or particular purposes. We might thus have put before us for decision the best breed for mountain pastures, hilly districts, moorlands and other inferior herbage; or, again, the best milkers or most prolific breeders, &c., &c. We might thus from time to time gain knowledge; but to have such a mingled class, in order that the judges may tell us which is the best animal amongst them, can answer no very useful end; the show of this year fully bears out our views, for while we have some splendid specimens of Longhorns, we have standing beside them, as if intended to excite the ridicule of a public not always considerate enough to look to the design for which they are bred. We want a designation analogous to the above, in order to promote the most good. We do not complain of individuals sending inferior-looking animals for competition in this class: we highly approve it: many are very valuable for certain purposes which are not surpassingly good in our eyes as animals; and if such were not shown, the public would remain uninformed respecting them. All we ask for is, a more extended and better classification, which we trust the liberality of the public will enable the Council to adopt. The show in this class was a great improvement upon some past years. Although in Class I. for Bulls calved previously to the 1st of July, 1852, and not exceeding four years old, there was no entry, and consequently no competition, the cow class was very good.

CLASS II.—BULLS calved since the 1st of July, 1852, and more than 1 year old.

This was but a moderate class.

- 173 Samuel Burbury, of Wroxhall, near Warwick, long-horned breed, "Brind," 1 year and 4 months, bred by exhibitor; sire Chasleton, dam Primrose, sire of dam Blucher (Prize of £10).—A fair useful bull.

CLASS III.—COWS IN-MILK OR IN-CALF.

This was a good class, and the long-horned cows very good.

- 184 Captain Inge, of Thorpe Constantine, near Tamworth, pure long-horned breed, "Favourite J 2," red and white, 9 years 3 months and 22 days, in-milk and in-calf, bred by exhibitor; sire White Thighs No. 25, dam Fillpail J 1 (Prize of £10).—A very fine specimen of the long-horned breed; very good, and cylindrically proportioned.

- 179 Samuel Burberry, of Wroxhall, near Warwick, long-horned breed, "Violet," briud and white, 6 years and 4 months, in-calf, bred by exhibitor; sire Blucher, dam Daisy (Second prize of £5).—This is a very good animal; more compact than the former, with exceedingly good frame and fine condition.

Class IV.—No competition.

CLASS V.—YEARLING HEIFERS.

- 183 Captain Inge, of Thorpe Constantine, near Tamworth, pure long-horned breed, "Buffalo E 6," red and white, 1 year 5 months and 2 days, bred by exhibitor; sire Roll-right X 50, dam Bashful E 2, sire of dam White Thighs No. 25 (Prize of £5).

This class was confined to two animals.

H O R S E S.

We now come to the class of horses, which is a great improvement upon some former years. All kinds are now included in one general term, "for agricultural purposes," in which even the roadster stallion very fairly takes his place. The large "agricultural" horse is the London dray-horse: he is good for both purposes, so that the Society have no improper limit; he may, however, be rather too heavy for ordinary farm uses. We again demur as to the expediency of including all breeds of horses indiscriminately in this class—farm-horses of every breed; the Lincoln and Clydesdale dray-horses against the Suffolk punches; and these in competition with the almost innumerable varieties of farm-horses throughout the country. These must necessarily be adjudged in a great degree in accordance with the prevailing taste of each individual judge (and in "horse-flesh" who has not his peculiar taste?) We do not impugn judges: they may act with the strictest impartiality, notwithstanding. Here all are to be judged by one standard—"for agricultural purposes": it must be much a matter of taste. We should prefer some division of breeds, as in the cattle and sheep classes. The Suffolk Punch is probably unequalled as a farm-horse; the Clydesdale and Lincoln dray-horses are more valuable on sale; these might be kept quite distinct in class, and so with any other kind that denote such manifest distinction in breeding; if not, as in pigs, our judges must define them. The show has fully equalled our expectations, and many fine horses have been exhibited. The agricultural stallion classes are well sustained, though not so numerous as we expected to see them. The Society should have bethought them of the character of the county, and provided for it. A class should certainly have been organized for hunters, and a prize offered. Happily, the Mayor of Lincoln and the gentlemen of the local committee supplied this lack from their own means. The result has proved their wisdom, and is very worthy of the occasion. The yearling show surpassed, in some instances, anything we before remember. The mares and foals were well worthy of notice; but without giving further time to a preliminary notice, we will pass forward, and devote a cursory remark to such animals as commend themselves to our judgment.

In Class 1, devoted to stallions for agricultural purposes, foaled previously to the 1st January, 1852, we find a very noticeable improvement. Those animals that have received prizes quite deserve them, and those that are commended sufficiently merit commendation; while we fancy that, had the judges possessed more tickets for distinction, they would have put them more frequently than they have done.

Mr. James Stockdale and Messrs. Edward and Matthew Reed bore away the prize in this class. The property of the latter gentleman was a fine old bay farmer's horse, more commendable in many points than Mr. Stockdale's. Mr. Biddell's Suffolk stallion excelled the prize horse in girth. There was a fine horse we noticed, the property of Mr. Hemmant, with exceedingly deep fore-quarters—a great carcase, but somewhat out of fashion. Mr. Renton's horse was well made up in his loin; and Mr. Matthew Berridge's, although a fine useful fellow, was, we thought, rather too short-backed—an almost excusable fault. We noticed the same defect in Mr. Savage's horse, which possesses at the same time considerable merit. We thank Mr. Gilbert for the sight of his "Leicestershire Hero," a splendid animal, with few defects, and a very superior chest. He received commendation. The Suffolk standing next the second prize, Mr. Wilson's property, is too fat, and has bad hocks. This good point, however, quite redeems these defects. The Suffolks certainly make a good show. Mr. Bickell's stands well up on his fore legs, and is admirably topped. The Duke of Manchester's "Boxer" is a very beautiful animal, perfect in symmetry, but too small—possibly too fine also. Mr. Gant's, a Lincoln-bred animal, has a bad back, and too much hair, but is commended.

In passing to Class 2, wherein are the two-year-old stallions for agricultural purposes, we notice that Rutlandshire and Suffolk take the prizes. Mr. Bran is the owner of the first prize horse, and Mr. Wilson of the other. Mr. Wilson exhibits also another two-year-old chestnut stallion, which is most deservedly commended. Mr. Cottingham's, another Suffolk, is, we think, deserving of commendation, albeit he does not obtain it. For all that the horse is something short in his neck, he seems as though he could not get anything wrong. For getting powerful, active plough-horses, he stands scarcely second to any in this class.

The most remarkable animal, in our opinion, in the yard, or at any rate amongst the horses, may be seen in the 3rd class. We need not say that we allude to Mr. Robert Howard's prize yearling. Every one mentions it with a glow of enthusiasm. It stands out alone in the class, and the other competitors suffer by the comparison, although there are some fine colts too. And Lincolnshire bears the belt. Never did we see a yearling so furnished: his points excel those of some four-year-olds. The first prize could not have been more properly awarded. Although the other yearlings are dwarfed by comparison with this peerless creature, we may notice that Mr. Catlin's is deservedly commended. Mr. Tebbet exhibits a colt also, that stands nobly on his fore legs. Mr. Eno and Mr. Haselwood must have

been rather misled as to the value of the animals they exhibited.

With roadster stallions we were much pleased. The road horse is more difficult to meet with in perfection than either the hunter or courser. He must be a horse of all work: and so rarely is he to be met with, and so much is the demand increased for him, that we welcome any stallion likely to supply a want so universally felt and expressed. Mr. Innocent stands foremost in this class with his "Calton," a six-years-old, dark bay stallion. The judges have judged wisely, we think. "Sir Charles," the property of Mr. Taylor, is an exceedingly fine animal. His formation denotes strong constitution and good running properties. He seems peculiarly adapted for his work. Considering his age, and the work he has done, his legs are in a capital state. Our eye was also attracted to Mr. Ramsbottom's 15 years old "Fire-away," an admirable horse, with splendid quarters, and faultless legs. Mr. Daubney's "Grey Thornton" is deserving of attention. Seldom have we seen so beautiful a head and neck. Mr. Gant's "Merry Legs" is a strong, useful horse, rather too heavy in the fore-hand. He seems so well built, however, as not to be able to get anything other than useful stock. Mr. Savage's displays good breeding, boasts a good carcass, but is light on his fore-legs.

Passing to the mares and foals, we remark that the prize mare exhibited by Dr. Timms is too light on her legs. We must say that we could not see wherein Dr. Timms' mare and foal were superior to the mare and foal that won the second prize, exhibited by Mr. Page. The best foal, in our opinion, was Mr. Barratt's. Mr. Bading shows an excessively fine mare, with splendid quarters. The foal is short, but useful.

Amongst the fillies, Suffolk bears off the palm. The first prize is awarded to Mr. Barthropp, and the second to Mr. Bayles, for a Lincolnshire bred filly. Mr. Gothorp exhibits a fine animal. Mr. Catlin shows three in this class. One of them is well backed, with short legs, and good quarters, and is most deservedly commended. Another has a good carcass, but is deficient in his legs. Mr. Timms has a good horse, which would be no worse if his quarters were rather lower. A Suffolk filly, exhibited by Mr. Wythes, is commended.

And now we pass to a class of especial importance, held as the present meeting is, in the midst of one great hunting county, and upon the borders of another. Mr. Tweed, the Mayor of Lincoln, and the members of the local committee, have come forward with prizes of their own, and their call has been promptly responded to. It was very desirable to have a display of hunters, and most praiseworthy was it on the part of these gentlemen to have foreseen this necessity, and arranged for it. The contest seems to us to be a very hard-run one between Mr. Denison's "Loutherboung" and Mr. Watson's "Drayton." The former is certainly a splendid type of a horse, but seems to us somewhat more adapted to get carriage-horses than hunters. From age and work he is shaky on his forelegs. He bears away the prize of £40. "Drayton" is a fine specimen of a steeple-chase horse. He struck us as being in every

way adapted for the purpose for which he is intended: he is a good horse all over, save his head perhaps, which may be a little too coarse. There is one point in which he is assuredly superior to "Loutherboung;" it is this—he is, as we hear, a better getter.

"The Red-Cross Knight" (the Messrs. Marfleet's property) is a really valuable farmer's horse, and cannot we should judge, get other than useful stock. This horse was placed second by the judges, the preference between him and "Loutherboung" being a matter of much debate. Mr. Welfit exhibits two horses in this class. His "Rat-Trap" is very strengthly in loin and quarters, but capped-hocked. His "Stone Plover" is thick in the fore-quarters, has straight thighs, and does not display much breeding. Certainly one of the most splendid and stylish horses in the yard was "Maroon," although not so distinguished here as he has been.

Mr. Denison appears in the next and last class, for the exhibition of three-year-old hunting geldings, or fillies. But his bay filly is too heavily topped. The first prize is awarded to Mr. Richard Stockdale, for a brown gelding (who exhibits also another brown, well-bred gelding, with very fine hocks); while the second is given to Mr. Morris, for a chestnut gelding. The latter horse has a superior neck and head: his hind-legs would be better for a little more bone; and his shoulders, had they not been quite so prominent, would have induced less remark. Mr. Slater showed a bay gelding, with good thighs and famous carcass.

SHEEP.

The show in all classes is very large, particularly of Leicesters and long wools; while the number of improved Lincolns far exceeds that of any previous instance, when a local class has been provided by the society.

LEICESTERS.

CLASS I.—SHEARLING RAMS: In spite of close competition, one exhibitor was here able to carry off both prizes. The prize shearlings were bred by Mr. T. E. Pawlett, of Beeston, Beds, and are remarkable for their long and level backs, broad springing chins, good rumps and thighs, and deep plates. The rams of Mr. J. Barton, of Barton-le-street, Yorkshire, are deservedly famed; but in the present instance, we think, that although possessing good fore quarters, and being well fleshed, they have not quite sufficient depth (two of these are commended). There are some very useful animals exhibited by Mr. G. Radmore, of Court Hayes, near Collumpton. Mr. Turner, of Barton, near Exeter, also shows some very compact, well-made sheep. The rams of Mr. Sanday, of Holme Pierrepont, near Nottingham, are broad, with good good chins and plates, but rather too small in frame, and with a deficient quality of wool. The sheep shown by Mr. S. Wiley, of Barnsby, Yorkshire, have nice frames, but rather narrow shoulders, and too little wool. Lord Berners exhibits a large and heavy-woolled ram. Those of Mr. H. Mann, of Lighthorne, Warwick, are more of Cotswold than Leicester character.

CLASS II.—RAMS OF ANY OTHER AGE: Mr. J. Borton takes the first prize, for a very handsome sheep, with good chest; and Mr. Abraham, of Barnetby-le-Wold, Lincolnshire, takes the second, for a sheep with wide and straight back, heavy neck, broad chine, and good wool. Mr. Turner and Mr. Wiley's rams, commended, are very useful animals, especially the latter, which is certainly very fine and compactly formed. Mr. Sanday's, sheep, in this class, have very good uniform frames and firm mutton, but their backs not well covered.

CLASS III.—PENS OF FIVE SHEARLING EWES: The first prize is awarded to Mr. G. Walmsley, of Rudstone, Yorkshire, for a lot with uncommonly good flesh, compact forms, and very fine bone. The second prize to Mr. Abraham, for a good pen of well-made ewes, though scarcely deep enough through the chest. Mr. Sanday's pen, commended, are beautiful, and have plenty of wool, but are not large enough in frame.

SHORT WOOLS.

In this class there is very considerable merit, notwithstanding the absence of Mr. Jonas Webb's splendid animals from the show; but we must condemn the practice of some exhibitors, in trimming their sheep to such an extent, as often to hide very serious defects in form, particularly high loins.

CLASS I.—SHEARLING RAMS: The prize Ram of Mr. H. Lugar, of Hengrave, Suffolk, is a finely formed animal, neck good, back level, wool fine. The second prize ram, of the Duke of Richmond's, is also of great merit, having a level broad back, and full shoulders and chine. Mr. Lugar's sheep we much admired, though a shade darker in colour than some others, and perhaps a little too high-loined in some cases. Mr. Sainsbury, of West Lavington, Wilts., has some good sheep, though some rather light at the shoulder. We consider that the commended ram of Mr. Rigden, of Hove, Sussex, is well entitled to its honour. Lord Walsingham shows a heavy good sheep, with very deep flank; and Mr. H. Overman, of Weasenham, Norfolk, has here some beautiful animals, large, with thick and deep frames, but with very much wool.

CLASS II.—RAMS OF ANY OTHER AGE.—Mr. Sainsbury takes the first prize, for a 29 months' old ram, of great length and yet well formed, and with good back. The second prize goes to Mr. Rigden, for a 28 months' old ram, with level back, good rump, good chine, heavy thighs, but perhaps a little failing in the chest. Mr. Lugar's highly commended ram has a level back, great girth, but rather narrow twist. Mr. Rigden receives another commendation in this class.

CLASS III.—PENS OF FIVE SHEARLING EWES.—Mr. Overman's prize ewes are remarkably fine and well-made; and the Duke of Richmond's second prize ewes are certainly beautiful animals, though somewhat small, and with less wool. We noted Mr. Lugar's two pens as uncommonly well formed and beautiful ewes; both well worthy of commendation, though but one lot obtained it.

LONG WOOLS.

As we might expect, in Lincolnshire, the show of

long wools is unprecedented as regards the number of specimens; and we find from the catalogue that one-fifth of the exhibitors in this class are men of this county, notwithstanding that a special class has been prepared for them.

CLASS I.—SHEARLING RAMS.—Mr. G. Fletcher, of Shipton, near Andoversford, takes the first prize. His ram is of amazing length and size, finely-proportioned and grand-looking, though with a head somewhat too short for some tastes. Mr. G. Hewer, of Laygore, near Northleach, shows his very superior breed of animals, celebrated not only for their great size and spacious form, but equally so for their very firm mutton and pleasing countenances. Number 462 has the second prize. Mr. W. Lane, of Broadfield Farm, near Northleach, exhibits some really marvellous shearlings, of immense size and weight for such young sheep. He has obtained three commendations for them. We specially noticed as very meritorious animals the shearling rams of Mr. V. Garne, of Aldsworth, near Northleach; those of Mr. W. Cother, of Middle Aston, near Woodstock, Oxon; and three exhibited by Lord de Mauley, of Hatherop Castle, near Fairford, Gloucester.

CLASS II.—RAMS OF ANY OTHER AGE.—The first prize ram of Mr. W. Lane, 28 months old, is an animal possessing many good points, combined with unusual size; and the second prize ram, 40 months old, belonging to the same breeder, is quite as extraordinary. Mr. E. Handy, of Sierford, near Andoversford, shows some first-rate rams in this class. A very superior sheep of Lord de Mauley's breeding is highly commended.

CLASS III.—PENS OF FIVE SHEARLING EWES.—Mr. W. Garne's beautiful ewes take the first prize; Mr. Lane's take the second; and we must say that these are really surprising animals, their size being that of some rams, and their breadth of chine and loin, and fore-quarter and rumps, is as great as their heads and bone are fine. Mr. Garne receives also a commendation for another good pair of ewes; so does Mr. Fletcher; and a high commendation is bestowed upon a lot of fine ewes, bred and exhibited by Mr. J. Walker, of Eastington, near Northleach. We were sorry to observe in this class a pen of poor narrow-loined and thin-scragged ewes, shown by Mr. J. Peel, of Lincoln, as they contrasted so unfavourably among the magnificent animals which the Oxfordshire and Gloucestershire breeders have brought, to dispose of to Lincolnshire customers.

IMPROVED LINCOLNS.

This class has been appointed, according to the custom of the Society, to test or develop the breeding capabilities of the district in which the meeting is held; and we may say, that on no former occasion has the local class of sheep been so numerous filled with good animals, or so well characterized by good mutton and fine qualities. The Improved Lincoln occupies a very extensive district of the country, and, from the fact of producing a longer and heavier fleece than any other sheep, forms a very important breed. We cannot say that all the sheep exhibited in this class were of peculiar merit; indeed, from what we know of the various Lin-

coln flocks, we anticipated a still better show: but we can safely affirm that many of the animals possess great beauty, extraordinary substance and symmetry, good looks, fine quality of flesh, and a long thick-set staple of very good wool. Without the amazing proportions of the Cotswold or New Oxfordshire breeds, they have hitherto failed to succeed in competition with them in the same class; but as animals profitable to both breeder and grazier in meat and wool, they are abundantly able to enter the field against the broader framed but lighter skinned Cotswolds.

CLASS I.—SHEARLING RAMS.—The first prize is awarded to Mr. John Clarke, of Long Sutton, Lincolnshire, for a good well-made sheep, with good mutton and plenty of wool. The second prize to Mr. Thomas Greetham, of Wragby, Lincolnshire, for a useful farmers' sheep, fairly proportioned, and of considerable merit. There are two commendations for the very useful shearlings of Mr. Percival Richardson, of Horkstow Villa, near Barton upon Humber, Lincolnshire, bred from the long celebrated stock of Mr. J. Kirkham, of Hagnaby, near Spilsby, Lincolnshire, who also exhibits two good sheep. With the exception of two capital rams shown by Mr. J. B. Colton, of Eagle Hall, near Newark, and two good sheep of Mr. Abrahams', unfortunately disqualified in consequence of wrong entry, there is nothing else in this class worthy of special remark.


CLASS II.—RAMS OF ANY OTHER AGE.

Both first and second prizes are taken by Mr. John Clarke. Both animals of great size, breadth, and depth; good rumps, loins, and legs; firm, beautiful meat, and very heavy wool. The first prize sheep is exceeded in girth, we believe, by only one sheep in the yard—viz., one of Mr. Lane's Cotswolds, and he clipped in three years no less than 51½ lbs. of wool. One of Mr. John Clarke's rams is also highly commended. In this class is a very superior Leicester ram, bred by Mr. Abraham, but disqualified from having been entered in the wrong class.

CLASS III.—PENS OF FIVE SHEARLING EWES,

Mr. John Kirkham obtains the prize for a lot of very good ewes, having plenty of wool. The ewes of Mr. Henry V. Grantham, of Scawby, near Brigg, Lincolnshire, are highly commended; they are well formed, and well made up, but their wool is perhaps a little too light for long-wool sheep. A commendation is bestowed upon the pen of ewes exhibited by Mr. W. Dudding, of Saxby, near Market Rasen, Lincolnshire; they are a good lot, with a nice quantity of wool.

In the CLASS OF IMPROVED LINCOLN SHEEP ENTERED FOR THE SPECIAL PRIZES OFFERED BY J. J. TWEEDS, ESQ., MAYOR OF LINCOLN, we do not notice any peculiar excellencies, with the exception of those mentioned above; most part of the foregoing class having also entered in this. For shearling rams, and for older rams, both the first prizes, together with the second prize for older rams, are all taken by Mr. John Clarke, for the same sheep that are winners in the Society's Class.

 A notice of the pigs and poultry will appear with that of the implements in our next.

CATALOGUE OF IMPLEMENTS, &c.,

EXHIBITED AT THE SHOW.

THOMAS BIGG, of Great Dover Street, Southwark, Surrey.

A sheep dipping apparatus, invented, improved, and manufactured by the exhibitor, price £5 to £3, in sizes.

WILLIAM CROSSKILL, of Beverley, Yorkshire.

A patent clod crusher, or serrated roller, invented, improved, and manufactured by the exhibitor (received the prize of £20 and a silver medal at Southampton, £10 at Shrewsbury, the special gold medal from the Council after the Newcastle meeting, and was included in the award of the great Council medal at the Great Exhibition of 1851), price, for cash, £16 12s. 6d., to £12 7s., in sizes; an improved Norwegian harrow, improved and manufactured by the exhibitor (received the prize of £5 at the Royal meeting at York, and included in the award of the great medal at the Great Exhibition of 1851), price £15 15s.; a Ducie drag harrow, or Uley cultivator (received prizes amounting to £45 at various meetings of the Royal Agricultural Society), price £13 13s.; and an improved horse rake, invented, improved, and manufactured by the exhibitor, price £7 10s.; a Hussey's reaping machine, invented by Obad Hussey, of Baltimore, United States, improved and manufactured by the exhibitor (this implement was highly commended by the judges of the Royal Agricultural Society, at the Lewes meeting in 1852), price £21; a Bell's original reaper, invented by the Rev. Patrick Bell, of Carmylie, Scotland, improved by Mr. George Bell, of Inchmichael by Errol, manufactured by the exhibitor (received the £20 prize at the adjourned trial at Pusey, from the Gloucester meeting of the Royal Agricultural Society in 1853, the £10 prize and the gold medal of the Yorkshire Agricultural Society, £40 prize at the great trial at Stirling, and £10 prize of the North Lancashire Agricultural Society), price £45; (new implement) an improved Bell's reaping machine, invented by the Rev. Patrick Bell, of Carmylie, Scotland, improved and manufactured by the exhibitor, price £42; a pair horse spring waggon, price £36; and a pair-horse waggon (received the head prizes of the society at Norwich, Exeter, and Lewes, and included in the award of the great Council medal at the Great Exhibition of 1851), price £27; an improved pair-horse waggon, improved and manufactured by the exhibitor (received the prize of the Royal Agricultural Society at Gloucester, in 1853), price £27; a Newcastle or model one-horse cart, for general purposes (received the prize at the Newcastle meeting of the Royal Agricultural Society), price £13 11s.; an improved Newcastle cart, price £12 7s.; and a Lewes prize cart, improved and manufactured by the exhibitor (received the prizes at the Norwich, Lewes, and Exeter meetings of the Royal Agricultural Society, price £11 7s. 6d.; a York prize cart, price £11 7s.; and an improved one-horse cart, invented, improved, and manufactured by the exhibitor, price £11 7s. 6d.; a light Scotch cart, price £10 9s.; and three pair of patent cart wheels and axles, improved and manufactured by the exhibitor, price £6 3s. 6d. to £7 16s. 6d.; specimens of Crosskill's portable farm railway (received medals from the Royal Agricultural Society, at the Norwich and Exeter meetings), price of the railway complete, to carry 15 cwt. loads, 4s. per yard; specimens of trucks for Crosskill's portable railway, price of each truck £5 10s.; and an improved iron liquid manure cart, invented, improved, and manufactured by the exhibitor (received a medal at the Cambridge meeting of the Royal Agricultural Society), price, with the pump and leather pipe, £22 15s.; an improved iron pump, improved and manufactured by the exhibitor, price £7 7s.; a sanitary or tumbler cart, invented by Richard Stratton, of Bristol, improved and manufactured by the exhibitor, price £28 10s.; a portable four-horse thrashing machine, price £50; a corn dressing machine, price £3; a six-horse power portable steam engine, price £220; a portable thrashing, shaking, and dressing machine for steam power, price £95; a portable corn mill for steam or water power, price £55; a six-horse power patent eccentric mill, improved and manufactured by the exhibitor, price £45; a hand mill for crushing corn, invented, improved and manufactured by Richmond and Chandler, of Manchester, price £5 5s.; a portable

saw mill, price, including 18 inch saw, 18*l.* 10*s.*; and a small cake breaker, improved and manufactured by the exhibitor, price 4*l.* 10*s.*; three chaff-cutting machines, invented, improved, and manufactured by Richmond and Chandler, of Manchester, price 4*l.* 10*s.*, 7*l.*, and 9*l.*; (new implements) two chaff cutting machines, invented, improved, and manufactured by the exhibitor, price 7*l.* and 15*l.*; a machine for breaking oil-cake, improved and manufactured by the exhibitor, price 7*l.* 10*s.*; an Archimedian root washer; invented by Captain Carr, of Tuscheubeck, improved and manufactured by the exhibitor (received a silver medal at the York meeting of the Royal Agricultural Society), price 5*l.* 10*s.*; a patent fixture pig-trough, invented by Wm. Torr, Esq., of Aylesby, Lincolnshire, and manufactured by the exhibitor, price 4*l.*; and a circular iron pig-trough, manufactured by the exhibitor, price 15*s.*

F. M. McNEILL and Co., of Bunhill-row, London.

The patented asphalted felt for roofing houses and every description of farm buildings, price 1*d.* per square foot, or 8*d.* the yard of 32 inches wide; models of roofs and specimen framings, illustrating various cheap constructions of roofs for the application of the felt.

JAMES DUNLOP, of Haddington.

A bridle for cart or farm harness, price 17*s.* 6*d.*; and a neck collar for cart or farm harness, improved and manufactured by the exhibitor, price 16*s.* 6*d.*; a patented self-adjusting saddle for cart or farm harness, invented, improved, and manufactured by the exhibitor, price 1*l.* 7*s.* 6*d.*; a breeching for cart or farm harness, price 1*l.* 4*s.*, and a shaft belly band for cart or farm harness, improved and manufactured by the exhibitor, price 8*s.* 6*d.*; a set of bames for cart or farm harness, improved by the exhibitor, and manufactured by Wm. Hendry, of Edinburgh, price 8*s.* 6*d.*; a back band for plough harness, price 8*s.* 6*d.*, and a bridle for cart or farm harness, improved and manufactured by the exhibitor, price 9*s.* 6*d.*; a neck collar for cart or farm harness, invented, improved, and manufactured by the exhibitor, price 1*l.* 5*s.* 6*d.*; a saddle for cart or farm harness, price 18*s.* 6*d.*; a breeching for cart or farm harness, price 18*s.* 6*d.*, and a bridle for cart or farm harness, improved and manufactured by the exhibitor, price 16*s.* 6*d.*; a model of patented self adjusting saddle, and a model of saddle, with the boards and bearings fixed to the crib.

ISAAC JAMES, of Cheltenham, Gloucestershire.

(New implements) four patent liquid manure distributors or water carts, invented and manufactured by the exhibitor, price from £9 to £22.

WILLIAM BOULNOIS, the Baker-street Bazaar, London.

Three patent steel meal or flour mills, invented and manufactured by S. and C. Adams, of Oldbury; price, No. 1, £4 12*s.* 6*d.*; 2 (size exhibited), £5 12*s.* 6*d.*; 3, £6 15*s.*; stand £1 1*s.* extra; a flour dressing machine, manufactured by W. Norwood, of London, price £2 2*s.*; a hand seed drill, manufactured by Hunt, of Earl's Colne, Essex, price £1 12*s.* 6*d.*; a farmer's steaming apparatus, invented by John Medworth and W. P. Stanley, of Peterborough, and manufactured by W. P. Stanley, of Peterborough, price £14; a portable poultry house and yard, manufactured by W. Stower, of London, price £7 7*s.*; two registered poultry troughs and fountains, price 10*s.* and 15*s.*, and a poultry trough, price 2*s.* 3*d.*; a half circular poultry trough, price 4*s.* 6*d.*, and a quarter circle poultry trough, price 3*s.*, both manufactured by Barnard and Bishop, of Norwich; a 2½ inch and 3½ inch long barrel patent lift pump, price £2 and £2 18*s.*; several specimens of patent lift pumps, invented and manufactured by John Warner and Sons, of 8, Crescent, Jewin-street, London, price £1 15*s.* to £5 16*s.*; a small wood tub garden engine, price £5 15*s.*; a twelve inch alarm bell in iron frame, price £5 5*s.*; a fourteen gallon galvanized iron tub garden engine, price £4 15*s.*; a conservatory pump, with patent spreader, price £1 10*s.*; several conservatory syringes, all manufactured by John Warner and Sons, of 8, Crescent, Jewin-street, London, price 7*s.* 6*d.* to 16*s.*; a metal hen coop, invented by Joseph Hardmeat, of Lynn, and manufactured by Robert Hunt, of London, price 12*s.* 6*d.*; two wire feed guards and feeders for chickens, manufactured by Robert Hunt, of London, price 4*s.* 6*d.* to 6*s.* 6*d.*; a portable hens' nest, price 6*s.* 6*d.*; a hopper feeder for corn for poultry,

price 5*s.* 6*d.*; a lime box for poultry, price 3*s.* 6*d.*, and a zinc conical fountain for water for poultry, invented by Joseph Hardmeat, of Lynn, and manufactured by G. Hunt, of London, price 3*s.* 6*d.*; a zinc conical fountain, manufactured by G. Hunt, of London, price 1*s.* 6*d.* to 2*s.* 6*d.*; a circular cast iron poultry trough, invented and manufactured by Barnard and Bishop, of Norwich, price 6*s.*; an economical feeding trough, invented by Joseph Hardmeat, of Lynn, and manufactured by G. Hunt, of London, price 3*s.* 6*d.*; and a box of models and papers.

FREDERICK J. WILSON, of 32, Cadogan-place, Chelsea, Middlesex.

A patent cottage allotment and coal barrow, price 3*l.*; two garden and stable barrows, price 2*l.* 6*s.* and £2 2*s.*, and a general purposes navy barrow, price £2, all invented by the exhibitor.

MATTHEW GIBSON and SON, of Newcastle-upon-Tyne.

A revolving cultivator or grubber, for cleaning, aerating, and pulverizing the soil, price £21; and (new implement) a revolving subsoiler, for stirring the subsoil without bringing it to the surface, invented by Robert Hall, of Prudhoe, Northumberland, improved by M. Gibson, and manufactured by the exhibitors, price £20; (new implement) a two horse cultivator or grubber, price £4 10*s.*; and two improved Northumberland clod crushers, to one of which was awarded a prize medal at the Exhibition of all Nations at London in 1851, and was commended at Gloucester in 1853, price £17 10*s.* and £15 10*s.*, all invented and improved by Matthew Gibson, and manufactured by the exhibitors.

FREEMAN ROE, of 70, Strand, London.

An hydraulic ram, improved and manufactured by the exhibitor, price £15 15*s.*; a farm fire engine, price £12 12*s.*; a garden engine, price £4 10*s.*; a liquid manure distributor, price £2 10*s.*; a common pump, price £1 15*s.*, and a liquid manure pump, with suction 70 feet long, price £3 5*s.*, all manufactured by the exhibitor; a milk syphon, invented by Lord Camoys, and manufactured by the exhibitor, price 9*d.*; a sluice valve, 3 inches in diameter, price £2 14*s.*, and an hydrant or fire plug, with stand pipe, invented and manufactured by the exhibitor, price £3 17*s.* 6*d.*; a lift pump, manufactured by the exhibitor, price £3 15*s.*; garden hose of various kinds, with jet and spreader, price from 6*d.* per foot, jet and spreader from 7*s.* 6*d.*; a Scotch cart, manufactured by G. and C. Tiller, of Damerham, Wilts, price £14, and a model ram with cisterns and pipe, manufactured by the exhibitor, price £4 4*s.*

HOLMES and SONS, of Prospect-place Works, Globe-lane, Norwich.

A six horse power improved portable steam engine, price 210*l.*, if with wooden wheels 5*l.* extra; an improved portable combined thrashing or bolting, straw shaking, riddling, winnowing, and chaffing machine (to this machine the first prize medal at the Great Exhibition was awarded), price 95*l.*, and a five horse power improved portable steam engine, improved and manufactured by the exhibitors, price 190*l.*; an improved thrashing, straw shaking, and riddling machine, price 63*l.*; a small occupation corn and seed drilling machine, price 15*l.* 4*s.*; the Bath and West of England Society's prize economical manure, mangel wurzel, and turnip drilling machine (to this drill the Bath and West of England Society's prize was awarded at Taunton, 1852, and at Plymouth, 1853), price 14*l.*; an improved four-row lever manure, mangel, and turnip seed drilling machine, price 20*l.*; the prize manure distributor, price 13*l.* 10*s.*; an improved steerage horse hoe, price 5*l.* 10*s.*, and two corn dressing or winnowing machines, invented, improved, and manufactured by the exhibitors, price 10*l.* 10*s.* and 5*l.* 10*s.*; an improved chaff cutting engine, improved and manufactured by the exhibitors, price 11*l.*; a one-row lever hand mangel wurzel and turnip drilling machine, invented, improved, and manufactured by the exhibitors, price 17*l.* 17*s.* 6*d.*

BERNHARD SAMUELSON, of Banbury, Oxford.

Six sizes of Samuelson's patent Gardner's turnip cutter, for cattle and sheep (double action), invented by the late James Gardner, of Banbury, improved by Alexander Samuelson, of

Banbury, and manufactured by the exhibitor (this implement obtained the prize medal at the Great Exhibition of 1851, and the 51. prize at the Royal Agricultural Society's show at Lewes in 1852), price from 3*l.* 19*s.* to 6*l.*; two patent turnip cutters, invented by Edmund Moody, late of Maiden Bradley, improved by Hugh Carson, of Warminster, and manufactured by the exhibitor, price 4*l.* 8*s.* each; a Samuelson's patent forking or digging machine, invented and manufactured by the exhibitor, price at Banbury, 24*l.* 10*s.*; a rising mouth chaff cutter for hand power, manufactured by the exhibitor, price 3*l.* 16*s.*; two sizes of Richmond's improved No. 1 A chaff cutting machines, manufactured by Messrs. Richmond and Chandler, of Salford, price 7*l.* and 4*l.* 10*s.*; a universal crushing or bruising mill, invented by the late Mr. Stratton, of Bristol, improved and manufactured by the exhibitor, price 5*l.* 4*s.* 6*d.*; a bean splitting mill, invented, improved, and manufactured by the exhibitor, price 2*l.*; an oil cake breaker, manufactured by the exhibitor, price 2*l.* 3*s.*; a five tine horse hoe, price 3*l.* 6*s.* 6*d.*, and a three tine horse hoe, invented by William Busby, of Bedale, and manufactured by the exhibitor, price 2*l.* 13*s.*; two sizes of Anthony's patent American churn, invented by Charles Anthony, of Pittsburg, United States, improved by W. Burgess, of London, and manufactured by the exhibitor (it took a silver medal at the Society's meeting at Exeter, a prize medal at the Great Exhibition, 1851, and the 3*l.* prize at Gloucester, 1853), price 1*l.* 15*s.* and 2*l.* 0*s.* 6*d.*; a registered atmospheric churn, invented and manufactured by the exhibitor, price 1*l.* 11*s.* 6*d.*; six sizes of Kase's patent force and suction pump (double action), invented by Kase of the United States, improved and manufactured by the exhibitor, price 7*l.* 19*s.* to 26*l.* 10*s.*; seven sizes of Budding's lawn mowing machine or grass cutter, with Samuelson's registered improvements, invented by E. Budding, of Dursley, improved and manufactured by the exhibitor, price 5*l.* 10*s.* to 9*l.* 10*s.*; two sizes of a garden roller, designed and manufactured by the exhibitor, price 2*l.* 8*s.* 6*d.* and 3*l.*; a patent horse hoe and turnip singler, invented by Thomas Hukvale, of Chipping Norton, manufactured by the exhibitor (a prize of 3*l.* was awarded to this implement at Liverpool, 1841), price with singling and hoeing blades 6*l.* 15*s.*; a single row turnip drill for small occupations, invented by G. Billing, of Haseley, manufactured by the exhibitor, price 2*l.* 5*s.*; a case of patent wrought iron folding camp stools, invented by Brown Brothers, of London, manufactured by the exhibitor, price 10*s.* 6*d.* each; a bundle of cast steel digging forks, invented and manufactured by Francis Parkes, of Sutton Coldfield, price from 5*s.* each upwards; a cast iron pig trough with semi-circular bottom, manufactured by the exhibitor, price 2*s.* 6*d.* per running foot.

BURGESS and KEY, 103, Newgate-street, London.

A patent reaper, invented and manufactured by Cyrus Hall McCormick, of Chicago, United States, (this implement received the council medal at the Great Exhibition, 1851; the first prize at the North Lancashire Agricultural Society, 1851; first prize at the East Cumberland Agricultural Society at Carlisle, 1851; first prize at the Great Yorkshire Show at Sheffield, 1852; first prize at Durham, 1852; award of the Driffield Farmers' Club, 1852; award of the Jury appointed at the nine days' trial of reapers at the Royal Agricultural College at Cirencester, 1852; highly commended at the Royal Agricultural Society's trial of reapers at Pusey, 1853), price £30; seven sizes of a patent churn (American), invented by C. J. Anthony, of Pittsburg, United States, improved and manufactured by the exhibitors, (received the Society's prize at all their meetings since its introduction in 1850), price £2 2*s.* to £3 2*s.*; six sizes of a patent lift and force pump, invented by C. A. Kase, of America, improved and manufactured by the exhibitors, price £14 14*s.* to £25; two lift pumps, invented, improved, and manufactured by the exhibitors, price £3 and £4*s.*; a patent lift and force pump, invented by Robert Urwin, of Steeney, manufactured by the exhibitors, price £12 12*s.*; three bundles of five-tined, four-tined, and three-tined digging forks, invented and manufactured by Francis Parkes, of Birmingham (awarded the prize of the Royal Agricultural Society, and numerous others), price, each fork, 6*s.* 6*d.*, 6*s.*, and 4*s.*; a bundle of hay forks, price, each fork, 1*s.* 9*d.* and upwards, and a bundle of pitching forks, invented and improved by Francis Parkes, price, each fork, 4*s.* 9*d.* and upwards; an assortment (one of each) of forks of every kind, price, each

fork, 3*s.* and upwards; a bundle of steel spades, price 4*s.* 6*d.* and upwards, and two complete sets of draining tools, invented and manufactured by Parkes, of Birmingham, price £1 10*s.* and £1 15*s.*; (new implement), Grant's patent American winnowing machine and blower, invented by Grant, U. S. of America, manufactured by Barrett, Exall, and Co., of Reading, price £7 10*s.*; a farm fire engine, invented by Kase of America, improved and manufactured by the exhibitors, price £25; coils of different size patent corrugated gutta percha suction pipes, invented by William Burgess, of London, manufactured by the Gutta Percha Company, of London, price 3*s.* per foot and upwards; coils of gutta percha tubes of various sizes, invented and manufactured by the Gutta Percha Company, prices from 5*d.* per foot to 1*s.* 11*d.*; coils of flax tubing, of various sizes, woven without seam to stand great pressure, invented by B. Brown, manufactured by Waltham, of Bentham Mills, prices 1*s.* to 2*s.* 6*d.* per yard; a length of corrugated suction, covered with canvas, invented by W. Burgess, of London, manufactured by the Gutta Percha Company, of London, price, per foot, 5*s.* 3*d.*; three sets of patent four-beam diagonal iron harrows, invented by Lawrence Taylor, of Cotton End, improved and manufactured by William Williams, of Bedford (these harrows obtained a prize at the meeting of the Royal Agricultural Society at Derby, 1843; at Southampton, 1844; at Shrewsbury, 1845; at Northampton, 1847; at Norwich, 1849; at Exeter, 1850; the prize medal was also awarded for these harrows at the Great Exhibition of 1851; also a prize at Lewes meeting, 1852; also at Gloucester, 1853), price £3 3*s.* to £4 4*s.*; a machine for making drain pipes and tiles, invented by Sanders and Williams, of Bedford, improved and manufactured by William Williams, of Bedford (a prize of £25 was awarded to this machine at the meeting of the Royal Agricultural Society at Northampton, 1847; and at Dublin, 1851), price £17 17*s.*; four sizes of a small chaff engine, with two knives, price £3 to £12 12*s.*, and a chaff engine, with three knives, invented, improved, and manufactured by William Williams, of Bedford, price £14 14*s.*; a patent horse rake, invented by Samuel Taylor, of Cotton End, improved and manufactured by William Williams, of Bedford (a prize was awarded to this implement at the meeting of the Royal Agricultural Society at Southampton, 1844; also at Norwich, 1849; and at the Royal Agricultural Improvement Society of Ireland meeting at Dublin, 1851), price £7 10*s.*; a combined expanding horse hoe, scarifier, and moulding plough, improved and manufactured by William Williams, of Bedford, price £4 10*s.*; three sizes of a patent wrought-iron plough, with two wheels, suitable for two horses, improved and manufactured by William Williams, of Bedford, price £4 to £5 10*s.*; (new implement), a patent revolver or liquid-manure and water cart, invented and manufactured by Collinson Hall, of Prince's Gate, Navestock, Essex, price £25; (new implement), a portable steam engine, adapted for self-locomotion, invented and manufactured by Thomas Charlton, of Stratford, Essex, price £450; two garden syringes, invented and manufactured by Tylor and Sons, Warwick-lane, price £1 5*s.* and £1 15*s.*; a grain cradle, invented by J. G. Grant, of Junction, United States, price £1 5*s.*; a bundle of five-tined digging forks, price 6*s.* 6*d.* each, and a bundle of four-tined digging forks, price 6*s.* each; a bundle of forks, prices from 4*s.* 6*d.* upwards; a bundle of steel spades, prices from 4*s.* 6*d.* upwards, and a bundle of tools, various, all invented by F. Parkes, of Birmingham, prices from 3*s.* 6*d.* upwards; a suction pipe, invented by W. Burgess, of London, and manufactured G. P. Company, of London, price £1 5*s.*; a roll of leather hose, price, two-inch in diameter, 2*s.* 6*d.* per foot; a brass jet for delivery, price £1 12*s.*; a set of gutta percha pails, manufactured by the Gutta Percha Company, London, prices from 6*s.* 6*d.* upwards.

RICHARD READ, of 35, Regent Circus, Piccadilly, London.

A patent subsoil pulverizer, invented by the late John Read, of 35, Regent Circus, manufactured by the exhibitor (a prize of £10 was awarded for this implement at Southampton in the year 1844, at Shrewsbury in 1845, at Newcastle-on-Tyne in 1846, and at Northampton in 1847, price £5 5*s.*; two patent double action agricultural fire-engines complete, invented and manufactured by the exhibitor, price £18 18*s.* and £45; a patent watering engine, invented, improved, and manufactured by the exhibitor, price £7 10*s.*; a patent injecting instrument, and tube complete, for horses, cattle, &c., invented by the late John

Read, improved and manufactured by the exhibitor (this instrument was highly commended by the judges at the Lewes meeting, July, 1852), price £2 10s.; two sizes of a hollow probang, for relieving hoven or choked cattle, &c., invented, improved, and manufactured by the exhibitor, price 10s. and £1 10s.; a patent hand watering machine (this machine was highly commended by the judges at the Lewes meeting, 1852), price £2 12s. 6d.; and a patent double action greenhouse pump, invented, improved, and manufactured by the exhibitor (this machine was highly commended by the judges at the Gloucester meeting, July, 1853), price £4 10s.; (new implement), a patent machine to reduce roots to a pulp (for steam-power), invented and manufactured by Messrs. Nye and Gilbert, of 79, Wardour-street, London, price £7 7s.; a patent mincing machine, for mincing meat, vegetables, and other substances, invented and manufactured by Messrs. Nye and Gilbert, of 79, Wardour-street, price £2 10s.

WILLIAM SMITH, of Kettering, Northamptonshire.

An improved double-blasted winnowing machine, price £13 13s.; two sizes of an improved steerage horse-hoe with double bar, price £6 10s. and £7, with lever affixed £1 extra; an improved steerage horse-hoe with single bar, price £5 10s., and a two-horse scarifier or skim plough, all invented, improved, and manufactured by the exhibitor, price £5.

BARRETT, EXALL, and ANDREWS, near Reading, Berks.

A six-horse power improved portable steam engine, invented, improved, and manufactured by the exhibitors (this engine obtained the commendation of the Royal Agricultural Society of England at Exeter, the prize medal of the Great Exhibition of All Nations, and the prize of 20*l.* of the Royal Agricultural Society of England held at Lewes), price, if with wood wheels, 210*l.*; an eight-horse ditto, price 240*l.*; (new implement) an eight-horse power horizontal fixed steam engine, price 186*l.*, if erected 12*l.* extra; an eight-horse power cylindrical steam engine (this engine obtained the first prize of 20*l.* at the Royal Agricultural Society's show held at Lewes in 1852), price, including boiler, but exclusive of connections between engine and boiler, 186*l.*; (new implement) a six-horse power portable combined thrashing machine, price 88*l.*; (new implement) a new portable combined thrashing machine, for thrashing, dressing, and weighing the corn for market, price 120*l.*; a three-horse power patent iron thrashing machine and patent horse gear, price 40*l.* 17s.; and a two-horse portable patent thrashing machine and patent safety horse gear, price, as a fixture, 34*l.* 4s., all invented, improved, and manufactured by the exhibitors; a pair of Derbyshire portable millstones, in iron frame complete, invented by the exhibitors, price 42*l.* 15s.; (new implement) a steam power paragon or universal mill for crushing corn, &c., price 25*l.*; (new implements) two sizes of a paragon grain crushing mill, for hand power, price 5*l.* 10s. and 7*l.* 7s.; (new implements) two sizes of a patent iron chaff cutter, price 5*l.* and 5*l.* 10s.; (new implement) a patent iron chaff cutter, for horse or steam power, price 14*l.* 10s.; a barley aveller or hummeller, price 5*l.*; and a barley aveller, for horse or steam power, price 7*l.*, all invented, improved, and manufactured by the exhibitors; a patent horse rake, for hay, &c., invented and manufactured by the exhibitors (it had awarded the prize of the Great Yorkshire Society at Sheffield; also the first class medal of the Royal Improvement Society of Ireland at Galway), price 7*l.* 12s.; a registered bay-making machine, price 15*l.*, and a portable circular-saw bench, price 14*l.*, invented, improved, and manufactured by the exhibitors; a patent subsoil plough (this plough obtained the following prizes awarded by the Royal Agric. Society: 10*l.* at Southampton, Shrewsbury, Newcastle, Northampton, and York), price 5*l.*; a Chandler's patent liquid manure drill, invented by Mr. Thomas Chandler, of Aldbourne, improved and manufactured by Robert and John Reeves, of Bratton, near Westbury, Wilts (the following prizes have been awarded to these drills by the Royal Agricultural Society of England: silver medal at York, the prize for the best liquid manure distributor at Norwich, also the prize for the same at Exeter, and the prize of 10*l.* for the best liquid and seed drill at Gloucester, given by P. Pusey, Esq.), price 27*l.* 10s.; and a smaller size, price 24*l.*

THOMAS GRIMSLEY, of Oxford.

(New implement) a new patent brick and tile machine, in-

vented by the exhibitor, and manufactured by Charles Lamptett, of Banbury, Oxon, price 150*l.*

JOHN WHITEHEAD, of Preston, Lancashire.

A No. 0 tile machine, price 14*l.* 10s.; a No. 1 tile machine (prizes were awarded for this machine at the Royal Agricultural Society's Meeting at York, 1848, 20*l.*; at Norwich, 1849, 20*l.*; at Exeter, 1850, Judges' commendation; at the Exhibition of All Nations, 1851, the Prize Medal; was not exhibited in 1852; at the Royal Agricultural Society's Meeting at Gloucester, 1853, £10; besides a number of prizes at local meetings), price 21*l.*; and another size, price 28*l.*, all invented, improved, and manufactured by the exhibitor; a patent socketing apparatus, invented and manufactured by the exhibitor, price 7*l.* 7s.; an improved brick making and pressing machine, invented, improved, and manufactured by the exhibitor, price 6*l.* 16s.; a roll of machine-made hare-proof netting of iron wire, manufactured by the exhibitor, prices per lineal yard from 4*d.* upwards; a set of improved cast-iron stable fittings, price 1*l.* 18s.; a set of iron mangers, price 8s. and upwards; and a set of iron hay racks, price 5s. and upwards, all manufactured by the exhibitor; a set of draining tools, price 1*l.* 12s.; a mangling and wringing machine, invented and manufactured by the exhibitor, price 3*l.* 15s.

JAMES HAYES, of Elton, near Oundle, Huntingdonshire.

Four sizes of a grinding mill, invented, improved, and manufactured by the exhibitor, price £13 15s. to £25 10s.

MARIE PIERRE AMARANTHE FERDINAND MAZIER, of L'Aigle (Orne), France.

(New implement) a reaping machine, invented by the exhibitor, and manufactured by Lesieur, of L'Aigle, price £32.

RICHARD GARRETT and SON, of Leiston Works, near Saxmundham, Suffolk.

A drill for general purposes, invented, improved, and manufactured by the exhibitors (prizes were awarded for this drill at Liverpool, 1841, £10; at Derby, 1843, £30; at Southampton, 1844, £20; and a medal at Northampton, 1847, £15; at Exeter, 1850, £10; at the Great Exhibition of 1851, included in the award of the Council Medal; and at Gloucester, 1853, £10), price with seven jointed levers and ten corn levers and tins, £47 5s., if with improved force carriage steerage £1 extra; a drill for turnips and manure on the flat (prizes were awarded for this drill at Cambridge, 1848, £10; at Northampton, 1847, £10; at York, 1848, £10; at the Great Exhibition of 1851 included in the award of the Council Medal; and at Gloucester, 1853, 10*l.*), price complete 26*l.* 5s.; a drill for turnips and mangrel wurzel with manure on the ridge, improved and manufactured by the exhibitors (prizes were awarded for this drill at Bristol, 1842, 20*l.*; at Northampton, 1847, £10; and at Norwich, 1849, 10*l.*), price 24*l.* 7s. 6*d.*; (new implement) a two row economical drill for turnips, mangrel wurzel, and artificial manures on the ridge, price £19; a patent drop drill for turnips and other seeds, with manure on the flat or ridge, invented, improved, and manufactured by the exhibitors (prizes were awarded for this drill at Norwich, 1849, £10; at Exeter, 1850, £10; at Lewes, 1852, £10; and at Gloucester, 1853, £10), price 27*l.*; a three row economical seed and manure drill for turnips, &c., with manure on the flat or ridge (prizes were awarded for this drill at Lewes, 1852, £5, and at Gloucester, 1853, 5*l.*), price 14*l.*; (new implement) a three row economical drill, with improved jointed levers, for turnips, mangrel wurzel, and artificial manures on the flat or ridge, invented, improved, and manufactured by the exhibitors, price £16 16s.; a broadcast manure distributor, invented by H. E. Blyth, Esq., of Sussex Farm, Burnham, improved and manufactured by the exhibitors (a prize of £5 was awarded for this machine at Lewes, 1852, and of 10*l.* at Gloucester, 1853), price £16 10s.; two sizes of a patent liquid manure drill, invented by Thomas Chandler, of Aldbourn, Hungerford, improved and manufactured by the exhibitors, price 27*l.* 10s. and £35; a ten row lever corn and seed drill (to this drill a prize of £10 was awarded at Norwich, 1849), price £25 15s.; an eleven row lever corn drill, price £31; and a thirteen row lever corn and seed drill, improved and manufactured by the exhibi-

ters, price £29 15s.; (new implement) a twelve row Norfolk corn drill, price £23 10s.; a seven row lever corn and seed drill (a prize of 10*l*. was awarded for this drill at Exeter in 1850, and of 5*l*. at Lewes in 1852), price 17*l*. 10s.; a five row turnip, mangel wurzel, and vegetable seed drill, invented, improved, and manufactured by the exhibitors (a prize medal was awarded for this drill at Gloucester, 1853, price £17 10s.; a patent liquid and manure drill, invented by W. C. Spooner, Esq., of Eling House, Southampton, manufactured by Tasker Fowle, of Andover, price £35 10s.; a horse power seed engine, price £18; and a hand barrow drill, invented, improved, and manufactured by the exhibitors, price £4; (new implement) a manure distributor, invented by Mr. Hastings, of Longham, Norfolk, manufactured by the exhibitors, price £10; a No. 5 Garrett's patent horse hoe (prizes were awarded for this implement at Liverpool, 1841, 5*l*.; at Bristol, 1842, 10*l*.; at Derby, 1843, a medal; at Southampton, 1844, a medal; at Northampton, 1847, a medal; at York, 1848, a medal; at Norwich, 1849, 10*l*.; at Exeter, 1850, 10*l*.; at the Great Exhibition of 1851, council medal; at Lewes, 1852, 10*l*.; and at Gloucester, 1853, £10), price 17*l*. 10s.; and a No. 9 Garrett's patent horse hoe, invented, improved, and manufactured by the exhibitors, price 23*l*. 10s.; a patent revolving horse hoe, invented by John Martin, of Barmer, near Fakenham, improved and manufactured by the exhibitors, price 31*l*. 10s.; a patent horse hoe and turnip thinner on the ridge and flat, invented by Thomas Huckvale, of Chipping Norton, improved and manufactured by the exhibitors (a prize of 3*l*. was awarded for this implement at Liverpool in 1841), price 6*l*.; a patent fixed combined thrashing machine, for steam power, invented, improved, and manufactured by the exhibitors (this machine obtained prizes at Lewes, 1852, 20*l*.; at Norwich, 1849, 25*l*.; in the Great Exhibition of 1851 was included in the award of the council medal; and at Gloucester, 1853, prize medal), price 72*l*.; a patent portable combined thrashing machine, for steam power, price 110*l*.; a patent portable combined open drum thrashing machine for steam power, price 85*l*. 10s.; a portable combined thrashing machine, for steam power (the prize of 25*l*. was awarded for this machine at Norwich in 1849, and it was included in the award of the council medal of the Exhibition, 1851), price 66*l*.; a four horse power open drum thrashing machine (this machine obtained the prize of 20*l*. at the Lewes Meeting in 1852), price 61*l*.; a two horse power portable thrashing machine barn work (this machine obtained the prize of 10*l*. at the Lewes Meeting in 1852, price 40*l*.; a four horse power bolting thrashing machine (prizes were awarded for this machine at Newcastle, 1846, 25*l*.; at Northampton, 1847, 20*l*.; and at York, 1848, 20*l*.), price 33*l*.; and a corn dressing machine, fitted with a rotary corn separator, all invented, improved, and manufactured by the exhibitors, price 25*l*.; a barley aveller or hummelling machine, improved and manufactured by the exhibitors, price 10*l*.; a set of corn elevators, with main driving shaft and pulleys, invented, improved, and manufactured by the exhibitors, price 50*l*.; an improved self acting weighing apparatus, price 7*l*. 7s.; a seven horse power portable steam engine, price complete 235*l*.; a six horse power improved portable steam engine, price 234*l*.; a five horse power portable steam engine (a prize of 50*l*. was awarded for this engine at Norwich, 1849, and it was included in the award of the council medal, at the Great Exhibition of 1851), price complete 200*l*.; an eight horse power fixed steam engine, price 210*l*.; a powerful mill, on an improved principle, for crushing bones, coprolite, &c., to be driven by steam power, price with driving pulley and hopper complete 90*l*.; and a circular saw bench, price 25*l*. all improved and manufactured by the exhibitors; a corn dressing machine, price 8*l*. 10s., and a corn dressing machine, fitted with powerful blast, invented, improved, and manufactured by the exhibitors, price 14*l*.; a linseed, malt, and oat crusher, price 11*l*. 10s.; a rape and linseed cake crusher, price 11*l*. a smaller size 4*l*. 15s.; a chaff cutter for horse or steam power, price 15*l*.; a chaff cutter for horse or hand power, price 11*l*.; and a chaff cutter for hand power, all improved and manufactured by the exhibitors, price 7*l*.; an improved turnip cutter, adapted for either hand, horse, or steam power, price 7*l*.; (new implement) a Garrett's improved reaping machine, invented, improved, and manufactured by the exhibitors, price 35*l*.; an Atkin's automaton or self-raking reaping machine, invented by Jearum Atkin, of Chicago, Illinois, United States, improved and manufactured by the exhibitors, price 50*l*.; an improved corn reaping machine,

invented by Obed Hussey, of Baltimore, United States, improved and manufactured by the exhibitors (this machine had a silver medal awarded it at Lewes, 1852), price 21*l*.

JOHN KEABLE, of Lambourn, near Hungerford, Berks.

Two sizes of a registered guard frame pig trough, invented by the exhibitor, and manufactured by Arthur Silcock, of Chippenham, Wilts, price 1*l*. 15s. and 2*l*. 15s.

WILLIAM PACEY, of Lincoln.

A set of one-horse harrows, price 2*l*.; a set of two-horse harrows, price 2*l*. 5s.; a set of one-horse harrows, price 1*l*. 15s.; a set of two horse harrows, price 2*l*.; a set of three-horse harrows, price 2*l*. 5s. all invented and manufactured by the exhibitor.

WILLIAM PIERCE, of Cannon-house, Queen-street, Cheapside, London.

(New implement) a reaping machine, invented, improved, and manufactured by Obed Hussey, of Baltimore, United States, price 21*l*.; (new implement) a steel mill, invented and manufactured by Thomas Buxton, of Malton, Yorkshire, price 10*l*. 10s.; a corn bruiser, invented, improved, and manufactured by Richmond and Chandler, of Salford, Manchester, price 5*l*. 5s.; a corn crusher, improved and manufactured by R. Forshaw and Co., of Liverpool, price 6*l*. 10s.; a corn crusher, invented and manufactured by Messrs. Whitmee and Co., of London, price 7*l*.; three sizes of a small chaff-cutting machine, invented by John Cornes, of Barbridge, Cheshire, and improved and manufactured by James Cornes, of Barbridge, Cheshire, price 3*l*. 6s. to 6*l*. 15s.; a new turnip cutter and root slicer, with cylindrical motion, price 5*l*. 10s.; and a turnip cutter with vertical motion, both invented and manufactured by John Kealy, of 369, Oxford street, London, improved by Evan Davis, of London, price 4*l*. 4s.; a rotary screening machine, invented and improved by Alexander K. Smith, of Exeter, manufactured by Francis Arding, of Uxbridge, price 6*l*. 6s.; several sets of stable fittings, invented, improved, and manufactured by Samuel Hood, of Thames-street, London, at different prices; three new ornamental cast-iron seats, price 2*l*. 2s., 2*l*. 12s. 6d. and 3*l*. 3s.; and three ornamental cast-iron revolving tables, invented and manufactured by Barwell and Co., of Northampton, price 1*l*. 14s. 6d.; a turnip cutter and root slicer, invented and manufactured by John Kealy, of 369, Oxford street, London, improved by Evan Davis, of London, price 17*l*. 17s.; several ornamental rustic flower stands and tables, at different prices, invented and manufactured by John Curran, of Cheshire; four sizes of a poultry trough, price 2s. 9d. to 10s. each; and an improved Norfolk pig trough, invented and manufactured by Barnard and Bishop of Norwich, price 9s. 6d.; several bundles of steel digging forks; invented, improved, and manufactured by Francis Parkes, of Birmingham, at different prices; a patent self-adjusting acythe, invented and improved by Boyd, of London, manufactured by William Dray and Co., of London, price 10s. 6d.; Cogan's patent glass churns, price from 3*l*s. each; glass butter or pastry slabs, price from 10s. each; and glass tiles and slates for farm buildings, price from 10*l*. to 2s. each; Lord Camoy's syphons for separating milk from cream, price 1s. 6d. each; Cogan's glass poultry fountains, price from 2s. each; glass milk pans, and a variety of dairy glass, price from 6d. to 5s. each.

JOHN GILLAM, of Woodstock, Oxfordshire.

A seed and corn separator, invented and improved by the exhibitor (obtained a silver medal at Gloucester, July, 1853), price 13*l*. 13s.

WILLIAMS and MOWLE, of Egerton-street Foundry, Chester.

A six-horse power portable steam engine, invented, improved, and manufactured by the exhibitors, price 205*l*.

JOHN BARKER, of Dunnington, Yorks.

A burnished one-horse cart, price 18*l*.; a painted one-horse cart, price 13*l*. 10s.; a strong one or two horse Yorkshire cart, price 13*l*. 10s.; an improved winnowing machine, price 10*l*. 10s.; a deep-breasted wheel plough, price 5*l*.; an iron wheel plough for general purposes, price 4*l*. 5s.; a light iron

wheel plough for light land, price 3*l.* 15*s.*; a double-breasted expanding iron plough for making ridges, price 3*l.* 10*s.*; a subsoil pulverizer, price 6*l.* 10*s.*; a five tined drill grubber, price 5*l.*; a five tined horse hoe or grubber, price 2*l.* 10*s.*; a three tined horse hoe, price 2*l.*; a three sheared iron horse hoe, price 2*l.* 2*s.*; (new implement) a parallel expanding horse hoe, price 4*l.* 4*s.*; a set of improved serpentine seed harrows, price 3*l.* 10*s.*; a set of improved 'serpentine harrows for general purposes, price 3*l.* 10*s.*; a set of strong jointed serpentine or zigzag harrows, price 4*l.* 10*s.*; a pair of circular ridge harrows, price 1*l.* 12*s.* 6*d.*; a set of equalizing three horse draughts, price 1*l.* 10*s.*; and a set of iron box whippetrees, all invented, improved, and manufactured by the exhibitors, price 1*l.* 1*s.*

BRAGGINS and CHESTER, of Banbury, Oxfordshire.

A double acting turnip cutting machine, price 4*l.* 16*s.*; and four sizes of a single acting turnip cutting machine, all invented by James Gardner, of Banbury, and manufactured by the exhibitors, price 7*l.* 7*s.* to 4*l.* 4*s.*; two rising mouth lever chaff cutting machines, price 3*l.* 12*s.*; a bean mill, price 1*l.* 13*s.*; an oil cake breaker, price 2*l.* 10*s.*; and an atmospheric churn, on stand, all manufactured by the exhibitors, price 1*l.* 12*s.*

HUGH CARSON, of Warminster, Wiltshire.

(New implement) a Chandler's patent liquid manure or water drill, invented by Mr. Thomas Chandler, of Aldbourne, improved and manufactured by Robert and John Reeves, of Bratton (the following prizes have been awarded to these drills by the Royal Agricultural Society of England:—Silver medal at York, 1848, prize for the best liquid manure distributor, at Norwich, 1849, prize for the best liquid manure distributor, at Exeter, 1850, and the prize of 10*l.* given by P. Pusey, Esq., for the best liquid and seed drill, at Gloucester, 1853), price 27*l.* 10*s.*; a horse hoe and scuffling plough, price 3*l.* 3*s.*, and a chaff cutter (to be worked by horse or steam power), invented, improved, and manufactured by the exhibitor, price 10*l.* 10*s.*; two sizes of a chaff cutter (to be worked by hand power), invented, improved, and manufactured by the exhibitor, price 4*l.* 10*s.* and 5*l.* 10*s.*; a Moody's patent turnip cutter, invented by Edmund Moody, late of Maiden Bradley, improved and manufactured by the exhibitor (this machine obtained the prize as the best turnip cutter for sheep at the meeting of the Bath and West of England Agricultural Society, at Taunton, 1852, and as the best turnip cutter for cattle at the meeting of the same society at Plymouth, 1853; it was also highly commended by the judges of the Royal Agricultural Society of England at Gloucester, 1853), price 4*l.* 10*s.*, other sizes 4*l.* 4*s.* and 5*l.*; a double cheese press, with double lever (this press obtained the prize at the meeting of the Bath and West of England Agricultural Society at Plymouth, 1853), price 5*l.*; and a single cheese press, with double lever, both invented, improved, and manufactured by the exhibitor, price 2*l.* 10*s.*

JOHN COOK, of Eagle, near Newark, Nottinghamshire.

A Lincolnshire wheel plough, with long mould board, invented, improved, and manufactured by the exhibitor (has taken several prizes at various ploughing-meetings in the counties of Lincoln and Nottingham, price 3*l.* 15*s.*; a wheel plough, with short mould board, manufactured by the exhibitor, price 3*l.* 3*s.*; a swing plough, price 2*l.* 7*s.*; a one horse plough, price 2*l.* 2*s.*; a scarifier, price 3*l.* 15*s.*; a Lincolnshire waggon, price 36*l.*; a Lincolnshire plank-sided cart, price 14*l.* 10*s.*; and a one horse plank-sided cart, all improved and manufactured by the exhibitor, price 13*l.* 10*s.*

ROBERT HUNT, of Earls Colne, near Halstead, Essex.

An improved engine for drawing clover and trefoil seed, price on wood frame for steam power 25*l.* 5*s.*, on iron frame for ditto 27*l.* 5*s.*, if made portable for wheels and draughts 4*l.* 4*s.*; a chaff engine, for steam or horse power, price 13*l.* 13*s.*; an improved chaff engine, for horse or hand power, price 12*l.* 0*s.* 6*d.*; an Essex improved scythe, for mowing wheat, &c., price 11*s.* 6*d.*; three sizes of a hand seed drill, for drilling turnips, mangels, &c., improved and manufactured by the exhibitor, price 1*l.* 5*s.*, 1*l.* 10*s.*, and 3*l.* 3*s.*; (new implements) two sizes of a Joseph Warren's new patent expanding plough, invented and manufactured by Joseph Warren, of Maldon, price 2*l.* 18*s.* 6*d.* and 3*l.* 13*s.* 6*d.*

CLAYTON, SHUTTLEWORTH, and Co., of Lincoln.

A twenty horse power portable steam engine, price 450*l.*; a six horse power patent portable steam engine (this engine received a prize of 25*l.* at the Royal Agricultural Society's meeting held at Norwich, 1849, 25*l.* at Exeter, 1850, a prize medal at the Great Exhibition of All Nations, 1851, and the first prize of 20*l.* at the Royal Agricultural Society's meeting held at Gloucester, 1853) price 220*l.*; a five horse power patent portable steam engine, price 200*l.*; a four horse power patent portable steam engine, price 180*l.*; a six horse power fixed steam engine (this engine had the first prize of 20*l.* awarded to it at the Royal Agricultural Society's meeting held at Gloucester in 1853), price 175*l.* nett; an eight horse power fixed steam engine, price 210*l.*; a combined portable thrashing, straw shaking, riddling, winnowing, chaff separating, and barley horning machine (this machine was exhibited at the Royal Agricultural Society's meeting held at Lewes, 1852, and had a prize of 20*l.* awarded to it), price 95*l.*; a combined portable thrashing, straw shaking, riddling, winnowing, chaff separating, and barley horning machine, price 95*l.*; a set of fixed barn works (a silver medal and 10*l.* were awarded to this piece of machinery when exhibited at the Society's meeting held at Lewes, 1852, and a silver medal at the Society's meeting held at Gloucester, 1853), price 150*l.* nett; a pair of registered portable Derbyshire millstones, driven by steam power (this grinding mill received the prize of 10*l.* at the Royal Agricultural Society's meeting held at Norwich, 1849, also at Exeter, 1850, and again at Gloucester, 1853), price 48*l.*; a portable circular-saw bench, price 15*l.*; a portable circular-saw bench, price 35*l.*; a fixture circular-saw table, price 150*l.*; a portable thrashing, straw shaking, and riddling machine, and all invented, improved, and manufactured by the exhibitors, price 65*l.*

FREDERICK PHILLIPS, of Dowdham, near Brandon, Suffolk.

(New implements) two sizes of a patent turnip and general root pulping machine, invented by the exhibitor, and manufactured by Charles Burrell, of Thetford, price 11*l.* 11*s.* and 18*l.* 18*s.*

THOMAS SCRAGG, of Calveley, near Tarporey, Cheshire.

A single-action tile machine (the prize of 20*l.* was awarded to this machine at the Lewes Show in 1852), price 16*l.*, and (new implement) a brick press, price 3*l.*, both invented and manufactured by the exhibitor.

WILLIAM HUNTER, of Binbrook, near Market Rasen, Lincolnshire.

A drill for general purposes, improved and manufactured by the exhibitor, price 31*l.* 10*s.*; a corn hoe for ten rows, invented by Mr. Bourn, of Fulston, improved and manufactured by the exhibitor, price 10*l.* 10*s.*; a blower, price 3*l.* 10*s.*, and a cultivator, grubber, or scarifier, price 2*l.* 10*s.*, both invented, improved, and manufactured by the exhibitor; and a horse-hoe on the flat or ridge, improved and manufactured by the exhibitor, price 2*l.*

ANN SIMPSON and THOMAS SIMPSON, of Lincoln.

A set of steam cooking apparatus, price 16*l.*; an improved wrought-iron cylindrical boiler, price 7*l.*; a powerful cylindrical steam generator, price 12*l.* 10*s.*; an improved heating apparatus, price 5*l.*; and an improved hot water heating apparatus, price 5*l.* 10*s.*, all improved by Thomas Simpson, of Lincoln, and manufactured by the exhibitors; (new implements) three sizes of a patent pulping machine or root grater, price 3*l.* 10*s.*, 4*l.* 10*s.*, and 5*l.* 10*s.*, and (new implement) a patent turnip cutter, price 3*l.* 10*s.*, all invented and improved by R. H. Bushe, Esq., of Glencain, and manufactured by the exhibitors; a set of iron harrows, price 2*l.* 5*s.*; three sets of three-beam two-horse iron harrows, with whippetree complete, price 2*l.* 15*s.*, 3*l.* 10*s.*, and 3*l.*, improved and manufactured by John Smith, of Heighington; two sets of strong three-beam iron harrows, with whippetree complete, improved and manufactured by William Covill, of Wellingore, price 3*l.* and 3*l.* 10*s.*; a barley awner or hummelling machine, invented, improved, and manufactured by Lucas and Wright, of Lincoln, price 4*l.* 10*s.*; a single row drill for small occupations, improved and manufac-

tured by the exhibitors, price 2*l.* 5*s.*; several specimens of an iron hurdle, manufactured by the exhibitors, price 4*s.* to 13*s.* 6*d.*; an iron field gate, price 1*l.* 6*s.*; a wrought iron carriage gate, price £3; a wrought iron garden gate, price 2*l.* 5*s.*; and a pair of wrought iron gates, price 4*l.*, all improved and manufactured by the exhibitors; a strong field gate with cast iron posts, manufactured by the exhibitors, price 2*l.*; several coils of galvanized wire netting, improved and manufactured by the exhibitors, price per yard 7*d.* and upwards; several lengths of ornamental iron fencing, manufactured by the exhibitors, price per yard 5*s.* and upwards; a pattern length of five-wired strained wire fence, with posts and standards, price per yard 1*s.* 6*d.*; a pattern of twisted coil-wire fencing, with improved posts and standards, price per yard 2*s.* 6*d.*; an economical cottage range, price 2*l.* 10*s.*; and a cottage range, price 3*l.* 10*s.*, invented and improved by Thomas Simpson, of Lincoln, and manufactured by the exhibitors; a patent prize kitchener or cooking apparatus, invented and improved by Sidney Flavel, of Leamington, and manufactured by Sidney Flavel and Belts, of Leamington, price 25*l.*; a patent prize cooking apparatus, invented, improved, and manufactured by Henry Goddard, of Nottingham, price 15*l.* 15*s.*; several specimens of an improved chaff-cutting machine, price 4*l.* 10*s.* to 14*l.* 10*s.*; three specimens of a newly improved corn crusher, price from 5*l.* 5*s.* to 14*l.* 10*s.*, invented, improved, and manufactured by Richmond and Chandler, of Salford, Manchester; a Northumberland clod crusher, invented and improved by John Richardson, of Newcastle-upon-Tyne, and manufactured by John Richardson and Son, of Newcastle-upon-Tyne, price 16*l.* 10*s.*; a bean-cutting machine, price 3*l.* 15*s.*, and an universal mill, price 8*l.* 8*s.*, invented by Biddell, and manufactured by Ransome and Sims, of Ipswich; a Hurwood's patent metal mill on stand, manufactured by Ransomes and Sims, of Ipswich, price 14*l.* 14*s.*; three sizes of a weighing machine, manufactured by the exhibitors, price 2*l.* 2*s.* to 3*l.* 15*s.*; two specimens of an improved blowing machine, price 6*l.* to 6*l.* 10*s.*, and a dressing machine, price 12*l.*, invented and improved by Thomas Bartholomew, of Langton, and manufactured by Joseph Dixon, of Lincoln; a blowing machine, price 4*l.*, and a single-row drill for drilling turnips upon ridge, price 7*l.* 10*s.*, invented, improved, and manufactured by W. Edwards, of Wellington; an improved turnip grubber or horse-hoe, improved and manufactured by the exhibitors, price 3*l.*; a patent lever horse-rake, invented, improved, and manufactured by W. and J. Wright, of Stamford, price 7*l.*; an improved draining level, invented, improved, and manufactured by W. B. Webster, of Hounsdown, price 2*l.* 10*s.*; a set of patent spring links, invented, improved, and manufactured by Wm. Rice, of Boston, price from 7*s.* 6*d.* to 1*l.* 5*s.* per pair; an improved horse-hoe, invented, improved, and manufactured by Wm. Walker, of West Ashby, price 2*l.* 10*s.*; two specimens of an improved tubular iron and wood swathe rake, invented and manufactured by Warren Sharman, of Melton Mowbray, and improved by Thos. Simpson, of Lincoln, price 18*s.* and 1*l.*; an improved tubular iron and wood swathe rake, invented, improved, and manufactured by Warren Sharman, of Melton Mowbray, price 16*s.* 6*d.*; an improved tubular iron and wood hand rake, invented, improved, and manufactured by Warren Sharman, of Melton Mowbray, price 8*s.* 6*d.*; a platform weighing machine, invented, improved, and manufactured by W. T. Avery, of Birmingham, price 4*l.* 4*s.*; a light one horse four wheeled waggon, price 26*l.*, and a wood beam wheeled plough, price 2*l.* 2*s.*, invented, improved, and manufactured by Vincent Dawson, of Lincoln; two sets of cast steel Lincolnshire hay forks, invented, improved, and manufactured by William Curdill, of Legsbys, price 1*l.* 10*s.* and 1*l.* 16*s.*; a set of Lincolnshire hay forks, invented, improved, and manufactured by the exhibitors, price from 5*s.* to 6*s.* 6*d.* each, or 1*l.* 3*s.* per set; a set of two swathe rakes, invented, improved, and manufactured by Walker, of West Ashby, price 15*s.*; a Chubb's patent barn or granary door lock, price 1*l.* 17*s.*, and a set of Chubb's padlocks, price 5*l.* 10*s.* per set, invented, improved, and manufactured by C. Chubb and Sons, of St. Paul's Churchyard, London; a seven horse power portable steam engine, invented, improved, and manufactured by Watkinson and Roby, of Lincoln, price 220*l.*; two sizes of an oilcake breaking machine, invented, improved, and manufactured by William Newzam Nicholson, of Newark-upon-Trent, price 3*l.* 3*s.* and 4*l.* 10*s.*; a turnip cutting machine, invented by the late James Gardner, of Banbury, improved and manufactured by Messrs. Ransomes and Sims, of Ipswich,

price 4*l.* 10*s.*; a double action turnip cutting machine, invented by the late James Gardner, of Banbury, improved and manufactured by Bernard Samuelson, of Banbury, price 5*l.* 10*s.*; a patent churn, invented and improved by Mr. Drummond, of Stirling, and manufactured by C. D. Young and Co., of Edinburgh, price 3*l.* 12*s.* 6*d.*; (new implement) a patent churn, invented, improved, and manufactured by Philip Hunter, of Edinburgh, price 1*l.* 16*s.*; two sizes of a patent fire proof iron safe, invented by Thomas Milner, of Liverpool, improved and manufactured by Thomas Milner and Son, of Liverpool, price 5*l.* and 7*l.* 10*s.*; a strong holdfast iron fire proof safe, invented, improved, and manufactured by Thos. Milner and Son, of Liverpool, price 15*l.*; a strong solid iron bedstead, for farm servants, &c., manufactured by the exhibitors, price 17*s.* 6*d.*; four specimens of a strong solid iron bedstead, manufactured by Peyton and Harlow, of Birmingham, price £1 6*s.* 6*d.* to £3 8*s.* 6*d.*; a superior tubular pillar iron bedstead, manufactured by R. W. Winfield, of Birmingham, price 8*l.* 4*s.*; a set of four American hayforks, invented, improved, and manufactured by Batchelor and Sons, of Walingford, Massachusetts, United States, price 3*s.*, 4*s.*, 5*s.* 6*d.*, 7*s.* each, or 19*s.* 6*d.* per set of four.

THOMAS BUXTON, of New Malton, Yorkshire.

(New implement) a twelve inch mill, price £10; (new implement) a nine inch mill, price £8; (new implement) a six inch mill, price 6*l.*; and (new implement) a 5*ft.* 6*in.* roller or clod crusher, for crushing clods, rolling wheat or seed land, price 18*l.*, all invented and manufactured by the exhibitor.

RICHARD HORNSBY and SON, of Spittlegate Iron Works, near Grantham, Lincolnshire.

An eight horse power improved patent portable steam engine, price 255*l.*; a seven horse power patent portable steam engine (this is the engine which was made for the Exhibition of the Industry of All Nations in Hyde Park in 1851, and to which was awarded the Great Council Medal), price 375*l.*; two six horse power improved patent portable steam engines (to one of which the council medal was awarded at the Great Exhibition in Hyde Park in 1851, also the first prize of 40*l.* as the best and most economical engine exhibited at the Meeting of the Royal Agricultural Society of England held at Lewes, July, 1852; of 50*l.* at Exeter, July, 1850; 50*l.* at York, July, 1848; and 10*l.* at Gloucester, July, 1853), price 220*l.* each; a four horse power improved patent portable steam engine, price 180*l.*; a ten horse power improved fixed steam engine, price 265*l.*; a nine horse power improved horizontal fixed steam engine, price 240*l.*; two improved patent portable combined thrashing, shaking, and dressing machines, price 90*l.* and 100*l.*; a four horse power improved portable thrashing machine, price 75*l.*; a patent corn dressing or winnowing machine (the council medal was awarded to this machine at the Great Exhibition in Hyde Park in 1851, and it has also received the first prizes from the Royal Agricultural Society of England at their meetings: 5*l.* at Gloucester, July, 1853; 10*l.* at Lewes, July, 1852; 10*l.* at Exeter, July, 1850; 10*l.* at Norwich, July, 1849; 10*l.* at York, July, 1848; and 3*l.* at Newcastle, July, 1846), price 13*l.* 10*s.*; an improved corn dressing machine, price 12*l.*; a blower machine or corn rectifier, price 5*l.*; a drilling machine, for corn and general purposes (this drill received the first prize of 10*l.* from the Royal Agricultural Society of England at the Lewes Meeting, July, 1852; 15*l.* at Norwich, July, 1849; 15*l.* at York, July, 1848; 15*l.* at Newcastle-upon-Tyne, July, 1846; 15*l.* at Shrewsbury, July, 1845; 10*l.* at Derby, 1843; 30*l.* at Bristol, July, 1842; and 25*l.* at Liverpool, 1841), price 38*l.*; a patent corn and seed drill, on an improved principle (for this drill the exhibitors received the council medal at the Great Exhibition in Hyde Park in 1851; also from the Royal Agricultural Society of England the first prize of 10*l.* at their meeting at Gloucester, July, 1853; 10*l.* at Lewes, July, 1852; 10*l.* at Exeter, July, 1850; and also a prize medal for the introduction of the patent India-rubber tubes for conducting the seed to the ground, and for patented improvements in the fore carriage steerage), price 30*l.*; an improved patent fore carriage steerage, price 4*l.* 10*s.*; an improved patent corn and seed drill, price 29*l.*; a patent small occupation corn drill, price 18*l.*; a patent drill for turnips or mangel wurzel, with manure (this drill received the first prize of 10*l.*, as the best exhibited at the meeting of the Royal Agricultural Society of England held at Lewes, July, 1852; of 10*l.* at Exeter, July,

1850; of 10l. at Norwich, July, 1849; and 10l. at Shrewsbury, July, 1845), price 26l. 10s.; a two row patent ridge drill for turnips and mangel wurzel with manure (this drill received the council medal at the Great Exhibition, Hyde Park, in 1851, and also the first prize of 10l. at the meeting of the Royal Agricultural Society of England at Gloucester, July, 1853; of 10l. at Lewes, July, 1852; of 10l. at Exeter, July, 1850; of 10l. at Norwich, July, 1849; of 10l. at York, July, 1848; of 10l. at Shrewsbury, July, 1845; the prize medal at Derby, July, 1843; and 10l. at Liverpool, July, 1841), price 24l.; a patent drop drilling machine for ridges or flat ground (this drill received the council medal at the Great Exhibition in Hyde Park, 1851), price 23l. 10s., all the above are invented, improved, and manufactured by the exhibitors; a patent clod crusher roller, invented and manufactured by W. Crosskill, of Beverley, price 20l.; a patent press wheel roller or clod crusher, invented and improved by William Cambridge, of Bristol, manufactured by the exhibitors, price 18l.; an improved land presser (this presser received the first prize of 10l. at the Royal Agricultural Society's meeting at Northampton, July, 1847; of 10l. at Newcastle-upon-Tyne, July, 1846; and of 10l. at Southampton, July, 1844), price 8l.; a double cake breaking or crushing machine (this machine received the council medal at the Great Exhibition in Hyde Park, 1851; also the first prize of 5l. at the Lewes Meeting of the Royal Agricultural Society of England, July, 1852; of 5l. at Shrewsbury, July, 1845; of 5l. at Southampton, July, 1844; of 5l. at Derby, July, 1843), price 10l.; an improved cake breaking or crushing machine, price 5l. 5s.; and a single cake breaking or crushing machine, invented, improved, and manufactured by the exhibitors, price 4l. 4s.; a Cornes' improved chaff cutting machine, price 13l. 10s.; and a two knife Cornes' improved chaff cutting machine, price 10l. 15s., invented by Cornes', of Nantwich, Staffordshire, manufactured by the exhibitors.

J. T. KNAPP, of Clanfield, near Bampton, Oxfordshire.

A patent winnowing or corn dressing machine, invented by Mr. Naton, of Alvescott, Oxon, and manufactured by the exhibitor, price 14l. 14s.

EDWARD HAMMOND BENTALL, of Heybridge, near Maldon, Essex.

Several sizes of Bentall's patent iron beam broadshare and subsoil plough (as a pair horse scarifier, a prize of 5l. was awarded at the Show of the Royal Agricultural Society at Exeter in 1850; as a cultivator, a prize medal was awarded at the Great Exhibition of 1851; as a subsoil plough, a prize medal was awarded at the Great Exhibition of 1851), prices various, from 4l. 4s. to 7l. 17s.; two of Bentall's patent mangel or ridge hoe, price 2l. 2s. and 2l. 12s. 6d.; a set of four horse, three horse, and two horse whippetrees, manufactured by the exhibitors, price 11s., 1l. 2s., and 1l. 11s. 6d.; a hand turnip cutter for sheep and beasts, improved and manufactured by the exhibitor, price 1l. 11s. 6d.; a Bentall's oilcake mill, invented and manufactured by the exhibitor, price 2l. 2s.; a small chaff cutter, improved and manufactured by the exhibitor, price 3l. 3s.; two oblong cattle feeding or water troughs, price 9s. and 8s.; several hog troughs and sheep trough, price 7s. 6d. to 12s.; and two stack pillars and caps, price 5s., all manufactured by the exhibitor.

JAMES COMINS, of South Molton, Devon.

A horse hoe, price 2l. 2s.; a Great Exhibition prize medal horse hoe, price 3l.; a subsoil pulverizer (it was awarded the prize of 5l. at the Royal Agricultural Society's meeting held at Norwich, July, 1849), price 4l. 12s. 6d.; a paring plough (it received the prize of the Bath and West of England Agricultural Society's meeting held at Taunton, June, 1852), price 4l. 15s.; (new implement) a new pattern turn-wrest plough, price 5l. 10s., and a plough for filling-in drains, all invented, improved, and manufactured by the exhibitor, price 6l. 10s.; two sets of whippetrees, manufactured by the exhibitor, price 4s. each.

J. BAILEY DENTON, of 52, Parliament-street, London.

A relief map of a drainage area, being a specimen of mechanical modelling of a ground surface, invented, improved, and manufactured by the exhibitor, price per acre 3s.; (new implement) an improved "A" level, invented and improved by

the exhibitor, manufactured by Messrs. Jones and Co., of High Holborn, price 4l. 4s.; (new implement) outlets for main drains, price 10s. and upwards; (new implement) inlets for drains, price 15s. and upwards; (new implement) wells or sumpts (three sorts), price 1l. 2s. 6d. and upwards; and (new implement) air vents in connection with iron piping, all invented by the exhibitor, and manufactured by Stanley and Bower, of Peterborough, price from 12s.

WILLIAM PROCTER STANLEY, of Peterborough, Northamptonshire.

A Stanley's registered roller mill, for crushing linseed, oats, barley, malt, gold-of-pleasure beans, and Indian corn, invented, improved, and manufactured by the exhibitor (prizes were awarded to this mill at the Royal Agricultural Society's show at York, Exeter, Lewes, and Gloucester; Royal Irish Society's shows at Galway and Killarney; at the Bath and West of England's Society's show at Plymouth; and also at the following local shows:—Peterborough, Huntingdon, Wisbech, Boston, Lincoln, North Stafford, North Lancashire, Northumberland, Durham, Cleveland, Brigg, Liverpool, Manchester, Preston, Farnham, and Yorkshire; also the reward of a medal at the Royal Exhibition of 1851), price 13l.; three specimens of a Stanley's registered roller mill, price 6l., 8l., and 16l. 10s.; a Stanley's oat, bean, and universal mill, price 4l. 4s.; three sizes of Stanley's registered farmer's steaming apparatus (prizes were awarded to this apparatus at the Royal Agricultural Society's shows at York, Exeter, Norwich, Lewes, and Gloucester; Royal Irish show at Galway and Killarney; Bath and West of England Society's show at Plymouth; and at the following local shows:—Peterborough, Huntingdon, Wisbech, Northampton, Boston, North Stafford, Lincoln, Brigg, North Lancashire, Liverpool, Manchester, Northumberland, Durham, Cleveland, and South Lancashire), price 12l. 10s. to 35l.; and two of Stanley's improved chaff machines, invented, improved, and manufactured by the exhibitor, price 3l. 3s. and 11l.; a Bentall's iron beam broadshare and subsoil plough, cultivator, or scarifier, combined in one, invented, improved, and manufactured by E. and H. Bentall, of Heybridge (the prize of 5l. was awarded to this implement at the meeting of the Royal Agricultural Society at Exeter, also at Gloucester, Killarney, Royal Irish Society's at Galway, and the Bath and West of England Society's show at Plymouth, as the best pair-horse scarifier; a prize medal was awarded to it at the Great Exhibition as a cultivator, and at the same time a prize medal to the same implement as a subsoil plough), price 5l. 5s.; a Stanley's improved vertical dash churn, manufactured by the exhibitor, price 7l.; three sizes of Cambridge's patent press wheel roller and clod crusher, invented by Mr. Cambridge, of Bristol, improved and manufactured by the exhibitor (a prize of 5l. was awarded it at Preston for preventing the ravages of the wireworm and slug, a prize at Exminster for rolling pasture or meadow land, ditto at Exeter for preparing turnip land for barley, at North Lincolnshire for clod crushing, at Edinburgh for producing good crops of swede turnips, &c., and at many other local societies for its general uses), price from 11l. to 14l. 10s.; a cast cylinder land roll, in three parts, price 8l., and a wrought cylinder land roll, in two parts, manufactured by the exhibitor, price 7l.; a Stanley's wheel roll, invented by Mr. Gilson Martin, of Goose Tree Farm, March, Cambridgeshire, manufactured by the exhibitor, price 18l. 10s.

WARREN SHARMAN, of Melton Mowbray, Leicestershire.

Several pairs of registered tubular iron hand hay or corn drag rakes, price 8s. 6d. to 16s. 6d. each; and (new implements) several bundles, containing half-a-dozen of registered tubular iron twich or stubble rakes, invented, improved, and manufactured by the exhibitor, price 3s. each and upwards; three bundles of sheet iron root or chaff scutles, price 2s. 6d. each and upwards; several bundles of sheet iron corn or chaff scutles, price 2s. 6d. each and upwards; (new implement) four sizes of a poultry fountain, invented and manufactured by the exhibitor, price 9s. and upwards; several sack trucks, manufactured by the exhibitor, price 12s. each and upwards.

THOMAS JOHNSON, of Leicester.

(New implement) an improved linseed cake breaking machine for beasts and sheep, price 3l. 10s., and (new implement)

an improved moulding and ridging plough, invented, improved, and manufactured by the exhibitor, price 4*l.*; a strong wrought iron scudler and scarifier, price with two sets of tines 4*l.* 4*s.*; an improved turl and stubble paring plough, invented and manufactured by the exhibitor, price 5*l.* 10*s.*; a machine for crushing malt, invented, improved, and manufactured by the exhibitor, price 6*l.*; a cast iron stack pillar, with spike at top, price 6*s.*; a strong wrought iron wheelbarrow, price 1*l.* 4*s.*; a cast iron circular revolving pig trough with five divisions, price 10*s.* 6*d.*, a ditto with six divisions, price 15*s.* 6*d.*, and a ditto with eight divisions, all manufactured by the exhibitor, price 17*s.* 6*d.*; (new implement) a hand seed drill for turnips and mangel wurzel, price 4*l.*; and (new implement) a drill for ground or dissolved bones, and all kinds of artificial and pulverized manures, invented and manufactured by William Goulding, of Leicester, price 4*l.* 10*s.*; a portable iron mangle, with horizontal spring pressure and mahogany linen press, invented and manufactured by E. O. Tindall, of Scarborough, price 5*l.* 15*s.*; (new implement) a patent diagonal churn, invented and manufactured by Lorenzo Tindall, of Scarborough, price from 2*l.* upwards; a contracting weighing machine, invented and manufactured by W. and T. Avery, of Birmingham, price 3*l.* 10*s.*; several weighing machines, price 1*l.* 18*s.* and upwards; a twenty-stone set of improved iron weights (adjusted and stamped), price 1*l.* 5*s.* 6*d.*; and several ornamental cast iron rustic garden chairs, manufactured by the exhibitor, price 1*l.* 12*s.* 6*d.* and upwards; an ornamental cast iron hall table, price 3*l.* 12*s.* 6*d.*; a handsome cast iron hat, coat, and umbrella stand, price 3*l.* 3*s.*, and an ornamental cast iron vase and pedestal with loose earthenware pot, designed and manufactured by the Coalbrookdale Company, price 4*l.* 15*s.*; a large cast iron vase, price 2*l.*, and an ornamental cast iron hall chair, manufactured by the exhibitor, price 18*s.*; two ornamental cast iron hall chairs, price 1*l.* 7*s.* 6*d.*, and a massive cast iron Berlin black door scraper, with brushes, designed and manufactured by Marsh and Son, of Dudley, price 1*l.* 2*s.*; an ornamental circular cast iron table, with massive pedestal, designed and manufactured by the exhibitor, price 1*l.* 14*s.*; a black register grate, with ground front and ornamental back, price 1*l.* 15*s.*; a cast iron Berlin black fender, with bright top and standards for fire-irons, price 1*l.* 1*s.* 6*d.*, and a black register grate, with ground canopy front, ornamental iron back, manufactured by the exhibitor, price 2*l.* 4*s.*

JAMES and FREDERICK HOWARD, of Bedford.

Several specimens of the famous patent iron plough with two wheels (marked P No. 2), invented and manufactured by the exhibitors, price 4*l.* 5*s.* and upwards; a patent iron plough with two wheels (marked I A No. 1), invented and manufactured by the exhibitors, price 4*l.* 5*s.*, with skim coulter 5*s.* extra (this is the exhibitors' original "Champion" plough, which gained nine first premiums at the annual meetings of the Royal Agricultural Society); a patent iron Kentish plough with two wheel (marked PPP), price 6*l.*; two kinds of a patent double-furrow plough, price 7*l.* 7*s.*; two improved Northumberland ridge or double-breast ploughs, price 3*l.* 15*s.* and 4*l.* 5*s.* and a patent subsoil plough, or subsoil pulverizer, invented and manufactured by the exhibitors, price 6*l.* 10*s.* (the Royal Agricultural Society awarded the first prize of 5*l.* to this implement at Gloucester, 1853); a Read's patent sub-pulverizer, or subsoil plough, invented by the late John Read, of London, improved and manufactured by the exhibitors, price 5*l.* 5*s.* (the following premiums have been awarded to this implement by the Royal Agricultural Society: the first prize of 10*l.*, at the Southampton meeting, in 1844; the first prize of 10*l.*, at the Shrewsbury meeting, 1845; the first prize of 10*l.*, at the Newcastle-on-Tyne meeting, in 1846; the first prize of 10*l.*, at Northampton, 1847; and the first prize of 5*l.*, at the Exeter meeting, 1850); several sets of new patent jointed iron harrows, invented by James Howard and W. Armstrong, of Bedford, and manufactured by the exhibitors, price from 3*l.* 10*s.* upwards (the following premiums have been awarded by the Royal Agricultural Society of England: Derby meeting, 1844, first prize of 5*l.*; York meeting, 1848, first prize of 5*l.*; Exeter meeting, 1850, first prize of 5*l.*; Lewes meeting, 1852, first prize of 5*l.*; and the first prize of 5*l.* at the Gloucester meeting, 1853); an improved wrought-iron scarifier, invented and manufactured by the exhibitors, price 7*l.*; a set of improved trussed whippetrees, invented by Egerton Harding, Esq., and manufactured by the exhibitors, price 11*s.* 6*d.*; two

sets of improved equalizing whippetrees, price 1*l.* 6*s.* each, and three sizes of an improved one-rowed horse hoe, invented and manufactured by the exhibitors, price from 2*l.* 15*s.* to 3*l.* (the Royal Agricultural Society awarded the prize to this implement at Lewes, 1852, and at Gloucester, 1853); two sizes of a patent horse rake, invented and manufactured by the exhibitors, price 3*l.* 10*s.* to 5*l.* 10*s.* (the Royal Agricultural Society awarded the prize to this implement at Exeter, 1850, and again at Lewes, 1852; at the Great Exhibition of All Nations, Messrs. H. also gained the prize medal for this implement); two sizes of an improved Bedfordshire one-horse cart, price 11*l.* 11*s.* and 14*l.* 5*s.*, and samples of improved plough-wheels and case-hardened shares.

SELBY HAND, of Glington, near Market Deeping, Lincolnshire.

A chaff-cutting machine, for horse power, price 12*l.* 12*s.*, and a chaff-cutter, for one, two, or three men, invented by Cornes, improved and manufactured by the exhibitor, price 10*l.*; a chaff-machine, improved and manufactured by the exhibitor, price 22*l.* 16*s.*; two sizes of a scarifier or cultivator, invented by Coleman, of Chelmsford, improved and manufactured by the exhibitor, price 8*l.* 10*s.* and 11*l.* 10*s.*; (new implement), a cake breaker and corn crusher combined, invented and manufactured by the exhibitor, price 8*l.*, or either separate 4*l.*; an iron plough, improved and manufactured by the exhibitor, price 4*l.*

CHARLES HART, of Vale of White Horse Iron Works, near Wantage, Berks.

A pair horse scarifier or cultivator, price 9*l.* 12*s.* 6*d.*; and a seven time cultivator, invented, improved, and manufactured by the exhibitor, price 14*l.*; a six horse steam engine, invented, improved, and manufactured by Clayton and Co., of Lincoln, price 230*l.*; a combined seven horse power portable thrashing machine, &c., price 120*l.*; and a five horse power combined portable thrashing, straw shaking, and winnowing machine, invented, improved, and manufactured by the exhibitor, price 130*l.*

GEORGE HUNTER, of Ulceby, Lincolnshire, near Hull, Yorkshire.

A drill, for general purposes, price 33*l.*; a corn and seed drill, price 23*l.*; a corn and seed drill, for small or grass seeds, price 30*l.*; and a small occupation drill, for seed and manure, for flat or ridge work, price 18*l.* 10*s.*, improved by Thomas Hunter, of Ulceby, and manufactured by the exhibitor; a two horse cart, improved by Mr. William Torr, of Aylesby, and manufactured by the exhibitor, price 12*l.* 10*s.*; a turnip drill on flat, with manure, price 21*l.*; (new implement) a guano drill, for depositing the guano in the ridges, invented by Thomas Hunter of Ulceby, improved by Wm. Torr, of Aylesby, and manufactured by the exhibitor, price 8*l.*; (new implement) a light wooden roller, invented by Wm. Torr of Aylesby, improved and manufactured by the exhibitor, price 3*l.* 10*s.*

JOSEPH LEE, of Stonnall, near Walsall, Staffordshire.

A portable steam engine, invented, improved, and manufactured by the exhibitor, price 170*l.*

JOSEPH LONG, of Meriten's Wharf, Dockhead, London.

Thirty five casks of nonpoisonous sheep dipping composition, termed "Long's specific," price 6*s.* per gal.; thirty five casks of nonpoisonous sheep dressing composition, termed "Long's preservative," or lamb dressing, price 2*s.* 8*d.* per gal.; and ten cases containing two dozen bottles sheep dressing composition, termed "Long's foot rot or general lotion," discovered and manufactured by the exhibitor, price 2*s.* 6*d.* per pint bottle; a case of Long's foot rot knives, invented by the exhibitor, and manufactured by Messrs. Thomas Turner and company, of Sheffield, price 1*s.* 6*d.* each; twelve pouring cans of size and shape most convenient for use, price 2*s.* 6*d.* each; three dressing bowls of size and shape most convenient for use, price 2*s.* 6*d.* each; and two dressing forks of the size and shape most convenient for use, invented and improved by the exhibitor, price 1*l.* 10*s.* each; a cask of artificial manure, termed "nitro phosphate or blood manure," price 6*l.* per ton; and a cask of artificial manure, termed "concentrated night soil and blood," manufactured by W. Swanton and Co., of London, price 3*l.* 10*s.* per ton.

JOHN PATERSON, of Beverley, Yorkshire.

A full-size and small size patent washing, wringing, and mangling machine, price 7*l.* 10*s.* and 10*l.* 10*s.*; and a patent self cleaning clod crusher, or land roller, invented and manufactured by the exhibitor, price 19*l.* 10*s.*; a Crosskill's clod crusher, improved by the exhibitor, price 5*l.* 10*s.*; a patent reaping machine, improved by Peter, of Beverley, and the exhibitor, and manufactured by the exhibitor, price 35*l.*

MICHAEL PENESTAN, of Lincoln.

A seven horse power portable steam engine, improved and manufactured by the exhibitor, price 175*l.*; a four horse power portable steam engine, price 155*l.*; and a portable thrashing, shaking, riddling, and winnowing machine, manufactured by the exhibitor, price 70*l.*; two sizes of a Cambridge wheel roller or clod crusher, invented by William Cambridge, of Bristol, and manufactured by the exhibitor, price 13*l.* and 16*l.*; a flat sole wheel roller, for rolling spring corn, placed one inch apart, invented by Thomas Tapholme, of Horncastle, and manufactured by the exhibitor, price 14*l.*; two sizes of a plain iron roller, in three parts, manufactured by the exhibitor, price 9*l.* and 12*l.*

WILLIAM SHEPARD, of Hovingham, (near Nottingham) Nottinghamshire.

A plough with steel breast and four shares of different sizes, price 3*l.* 16*s.*; and a cart adapted for the purpose of a miller or maltster, with patent axle, improved and manufactured by the exhibitor, price 17*l.*

SMITH and ASHEY, of Stamford, Lincolnshire.

A Smith and Ashby's patent improved double action hay-making machine, on Smith and Ashby's patent wrought iron wheels, invented, improved, and manufactured by the exhibitors (first prizes were awarded to this implement at the Royal Agricultural Society's meeting at Newcastle, 1846, £5; at the Great Yorkshire meeting, 1846, £5 5*s.*; at the Derbyshire meeting, 1846, £5 5*s.*; at the great Yorkshire meeting, 1847, £5; at York, 1848, the Royal Society's medal; at the great Yorkshire meeting, 1849, £3 3*s.*; the Royal Society's prize of £5 for the best haymaker, at the Norwich meeting, 1849; the Royal Society's prize for the best haymaker at Exeter, 1850; the first prize of the North Lincolnshire Society, 1850; the first prize of the Royal North Lancashire, 1850; the first prize at the great Yorkshire, 1850; the prize medal at the Great Exhibition of all nations, 1851; first prize at the Bath and West of England Society's meeting at Tannou, 1852; at the Royal Society's meeting at Lewes, 1852, the judges' commendation (no prize being offered that year); the prize of the Bath and West of England at Plymouth, 1853; the prize of the North Lancashire meeting at Blackburn, 1853; and the medal of the Royal Society at Gloucester, 1853), price £15 15*s.*; two sizes of Smith and Ashby's patent improved horse rake (this rake took the prize medal of the Great Exhibition of all nations, 1851, and has also taken thirteen prizes from various agricultural societies), price £7 10*s.* and £8; patent lever wheel hand rake, price £2; five sizes of Smith and Ashby's exhibition prize patent safety chaff and litter cutter, with two knives (this powerful and effective machine received the prize medal of the Great Exhibition of 1851), price from £5 10*s.* to £17; an improved prize cultivator, grubber, or scarifier (No. 2) (to this implement was awarded at the meeting of the Royal Society at Newcastle, 1846, the prize medal; ditto at Norwich, 1849, £10; at the Great Yorkshire, 1849, £5 5*s.*; at the Exeter meeting of the Royal Agricultural Society, 1850, £10; at the great Yorkshire, 1850, £5; the prize of the Royal North Lancashire, 1850; and at the great Yorkshire, 1852, £5), price £13; a patent park or luggage cart, price £13 10*s.*; and a newly invented patent one horse cart for harvest work and general purposes, all invented, improved, and manufactured by the exhibitors, price £11 10*s.*

EDWARD R. TURNER and Co., of St. Peter's Iron Works, near Ipswich, Suffolk.

A four horse power horizontal cylinder fixture steam engine, price 120*l.*; several sizes of Turner's roller mill, for crushing linseed, oats, malt, barley, &c., and grinding beans (obtained the prize of 5*l.* for the best linseed and corn crusher at the

Royal Agricultural Society's Gloucester Show, July, 1853), prices from 5*l.* 15*s.* upwards; a metallic grinding mill, price 14*l.* 14*s.*; and an oilcake breaker for foreign or English cake, price 3*l.* 10*s.*, all invented, improved, and manufactured by the exhibitors; an iron oilcake breaker for English cake, improved and manufactured by the exhibitors, price 2*l.* 2*s.*; a chaff cutter with two convex knives, invented, improved, and manufactured by the exhibitors, price 10*l.* 10*s.*; a hand chaff cutter with two convex knives, improved and manufactured by the exhibitors, price 3*l.* 17*s.* 6*d.*; a small hand bean mill, price 2*l.* 5*s.*, and a hand roller mill, for oats, linseed, and beans, price 5*l.* 15*s.* 6*d.*, invented, improved, and manufactured by the exhibitors.

J. TYLOR and SONS, of Warwick-lane, Newgate-street, London.

A fire engine, improved and manufactured by the exhibitors, price complete 228*l.* 15*s.*

WILLIAM WALKER, of East Bridgford, near Ratchliffe, Nottinghamshire.

A corn and seed drill, invented, improved, and manufactured by the exhibitor, price 46*l.* 10*s.*

EDWARD WEIR, of 16, Bath-place, New-road, London.

An irrigator, liquid manure pump, and fire and garden engine, price 8*l.* 8*s.*; (new implement) a double cylinder irrigator, liquid manure pump, and fire and garden engine, price 10*l.* 10*s.*; (new implement) an irrigator for steam or horse power, price 16*l.* 16*s.*; (new implement) a hose pipe reel, price 7*l.* 7*s.*; a draining level, price 1*l.* 10*s.*; (new implement) a workman's pendulum level, for use in the drain, price 15*s.*; two descriptions of a portable wrought iron liquid manure pump, tripod stand, and flexible pipe, price 4*l.* 5*s.* and 4*l.* 15*s.*; specimens of cauvass hose pipe for conveying liquid manure or water, price 4*d.* per foot, and upwards; (new implement) an improved hose joint for connecting lengths of canvas hose pipe, price 4*s.* 6*d.* and upwards; and (new implement) a length of portable wrought iron pipe for liquid manure or water, price 1*s.* per foot and upwards, all invented and manufactured by the exhibitor.

JAMES WOODS, of Stowmarket, Suffolk.

Two kinds of a Gloucester broadshare and cultivator, price 6*l.* 16*s.* each, and a two horse Suffolk scarifier or skim, price 6*l.* 6*s.*, improved and manufactured by the exhibitor; an improved power for one horse, price 12*l.* 12*s.*; an improved two horse power portable thrashing machine, price 36*l.*; and an improved cart, price 12*l.* 10*s.*, invented, improved, and manufactured by the exhibitor; three of Hall's patent new cabinet mangles, invented by John Halls, of Bedford, and manufactured by the exhibitor, price 6*l.* 10*s.* and 8*l.* 10*s.*; a portable asphalt cauldron and working tools, invented and manufactured by the exhibitor, price 17*l.*; a specimen of asphalt flooring; an improved double roll with furrow roll, for spring corn, price 8*l.* 8*s.*; and three sizes of a registered crushing and grinding mill, price 7*l.* 15*s.* to 13*l.* 13*s.*, invented, improved, and manufactured by the exhibitor; a Cornes' chaff engine, invented by J. Cornes, of Barbridge, and improved and manufactured by the exhibitor (this article has gained the Royal Agricultural Society's prize several years in succession) price 10*l.* 10*s.*

WILLIAM ALLCHIN and SON, of The Globe Works, Northampton.

(New implement), a six-horse power patent portable steam engine, invented, improved, and manufactured by the exhibitors, price £215.

FRANCIS ARDING, of The Albert Iron Works, Uxbridge, Middlesex.

(New implement), four sizes of a patent combination chaff cutting machine, price £6 6*s.*, £8 8*s.*, £10 10*s.*, and £14 14*s.*, and (new implement), a four-horse power portable Monogram bolter thrashing and dressing machine, with patent straw shaker attached, invented and manufactured by the exhibitor, price £65; a corn winnowing and dressing machine, price £9 9*s.*; a blowing machine, price £4 10*s.*, and a one-horse works improved and manufactured by the exhibitor, price £10 10*s.*; (new implement), two patent bean mills, invented an manu-

factured by the exhibitor, price £3 10s.; a barley hummeller, price £3 10s.; an oil cake mill or breaker, price £2 10s.; a cylindrical iron sifter, price £6 6s., and a cylindrical iron sifter, all improved and manufactured by the exhibitor, price £7 7s.

JOHN CABORN, of Denton, near Grantham, Lincolnshire.

A corn dressing machine, improved and manufactured by the exhibitor, price 13l.; a two-horse power, for working chaff-cutting or other agricultural machinery, invented and manufactured by the exhibitor, price 15l.

JASPER JOHN CAPPER, of The Falcon Engine Works, near Loughborough, Leicestershire.

A horizontal eight-horse engine, manufactured by the exhibitor, price 150l.; (new implement), a combined thrashing machine, price 80l., and (new implement), an improved winnowing and dressing machine, improved and manufactured by the exhibitor, price 12l.

BARNARD and BISHOP, of Norwich, Norfolk.

Several handsome specimens of strong wrought-iron garden chairs and stools, at prices from 4s. 6d. upwards, and several shapes and sizes of registered poultry troughs and fountains, invented and manufactured by the exhibitors, price 2s. 3d. and upwards; two circular cast-iron troughs for dogs, improved and manufactured by the exhibitors, 10 inches' diameter, price 2s. 6d. and 3s. 6d.; several rolls of light and heavy japanned wire netting, invented and manufactured by the exhibitors, price, per lineal yard, 6d. to 1s. 2d., suitable for poultry, hares, and rabbits; three rolls of japanned wire sparrow-proof netting, price 3d. per superficial foot; two rolls of galvanized wire sheep netting, 3 feet wide, price 9d. and 1s. per lineal yard; an iron stake for wire sheep netting, price 1s.; a sample of strained wire fencing for horses and heavy cattle, price 2s. per lineal yard; a three-bar iron hurdle, price 4s.; a four-bar iron hurdle, price 5s.; two five-bar iron hurdles, price 6s. and 6s. 6d.; an iron hurdle for cattle and sheep, price 8s.; a hare and rabbit proof iron hurdle, price 7s. 6d.; an ornamental wire game hurdle, price 5s., and an iron hurdle, all invented and manufactured by the exhibitors; a wrought iron sheep-fold hurdle on wheels, improved and manufactured by the exhibitors, price 12 2s.; a roll of ornamental garden border, manufactured by the exhibitors, price 7d. per foot; three wire net plant or tree guards, price 1s. 9d. and upwards; a rick-stand pillar of wrought and cast-iron, price 6s.; six double Norfolk pig-troughs, price 9s. 6d. to 16s.; nine single Norfolk pig-troughs, price 7s. 6d. to £1 7s., and an iron butcher pig-trough, made of cast and wrought iron, invented and manufactured by the exhibitors, price £2 15s.; two iron pig-troughs, improved and manufactured by the exhibitors, price 4s. and 6s.; (new implement), a patent turnip grater, invented by C. Bushe, Esq., of Lismore, and Dr. Barter, of Blarney, Ireland, improved and manufactured by the exhibitors (obtained Royal Irish Agricultural Society's first-class medal at Killybegs last August), price £4 10s.; a patent self-rolling mangle, invented by Charles Barnard, of Norwich, manufactured by the exhibitors, price 7l. 7s.; a cottage mangle, price 3l. 10s.; a table mangle, price 2l. 10s.; a wrought iron portable or folding bedstead, price 19s., and four sizes of a cast-iron window frame and easement, invented and manufactured by the exhibitors, price 12s. and upwards; several ornamental wrought-iron garden gates, designed and manufactured by the exhibitors, suitable for hanging on stone, wood, or iron posts, price 2l. and upwards; a wrought-iron fan-braced field gate, improved and manufactured by the exhibitors, price 2l.; two sizes of a six-bar wrought-iron field gate, price 14 2s. and 14 7s., and a seven-bar strong wrought-iron field gate, invented and manufactured by the exhibitors, price 14 2s.

THOMAS CATCHPOOL, Jun., of Colchester, Essex.

A portable thrashing, shaking, riddling, and winnowing machine, improved and manufactured by the exhibitor, price 75l.

HUMPHREY CHAMBERLAIN, of Kempsey, near Worcester.

(New implement) a patent solid brick making machine, invented by the exhibitor, and manufactured by John Jackson, of Worcester, price 100l.; and a sample of bricks made by the above machine, manufactured by the exhibitor.

THOMAS CHAMBERS, Jun., of Colkirk, near Fakenham, Norfolk.

(New implement) a broadcast manure distributor, invented, improved, and manufactured by the exhibitor, price 15l. 15s.

WILLIAM EAST, of Spalding, Lincoln.

(New implement) a patent dropping machine, invented and manufactured by the exhibitor, price 45l.

JOHN EATON, of Twywell Works, near Kettering, Northamptonshire.

An "Eaton's patent" one horse cart, invented, improved, and manufactured by the exhibitor (a prize of 5l. was awarded to this description of cart at a meeting held at York, 1848), price 9l.; a registered economical and ornamental sheep crib, invented by William Knight, Esq., of Titchmarsh, improved and manufactured by the exhibitor, price 1l. 2s. 6d.; a mill for grinding beans and peas, price 2l. 10s., and a hand power lifting jack, price 3l. 5s., both invented by John Blockwell, of Twywell Works, improved and manufactured by the exhibitor; (new implement) a hand seed dibbler, invented, improved, and manufactured by the exhibitor, price 15s.

FOWLER and FRY, of Bristol.

(New implement) a spring waggon, invented by the late Richard Stratton, of Bristol, improved and manufactured by the exhibitors, price 42l.; a Gloucestershire waggon, improved and manufactured by the exhibitors, price 40l.; an harvest cart, invented by J. Hannam, Esq., of Barcott Park, improved and manufactured by the exhibitors, price 15l. 15s.; a manure cart body and axle, price 8l. 8s., and (new implement) an improved farm cart, price 16l. 10s., improved and manufactured by the exhibitors; (new implement) a registered farm cart, invented, improved, and manufactured by the exhibitors, price 15l. 10s.; a single horse agricultural cart, price 14l. 14s.; a spring bullock cart, price 32l.; and a light cranked-axle spring cart, price 19l., improved and manufactured by the exhibitors; (new implement) an iron body crank-axle cart for water or liquid manure, invented, improved, and manufactured by the exhibitors, price 24l.; a Cobourg or family cart, improved and manufactured by the exhibitors, price 38l.; (new implement) a single row seed and manure drill, price 6l. 10s., and (new implement) an oilcake crusher for light cakes, price 3l. 5s., invented, improved, and manufactured by the exhibitors; (new implement) a turnip grater, invented by Messrs. Bush and Barter, of Lismore, Ireland, improved and manufactured by the exhibitors, price 3l. 10s.; (new implement) a pipe and tile machine, invented by Alfred Tuckett, Esq., of Siston, Gloucestershire, improved and manufactured by the exhibitors, price 25l.; a Norwegian barrow, invented by Edward Frere, Esq., of Roydon, improved and manufactured by the exhibitors, price 13l. 10s.; a brick and tile machine, invented by Randell and Sanders, of Corsham, Wiltshire, improved and manufactured by the exhibitors, price 45l.; a collection of cast iron drain mouths, invented, improved, and manufactured by the exhibitors, price from 2s. each upwards; (new implement) a patent steam draining plough, invented by John Fowler, of Bristol, manufactured by the exhibitors, and by Clayton and Shuttleworth of Lincoln, price 2,000l.

JAMES HART and SON, of Brigg, Lincolnshire.

Two sizes of a portable steam engine, invented, improved, and manufactured by the exhibitors, price 200l. and 225l.; three sizes of Cambridge's patent press-wheel roller, invented by William Cambridge, of Bristol, improved and manufactured by the exhibitors, price 10l. to 14l.; a corn dressing machine, price 9l.; a blowing machine or corn rectifier, price 5l. 5s.; and a hand cake breaker, price 3l. 5s., invented, improved, and manufactured by the exhibitors; a Gardner's turnip cutter, invented by Gardner, of Banbury, and manufactured by the exhibitors, price 4l. 10s.; and a hand barley horner, improved and manufactured by the exhibitors, price 5l.

CLARK and GREEN, of Lincoln.

A dressing machine for corn, price 8l. 8s.; an harrow blower, price 6l.; a barley chopper, price 5l. 5s.; and a ridge drill, price 7l., all improved and manufactured by the exhibitors; a chaff cutter, invented by Sawdon of Lincoln, improved and manufactured by the exhibitors, price 6l.

WILLIAM DRAY & Co., of London, Middlesex.

A six-horse power steam engine, for fixture, invented, improved, and manufactured by the exhibitors, price £165; (new implement) a patent draining machine, invented by the Earl of Dundaonald, of London, and improved and manufactured by the exhibitors, price £175; three of the patent reaping machines, invented by Obed Hussey, of the United States, America, improved and manufactured by the exhibitors, price £21 each; four sizes of an improved chaff cutting machine, price £4 10s. to £14 10s.; three sizes of an improved corn crusher, price £5 5s. to £10 10s.; and two sizes of a grain and linseed crusher, all invented, improved, and manufactured by Richmond and Chandler, of Salford, Manchester, price £6 10s. and £14 10s.; two sizes of a registered chaff cutting machine, price £3 3s. and £14 14s.; a chaff cutting machine, price £2 18s.; two registered winnowing and blowing machines, price £11 11s.; a grinding mill, for breaking agricultural produce into meal, price £32; a flour mill, with dressing apparatus attached, price £7; and three metallic churns, all invented, improved, and manufactured by the exhibitors, price £1 to £1 5s.; two sizes of an American churn, invented by J. Dalphin, of the United States, America, improved and manufactured by the exhibitors, price £2 to £2 15s.; a one-row drill, for turnips and manure, invented, improved, and manufactured by the exhibitors, price £11 11s.; a field roller, improved and manufactured by the exhibitors, price £12 10s.; an iron plough, invented by J. Cornes, jun., of London, improved and manufactured by the exhibitors, price £4 10s.; a patent iron plough, invented, improved, and manufactured by J. and F. Howard, of Bedford, price £1 10s.; a patent iron plough, invented, improved, and manufactured by Ransomes and Sims, of Ipswich, price £4 10s.; a patent iron plough, invented, improved, and manufactured by W. Busby, of Newton-le-Willows, price £4 10s.; a patent iron plough, invented and manufactured by the exhibitors, price £3 10s.; a set of iron harrows, invented, improved, and manufactured by W. Williams, of Bedford, price £3 15s.; an iron subsoil plough, invented, improved, and manufactured by Gray and Co., of Uddington, price £6 15s.; an iron grubber, invented by J. Tennant, of Monkton, improved and manufactured by the exhibitors, price £5 5s.; a cart for agricultural purposes, price £18 18s.; a patent mail axle, price £1 15s.; a pair of arms and boxes for agricultural carts, price £1 5s. per pair; a rick stand, price £5 10s.; a portable forge, for farm use, price £3 10s.; a set of forge tools, price £1 1s.; a portable farm vice-beuch and vice, price £2 10s.; an iron wheelbarrow, price £1 6s.; and two wrought-iron galvanized liquid manure pumps, all invented, improved, and manufactured by the exhibitors, price £3 15s. each; two coils of flexible delivery hose, invented and manufactured by Hooper and Co., of London, price 7d. per foot; a water or wash carrier, on wheels, invented, improved, and manufactured by the exhibitors, price £4 10s.; two lawn mowing machines, invented by Budding, improved and manufactured by the exhibitors, price £6 5s. and £6 15s.; several ornamental garden seats, price £2 2s.; and two bronzed iron tables, improved and manufactured by the exhibitors, price £1 16s. each; two circular iron pig troughs, invented, improved, and manufactured by the exhibitors, price 12s. 6d. and £1 1s.; three iron pig troughs, improved and manufactured by the exhibitors, price 8s. 6d. upwards; two poultry fountains, price 6s. 6d. and 10s. 6d.; a poultry trough, invented, improved, and manufactured by Barnard and Co., of Norwich, price 8s. 6d.; a bundle of galvanized wire netting, invented, improved, and manufactured by the exhibitors, price from 2½d. to 7d. per yard; three bundles of wire fencing, invented, improved, and manufactured by Musgrave, of Shields, price 2d. and 3d. per square foot; a farm fire engine, price £3 10s.; and two weighing machines, invented, improved, and manufactured by the exhibitors, price £3 15s. and £4; an iron lever weighing machine, improved and manufactured by the exhibitors, price £5; two iron mangers, rack, and trough combined, price £3 16s. each; and an enamelled iron manger, invented, improved, and manufactured by the exhibitors, price £1 10s.; an iron manger, price 12s. 6d.; and two iron hay racks, manufactured by the exhibitors, price 8s. 6d.; three galvanized iron pails, price 5s. 6d. each; two sets of painted stable pails, price 4s. 6d. and 5s. 6d. each; a set of galvanized iron buckets, all invented, improved, and manufactured by the exhibitors, price 4s. 6d. each; three bundles of steel digging forks, invented, improved, and manufactured by Lyndon, of Sheffield, price 4s. 6d., 5s. 6d., and 6s. 6d. each; a

light spring cart, invented and manufactured by the exhibitors, price £18 18s.; three of Boyd's patent self-adjusting scythes, invented by J. Boyd, of London, and manufactured by the exhibitors, price 10s. 6d. each; an iron screw cheese press, price £3 15s.; a wrought iron screw lifting jack, price £3 3s.; a patent circular-saw table, for hand power, price £16 10s.; and a circular saw table, for steam power, invented, improved, and manufactured by the exhibitors, price £15 15s.; two sizes of a portable iron pigery, price £9 each; a patent portable shooting box, price £8 8s.; and a patent portable farm building, all invented and manufactured by the exhibitors, price £62.

RICHARD FORSHAW and COMPANY, of Liverpool.

A three-ton cart and cattle weighing machine, invented by John Craig, of Liverpool, improved and manufactured by the exhibitors, Highland and Agricultural Society's prize weighing machine, price £22; a twenty-cwt. platform weighing machine, invented by Fairbank, improved and manufactured by the exhibitors, price £10 10s.; a five-cwt. sack-weighing machine, invented by John Craig, of Liverpool, improved and manufactured by the exhibitors, price £3 5s.; a three-cwt. single lever weighing machine, improved and manufactured by the exhibitors, can be fitted with an enamelled plate for domestic purposes where great cleanliness is required, price £3 14s.; three specimens of an oat and bean crusher, invented by Cartmell, improved and manufactured by the exhibitors, price £5 5s. to £6 10s.; a post kibbling mill, for oats, beans, &c., manufactured by the exhibitor, price £2 15s.; a wheat mill and flour dressing machine combined, invented and manufactured by the exhibitors, price £7 10s.; a patent sack-holder and barrow combined, invented by Henry Gilbert, of St. Leonard's, price £1 13s. 6d.; an iron sack-truck or barrow, manufactured by the exhibitor, price 12s. 6d.; a turnip or root cutter and slicer, invented by Kealy and Co., of London, and manufactured by the exhibitors, price £5 15s.; a Kase's patent fire engine and liquid manure spreader, invented by Kase, of the United States, improved and manufactured by Burgess and Key, of London, price £8 8s.; a set of iron whippetrees, price 13s. 6d.; and a letter copying press, manufactured by the exhibitors, price £3 10s.

EDWARD HERNULEWICZ, of No. 4, Bothwell-street, Glasgow, Lanarkshire.

(New implement) an oblong iron corn-criek stand frame, invented and manufactured by the exhibitor, price £6 10s.; (new implement) a turnip cutter and slicer, improved and manufactured by the exhibitor, price £4; (new implement) an iron sheep fodder rack, invented and manufactured by the exhibitor, price £5 10s.; (new implement) a piece of improved portable iron and wire sheep-feeding hurdle-fence, improved and manufactured by the exhibitor, price 5s. 9d. each; a piece of strong wrought-iron hurdle cattle fence, price 6s. 6d. each; a piece of ornamental hurdle fence, hare and rabbit proof, price 6s. 9d. each; and a piece of plain hurdle fence, hare and rabbit proof, manufactured by the exhibitor, price 4s. 9d. each; two kinds of an ornamental self-shutting gate, price £1 15s. to £7 10s.; three kinds of a strong wrought iron field gate, improved and manufactured by the exhibitor, price £1 10s. to £1 13s. 9d.; a web of strong hare and rabbit proof wire netting, price per lineal yard 1s.; a set of iron stable fittings, consisting of rack and manger, price £1 1s. per set; and a cast-iron revolving pig trough, with five divisions, manufactured by the exhibitor, price 13s. 6d.; and an iron and wire folding chair, improved and manufactured by the exhibitor, price 13s. 6d.

E. and T. HUMPHRIES, of Pershore, Worcestershire.

A four-horse portable patent steam engine, price £180; and a five-horse power portable patent steam engine, invented, improved, and manufactured by Clayton, Shuttleworth, and Co., of Lincoln, price £200; two combined thrashing, shaking, riddling, winnowing, and elevating machines, improved and manufactured by the exhibitors, price £70; a complete set of perforated plates or riddles, for combined and winnowing machines, manufactured by the exhibitors.

JOHN and WILLIAM MIDWORTH, of Newark-upon-Trent, Nottinghamshire.

(New implement) a one-horse hoe on the flat, invented by John Revell, of Barnby, and manufactured by the exhibitors, price £9; an iron plough, adapted for general purposes, in-

vented, improved, and manufactured by Henry Archer, of Barrowby, Grantham, Lincolnshire—the first prize was awarded to it at the North Lincolnshire Agricultural Meeting, held at Gainsborough, July 27th, 1853—price £4 10s.; an improved swing plough, for light and heavy land, improved by the exhibitors, and manufactured by Henry Archer, of Barrowby, near Grantham, Lincolnshire, price £1 15s.; a steam cooking range, invented, improved, and manufactured by the exhibitors, price £17 5s.

LUCAS and WRIGHT, of Lincoln.

A winning machine, price £8; a corn blower, price £3 10s.; (new implement) a barley horner, price £5; a barley chopper or horner, without fans to finish, price £4 10s.; and a bean and cake mill combined, improved and manufactured by the exhibitors, price £5; a weighing machine, price £2 5s.; a cake mill, manufactured by the exhibitors, price £3; a straw cutter, invented by Thomas Sawdon, patentee, of Lincoln, improved and manufactured by the exhibitors, price £5 10s.; a straw cutter, manufactured by the exhibitors, price £4 10s.; a turnip drill, with two coulters, price £3; a turnip drill, with one coulters, price £6 10s.; and a turnip scuffer, improved and manufactured by the exhibitors, price £1 10s.; a sack barrow, manufactured by the exhibitors price 11s.; a small steam engine, manufactured by Thomas Attack, of Market Raisin, price £20; a Gardner's patent turnip cutter, manufactured by Samuelson, of Banbury, price £4 10s.; and a turnip cutter, improved and manufactured by the exhibitors, price £4 5s.

MAPPLEBECK and LOWE, of Birmingham, Warwick.

Four specimens of a patent iron plough with two wheels, marked P, P.P., O., and O.O., invented and manufactured by J. and F. Howard, of Bedford, price £4 3s., £4 10s., £3 18s., and £4 5s.; three specimens of a set of new patent four beam iron harrows, marked 11, 14, and 12, invented by J. Howard and W. Armstrong, of Bedford, improved and manufactured by J. and F. Howard, of Bedford, price £4 4s., £3 6s., and £3 14s.; an improved iron horse hoe, invented and manufactured by J. and F. Howard, of Bedford, price £2 15s.; a patent horse rake with new patent steel teeth, manufactured by J. and F. Howard, of Bedford, price £8 10s.; two patent light broad-share ploughs, invented and manufactured by E. H. Bental, of Heybridge, price £4 14s. 6d. and £5 5s.; four sets of improved trussed whippetrees, invented by E. W. Harding, of Oldsprings, manufactured by the exhibitors, price 9s., 9s. 6d., 10s., and 10s. 6d.; an iron field roller, price £11; three sizes of an iron garden roller, price £1 15s., £2 5s., and £2 15s.; and an improved garden engine, all manufactured by the exhibitors, price £5; two sizes of a patent lawn mowing machine, invented by E. Budding, improved and manufactured by Ferrabee and Sons, of Thrupp Mills, price £5 10s. and £6; a bronzed ornamental cast iron garden seat, manufactured by the Coalbrookdale Company, price £2 10s.; a new Digby pattern bronzed cast iron garden seat, price £1 10s.; and a pair of garden chairs, manufactured by the exhibitors, price £1 5s. each; a wrought iron folding garden stool, with elastic galvanized wire seat, invented and manufactured by Bernard and Bishop, of Norwich, price 4s. 6d.; a chest of emigrant's tools, manufactured by the exhibitors, price £8; a rotary screening machine, invented and manufactured by A. K. Smith, of Exeter, price £6 16s. 6d.; several sizes of a platform weighing machine of improved construction, price £3 10s. and upwards; and two kinds of a 3 cwt. weighing machine, all manufactured by W. and T. Avery, of Birmingham, price £2 5s. upwards; a patent mangle, price £10 10s.; a linen press, price £2 10s.; a portable iron bedstead, price 10s. 6d.; a patent solid iron stump bedstead, price £1 1s.; an improved portable forge, price £4 4s.; an iron sack cart, price 10s. 6d.; a sack cart with wood frame, price 12s. 6d.; three game proof ornamental galvanized wire hurdles, price 1s. 8d. per lineal foot, or 6s. 8d. per hurdle; a game proof ornamental galvanized wire hurdle, price 1s. 10d. per lineal foot, or 7s. 8d. per hurdle; four ornamental wrought iron hurdles, price 1s. 4d. per lineal foot, or 5s. 4d. per hurdle; specimens of painted game proof wire netting, 4d. per lineal yard and upwards; and specimens of galvanized wire netting, all manufactured by the exhibitors, price 1s. 6d. per lineal yard, or 3d. per square foot, and upwards; a set of patent draining tools, invented by Josiah Parkes, Esq., of London, manufactured by W. A. Lyndon, of Birmingham (the prize of £5 was awarded to the

exhibitors for these tools at the Northampton meeting of the Royal Agricultural Society; also a prize at Lewes, 1852), price £1 12s. 3d. the set; two sets of patent draining tools, price £1 4s. 9d. and £1 8s. 9d. the set; a bundle of patent spades, 3s. 3d. and upwards; a bundle of five prong solid steel digging forks, manufactured by W. A. Lyndon, of Birmingham, price 6s. each; a bundle of four prong solid steel digging forks, price, light 4s. 8d., strong 5s. each; a bundle of five prong solid steel digging forks, price, strong 5s. 6d., extra strong 6s. each; a bundle of solid steel three prong dung forks, price 3s. and 3s. 6d. each; a bundle of solid steel four prong dung forks, price 4s. and 4s. 4d. each; a bundle of solid steel couch grass forks, price 3s. 9d. and 4s. 3d. each; and a bundle of solid steel boy's digging and border forks, all manufactured by F. Parkes, of Stonehouse Forge, price 3s. 6d., 4s. 3d., 4s. 6d., and 5s. each; a set of cast iron stable furniture, invented and manufactured by the exhibitors, price complete £4; an improved galvanized hen coop, price 12s. 6d.; and an improved corn dressing or winnowing machine, manufactured by the exhibitors, price £7; three sizes of an oak churn, improved and manufactured by Robinson and Son, of Coventry, price £2 12s. 6d., £2 17s. 6d., and £3 5s.; a double cheese press, price £5; a single cheese press, price £2 10s.; and an improved oil cake breaker, improved and manufactured by the exhibitors, price £3 3s.; a patent turnip cutter, invented by the late James Gardner, of Banbury, and manufactured by the exhibitors (awarded the silver medal of the Royal Agricultural Society at the Northampton meeting), price £4; an improved oat and bean crusher for hand power, price £5; a portable kibbling mill, price £3 10s.; a portable bean mill, price £3 10s.; and a portable malt mill, manufactured by the exhibitors, price £5; a two knife chaff engine, improved and manufactured by the exhibitors, price £2 10s.; three sizes of a two knife chaff engine, invented and manufactured by J. Cornes, of Barbridge (awarded a prize at the Royal Agricultural Society's meeting at Lewes in 1852, also at Gloucester, 1853, price £5 10s., £8 10s., and £12 10s.; (new article) a pair of hames, price £1 2s. 6d.; and (new article) a pair of galvanized iron traces, manufactured by the exhibitors, price £1 4s.; (new article) a set of Rice's patent spring links, invented and manufactured by W. Rice, of Boston, price 7s. 6d. upwards; and (new article) a set of Registered steel pointed scythes, invented and manufactured by Robert Sorby and Sons, of Sheffield, price from 2s. 6d. to 3s. 6d. each.

ROBERT HAWKINS NICHOLLS, of St. John's, Bedford.

(New implement) a patent universal horse hoe, invented and improved by the exhibitor, manufactured by William Williams, of Bedford, price £12 12s.; (new implement) a patent one row horse hoe, invented by the exhibitor, manufactured by William Astbury, of Bedford, price £5 5s.; (new implement) a patent paring plough or skimmer, price 8l. and upwards; (new implement) a patent scarifier and cultivator, price 8l. and upwards; and (new implement) a patent subsoil pulverizer, invented by the exhibitor, manufactured by William Astbury, of Bedford, price 2l. 2s.; a plough for general purposes, manufactured by William Astbury, of Bedford, price 4l.; a patent self acting skim coulter, invented by the exhibitor, manufactured by William Astbury, of Bedford, price 13s. 6d.

EDMUND SKINS, of Metheringham, Lincolnshire.

An improved turnip hoe or scuffer, with new frame, invented and improved by John Greenham, of Blankney, manufactured by Edmund Skins and William White, of Metheringham, price 5l. 5s.

ALFRED SPARKE, of Norwich, Norfolk.

A six horse power portable steam engine, price 210l.; a six horse power thrashing machine, with shaker, riddle, and blower, price 61l.; a three lever manure and turnip drill for flat or ridge work, price 12l. 10s.; a circular-saw bench, price 14l.; and a horse hoe, price 5l. 10s., all invented, improved, and manufactured by the exhibitor

THOMAS TAYLOR, of Edingley, near Southwell, Nottinghamshire.

A turnip drill, on the flat and ridge, price 7l.; a corn dressing machine, price 8l.; and a straw cutter, improved and manufactured by the exhibitor, price 7l.; and (new implement) a manure distributor and turnip drill, invented, improved, and manufactured by the exhibitor, price 17l.

WILLIAM TASKER and GEORGE FOWLE, of Waterloo Iron Works, near Andover, Hampshire.

A four and five row patent liquid manure or water and seed drill, invented by William Charles Spooner, of Eling House, near Southampton, and the exhibitors, improved and manufactured by the exhibitors, price 41l. 10s.; (new implement) a patent improved drill, for turnips and mangel wurzel with manure, on the flat, invented and manufactured by the exhibitors, price 22l. 10s.; two sizes of a patent press wheel roller or clod crusher, invented and improved by William Colborne Cambridge, of Bristol, Gloucestershire, and manufactured by the exhibitors, prices 15l. and 18l.; an improved portable combined thrashing machine, fitted with straw shaker, screen, winnowing machine, and sacking up apparatus, for steam power, improved and manufactured by the exhibitors, price 90l.

TUXFORD and Sons, of Boston and Skirbeck Iron Works, near Boston, Lincolnshire.

A four horse power patent portable housed steam engine, price £190; a five horse power patent portable housed steam engine, price £195; a six horse power patent portable housed steam engine, price £215; an eight-horse power patent portable housed steam engine, price £245; a four horse power fixed steam engine, price £105; a six horse power fixed steam engine, price £165; a six horse power fixed steam engine, price £175; a patent combined bolting, thrashing, shaking, winnowing, and chaff riddling machine, price £80; a patent combined bolting, thrashing, shaking, cape stripping, winnowing, and chaff riddling machine, price £100; a patent combined bolting, self-feeding, shaking, cape stripping, winnowing, and chaff riddling and stacking machine, price £120; a patent bolting, thrashing, shaking, and riddling machine, price £60; a patent self-feeding bolter thrashing and winnowing machine, price £70; a patent perforated table straw shaker, price £16; and a circular-saw table, price £75, all invented by Weston Tuxford, of Boston, and manufactured by the exhibitors.

WHITE and HARRIS, of Sleaford, Lincolnshire.

A full sized general purpose waggon, price £38; a full size general purpose Lincolnshire waggon, price £38; (new implement) a light spring waggon or dray, price £40; and (new implement) a one or two-horse cart, price £15; all invented and manufactured by the exhibitors; a set of four beam strong iron harrows (obtained the prize of £5 from the Royal Agricultural Society at York in July, 1848), price £4, and a set of iron harrows, price £3 10s., invented by W. Armstrong, of Bedford, and manufactured by the exhibitors; an oilcake breaker, invented by Ransomes and Sims, of Ipswich, and manufactured by the exhibitor, price £4 15s.; a single plough with beam and handles of wood, invented and manufactured by the exhibitors, price £4 4s.; three iron ploughs, marked A P L, invented by A. White and Pearson, of Sleaford, and manufactured by Ransomes and Sims, of Ipswich, price £5 5s. each; three ploughs, marked W P B, price £2 2s., £2 18s., and £3 18s.; and two ploughs, marked A P L, price £3 and £4, invented and manufactured by the exhibitors.

JAMES WHITE, of 266, High Holborn, London.

Four sizes of a flour mill to grind and dress the flour at one operation, price £6 6s., £7 10s., £8 8s., and £9 9s.; four sizes of a steel corn mill to grind wheat, barley, rye, &c., price £3 10s., £4 10s., £5 10s., and £7 10s.; and a steel roller bean splitter, price £3 10s., all manufactured by the exhibitor; a steel roller oat crusher, price 3l. 10s., and three sizes of a steel roller oat and bean crusher, price 4l. 10s., 5l. 10s., and 6l. 6s., invented and manufactured by the exhibitor.

ROBERT WILSON and Son, of Beverley, Yorkshire.

Two corn dressing machines with wheat screen and six twenty-two inch riddles, invented by Robert Wilson, improved and manufactured by the exhibitors, price 8l. 10s. each.

THOMAS ALLCOCK, of Radcliffe-upon-Trent, near Nottingham.

Four sizes of a chaff cutter with two knives, invented, improved, and manufactured by the exhibitor, price 4l. and upwards to 10l. 10s.; a cultivator, grubber, or scarifier, price 10l. 10s.; two sizes of an iron plough with two wheels, price 4l. 5s. and 5l.; and a horse drag rake, price 6l. 15s., all invented, improved, and manufactured by the exhibitor.

JAMES and ABRAHAM ARMITAGE, of Bury, near Ramsey, Huntingdonshire.

Two sizes of a brick and drain-tile machine, price £14 and £18; a ten-row lever corn-drill, price £23, and an improved portable straw shaker, all invented, improved, and manufactured by the exhibitors, price £9 10s.

WILLIAM BALL, of Rothwell, near Kettering, Northamptonshire.

Several specimens of an iron plough, invented, improved, and manufactured by the exhibitor (a prize of £5 was awarded to this plough for general purposes at the Royal Agricultural Society's Meeting at Norwich, 1845; prize of £7 at Exeter, 1850; a prize medal at the Great Exhibition of All Nations, 1851; also a first-class prize at the Dublin Exhibition, 1853; a prize of £7 at the Royal Agricultural Society's Meeting at Gloucester), price £4 and upwards; (new implement), a press corn drill on the flat, invented and manufactured by the exhibitor, price £30; a light waggon for two horses (this waggon obtained a prize of £5 at the Royal Agricultural Society's Meeting at Lewes, 1852), price £40; a one-horse cart for general purposes, price £14; a cultivator, grubber, and scarifier, price £7 10s., and a set of whippetrees for a plough, all invented, improved, and manufactured by the exhibitor, price 10s. 6d.

JAMES BARTON, Ironmonger, &c., 370, Oxford-street, London.

Several sizes of patent stable fittings, price £3 15s. and upwards, and (new implements) two specimens of an improved manger, with water troughs, for a corner, invented, improved, and manufactured by the exhibitor, price £2 7s. 6d.; a two-feet six-inch cast iron corner enamelled manger, price £1 2s.; a three-feet straight cast iron galvanized manger, price £1 5s.; a cast iron stable post, price £1 7s.; (new implement), a cast iron ramp rail for stable, price 12s., and a cast-iron cill for stable, all manufactured by the exhibitor, price 7s. 6d.; (new implements), an improved five-feet four-inches and four-feet three-inches length of galvanized iron stable guttering, with moveable cover, price 2s. 9d. and 4s. 8d. per foot run; (new implement), an iron angle piece for stable guttering, price 5s. 6d. each, and (new implement) an iron T piece for stable guttering, invented, improved, and manufactured by the exhibitor, price 8s. 6d. each; several sizes of a square cast iron galvanized horse pot for stables, price 6s. each and upwards; a ten-inch square galvanized cast iron stable grate and frame, price 6s. 6d.; a two-feet six-inch and two-feet ten wrought iron corner hay rack, price 8s. 6d. and 9s. 6d.; a two-feet six-inch galvanized wrought iron corner hay rack, with capping top, price 16s. 6d.; two enamelled iron dog troughs, price 6s. and 7s.; a cast iron rick stand, with loose top, price 9s.; two wrought iron galvanized stable buckets, price 5s. 6d. and 6s., and a wrought iron galvanized stable bucket, all manufactured by the exhibitor, price 6s.

MESSRS. T. and H. BRINSMEAD, of St. Giles, near Torrington, Devonshire.

A patent straw shaker, invented by Henry Brinsmead, apprentice, of St. Giles, manufactured by the exhibitors (awarded a silver medal at Gloucester) price 12l. 12s.

WILLIAM BUSBY, of Newton-le-Willows, near Bedale, Yorkshire.

Four sizes of a one horse cart, invented by W. Lister, Esq., of Dunse Bank, manufactured by the exhibitor (a prize of 10l. was awarded to this cart at the Exeter meeting in 1850, it was also included in the award of the council medals of the Great Exhibition of 1851, and had a 10l. prize at Lewes, 1852), price 12l. 12s. and upwards; a two wheeled deep plough (this plough received the prize at the Society's meeting at Northampton in 1847, at York, 1848, 10l., at Lewes, 1852, 7l., and included in the council medals of the Great Exhibition 1851), price 5l. 5s.; a two wheeled plough for general purposes (this plough received the award of the council medal at the Great Exhibition of 1851, and at Gloucester, 1853), price 4l. 10l.; a two wheeled two horse plough, price 4l. 4s.; a light two horse plough with two wheels, price 4l., and a two wheeled plough with steel breast, all invented, improved, and manufactured by the exhibitor, price 4l. 10s.; a two wheeled plough with steel breast, price 4l. 15s.; a one wheeled plough,

price 3*l*. 15*s*.; a one wheeled plough with steel breast, price 4*l*. 4*s*.; a one wheeled plough with steel breast, price 4*l*.; a swing plough, price 3*l*. 10*s*.; a swing plough with steel breast, price 3*l*. 15*s*.; a horse hoe on the ridge (this implement received the prize of the Royal Society for five years in succession), price 2*l*. 10*s*.; a horse hoe with five tines, invented, improved, and manufactured by the exhibitor, price 3*l*. 3*s*.; a horse hoe with five tines, price 2*l*. 17*s*. 6*d*.; a horse hoe, price 2*l*.; and a clod crusher and Norwegian harrow combined, invented by the Rev. W. F. Wharton, of Birmingham, improved and manufactured by the exhibitor, price 6*l*. 6*s*.

RICHARD COLEMAN, of Chelmsford, Essex.

Ten different sizes of a patent drag harrow, cultivator, or scarifier, invented, improved, and manufactured by the exhibitor (the prize medal was awarded to this implement at the Great Exhibition of 1851), price 6*l*. 16*s*. and upwards to 15*l*.

JAMES CORNES, of Barbridge, near Nantwich, Cheshire.

A registered chaff cutting machine (No. 5) with three knives (this machine gained a prize of 10*l*. at the Royal Agricultural Society's meeting at Shrewsbury in 1845, at Newcastle-upon-Tyne in 1846, at Northampton 1847, the Society's silver medal at York 1848, a prize of £10 at Norwich 1849, £10 at Exeter 1850, the prize medal of the Great Exhibition 1851, and a prize of £10 at Gloucester 1853), price 14*l*.; the following registered chaff cutting machines, viz., (No. 6) with two knives, price £12 10*s*.; (No. 1) with three knives, price £10. (No. 5) with two knives, price £8 10*s*.; (No. 4) with two knives, price £6 15*s*.; (No. 9) with two knives (this machine gained a prize of £5 at the Royal Agricultural Society's meeting at Lewes in 1852, and a prize of £5 at Gloucester in 1853), price £4 15*s*.; and (No. 10) with two knives, were all invented by John Cornes, sen., improved and manufactured by the exhibitor, price £4 10*s*.; a two horse power, invented, improved, and manufactured by the exhibitor, price £15; a bone mill for hand or other power, invented by John Cornes, sen., improved and manufactured by the exhibitor, price £15; a chaff cutting machine with two knives, price £3, and a card mill for making cheese, invented and manufactured by the exhibitor, price £2, and a stand and pulleys, price £2.

WILLIAM CROWLEY, of Newport Pagnell, Bucks.

A one horse cart for general purposes, awarded the prize medal at the Great Exhibition, 1851, price £15; and two pair of Newport hames, price 8*s*. and 10*s*. per pair, all invented, improved, and manufactured by the exhibitor.

RICHARD DOWNS, of Ryhall (Rutlandshire), near Stamford, Lincolnshire.

(New implement) a scarifier with two sets of teeth, price £9, invented and manufactured by the exhibitor; a two furrow pairing plough, price £6; a plough for general purposes, price £4 10*s*.; a ridging plough, price £5; and a horse hoe, price £4 10*s*.; all invented, improved, and manufactured by the exhibitor.

WILLIAM GARNER, of Spalding, Lincolnshire.

Four sizes of a patent press wheel roller or clod crusher, price from £12 to £18 18*s*.; invented by William C. Cambridge, of Bristol, and improved and manufactured by the exhibitor; an improved press wheel roller or clod crusher, price £18 18*s*.; invented and manufactured by the exhibitor; three sizes of a plain cylinder roller, price £6 10*s*. and upwards, manufactured by the exhibitor; a garden roll, price £3 10*s*.; a plough, price £3; two improved iron ploughs, price £4 and £5; an iron horse rake, price £12; and a chaff cutter, price £10 10*s*.; all improved and manufactured by the exhibitor; a corn crusher, price £6 6*s*.; invented and manufactured by Whitmee and Co., of London, for which the Great Exhibition prize medal was awarded; a patent prize broad share and sub-soil plough, cultivator, or scarifier, combined in one implement, price £7; and a Beattall's patent light broad share plough, price £5 5*s*.; invented and manufactured by Edward H. Beattall, of Heybridge, Essex; a set of patent four beam iron seed narrows, price £3 3*s*.; invented and manufactured by Howsrd and Son, of Bedford.

THOMAS MILFORD, of Thorverton, near Cullompton, Devonshire.

(New implement) two specimens of Milford's improved Gloucester one horse cart, for general, farm, road, and harvest purposes, price £13 and £14, invented, improved, and manufactured by the exhibitor; awarded the prize of the Royal Agricultural Society at their Gloucester meeting, July, 1853.

JOHN GOUCHER, of Worksop, Nottinghamshire.

A patent three horse power portable thrashing machine, adapted for horse power, price £55, received the prize medal at the Yorkshire Agricultural Society's meeting at Sheffield, 1852; a patent six horse power portable thrashing machine, adapted for steam power, price £90; a patent seven horse power stationary or portable thrashing machine, price, stationary £90, portable £100; and a seven horse power stationary steam engine, price £140, all invented, improved, and manufactured by the exhibitor; (new implement) a patent three horse barrow works of thrashing machine, price £55, invented and manufactured by the exhibitor.

DAVID HARKES, of Mere, near Knutsford, Cheshire.

(New implement) a D. Harkes' patent reaping and mowing machine, price £35; a model of D. Harkes' patent reaping and mowing machine, price £10; a parallel expanding horse hoe, price £3 10*s*.; the prize of £5 was awarded at the Royal Agricultural Society's meeting at Southampton, and the prize of £2 at the Shrewsbury meeting; and a drill or ridging plough, price £3 15*s*.; all invented, improved, and manufactured by the exhibitor.

ARTHUR LYON, of 32, Windmill-street, Finsbury Middlesex.

A cutting machine for cutting up fish and other substances for manure, price 9*l*.; a cutting machine for reducing vegetables for cattle, price 7*l*. 10*s*.; a cutting machine, price 6*l*.; a small machine for cutting vegetables for poultry, price 2*l*. 10*s*.; and models of cutting machines for cutting vegetables, &c., price from 1*l*. 10*s*.; all invented and manufactured by the exhibitor.

OLIVER MAGG, of Bourton, near Wincanton, Somersetshire.

A patent combined thrashing, shaking, riddling, winnowing and dressing machine, invented and manufactured by the exhibitor, price 80*l*.; a four horse power portable thrashing machine, invented, improved, and manufactured by the exhibitor, price 56*l*.; an oat, bean, and malt crushing mill, improved and manufactured by the exhibitor, price 6*l*. 10*s*.; an oat, bean, malt, and linseed crusher, invented and manufactured by the exhibitor, price 6*l*. 10*s*.; an improved screw and lever cheese press, invented by the late Daniel Magg, of Bourton, improved and manufactured by the exhibitor, price 2*l*. 15*s*.; an iron plough for general purposes, marked H J I, and another marked H T 4, both manufactured by the exhibitor, price 3*l*. 10*s*. each; an improved horse drag rake, invented and manufactured by the exhibitor, price 8*l*.; an improved patent turnip cutter, invented by Edward Moody, late of Maiden Bradley, improved and manufactured by the exhibitor, price 4*l*.; and a registered sack barrow and sack holder, invented and manufactured by the exhibitor, price 1*l*. 8*s*.

WILLIAM MITTON, of Lincoln.

A single seated child's carriage, price 1*l*. 10*s*.; and a double seated child's carriage, price 1*l*. 15*s*.; both invented and manufactured by the exhibitor; an arm chair with spiral back and bottom, price 17*s*. 6*d*.; an arm chair with spiral seat and Gothic back, price 15*s*.; a pair of small chairs, price 1*l*. 5*s*.; a pair of folding stools, price 9*s*.; a garden seat 3 feet 6 inches long, price 1*l*.; a garden seat 5 feet long, spiral bottom, price 1*l*. 7*s*. 6*d*.; a web of $\frac{3}{4}$ inch bird netting, price 5*d*. per superficial foot; 1 inch netting, price 4*d*. per superficial foot; $\frac{1}{2}$ inch netting, price 1*s*. per lineal yard; a web of $\frac{1}{2}$ inch rabbit netting, price 10*d*. per lineal yard; a web of double mesh rabbit wire netting, price 7*d*. per lineal yard; a web of 2 inch rabbit netting, price 6*d*. per lineal yard; a web of 2 inch rabbit netting, extra strong, price 7*d*. per lineal yard; a length of strong strained iron wire fencing, cast metal pillars, price 2*s*. per lineal yard; a tree guard 2 feet high 18 inches diame-

ter, Gothic pattern, price 2s. 6d.; a tree guard 24 inches by 12 inches, made from the wire netting, price 1s. 4d.; a tree guard 24 inches by 18 inches, made from the wire netting, price 2s.; and a bundle of 3 ft. stakes for fixing wire netting, price 6s. per dozen, all manufactured by the exhibitor.

SHEPPARD and EDWIN RANSOME and Co., of
31, Essex-street, Strand, London.

Three sizes of a patent economic oven, invented by Michael Fitch, of Chemsford, manufactured by the Patent Oven Company, of Chelmsford, price 6L. 3s. 6d. and upwards; two patent self-closing valves for preventing smoke and economising fuel, invented and manufactured by Thomas Symes Prideaux, of London, price 10L. 10s. each; two centrifugal pumps, price 12L. and 16L.; and a double acting semi-rotary pump, price 8L., invented and manufactured by Gwynne and Sons, of London; a six pound patent box churn, invented by the late Thomas Wilkinson, of London, manufactured by Letitia Wilkinson, of London (obtained a prize medal at the Great Exhibition of 1851), price 2L. 2s.; a ten pound ditto, price 2L. 8s.

JAMES SMYTH and SONS, of Peasenhall, near Yoxford, Suffolk, and Witham, Essex.

A model of a Suffolk lever corn drill, price 15L.; a model of a Suffolk general purpose lever drill, price 25L.; a patent one rowed turnip and mangrel wurzel seed and manure drill, price 10L. 10s.; a patent two rowed ditto (this drill received a prize of 10L. and a silver medal at Southampton, in 1844), price 15L. 5s.; a patent three rowed ditto, price 21L. 10s.; a patent four rowed ditto, price 25L. 15s.; a patent five rowed ditto, price 28L.; a patent manure distributor, price 18L. 10s.; a patent general purpose drill (this drill gained a prize of 10L. at the Society's meeting, at Liverpool, in 1841), price 40L.; a patent five rowed turnip and mangrel wurzel seed drill, price 11L.; a patent "small occupation" Suffolk lever corn and seed drill (this drill was awarded the prize of 5L. at the Society's show, held at Gloucester, last year), price 16L.; a patent nine rowed Suffolk lever corn drill, price 23L. 18s. 6d.; another size, price 27L. 18s. 6d.; two sizes of a patent ten rowed ditto, (a prize of 5L. was awarded to this machine at Derby, in 1843), price 25L. 5s. and 29L. 5s.; a patent eleven rowed ditto, price 28L. 5s.; a patent twelve rowed ditto, price 28L. 10s.; a patent thirteen rowed ditto, price 34L. 5s.; two patent thirteen coulters Suffolk lever corn drills, prices 30L. 5s. and 35L.; a patent fourteen coulters ditto, price 31L. 5s.; a patent fifteen coulters ditto, price 32L. 10s.; a patent thirteen and two coulters ditto, price 34L. 15s., all invented, improved, and manufactured by the exhibitors; a steerage horse hoe, improved and manufactured by the exhibitors, price £12; a patent horse rake, invented, improved, and manufactured by Barrett, Exall, and Co., of Reading, price £8.

WILLIAM NEWZAM NICHOLSON, of Newark-upon-Trent, Nottinghamshire.

Seven different sized machines for breaking oil cake for beasts and sheep—this machine had a prize of £5 awarded to it at the Norwich show, and also a prize of £3 at the Gloucester show, and the £5 prize at the Exeter show, and the prize medal at the Great Exhibition, price £3 5s. and upwards; and a machine for grinding beans, oats, malt, barley, &c., invented, improved, and manufactured by the exhibitor, price £4 4s.; a haymaking machine, improved and manufactured by the exhibitor, price £13 10s.; (new implements) two haymaking machines, price £12 12s.; two kinds of a complete corn-dressing or winnowing machine, price £12 and £13 13s.; a winnowing or corn-dressing machine, which may also be used as a blower, price £9 9s.; and a corn-dressing machine, for small occupations, all invented, improved, and manufactured by the exhibitor, price £8; (new implement) a combined blower and barley hummelling machine, invented by John Hall, of Sibthorpe, improved and manufactured by the exhibitor, price 8L. 8s.; two barley awning or hummelling machines, price 5L. 5s. and 5L. 10s.; and a two-knife chaff cutter, improved and manufactured by the exhibitor, price 4L.; a chaff cutter, invented by Cornes, of Barbridge, improved and manufactured by the exhibitor, price 10L. 10s.; (new implement) a half-horse power steam engine, price 22L. 10s.; a pair of steaming vessels, connected with the above engine, improved and manufactured by the exhibitor, price 5L. 10s.; a Richmond's No. 3 B

chaff engine, invented, improved, and manufactured by Richmond and Chandler, of Salford, price, with drum, 8L.; a bean cutter, for hard or soft beans, invented by George Arthur Biddell, of Ipswich, and manufactured by Ransomes and Sims, of Ipswich, had a silver medal awarded to it at the Gloucester show, price 3L. 15s. 6d.; a roller mill for crushing linseed, oats, malt, &c., improved and manufactured by Turner & Co., of Ipswich, price 8L.; a one-row ridge turnip drill, for seed and manure, manufactured by the exhibitor, price 7L. 7s.; a patent iron beam broadshare and subsoil plough, price 6L. 16s. 6d.; a patent wood beam broadshare and subsoil plough, price 6L. 6s.; and patent iron beam broadshare plough, invented, improved, and manufactured by E. H. Bentall, of Heybridge, price 5L. 5s.; four iron ploughs with two wheels, one of which gained the prize of 7L. at the Lewis Meeting, invented, improved, and manufactured by Ransomes and Sims, of Ipswich, price 3L. 10s. and upwards; four sizes of a set of four-beam patent iron harrows, price 3L. 6s. and upwards; and a patent horse rake, with steel teeth, invented, improved, and manufactured by Messrs. Howard, of Bedford, price 8L. 10L.; a sack-weighing machine, price 3L. 10s.; a platform weighing machine, improved and manufactured by Avery, of Birmingham, price 3L. 13s. 6d.; a steelyard weighing machine, for sacks, &c., improved and manufactured by the exhibitor, price 1L. 10s.; a set of tubular iron whippetrees, for two horses, invented by Harding, and improved and manufactured by the exhibitor, price 12s. 3d.; a set of three-horse tubular iron whippetrees, invented by Harding, improved by the Rev. T. C. Cane, of Southwell, manufactured by the exhibitor, price 17s. 6d.; a mortising machine, invented, improved, and manufactured by William Coulson, of York, price 11L. 11s.; a land roller, improved and manufactured by the exhibitor, price 8L. 10s.; two sizes of a cottage cooking range, with patent improvements—this article had a prize awarded to it of 5L. at the York show, and a further prize of 5L. at the Exeter show, price 1L. 18s. 6d. and 3L. 3s.; two sizes of a cottage cooking grate, price 1L. 13s. and 2L. 10s.; a cooking grate, adapted for a small farm kitchen or bailiff's cottage, price 4L. 4s.; a cooking grate for farm kitchens, price 7L. 10s.; a superior range for farm kitchens, all invented, improved, and manufactured by the exhibitor, price 11L. 15s.; an improved kitchen cooking apparatus, improved and manufactured by the exhibitor, price 8L. 8s.; three sizes of a Cosmopolitan cooking stove, price 4L., 11L. 10s., and 26L. 10s.; an Anglo-German Cotter's stove, price 2L. 15s.; two sizes of a cottage grate for bedrooms, price 17s. 6d. and 1L. 5s.; and a cottage pump and sink, invented, improved, and manufactured by the exhibitor, price 2L.; pumps suitable for cottages or farm purposes, manufactured by the exhibitor, price 2L. 5s., 2L. 15s., and 3L. 10s.

JOHN HENRY SAUNDERS, of 23, Abchurch-lane, London.

(New implement) a rotary reaping and mowing machine, invented by J. F. Kingston and exhibitor, and manufactured by the exhibitor, price 42L.

HENRY ATTWOOD THOMPSON, of Lewes, Sussex.

Two sizes of (new implement) a one horse Scotch cart, price £15 10s. to £18 10s.; (new implement) an improved double action hay making machine, price £15 15s.; an improved horse rake, price £7 17s. 6d.; and a portable iron pump, on Tripod stand, with flexible hose, all invented and manufactured by the exhibitor, price £7 10s.; a telescope drainage level and staff, manufactured by the exhibitor (this instrument received the prize of a silver medal at the Gloucester show in 1853), price £5 10s.; an improved drainage level, manufactured by Blundell, of London, price £4 4s.; (new implement) the "economic" drainage level, invented and manufactured by the exhibitor, price, with tripod stand, £1 18s.

JOHN WHITMEE and Co., of 18, Fenchurch-Buildings, City; and 11, Ray-street, Clerkenwell, London.

Three sizes of a corn crusher, price £5, £6, and £10; two sizes of a flour mill, price £7 and £10 10s.; and a grinding mill for breaking agricultural produce into meal, invented, improved, and manufactured by the exhibitor, price £13.

GEORGE HANCOCK, of Sandbach, Cheshire.

A double action centrifugal churn, invented by Thomas

Hancock, of Wistaston, Cheshire, manufactured by the exhibitor, price £4s.; an improved churn, invented and manufactured by the exhibitor, price £2 2s.; models of cheese vats, cheese tubs, and milk pails, manufactured by the exhibitor.

CHARLES REVILL, of Lincoln.

A corn dressing machine, price 8l. 8s.; a blower, price 5l. 5s.; a barley horner, price 5l. 10s.; a chaff cutter, price 6l. 6s.; a cake and bean mill combined, price 5l. 5s.; and a weighing machine, all invented, improved, and manufactured by the exhibitor, price 2l. 15s.

RANSOMES AND SIMS, Ipswich, Suffolk.

Eight different descriptions of Ransomes' patent iron plough with two wheels, invented, improved, and manufactured by the exhibitors, awarded the prize of £7 at the meeting of the Royal Agricultural Society at Lewes, 1852, as the best plough for general purposes, the prize of £10 and silver medal as the best heavy land plough, and a prize of £10 and silver medal as the best light land plough at the Royal Agricultural Society's meeting at Southampton, also a prize of £10 at the Royal Agricultural Society's meeting at Northampton, and the Council medal at the Great Exhibition, price £3 10s. and upwards; four sizes of Ransomes' patent trussed beam iron universal plough (marked Y U L), invented by J. Clarke, of Long Sutton, improved and manufactured by the exhibitors, obtained the silver medal at the meeting of the Royal Agricultural Society at Norwich, 1849, price £4 4s. and upwards; several other of Ransomes' patent iron ploughs with two wheels, invented, improved, and manufactured by the exhibitors, price £4 to £9 9s.; a set of Ransomes' patent trussed iron whippetrees, invented, improved and manufactured by the exhibitors, obtained the Royal Agricultural Society's silver medal at Southampton, and commended at the Royal Agricultural Society's meeting at Lewes, price £1 3s.; a Smith's registered subsoil plough, invented by Wm. Smith, of Little Woolstone, improved and manufactured by the exhibitors, price £4 10s.; a Biddell's patent wrought iron scarifier, grubber, or cultivator (marked No. 2), invented by Arthur Biddell, of Playford, improved and manufactured by the exhibitors, this implement obtained the prize of £10 at the Royal Agricultural Society's meeting at Liverpool, also at Northampton in 1847, at York in 1848 at Norwich in 1849, at Lewes in 1852, and at Gloucester in 1853, price £24; (new implement) an "East Anglian" cultivator, price £12 12s., and a Ransomes' improved Suffolk grubber, invented, improved, and manufactured by the exhibitors, price £5; an Atkins's patent automaton or self raking reaper, invented by Jearum Atkins, of Chicago, United States, improved and manufactured by the exhibitors, price £45; a Ransomes' improved Suffolk horse drag rake, price £7 10s.; a Ransomes' four horse portable steam engine, price £190; a Ransomes' seven horse portable steam engine, price £215, with heating apparatus £230; a Ransomes' four horse stationary horizontal steam engine, price £150; a Ransomes' eight horse stationary horizontal steam engine, price £195; (new implement) a Ransomes' patent improved portable steam thrashing machine, price £105; an improved portable steam thrashing machine, price £85; a Ransomes' improved five horse portable thrashing machine, obtained the prize at the Royal Agricultural Society's meeting at Gloucester, 1853, price £85; a Ransomes' two horse portable thrashing machine, obtained the prize of £10 at the Royal Agricultural Society's meeting at Gloucester, 1853, price £42; two of Ransomes' dressing machines, price £10 10s. and £12; and a Ransomes' horse work for one horse, price £18 10s., all invented, improved, and manufactured by the exhibitors; a Biddell's patent universal mill, price £10 10s.; a Biddell's patent bean cutter, adapted for steam or horse power, awarded the silver medal of the Royal Agricultural Society at Gloucester, 1853, price £4 10s.; and a Biddell's patent bean cutter, for hand power, price £3 15s., all invented by G. A. Biddell, of Ipswich, improved and manufactured by the exhibitors; a Ransomes' patent double mill, No. 6, for hand or horse power, awarded the silver medal of the Royal Agricultural Society at Lewes, 1852, price 10l.; a Ransomes' bruising mill, No. 1, for hand, horse, or steam power, price 16l. 16s.; a Ransomes' bruising mill, No. 2, price 8l. 8s.; a Ransomes' spiral oat mill, No. 2, for hand power, price 8l.; a Ransomes' barley awner, price 6l. 10s.; two sizes of Ransomes' oilcake breaker, price 2l. 5s. and 4l. 15s.; (new implement) seven sizes of a Ransomes' improved power chaff cutter, price 4l. 4s. to 16l. 16s.;

and (new implement) a chaff engine, price 3l. 3s., all invented, improved, and manufactured by the exhibitors; a patent mill, C, for agriculturists, &c., invented and improved by George Hurwood, of Ipswich, manufactured by the exhibitors, price 18l.; (new implement) a Ransomes' portable corn mill, price 42l.; and a Ransomes' circular-saw bench, price 30l., invented, improved, and manufactured by the exhibitors; a Bruce's patent stable fittings, invented and improved by James Bruce, of Gwyrch Castle, Ireland, manufactured by the exhibitors, price 5l. 3s.; a Ransomes' improved one horse Scotch cart, complete with harvest raves, price 17l.; a Ransomes' one horse Windsor cart, with raves, price 14l. 10s.; and a Ransomes' Bristol cart, price 22l., all invented, improved, and manufactured by the exhibitors; two of Budding's grass cutters, invented by Budding, of Dursley, improved and manufactured by the exhibitors, price 5l. 17s. 6d. and 6l.; an universal intermediate motion, invented, improved, and manufactured by the exhibitors, price 11l. 11s.; a Gardner's turnip cutter, single action, price 4l. 10s., and a Gardner's turnip cutter, double action, price 5l. 10s., invented by the late J. Gardner, of Banbury, improved and manufactured by the exhibitors; a Davy's patent decorticator, price 100l., and a Davy's patent scutching machine, price 100l., invented and manufactured by E. Davy, of Crediton; a Ransomes' improved greasing Jack, invented, improved, and manufactured by the exhibitors, price 1l. 5s.; several sizes of Ransomes' circular pig trough, manufactured by the exhibitors, prices from 5s. upwards; a Sillett's digging fork, price 7s. 6d., and a Sillett's garden fork, price 6s. 6d., invented by Sillett, of Kelsale, improved and manufactured by the exhibitors.

WILLIAM SMITH, of Little Woolstow, near Fenny Stratford, Bucks.

(New implement) a patent reaping machine, invented and manufactured by the exhibitor, price 45l.; (new implement) two sizes of a patent cultivator, price 8l. 10s. and 15l., and a registered subsoil plough, price 4l. 10s., invented by the exhibitor, manufactured by Messrs. Ransomes and Sims, of Ipswich.

ROBERT COTGREAVE, of Ipswich, Suffolk.

(New implement), a patent draining plough, price £10 10s.; (new implement), a patent gutting plough, price £8, and (new implement), a patent subsoil and trench plough, all invented and improved by the exhibitor, manufactured by Messrs. Ransomes and Sims, of Ipswich, price £10 10s.

ALBERT WENTWORTH CONNER, of The Patent Brick and Tile Machine Company, 37, King William Street, London Bridge, in the City of London.

(New implements), two sizes of a patent brick making machine, for steam power, price £230 and £200, and a patent hollow brick, pipe, and tile making machine for hand power, invented by James Hart, of the Atlas Works, Borough, London, manufactured by the above company, price £30.

GEORGE COTTAM and SAMUEL HALLEN, of No. 2, Winsley-street, Oxford-street, London.

Fittings for a stall of a stable, price £12 3s. 3d., and a stable stall completely fitted-up as invented by George Cottam, and manufactured by the exhibitors, price £6 4s. 3d.; a loose box, complete; a harness room fittings, and a wrought iron circular hay rack, with cast iron galvanized cap, all manufactured by the exhibitors, price 19s. 6d.; a hay rack, price £1 1s.; three sizes of an enamelled corner manger, price £1 7s. 6d. to £1 16s. 6d.; cast iron stable grates and frames, price 1s. 6d. and upwards; cast iron channel grates and frames, price 2s. 3d. and upwards; a wrought iron stable bucket, large 7s., small 6s.; a cast iron bull's-eye light, galvanized, price 10s. 6d.; a wrought iron carriage letter, price £1 16s.; a galvanized wrought iron carriage letter, price £1 10s.; a carriage letter of wood and iron, price £1 10s.; a sample of capping, for wooden mangers, price 7s. 6d.; a sample of stable forks, price 2s., 3s., and 3s. 6d.; a wrought iron galvanized stable wheelbarrow, price £1 14s.; a cast iron stable pump 3-inch bore, price £2 7s.; a length of suction pipe of cast iron, price 9s. 6d.; an elbow for suction pipe, price 2s. 6d.; a chaff machine, price £5, and an oat bruiser, manufactured by the exhibitor, price £4 7s.; a cast iron cattle-trough price 17s. and £1 5s.; a cast iron circular bottom pig-trough, price 10s. 6d. and upwards;

a cast iron dog-trough, price, plain, 2s. 6d., galvanized 4s.; a sample of cast iron hand glass frames, price 4s. 6d. and upwards; a sample of cast iron octagon hand glass frames, price 5s. each; a glass stable-lantern, price 3s. and upwards; a wire stable-lantern, price 3s. 6d. and upwards; a set of imperial corn measures, iron-bound, price 4s. 9d. and upwards; cast iron sashes, for farm buildings, &c., price 12s. 6d. and upwards; an air brick, price 4d.; a double-air brick, price 10d.; a double-air brick, to open and shut, price 2s. 9d.; an air grating, price, plain, 1s. 6d. and upwards; a sample of iron ventilators, to open and shut, price 1s. 6d. and upwards; a cast iron wash-hand stand, price £1 16s.; a saw table, manufactured by the exhibitors, price £15; a Norwegian harrow, manufactured by Messrs. Stratton and Co., of Bristol, price £12; a scarifier or grubber, invented by Mr. Coleman, price £7; three sizes of a mowing machine, invented by Mr. Budding, price £7 10s. and upwards; an Indian corn mill, price £6 10s.; an oil-cake breaker, price £3 3s.; (new implements), three patent churns, invented by Mr. Willard, and manufactured by the exhibitors, price £4 7s. 6d. and upwards; a sample of rick stand, manufactured by the exhibitors, price 10s. 6d. each; two sizes of a serrated chain harrow, invented by George Cottam, manufactured by the exhibitors, price £4 15s. and £5 15s.; eight sizes of a cast iron ornamental vase and pedestal, price vase £2 16s. 6d., pedestal 10s. 6d. and upwards; a wrought-iron garden seat, price 15s.; a wrought iron garden stool, price 5s. 6d.; two cast iron garden rollers, price £2 16s. and £3; a cast iron flower-stage, price £2 5s.; two cast iron hall scrapers, price 18s. each; two cast iron hall scrapers, with brushes, price £1 1s. each; a cottager's cooking stove, price £2 17s. 6d.; two samples of garden bordering, price 4s. 6d. and 5s. 6d. per dozen; a sample of cast iron garden stakes, prices from 13s. per dozen and upwards; another sample of wrought iron garden stakes, prices from 7s. 6d. per dozen and upwards.

HILL and SMITH, of Brierley Hill Iron Works, near Dudley, Worcestershire.

A set of improved cast iron stable furniture, invented, improved, and manufactured by the exhibitors, prices, stall post, with top and bottom rail, 2l., rack and manger, 1l. 10s.; a set of samples of cast iron rain water pipes, for farm and other buildings, invented and manufactured by the exhibitors, price 1s. 7d. per yard; a specimen of patent black varnish, price 1s. 6d. per gallon; a wrought iron barrow, with apparatus for heating gas tar, &c., price 3l. 3s.; and a wrought iron barrow for general purpose, invented and manufactured by the exhibitors, price 1l. 10s.; a cast iron table flower stand, price 1l. 12s. 6d.; a patent mowing or cutting machine, price from 5l. 15s. upwards; and a specimen of game proof wire netting, consisting of six rolls, galvanized and ungalvanized, manufactured by the exhibitors, price from 3d. per yard upwards; a patent rabbit fence, price 1s. 4d. per yard; a specimen of wire game proof plant guards, consisting of six different sizes, price from 18s. per dozen upwards; a length of invisible strained wire ox fence, price 1s. 5d. per yard and upwards; a wrought iron amalgamated fence, price 2s. 3d. per yard and upwards; an assortment of premium continuous iron fences, for sheep, cattle, oxen, and deer (these fences obtained the silver medal of the Royal Agricultural Society at the Southampton meeting, and also at the Shrewsbury meeting), price 2s. 7½d. and upwards; two sizes of an ornamental wrought iron garden seat, price 1l. 15s. and 2l. 7s. 6d.; and a wrought iron folding galvanized camp stool, invented and manufactured by the exhibitors, price 5s. 6d.; a patent wrought iron cattle fence, price 2s. per yard; a set of ornamental wrought iron game proof garden hurdles, price 5s. 10d. and upwards; a set of ornamental wrought iron game proof cattle hurdles, price 10s. 6d. and upwards; a set of strong wrought iron hurdles, price 4s. 6d. and upwards; a strong wrought iron field gate, hung to wrought iron posts, price 2l. 12s.; a premium wrought iron field gate, and wrought iron posts (the silver medal of the Royal Agricultural Society was awarded to this gate and posts at the Derby meeting; and the Royal Agricultural Improvement Society of Ireland awarded it the prize they offered for "the best and most economical field gate of any description"), price 2l. 10s.; a superior wrought iron entrance gate, with side gates and pillars complete, price 15l. 10s.; a wrought iron gate, hung to cast iron pillars, price 4l.; a pair of wrought iron entrance gates, price 10l. 10s.; a pair of wrought iron entrance gates, price 9l. 2s.; a wrought iron entrance gate, price

£3 3s.; a wrought iron field gate, price £1 12s.; a wrought iron ornamental wicket gate, price £3 3s.; two kinds of wrought iron wicket gates, price £1 5s. and £3 15s.; a wrought iron ornamental garden seat, price £2 2s.; a registered wrought iron expanding horse hoe (the silver medal of the Royal Agricultural Society was awarded to this implement at the Exeter meeting, and it also obtained a silver medal from the Yorkshire Agricultural Society at their meeting at Thirsk), price £3 3s.; five different sizes of a registered wrought iron expanding horse hoe, price £2 7s. 6d. and upwards; two sizes of a wrought iron skim or pair horse scarifier (obtained the first prize at the Derby meeting), price £5 and £6; a wrought iron circular rick stand, price £7 4s. and upwards; an oblong rick stand, on cast iron vermin-proof pillars, with wood top, price of pillar and cap 5s. 3l.; a set of rick-stand pillars and caps for large and small ricks, price £1 18s. 3d. per set and upwards; a wrought iron sheep rack (at the Derby meeting of the Royal Agricultural Society a silver medal was obtained by this implement), price £4 10s.; a portable forge or smith's hearth, price £5 5s.; and a crane and winch, price £7 7s., all invented and manufactured by the exhibitors (a premium was awarded to this crane and winch at the Shrewsbury meeting of the Royal Agricultural Society); two sizes of a rotary screening machine, for screening ashes for manure, sand, gravel, &c., manufactured by the exhibitors, price £6 16s. and £7 5s.; two sizes of a Cornes' chaff-cutting machine, invented by Mr. Cornes, of Barbridge, improved and manufactured by the exhibitors, price £5 and £15; a wrought iron sack holder, invented by Mr. Gilbert, of St. Leonard's, and manufactured by the exhibitors, price £1 3s.; a wrought iron sack holder on wheels, invented by Mr. Gilbert, of St. Leonard's, improved by Mr. Couch, of Harkston, and manufactured by the exhibitors, price £1 12s.; a wrought iron sheep trough, invented and manufactured by the exhibitors, price £1 8s.; a wrought iron barley roller, invented, improved, and manufactured by the exhibitors, price £10 10s.; and a wrought iron ornamental garden seat, invented and manufactured by the exhibitors, price £1 10s.

G. LETTS, of Northampton.

(New implement) a mole trap, invented and manufactured by the exhibitor, price from 1s. 6d. to 2s. 6d.

ABRAHAM PRIDMORE & SON, of Syston, Leicestershire.

A double blast winnowing machine, invented and manufactured by the exhibitor, price £13 10s.; a winnowing machine on the double blast principle, invented, improved, and manufactured by the exhibitor, price £12; and a working model of a rotary fire engine and force pump, invented by George Pridmore and Wm. Carey, of Syston, and manufactured by the exhibitor (this engine was awarded the first prize of 10s. at the North Lincolnshire meeting at Gainsborough, 1853), price according to size.

THOMAS GIBBS and Co., the Seedsmen to the Royal Agricultural Society of England, corner of Half Moon street, Piccadilly, London, Middlesex.

A collection of several hundred grass and other agricultural seeds, a collection of dried specimens of grasses, and specimens of root crops.

M. JOSCELIN COOKE, of Newcastle-on-Tyne.

A stand containing various bottles, samples, and other compounds, used as manures, invented and manufactured by the exhibitor for G. J. Ashton and Co., of the Tyne Manure and Chemical Company, Newcastle-on-Tyne, and of No. 11, Mark-lane, London, price £50; a stand containing the model of a nitrary, for the production of the nitrates of potash, soda, and lime, price £100; and a stand containing a model of a sulphuric acid chamber, invented and manufactured by the exhibitor, price £10.

WILLIAM BULLOCK WEBSTER, of Great Malvern, Worcestershire.

A model of a machine for making draining tiles, pipes, and bricks, invented and improved by the exhibitor, and manufactured by Tasker and Fowle, of Andover, Hants (his machine may be hired with the option of purchase); a model of a digging machine (from the Dublin Exhibition), invented by one of Mr. Dargan's Irish workmen.

GEORGE BRUCE, of 52, Nelson-street, St. James'-street, Liverpool.

A specimen of black Japan varnish, price 5s. per gallon; a specimen of blue-coloured composition and a specimen of red-coloured composition, invented, improved, and manufactured by the exhibitor; a specimen of a green-coloured composition and a specimen of a stone-coloured composition, all at the price of 15s. 6d. per gallon; a specimen of transparent varnish, all invented and manufactured by the exhibitor, price 7s. per gallon.

JAMES TREE and Co., of 22, Charlotte-street, Blackfriars-road, Surrey.

A cattle gauge and key to the weighing machine, price from 4s. 6d. upwards, and a farmers' slide rule and cattle gauge, both invented by Mr. John Ewart, of Newcastle-on-Tyne, manufactured by the exhibitors, price 12s. and upwards; an improved draining level, invented by B. Webster, Esq., of Southampton, manufactured by the exhibitors, price £3 10s.; a spring horse halter, invented and manufactured by James Bedington, of Birmingham, price 8s. 6d.

GEORGE CHIVAS, Seedsman, of Chester.

Specimens of orange jelly turnip, introduced by the exhibitor, price 2s. per lb.

PETER LAWSON and SONS, of Edinburgh.

Seeds, roots, &c.

WILLIAM THOROLD, of the Hamlet of Thorpe, near Norwich, Norfolk.

(New implement) a box containing models of cattle-feeding apparatus, applicable to light or mixed soils; (new implement) a box containing models of cattle-feeding apparatus, adapted to clay or wet land, and (new implement) a box containing models of apparatus for feeding sheep on cold and wet land, all invented by the exhibitor.

GEORGE GIBBS and Co., Seedsmen to the Royal Agricultural Department of Belgium, the Agricultural Society of Zealand in the Netherlands, &c., 26, Down-street, Piccadilly, London.

Samples of Gibbs's mixtures of selected grass seeds, price 30s. per acre; Gibbs's mixtures for two or three years' lay or rotation cropping, price 22s. to 25s. per acre; Gibbs's mixtures for improving old grass land, and for forming and renovating lawns.

THE SOUTHDOWN SHEEP SHOW AT BABRAHAM.

It has been well known for some time past that, for this season at any rate, Mr. Jonas Webb would not occupy his usual position as an exhibitor at the meeting of the Royal Agricultural Society. Whatever reason may have led to such a determination, it could scarcely fail to give additional interest to his own gathering, held, as announced, on Thursday, July 13. Beyond the fact that this was the only opportunity for inspecting the picked animals of his famous flock, the visitor had good grounds for assuming that the show might be even better than it yet has been. There could be no reserve for the Great National Exhibition of the kingdom, and thus many rams might come into the letting at Babraham, which under former circumstances, it would not have been politic to put up. Any anticipations of this kind were amply realized. There were never, we believe, so many sheep entered at the Babraham show; and never did those hired average a better price. We have thus an ample guarantee as to the continued excellence of Mr. Webb's sort; and this authority was, perhaps, of a more satisfactory character than it invariably has been. Ranging in some cases to extraordinary biddings, there was still wanting that go-a-head decision to have certain lots on *any* terms, which made the meeting of last year so especially remarkable. It is true, amongst the company we met at Babraham, on Thursday, America and France had both their representatives; the latter in two gentlemen officially connected with the advancement of agriculture in that country. These, however, unlike some of their predecessors from "foreign parts," were content to take rams, to be had at comparatively moderate sums. It was

the home breeder who on this occasion contributed chiefly to the business of the meeting—it was he who gave the long prices—it was such men as the Duke of Richmond, Mr. Lugar, Mr. Hudson, Mr. Sexton, Mr. Rigden, Mr. Turner, and others, who, by their presence and support, afforded us some tangible proof as to the real merit of the Babraham flock.

Fashion, the ready servant of established success, may always do much, as often enough stand answerable for more than can be really justified. This of itself, backed with a good word well applied, may tempt the untutored stranger to the highest flights; but this alone will never become authority. It is when we see "the Down men" returning here, again and again, for fresh blood, that we come to record the Babraham sheep as still the first of his breed—however altered or improved since his introduction to the flat lands of Cambridgeshire, one of the most renowned of the Sussex breeders readily admitted, that it was by the aid of Mr. Webb's breed he had only the other day been able to carry off all the prizes at a meeting in his own county.

It is not our purpose here to enlarge on the features of a meeting, the fame of which, as we had last week to remark in announcing it, is already world-wide. On no occasion, certainly, could the foreigner be more welcome, as on none could he see more thoroughly realized the hearty hospitality and cheery comfort of an English home. To the gentry and agriculturists of the county the occasion is something of a general holiday, while many we noticed from distant quarters had scarcely any more "just cause" than a day's pleasure

for their attendance. It would be somewhat difficult, as well as invidious, to attempt to give any list of these, many of the most spirited hirers, Mr. Lugar and Mr. T. T. Drake, for instance, leaving previous to the cold dinner with which the day's proceedings concluded. From the addresses here delivered, the reader will gather some further notion as to the business transacted, and the opinions entertained of the sheep offered. Before turning to this report it would be unfair not to give a word of commendation to the exertions of a most able and entertaining chairman—the Honourable Eliot Yorke, a brother of Lord Hardwicke, and one of the members for the county. He was, too, very well supported by one of his colleagues, Mr. Edward Ball, whose presence, as the chosen of the Cambridgeshire farmers, was especially appropriate. We are necessarily compelled to be somewhat brief in our report of the toasts proposed and replied to—nearly all, however, in very good taste with time and place—relieved as they were by “A southerly wind and a cloudy sky,” given with rare heart and spirit by one of the brothers of the host, Mr. George Webb.

Immediately on the conclusion of the sale, some two hundred and fifty of the visitors sat down to a cold dinner, laid out, as usual, in a large barn, fitted up and tastily decorated for the occasion, Mr. Yorke, as we have already said, presiding, and Mr. Jonas Webb himself occupying the vice-chair. After the customary loyal and patriotic toasts,

Mr. E. BALL, M.P., who had the great honour to represent an agricultural constituency, asked the company to recognize that Association which was the head and centre of agricultural society, and which marked the science, energy, and industry of this country—“The Royal Agricultural Society of England” (applause). He had the pleasure of coupling with the toast the name of Mr. Charles Barnett—one of its most efficient officers (Hear). It needed no talent on his part to make them respond nobly to the toast of a society which gathered wisdom and knowledge from all, and disseminated its stores to the smallest village in the land, communicating to them the results of the most costly experiments, and thus at once adding a tribute to the greatness of this country, and enabling the agriculturist to elevate himself in the social scale, and increase the comforts and conveniences of his family (Hear). He was sure they would recognize the toast as the centre from which emanated all that is great, intellectual, and useful in the agriculture of this country. If any one asked for proof of the advantages which the society conferred upon agriculture, and therefore upon the country generally, he would reply that it might be found in one visit to its annual meeting, for there might be seen mind and mechanical industry, and scientific knowledge combined, and working out together great results, such as all Europe could not surpass (Hear). That society would, under a merciful Providence, raise agriculture out of its depression, and elevate it above the disastrous circumstances of recent events; and on that ground he knew they would heartily respond to the toast of “The Royal Agricultural Society of England” (cheers).

Mr. BARNETT, in returning thanks, claimed for the council,

of which he is a member, credit for a hearty desire to carry out the object for which the society was formed. The difficulty he might have had in following the honourable member for Cambridgeshire, whom he should henceforth have the pleasure to call his friend, was lessened by that gentleman's explanation of the advantages which the society offered to the agricultural world. Although the council did their best, they had a good many difficulties to contend with, and it was too much to expect of poor human nature that it should always be successful (Hear, hear). But at Lincoln he thought they would have a great treat, for there was a fine entry of stock, and an admirable selection of implements (applause).

Mr. S. JONAS gave, in very complimentary terms, the health of the Chairman—becomingly and briefly acknowledged by Mr. Yorke, who, immediately rising again, said he was now getting up in his stirrups; for he had come to that toast which no one would presume to gainsay, but all would receive with the highest satisfaction. It might be supposed that in the midst of wars and rumours of wars, and crystal palaces and other great matters, there could be no attraction in such a humble affair as a sheep show. He denied the inference most emphatically. Whether, upon this occasion, they looked at the subject or at the man, he said that England and society had much to rejoice at in the exhibition of that day (Hear, hear). Let any one consider the animal, and say where, within limits so small, could be found blessings so abundant. Provision, clothing, art, and science, were all connected with that little animal which had brought them together that day (Hear, hear). And was music to be forgotten? (Hear, and laughter). Were they to ignore the Tyrian dye, and the beautiful fabrics which it adorned? Above all, were they to put out of mind their own Webb? (loud cheers). That was a fabric at any rate of which they might well be proud (continued cheering and laughter). It was a fabric, too, of sterling British manufacture (Hear, hear). That little animal shown that day was probably the most useful of all animals. Why, he did believe—but he had not seen it—that Magna Charta and the Bill of Rights were written on its skin: he did believe that Juba's harp and David's lyre—he knew that Paganini's violin—would have been silent without its intestines (loud cheers and laughter). And there was even something archaeological in the business, for that was the twenty-eighth anniversary of the show (Hear, and laughter). This last fact was no small matter, when adverse times were considered. But agriculture had risen superior to all difficulties, and could not be prostrated except by its own weakness: it had proved itself capable of rising under pressure, and coming out triumphant under difficulty (Hear, hear). He gave the health of the founder of the feast, Mr. Jonas Webb (loud cheers). That man illustrated in his gigantic and manly frame the sort of animal he had succeeded in producing in such perfection (laughter). There was the broad chest, the seat of motive power, and the foundation of all strength; the eye of active liveliness; the sturdy walk—he was no staggerer—with legs well apart (loud and continued laughter). These were some of the characteristics of a good ram—they were also the characteristics of their host (cheering and laughter). He would now pass on, and congratulate Mr. Webb upon the unusual amount of prosperity achieved that day. Before dinner that day—leaving out of the question what might be done by private contract afterwards—75 sheep had been let at an average price of £3 more than the average of the 71 sheep let last year (cheers). Might this rival of Allom and of Bakewell long enjoy such success. By energy, skill, and critical acumen he had founded a fame that was European. He proposed the health of “Jonas Webb, with success to the Bahrahram Flock,” with three times three (great applause).

Mr. JONAS WEBB returned thanks. As for the success of the Babraham flock, the company always brought that with them; and certainly it was always his endeavour to meet the wishes of hirers, whatever might be the sort of animal they wanted. Most ungrateful should he be if he did not feel thankful for the great support which he constantly met with. He did not believe that the Chairman was half such an agriculturist as he had just turned out to be. (Laughter). He had talked about wide chest and lively eye, and legs well set apart in such style that he (Mr. Webb) thought fit time to be taking a lesson, and paying particular attention to the points so finely touched upon by the Chairman (continued laughter). The truth was, whatever position Mr. Yorke was placed in, his abilities carried him through. (Loud cries of "Hear, hear.") Mr. Webb concluded by proposing the "Health of the hirer of the highest priced tup, Mr. Henry Lugar, of Hengrave, Suffolk," who was not present (cheers).

Mr. G. A. LOWNDES proposed "Prosperity to Agriculture," coupling with the toast the name of Mr. Rigden, of Sussex (cheers).

Mr. RIGDEN said he had occupied a position near the Vice-President upon these occasions for 16 years, and he was glad to say that Sussex had derived great benefit from Mr. Webb's exertions. The other day, at their county show, he was able to sweep away the prizes with Mr. Webb's breed. (Hear). He was pleased to see and hear that there were better prospects for agriculture than on some former occasions, although he must confess he had never seen any very long faces there (laughter). Still he knew that there had been many heavy hearts within the last seven years; he knew that many and many a farmer had been ruined past all hope of redeeming himself. (Hear). Many remembered the time when if you offered a miller wheat at 36s. per qr., he was as much startled as if you had presented a loaded pistol at him; but now they saw wheat at 80s. Still there was nothing like general prosperity. Taking a large part of Sussex, he believed the farmers were never more distressed than at the present time: last year they had nothing to sell; but their prospects were getting a little better, and he believed the free-traders were beginning to doubt whether every thing was right (laughter). He happened to live close to a Radical town—in fact almost all the towns in Sussex were Radical towns (laughter); but, although he was no Radical himself, he never quarrelled about politics. Well, his Radical friends used to say things were going on swimmingly; but he asked them if they thought men would go on producing what did not pay the cost of production (Hear, hear). There could be no doubt that the production of wheat in this country had decreased, and would have continued to decrease if prices had remained as they were no long time ago. The farmers had had pretty hard treatment; but the unkindest cut of all was the increase in the malt tax (Hear, hear).

The CHAIRMAN reminded Mr. Rigden that politics must be avoided.

Mr. RIGDEN would not then say one word about politics. He was talking the other day to a great brewer about the malt tax and the prices of beer, and the brewer said they must reduce the quality. To this he (Mr. R.) replied, that was perfectly impossible (loud laughter). If any people were for reducing the quality of beer, he wished they might go to mowing, and drink water all the days of their lives (laughter).

The CHAIRMAN said he understood that there were two gentlemen present from a foreign country, who were witnesses, perhaps for the first time, of English manners and English hospitality under certain circumstances. He hoped those gentlemen would receive from his mouth the testimony of that

meeting, representing large classes of the country, the whole-some truth that both in arts and arms there are occasions upon which nations can unite. When Mars and Minerva of France and England, the tutelary guardians of each country, walked hand in hand, he thought autocracy, tyranny, and barbarism would retreat before that progress of civilization (loud cheers). He was quite sure that he spoke only the words of their hospitable host when he said that Mr. Webb hoped his table might never want one gentleman at least from the kingdom of France (cheers). He had the pleasure of proposing the health of M. Allier and M. Mallet (great cheers).

Mr. ALLIER returned thanks (in French). He spoke in eulogistic terms of Mr. Jonas Webb's fame; and with much sympathy in the closer union between England and France.

The list concluded with the health of "the patriarch," Mr. Jonas Webb's father—"The Mayor of Cambridge"—"The Ladies"—"Mr. Thompson", the agent of the Duke of Beaufort, who responded on behalf of himself and the representatives of the Dukes of Grafton, Manchester, and Richmond, as well as of Lords Yarborough, Radnor, Ducie, and other noblemen and gentlemen who had hired sheep. Mr. Barnett and the Fox-hounds," led to the concluding toast of the evening.

The following statistics connected with the day's letting may be not without their value for future reference:—

Let at the hammer, 75 sheep for 1,801 guineas, thus averaging about £25 4s. 3d. each; an improvement in every way upon former years, to be best gathered from the following table:—

	Number Let.	Average Price.
1851	62	£22 2 6
1852	69	22 3 1
1853	71	22 6 3
1854	75	25 4 3

The 75 sheep "called in" were put up in the order we give them, and fetched the following prices. The number is that they bore in the catalogue:—

No.	Guineas.	No.	Guineas.
78	16	217	25
234	102	206	21
228	30	204	28
231	45	232	40
135	20	207	29
109	25	216	21
6	50	90	9
34	41	25	14
123	50	35	51
205	31	209	16
219	22	33	15
72	34	38	16
208	23	132	24
186	20	223	20
30	41	229	44
47	20	77	12
37	26	134	9
69	14	172	15
122	71	190	12
59	28	152	11
116	41	159	13
154	15	40	21
237	25	48	18
236	25	221	32
61	16	36	20
214	11	153	13
156	18	110	30
80	21	202	9
86	17	215	22
155	9	21	11
131	11	224	15
117	30	119	39
5	6	192	11
73	20	79	11
189	12		

The highest priced sheep was a yearling, one of the six picked of the whole flock. He was the second called in at the reserve price of 50 guineas, but knocked down to Mr. Lugar, of Hengrave, Bury

St. Edmund's, for 102 guineas. The highest price last year, and the highest price at which, we believe, a sheep was ever known to let, was 130 guineas, the hirer being an American.

DRIFFIELD AGRICULTURAL SOCIETY.

The Driffeld Agricultural Society held its first annual exhibition of farm stock, poultry, horses, and implements in a field within a short distance of the town, on Wednesday, the 12th of July, where it was clearly demonstrated that union is the strength of the farmer when spiritedly put into action, without looking for, or feeling that the great and rich are indispensable to the existence of agricultural societies, however advantageous their pecuniary aid and patronage may be to all societies whose object is the furtherance of improvement and social progress.

The success of all societies depends upon the committee and secretary who manage the affairs thereof; also much of the success attending this day's exhibition lay in the selection of gentlemen well-known as first-rate judges of the animals on which they were called upon to adjudicate, and appointing three judges for each description of stock. This might have been carried also to the appointing two sets for the horses, as it frequently happens that parties who are first-rate judges of cart or farm-horses are not good judges of riding-horses, hunters, &c., and *vice versa*. This society also observed another good plan, namely, having their judges gentlemen from some considerable distance—preventing that unfortunate petty feeling that disappointed aspirants so generally whisper about the favouritism shown to this one and the other. From the duties of the judges being concentrated on only one sort of stock, there was plenty of time to scrutinize and calculate with greater certainty the comparative merits of each animal; therefore the awards were almost universally placed right, giving most general satisfaction, although in many cases the merits in animals were so closely balanced, that many good judges could not satisfy themselves to which the palm ought to be given; yet, after the three judges had agreed upon the award, all seemed to feel satisfied.

The quantity and quality of cattle, sheep, pigs, poultry, horses, and implements exhibited, far surpassed the most sanguine expectations of the spirited originators of this society, and the large assembly of noblemen, clergy, gentlemen, farmers, and labourers who visited the show. They were admitted by tickets, at two-and-sixpence, from 10 o'clock until 12, when shilling tickets were issued. The society sold nearly three hundred pounds' worth of tickets, and we have since learned that labourers were admitted at about three o'clock at three-pence each. The number of tickets sold, we ascertained, reached above six thousand, which proves the show was appreciated by the wisdom-seeking sons and daughters of the East Riding of Yorkshire. It was truly gratifying to see the orderly, cool, close inspection the young, as well as the old, gave to each class, and to hear

the many wise maxims and quaint observations that were passed from sire to son; also the spirit with which the ladies entered into the merits and demerits of the stock in general, especially the poultry, of which there was a capital show. The universal interest and spirit displayed, proved the vast advantages that were accruing from the society's efforts, and augurs well for its future prosperity.

The time was so short, and the stock and horses so frequently out of their stands, that we are not able to give so good a report as we should have wished of this, the first annual show of this life-inspiring society. However, we will give the few observations we noted down as we passed through each class. The following gentlemen were the Judges of **SHORTHORNS**: A. L. Maynard, Esq., Marton-le-Moor, Borough-bridge; John Booth, Esq., Kellerby, Catterick; Philip Skipworth, Esq., Leybourne Grange, Louth. Judges of **SHEEP**: Robert Cattley, Esq., Barnsby, Easingwold; John Robb, Esq., Thorpfield, Thirsk; J. C. Johnson, Cheviot, Wakefield. Judges of **HORSES**: Thomas Brooks, Esq., Croxby, Caistor; Thomas Hunt, Esq., Thornington, Coldstream; Richard Batty, Esq., Tollerton, Thirsk. Judges of **POULTRY**: The Hon. and Rev. S. L. Lawly, Escrick Rectory, York; Rev. Robert Pulleine, Kirby Wiske, Thirsk; J. O. Jolly, Esq., Acomb, York.

The shorthorn cattle were divided into nine classes: the first class was awarded two prizes. There were 13 animals. The first prize of £15 went to Mr. John Collins, Danthorpe, Hedon, for his roan bull Pollux. This is a heavy good animal, and would cut a fair figure in any show-yard. The second prize of £5 was awarded to Wm. Child, Esq., Easington, Patrington, for his white bull Easington, bred by T. B. Thompson, Esq. This is a very useful animal; but in this class there were several very middling animals, and we feel that the good this show has done in bringing the owners of them to see them alongside of good animals, will cause them to be got ready with all speed for the shambles.

Class 2.—Two prizes for the best yearling bull. There were nine shown, and the first prize of £5 was awarded to Wm. Wright, Esq., Sigglesworth Hall, Hull, for his white bull Sir Charles. This is a capitally bred animal, and promises to be such as is desirable to keep up the character of the breed. The second prize of £3 was awarded to William Child, Esq., Easington. This is a very good animal; and the whole of this class were very promising.

Class 3.—For the best bull-calf under 12 months old. Five entries, and the prize of £3 awarded to Thomas Barber, Esq., Sproatley, Hull; bred by C. Townsend.

This was a neat animal ; but this class was not what we expected to find in Yorkshire.

Class 4.—Two prizes for the best cow, in calf or milk. 14 entries. The first prize of £4 was awarded to H. Thompson, Nafferton, Driffeld, for his roan cow ; and the second prize of £2 was awarded to Wm. Bateson, Esq., Brigham, Driffeld, for his roan cow Dairy Maid. These were both good animals ; and this class gave the judges some work, as the number (14) and quality required their prompt attention. The competition was very closely contested.

Class 5.—Two prizes for the best two-year old heifer for breeding. There were only four in this class, but they were all good things, and took some attention from the judges to come to the award of the first prize of £4 to T. Constable, Esq., Barton Constable, Hedon, for his roan heifer Jenny Lind, bred by Mr. F. Jordan ; and the second prize of £2 to Wm. Wright, Esq., Siggles-thorne Hall, Hull.

Class 6.—For the best yearling heifer, there were six competitors ; but the difference was very great between the best and worst, although there were few useful things among them. The judges had not much trouble in awarding to T. C. Constable, Esq., Barton Constable, the first prize of £3 for his yearling heifer White Daisy, and also to him the second prize of £1 for his roan yearling heifer Hope.

Class 7.—For the best heifer calf under 12 months old. Only three competitors in this class. The prize of £2 to F. Jordan, Esq., Eastburn House, Driffeld. This was a neat creature, and the others were very useful.

Class 8.—For the best fat ox of any age. In this only two entries ; and the prize of £2 awarded to John Scott, Esq., Whitewall House, Malton, for his 4 years and 3 months old shorthorn ox. This is a first-class animal, and bids fair for an honourable position at some of the Christmas shows. There was nothing past common in his competitor.

Class 9.—For the best fat cow a prize of £2 was awarded to John Dickson, Esq., Nafferton, Driffeld, for his white shorthorn cow. There was only another competing for this prize, but he had no chance, not being fat enough for a show, but right for the dinner-table.

The show of sheep was very good indeed, and exhibited the proofs of good management by their soundness and condition. Perhaps in no part of the world are flocks better managed and more profitably fattened upon large quantities of cake and corn, than on the wold farms in the East Riding of Yorkshire. Some of these breeders use only one trough, with a self-supplying bin above it, that is never allowed to get empty ; the sheep eat when they like, and what quantity they please. Sheep soon get fat on this plan, and keep healthy. The land, after clover, grazed in this way, produces abundant crops, though it is naturally poor.

The sheep were divided into seven classes, starting at the number where the cattle left off ; therefore the first sheep class is—

Class 10.—For the best shearling ram. The first

prize of £10 was awarded to John Borton, Esq., Barton-le-street, Malton, for his ram, bred by himself ; and the second prize of £5 to William Angas Neswick, Driffeld, for his ram, bred by himself. There was a very good show in this class, there being 22 sheep shown, and all doing credit to the county.

Class 11.—For the best aged ram. The first prize of five pounds was awarded to John Borton, Esq., Barton-le-street, Malton ; also the second prize of £2 for his two rams, bred by himself. There were 12 sheep in this class, among which there were some capital animals.

Class 12.—For the best pen of shearling wethers, bred in the Riding ; first prize of £4 to George Walmsley, Esq., Rudston, Bridlington, for his pen of five wethers, bred by himself ; and the second prize of £2 to E. D. Conyers, Esq., Emswell, Driffeld, for his pen of five shearling wethers. This was a splendid class, and did great credit to the Riding, although we expected to have seen a larger show in this class, but not better.

Class 13.—For the best pen of five breeding ewes with their lambs still sucking, the first prize of £5 to George Walmsley, Esq., Rudston ; and the second of £2 to Charles Lambert, Esq., Sunk Island, Hull. In this class there were only five entries : we should have expected more, but we find that there is a great number of the first-class men who are afraid of one another, and therefore hold back at present. Those showing their sheep did so for the furtherance of improvement both in the quantity and quality of mutton and fleece.

Class 14.—For the best pen of five shearling gimmers or theaves, the first prize of £4 to George Walmsley, Esq. ; and the second of £2 to E. D. Conyers, Esq. This was a splendid show of what can be done by management, doing great credit to the whole of the six exhibitors.

Class 15.—For the best fat wether, the prize of £2 to William Lovel, Esq., Nafferton Wold, Driffeld. There were only four entries for this prize. We expected to have seen a much larger show in this class, although the time is too early for exhibiting in the ordinary course of farming ; September being the best time when this class could be brought before the public.

Class 16.—For the best ewe or gimmer, the prize of £2 awarded to George Walmsley, Esq., for his two-shear ewe. Charles Lambert, Esq., also showed a very superior ewe.

Class 17 begins the horses—that animal for the breeding and management of which Yorkshire has long justly been celebrated ; and this, though the first annual show, had perhaps as fine a selection of the different breed of horses exhibited as we meet with at some of the great national exhibitions. In Class 17, for the best stallion for getting hunters, £10 was awarded to Maroon, the property of Richard Stockdale, Skerne, Driffeld. In this class there were seven powerful thorough-breds, all aged, exhibited.

Class 18.—For the best stallion for coach horses, the prize of £10 to Mr. David Halliday, Newland, Hull, for his bay horse Napier, three years old. There was very close competition in this class—there being seven entries, several of which were first-rate.

Class 19.—For the best stallion for roadsters, the prize of £10 was awarded to Mr. Aaron Hairsine, Holme, for his roan horse Napoleon. We were much pleased with the compact symmetrical cut of the horses in this class, in which there were eleven exhibited—more than half of which were such as would do good service in any part of the world in improving that breed of horses that are so seldom to be got when wanted for love or money—namely, a first-rate roadster.

Class 20.—For the best stallion for agricultural purposes, the prize of £10 awarded to James Stockdale, Esq., Skerne, for his brown horse Wellington. This is a first-rate active and powerful horse, close and well made, with a full development of muscle and well shaped bone. If this horse had been out, there would have been close competition among the other eleven competitors. There were several of them very useful animals; but there were several things unfit for any particular purpose, although they might struggle to fill the place of a farm horse.

Class 21.—For the best mare and foal for hunting; the prize of £5 to B. Harrison, Esq., Tickton Grange, Beverley, for his mare and foal. In this class there was but a middling show as to quality, although the number (nine) made a large enough competition.

Class 22.—For the best hunting mare or gelding; the £5 prize was awarded to Thos. Holtby, Esq., Burshill, Beverley, for his chesnut mare, five years old. In this class there were fourteen competitors, nearly the whole of which were first-rate horses, and it was difficult to decide which was the best. A great many gave the preference to Mr. Jackson's, of Ristby Grange, Beverley, and we must own being of the same opinion. Mr. Jackson refused £300 for him in the show-ground.

Class 23.—For the best mare and foal for coaching; the prize of £5 was awarded to Edward Robinson, Nafferton, Driffield. Eight competitors, and capital sample of this valuable breed.

Class 24.—For the best coaching mare without a foal; the prize of £3 was awarded to John Smith, Esq., Marton Lodge, Bridlington. There were ten entries, but they were but a middling lot.

Class 25.—For the best roadster nag or mare; the prize of £5 was awarded to Thomas Askwith, Esq., Bishop Wilton, Pocklington, for his mare. In this class there were twenty-eight competitors, and we might with safety say that twenty-eight better never stood alongside of each other: they were truly a splendid sight.

Class 26.—For the best roadster mare and foal there were fourteen competitors; the prize of £5 was awarded to Jabez Witty, Esq., Middleton, Driffield, for his bay mare and foal. In this class the competition was close and good, showing Yorkshire must still retain its standing for a good breed of roadsters.

Class 27.—For the best mare and foal for agricultural purposes, only five competitors; the prize of £5 was awarded to Robert Robinson, Esq., Skerne, Driffield, for his brown mare and foal. This was a first-rate class.

Class 28.—For the best three years old hunting gelding there were nine competitors; the first prize of £5

was awarded to Thomas Holtby, Burshill, Beverley, and the second, of £2, to Botterill Johnson, Fordingham Bridge. This was a superior show of valuable young horses that are destined to command great prices when at maturity.

Class 29.—For the best two years old hunting gelding, six competitors, the prize of £3 was awarded to William Blythe, Esq., Cranswick, Driffield. This was a very good lot, and augurs well for the support of foxhunting.

Class 30.—For the best hunting filly under four years old, five competitors; the prize was awarded to J. B. Barkworth, Esq., Cottingham Castle, Hull. This was a capital show of this important material for the keeping up of this noble sort of horses.

Class 31.—For the best coaching filly under four years old, five competitors, the prize of £4 was awarded to R. L. Wilson, South Dalton, Beverley. This was a very middling lot of what the panic after the formation of railways almost drove out of existence—good young coaches. However, the breed is receiving more attention.

Class 32.—For the best three years old coaching gelding, eight competitors, the first prize of £5 was awarded to B. Johnson, Esq., Fordingham; and the second, of £2, to B. Johnson, Esq. This was a very promising lot of horses.

Class 33.—For the best two years old coaching gelding, only three competitors, the prize of £3 was awarded to B. Johnson, Fordingham. A good sort, though few in number.

Class 34.—For the best three years old colt or filly for farming purposes, only four competitors, the first prize of £5 was awarded to John B. Thompson, Esq., Anlaby, Hull; and the second, of £2, to Mr. Angas, Esq., Newick, Driffield. These were a good lot, but the first prize was an extraordinary animal for both symmetry and strength.

Class 35.—For the best two-year-old colt or filly for agricultural purposes, fifteen competitors; the prize of £3 awarded to Thomas Dawson, Esq., Poundsworth Mills, for his filly. This was a very good show of young horses, doing great credit to the Riding.

Class 36.—For the best pair of horses, of either sex, for agricultural purposes, 14 pair exhibited; the prize of £5 awarded to Wm. Angas, Esq., Newick. These were a lot of as good horses as it has ever been our lot to see together at any exhibition. We believe that we never did see a better horse than the black gelding belonging to John Almack, Esq., Beverley; and the mare is a very good one; and as far as their size, marks, and colour go, they are a perfect pair. We do not think that a black and grey can be said to pair in colour, if they are in number. And a horse with bad fore-legs cannot be a good one; it is also a fault the greatest novice will quickly learn to detect.

Class 37.—For the best lady's pony under fourteen hands high, 28 competitors; the prize of £3 awarded to John Wray, Esq., Scrayingham, Pocklington, for his pony, Miss Nelly. This is a beautiful creature; and the show was altogether a splendid affair. It is

doubtful if ever 28 as good ponies will meet in the same field again; they are truly a credit to the taste, judgment, and knowledge of their owners.

Class 38 are the pigs, which were a very fair show, but not so numerous as we expected. A prize of £2 to Mr. Harper, Barmby Moor, for the best boar of the large breed; and the prize of £2 to Mr. Grinsdale, Driffield, for the best sow of the large breed. The prize of £2 for the best boar of small breed, Mr. Singleton, Givendale. For the best sow, Mr. Hutchison, Fulford, £2. For the best store pig, William Cole, Driffield, £2.

The show of poultry was very good indeed, and gave the judges a great deal of thought and careful observation to make their awards. There were prizes given to the amount of about £30, which the judges awarded, giving, we believe, universal satisfaction.

The show of implements was very good; in fact, when the quality and the price are taken into consideration, we do not think that in any other part of the kingdom are the farmers so favoured as the East Riding of Yorkshire in getting their implements and machines made and repaired by their own village wright and blacksmith at much more reasonable prices than could be done in any other way. There is something pleasing, and proves the advancement of the social system, when we see in every village a respectable wheelwright, who also can officiate as millwright and blacksmith—a man who has his shop well filled with tools fit for the manufacture of the iron-work of all the implements of the farm, saving the farmer the heavy expense of sending a distance whenever any little thing is wanted. We learned another important point in connection with the East Riding farmers, which is, they completely set their faces against having any implements made of cast-iron, because of the great mass of it required to obtain sufficient strength, thereby making all things made of it what they quaintly term “horse-grinding machines.” Timber is their favourite material, judiciously bound together with wrought-iron. Wood axles are the universal favourites, because they find they save more by the reduction of weight, as compared with iron, than can be obtained by any minor advantage in the way of reduced friction. Waggoners are perhaps managed the best here of any place in the world, but carts are not well managed; many farmers having no such thing as a cart, everything is done with waggoners.

George Anfield, millwright, Driffield, exhibited a very good and cheap mill, grey stones, for grinding farm produce for stock, for which he was awarded the prize of £1.

Mr. S. Johnson, of Driffield, exhibited a variety of implements, and his broadcast seed-sowing machine, for which he received the prize of £1.

Mr. Gibson also exhibited a great variety of clod-crushers, for which he received the prize of £1.

Mr. F. C. Mathews exhibited M'Cormick's reaper, and Chandler's liquid-manure drill, for which he received the prize of £2.

Mr. Shepherdson, Tibthorpe, an improved seed-drill; prize of £1.

Mr. Robert Belt, West Lutton, improved turnip horse-hoe or scuffer; the prize of £1. This is about the best and most efficient thing of the kind in use, and reasonable in price.

Mr. Coulson, York, showed his excellent tenon and mortising machine for hand power. This is a capital tool.

Mr. Francis Stephenson, Garton, showed a first-rate simple cheap horse-rake, for which he received the prize.

Mr. Harland, Pocklington, exhibited a large assort-

ment of implements, with his expanding horse-hoe, which gives the man the power of increasing or decreasing its width while at work. This also received a prize.

Mr. John Barker, of Dunnington, Yorkshire, exhibited every sort and variety of implements, with his celebrated one-horse cart, which was again awarded the prize of £2. This is the best cart that has come under our notice for a great length of time, combining lightness with strength and durability. The wheels are also made on those sound principles, so fully discussed in the Royal Society's *Journal*. He also got a prize for his improved swingle-trees, and a prize for his barley hummeller. This is a capital machine for the purpose.

Mr. William Sawney, Beverley, exhibited a great variety of his justly-celebrated machines and implements, receiving the prize for the best corn-dressing and winnowing machine. This stands in great esteem among the Yorkshire farmers. Also his weighing-machine for sheep, pigs, calves, corn, wool, and other farm produce, was properly awarded the prize.

Messrs. Wallis and Smith, North Dalton, exhibited a first-rate waggon. This was superiorly got up, and made on sound principles.

Messrs. Dale and Jackson, Bridlington, exhibited an improved Cambridge roller, with a clover-seed sowing-box attached. This is a capital contrivance.

Mr. Wood, South Dalton, showed a good waggon, scarifier or grubber, and two root or turnip-cutters.

Mr. Robert Wilson, Beverley, showed well-known winnowing-machines and blowers.

Messrs. Puckering and Holgate, Beverley, five varieties of their much-admired and widely-known dog-carts. These are built on first-rate plans, combining artistic taste with lightness, elegance, strength, and durability; and run beautifully light and easy. They were awarded a prize of £5, which was the highest prize given.

Mr. Robert Graham showed his portable sawing and boring-machine with three augers. This is a very good machine, and reasonable in price; well made, of good materials. Was awarded the prize.

H. J. Morton and Co., Leeds, showed a large variety of wire fencing, and iron gates in great diversity of shapes and designs.

Mr. Crosskill showed a great assortment of implements, including carts, rollers, waggons, horse-rakes, &c., also Bell's reaper, and wheels and axles, for which he received a prize of £3. It was generally regretted that there was no opportunity of trying the reaping-machine.

Mr. Coultas, Rudston, showed an excellent four-horse waggon.

Mr. Teal, Holme-on-the-Wolds, showed his ploughs, for which he has been so long celebrated, and again awarded the prize. These are excellent light land ploughs. He also showed his cheap and efficient light land grubber or scarifier with fourteen coulters and elevating-frame, and levers, all made of wrought iron. This implement is well made, and covers five feet wide. Any number of coulters can be used. This implement was very justly awarded the prize.

The show was one that there was a good deal of business done at by the implement-makers with the strangers who had come some distance, to witness the starting of this young society, which we wish every success and prosperity may attend.

After the show was over, the members and their friends dined in the Corn Exchange, where the Hon. Captain Duncombe, M.P., presided.

ON TURNIP-HOEING.

I am induced to offer a few remarks upon turnip-hoeing exclusively for two reasons: 1st, because I wish to avoid *misleading* my readers into improper courses of management; and 2ndly, because I most sincerely do wish to *lead or direct* them into those courses which shall tend most to their prosperity, irrespective of common customs. I am well aware that I have, in my short paper on turnip-culture of last week, taken upon myself to advocate an unusual course relative to turnip-hoeing, viz., to set out the plants at narrower intervals than is commonly practised. It was not done unadvisedly, but as the result of my experience, extending over 35 years, and in an average occupation of about 600 acres, consisting for the most part of thin alluvial loam; and the turnips I have cultivated have included nearly every popular variety introduced within that period. My numerous varieties have now settled down into the *purple-top swede* and the *red round, or globe*: both varieties are of the best selection, and are now popular stocks—the latter having been grown from one stock for upwards of 50 years, and larger bulbs I never saw. I name this because my practice of drilling this common variety at 12-inch intervals, and setting them out with an 11-inch hoe, is repudiated by “A Norfolk Farmer.” Of this I do not complain; but the manner of his remarks (as shown in the *Mark-lane* of last week) is very objectionable: of which, however, I shall take no further notice, except to say that I shall at all times be very glad to find that any suggestions I may put forth do meet with temperate criticism, and such I shall not fail to acknowledge in reply.

I wish it to be borne in mind, however, that my aim is solely to obtain the heaviest crop of turnips of the *best quality* of food for the stock, not the largest bulbs. I take it for granted that the land for a common turnip crop is *properly prepared* before sowing. *If not, it ought to be.* For swedes, owing to the early season for sowing them, I would make due allowance, and prepare for horse-hoeing. Not so for common turnips: there is plenty of time in every season to get the soil all right for this crop. I repeat, this crop I drill in (on land manured with not less than 12 two-horse loads of farm-yard dung) with a slight artificial dressing of superphosphate, or similar manure, and 3lbs. of seed per acre, at 12-inch intervals; and, further, I set out the plants with an 11-inch hoe, thus leaving the plants about 12 inches square throughout the field. This, then, is the point to which I wish to direct attention. It has long been my opinion that, on well-farmed lands,

it was unnecessary to set out the turnip-crop so thinly: still I followed up the practice, with occasional variations, till about eight years since, when I resolved to drill a field of 28 acres with the same coulters I had used for drilling beans and peas—i. e., 12 inches apart. I succeeded in getting a good plant throughout. In order further to test my opinion, I had the crop set out carefully with a *nine-inch hoe* (not eleven-inch), and the result was highly satisfactory. The field was pretty nearly a compact pavement of bulbs, of good size and of excellent quality; and the crop “carried,” according to my estimate, at least 20 head of large hogget sheep per acre for 22 weeks. The sheep were partly changed, so that no really accurate account was kept; but I believe the above to be within the estimate. I pursued the same course in the succeeding year, with a field of 24 acres, and with nearly the same result. I thought, however, taken in the average of seasons, the nine-inch hoe left them too near. The following season was a very growing one, the harvest came on rapidly; I was short of help, and could not get them nicely singled; consequently, in some places the bulbs did not get to a sufficient size. The crop, notwithstanding, was a very superior one; but there was here and there some over-crowding. This determined me to adopt the larger hoe (11 inches); and I am happy to say, so far as respects my holding, with complete success. It is from this proof that I am induced to recommend narrower intervals in setting out turnips than is usually practised.

I do not profess to write in any other capacity than as a practical farmer. Possibly I may not be sufficiently conversant with the scientific part of the subject to say how the turnip-plant derives its food—what from the soil, and what from the atmosphere—or what room it requires to perfect its growth; but this I do know—that it will produce a large bulb under much more straitened circumstances than most growers will give it credit for. My crops appear more like a crop of leaves till about the beginning or middle of September, when the outer leaves begin to decay, and the bulbs rapidly form. The operation of hoeing commences when the plants are from three to four inches in height, or earlier, according to the season, or as the state of the land appears to require it. The first hoeing is usually along the intervals, and chiefly to cleanse the land; the second is the setting out: each hoe is followed by a lad to single the plant, in which great care is used. I, however, vary these modes. Frequently the setting out precedes the hoeing, and the singling takes place at the

second hoeing; much depending upon the rapidity of growth of the crop. This is the mode I pursue; but I beg my readers to be cautious. I should strongly advise, however, that small plots on every farm be tried, to prove what is best for each par-

ticular holding. Many growers to my knowledge, who have adopted narrower intervals than customary with them, have been agreeably surprised by a better crop.

P. F.

TO THE MEMBERS OF THE NORFOLK AGRICULTURAL ASSOCIATION.

MY LORDS AND GENTLEMEN,—I had some thoughts, as president of your Association, of bringing before the meeting, on Friday night, a subject which appears to me of the first importance at the present juncture; but the duties of the chair did not afford me a convenient opportunity of introducing it. It is this: How are the agriculturists of Norfolk to be supplied in future, at a moderate price, with the necessary articles of linseed and oil-cake, if we continue at war with the chief producing nation of those articles?

We imported, last year, 94,000 tons of flax, of which Russia alone furnished 64,000; and in the same year, we imported of hemp, 63,000 tons, of which, Russia furnished 41,000 tons; and our whole import of the two articles, at peace prices, was of the value of five millions sterling, and now, at war prices, of nine millions. Here then is a premium on the growth of flax and hemp of four millions! Now, if it should prove to be advantageous to cultivate flax and hemp at home, we should make the Emperor of Russia repent the day he went to war with his best customers; for he not only insisted on being paid in gold and silver for his flax, hemp, and tallow, but would neither stir hand nor foot in the production of these commodities unless we advanced our cash and paid beforehand. Now, let me suppose that the war should raise the price of the articles of linseed and oil cake as to place it beyond the reach of the ordinary tenant-farmer, would it not be an advantage to both owner and occupier of land to grow the article ourselves?

So long as the corn-laws existed, this question could not be entertained, because the duty operated as a premium upon the growth of grain to the exclusion of articles even better adapted to the soil.

Of flax culture, one of its great merits is the necessity of skill in its cultivation. It partakes more of the nature of a manufacture than any other crop we grow, and consequently it is better adapted to the advanced state of agriculture in this county especially.

The present high price of wheat cannot always continue; it is not, therefore, desirable to have a crop that will indemnify the farmer for the occasionally low price of grain?

Now flax is exactly the description of plant for this purpose, for it is notorious that flax rises as wheat falls. It appears to be the most remunerative crop that can well be grown. I have accounts from various parts of the country, which concur in the opinion that where there is a profit of £9 in a crop of wheat, there will be £20 in one of flax.

The cultivation of flax would afford increased employment to persons of both sexes, of all ages, and at all periods of the year.

The plant will grow on almost every description of soil, and will take its place in any part of a rotation.

Flax is no new crop in this country, as is shown by old leases, which contained clauses prohibiting its growth, being considered an exhausting crop. Granting that it is so, the discovery of artificial manures has entirely removed this objection,

and it is grown in the present day in several parts of the kingdom. Mr. Warnes, of Trimmingham, has proved in his pamphlet that it can be produced "on the edge of cliffs, and above 200 feet above the level of the sea." The agriculturists of Ireland are already sensible of its value.

In 1849, 60,000 acres only were under cultivation in that country; in 1853 not less 176,000 acres were appropriated to flax, and yet notwithstanding this increase, the demand has more than kept pace with the supply. The value of the Irish crop last year was two millions sterling. The subjoined notes, kindly furnished me by Sir John MacNeill, an eminent engineer, and the largest flax cultivator in Ireland, will show the progress which the cultivation of the plant has made in the sister kingdom.

Flax is grown in Belgium and France; more care is bestowed in those countries on its culture than in Ireland and England, and more in Ireland than in England. To encourage it growth, the Belgians prop it by rods somewhat in the same manner as we stick gardens peas. They keep their flax two years, while we sell ours three months after preparation. They find that flax, like wine, improves by keeping. The Belgian process, if thoroughly carried out, is of course an expensive one; but it should be borne in mind that the price of flax varies from £35 to £210 a ton, according to the degree of care, skill, and labour bestowed upon it. In illustration of the demand even for the refuse of flax at the present time, it may be mentioned that, for paper making alone, there is wanting from 80,000 to 100,000 tons of flax-pulp, and a paper maker has lately offered a reward in the *Times* of £1000 to any person who shall invent an article to supply this deficiency. Mr. Warnes is of opinion that every cultivator should carry out the whole process of preparing the flax for the manufacturer; but for the satisfaction of those who are not disposed to take this trouble, it may be as well to mention that there is a ready sale for the article on the ground. There is an establishment at Diss, and another at Syleham, where large quantities are bought from the growers. As a standing crop, it is generally worth from £10 to £15 per acre.

Submitting these facts to the consideration of the members of our association, whether owners or occupiers of the soil, I have the honour to be, my Lords and Gentlemen,

Your most obedient servant,
ALBEMARLE.

Quidenham, June 24th, 1854.

NOTES FURNISHED TO THE EARL OF ALBEMARLE, BY SIR JOHN MAC NEILL.

The best publications on the growth and manufacture of flax are those by the Royal Irish Society, in Belfast, James Mac Adams, jun., secretary; also those by the Editor of the *Farmers' Gazette*, Dublin, and a work by Warnes, and an octavo volume by Longman, London.

Flax is principally grown in the counties of Armagh, Down, Donegal, Derry, Tyrone, Louth, and Cavan, and some in Fermanagh.

The ground best adapted for the growth of flax is a deep rich loam. Sir J. Mac Neill grew 600 acres, in 1853, on almost every description of land:—Deep clay fit for growing wheat; deep land formed from deposit of mud and weeds, reclaimed from the sea; on rich loam over lime-stone, and lime-stone gravel; light friable land; on lime-stone gravel, and on land formed from the *debris* of granite, green and Johnstone slate—good flax was grown on all these soils; but the best was, in every case, on the deep alluvial soil, and the land reclaimed from the sea. Flax appears to grow best, and produces the largest quantity, when sown on land on which oats have grown the previous year, being the land from sea; but it is the practice in Armagh and Down to sow it after potatoes or turnips, and sometimes after barley. In every case the land should be exceedingly well cleaned, and free from weeds. In some districts they plough the land in autumn preparatory to the spring sowing, but this is not always the case. The land should, however, be ploughed just before the seed is sown, and, after being well harrowed and cleared from weeds, it should be rolled with a heavy roller, then harrowed with a light harrow, the seed sown, and then a very light harrow passed over it, and finally rolled with a light roller. Both Riga and Dutch seed are sown in Ireland. The good deep land will produce the best flax from the Dutch seed; the quantity used is generally $3\frac{1}{2}$ bushels of Riga seed to the statute acre; sometimes 4 bushels of Dutch seed. The seed sown in Ireland is now extensively used; Sir J. McN. sowed 500 acres with seed grown by himself the preceding year. The best time for sowing is about the 17th of March, and it may be sown if the weather be favourable up to the 20th, or even to the end of April. I have seen good crops sown so late as the 15th of May. The seed is generally six weeks in the ground before it appears; when it is three or four inches above the ground, it should be carefully weeded by girls, *against the wind*. It is generally fit to pull in sixteen weeks after sowing, but this depends much upon the state of the weather. The proper time to pull it requires some experience, but the best and surest method is to examine the bolls every day near the time of pulling. The boll should be cut across with a sharp pen-knife, as a lemon is cut. The seed will be cut through; and before the time proper to pull the flax, these seeds will appear quite yellow by degrees; day after day they will get more dense and greenish. As soon as the edges become quite green, and at the same time the lower leaves of the plant appearing to decay, or get tinged with yellow, the plant may be pulled. *This is a very material point to attend to; if allowed to get too ripe the fibre will be injured, and if pulled too green the seed will be injured.* The pulling is an operation that requires great care and some experience. 24 girls, at 6d. a day each, should pull an acre. The sheaves, or beats, should not be more than four or five inches in diameter. The ends of the stalks should be laid as evenly as possible, and should be tied with rush-bands. When tied, the beats should be piled up either as wheat-sheaves are piled in stooks, or in square, narrow stooks; the beats laid side by side, the seed end exposed to the weather. The great object is to *dry the flax* with as little exposure to the sun as possible. When sufficiently dried, it may be carried to the farm-yard, and put up in stacks or heaps like other grain. If fine flax be required, it will certainly be best procured by pulling the plant *before it is quite ripe*, and steeping it, the same day it is pulled, in the ordinary flax-pools in the open air; but in this case the seed is lost. The average

quantity produced from an acre may be taken at $2\frac{3}{4}$ tons weighed when dry; or a fair crop may be assumed at 40 stone of dressed flax, the stone being $16\frac{1}{4}$ lbs. In many cases there are much more than 40 stone produced to the acre; in some instances, in favourable ground, double this quantity have been got; but 50 stone is considered very good. If the flax be well retted and scutched, it will generally fetch 10s. per stone; in many instances 16s. per stone; but from 7s. 6d. to 8s. may be considered, of late years, the value. One acre of land should produce four *sacks* of seed; the weight of the bushel varies from 50lbs. to 54lbs., and is sold for crushing for 5s. 6d. to 7s. per bushel; and, when good for seed, at from 9s. to 12s. per bushel. The cost of labour attending an acre of flax may be taken as follows:—

	£	s.	d.
Rent.....	3	0	0
Two ploughings, at 10s.	1	0	0
Two harrowings, at 5s.	0	10	0
Two rollings, at 2s. 6d.	0	5	0
Seed, $3\frac{1}{2}$ bushels, at 12s. per bushel	2	2	0
Weeding	0	12	0
Steeping	3	10	0
Carting	0	15	0
Scutching.....	2	0	0
Carting to market	0	5	0
Total.....	13	19	0

The rate of labour being, for—

Men, per week.....	0	6	0
Girls.....	0	3	0
Horses, per day	0	4	0
Poor's rates and other taxes	0	2	0

Grass seeds and clover may be sown with the flax seed; it will not injure the flax, and lays down the land remarkably well. It is the general opinion that it injures the land, and that it should not be sown oftener than once in seven years, but this is a mistake: it may be sown once in five years as a regular crop, and if properly weeded the land will not be in the least injured.

(Signed) J. M' N.

Saturday, June 17, 1854.

The coarse flax is sold in the Irish markets at from 5s. to 6s. per stone, or from £35 to £42 per ton (this is called hand-scutched flax); the great bulk of the flax grown in Armagh, Down, and Louth, is about 7s. to 8s. per stone, or £49 to £56 per ton; the fine flax of Derry and Armagh sells for 12s. to 15s. per stone, or £84 to £105 per ton. The Belgian or French is worth from 25s. to 30s. per stone, or £175 to £200 per ton; but the middle sort is sent over at £120 per ton. In 1853, I was told £30,000 worth of flax was sent from Londonderry to the French market.

All the English flax I have seen grown in Oxfordshire and Yorkshire was better grown, cleaner, and of finer straw than any I have seen in Ireland, except the fine qualities. If it had been properly retted, it would in my opinion have sold for 15s. in the Irish markets. I saw some fine straw in Mr. Manchel's, at Pattingham, recently, which would have sold at from 9s. to 11s. per stone in Ireland. I understood that he grew this quantity himself, and it was well retted and well manufactured. Mr. G. Thompson, of Yorkshire, is now sowing flax, and some I have seen of his was worth 10s. per stone.

IMPROVEMENT IN HORSE BREEDING.

We pay an involuntary respect in this country to a good pedigree. We have learnt, indeed, to believe there is no getting on without it; and so with man, horse, or hound, our first inquiry is—"How is he bred?" Once satisfied on this point, and we have but little to fear. When most needed, the blood of the well-bred one is sure to come to his rescue, and arm him with a courage and spirit of endurance generally equal to all his difficulties. It is this that carries the dandy officer through the many hardships of a campaign; with this the high-mettled racer meets the too trying phases of his chequered career; and from this the greyhound gathers the conquering speed of his course, and the foxhound the bottom that sees him through a run.

The effect of this purity of blood is nowhere so manifest as in the horse. It has brought him gradually to that perfection he has now attained, while it follows and serves him in almost every purpose to which he is adapted. It is not the race-horse alone which has to assure us how blood will tell. Take him as a hunter, a charger, a hack, or a harness horse, and still we can always trace with advantage the pure strain from which he derives his courage, power, beauty, and endurance. As a maxim, the better he is bred, the better he is, for almost any service you may require of him. Would any man dare to say that, for crossing a country, there could be any animal equal to the *quite* thorough-bred fifteen-stone-carrying Leicestershire hunter, we now find so often at the cover-side? Can any one equal him for the fatigues and hardships of a soldier's trade? Or where but in the well-bred one shall we realize the many delicate combinations that go to make "the perfect hack"?

Despite what is occasionally said to the contrary, our own opinion, as our readers must be aware, is that the English horse generally was never so good as he is at present. It is true, perhaps, that he is not quite so cheap; but for this an increased competition, both at home and abroad, may in a great measure stand answerable. Besides, when every other description of stock is on the rise—when short-horns are fetching a thousand guineas or so each—Southdown rams a hundred guineas a season, and porker pigs as much or more for a litter—in all this very satisfactory encouragement to the breeder, is the horse alone to remain the exception? Some of our friends will have it that for common purposes he can hardly ever be bred to a profit, as it is. For our own part, we are much

inclined to believe that he can, though not perhaps if intended for that most national and patriotic of purposes to which he could be devoted. If our cavalry are not so well mounted as they were—an assertion we are by no means prepared to admit—the reason is sufficiently evident. In a general range of improved prices, the regulation price for this service remains much the same; and hence, as we have before had occasion to remark, the inevitable result—the Government agent, wofully outbid, has been compelled to take what he can get *at the price*.

Some authorities, however, are inclined to attribute this falling-off to a decided decline in our breed of horses, and to rest all their hopes for improvement in "regeneration." The means whereby they would achieve this are often curious enough: take the following for instance, from the report of the proceedings at the Royal Agricultural Society:

"IMPROVEMENT IN HORSE BREEDING.—Mr. Spooner, of Southampton, recommended the Council to take measures, with the Government, as well as with the local societies of the country, for improving the breed of horses for cavalry and artillery purposes, with the view of obtaining animals possessing a combination of activity and strength in the highest degree. He thought this object would be obtained by encouraging the breeding of good saddle-horses from the best brood mares capable of carrying 16 stones, by the best stallions, well but not thorough bred, capable of carrying a similar weight. He thought that such mares abounded throughout the country, although they were at present employed for draught and other laborious purposes: he considered that the class of male horses to be used was the one now too frequently castrated, namely, a three-part bred hunter, capable of carrying a heavy weight up to the fleetest hounds; such an animal readily commands some 200*l.* or 300*l.*, when his excellences are known, and which may in fact be regarded as the most noble and valuable of the horse tribe. Mr. Spooner had little doubt that the system would, in a few years, result in the regeneration of the English breed of saddle-horses."

With every respect for Mr. Spooner's talents and position, we implicitly believe that if the Government and the country will only in this matter follow his advice, instead of *regeneration*, "the system would in a few years result in the *degeneration* of the English breed of saddle horses." We here at once ignore the key-stone to our success—the agent that has made the English breed of saddle horse what he is—the envy and the ambition of the world. It is the cross, again and again, with the thorough-bred horse that has given us our hacks and hunters. It is this, and this only, that has revived us when we have been sinking; and *from* this we are to go to the half-bred mare, crossed

perpetually by the half-bred horse! Here are we to find "a combination of strength and activity in the highest degree!" There is no such mistaken notion—one that goes so far to show the ignorance of him who supports it—as to argue a want of power or "strength" in the thorough-bred horse. Study him on the turf, the field, or the road, and everywhere alike we find its advantage. And yet for the future we are to do better without it: it is to the stallion, *not* thorough-bred are we to owe the "regeneration" of our English horses!

Believing Mr. Spooner's recommendation, however well intentioned, to be radically wrong, we shall take the liberty of meeting it not merely with our own experience or opinion alone. In the course of the last twelvemonths or so, there have appeared in this journal a series of letters on the breeding of horses, from two gentlemen, whose productions have shown them fully equal to the subject they undertook. We are by no means anxious to puff our own correspondents; but in anything the Royal Agricultural Society may do in this matter—and we can only repeat that they may do far more than yet has been done—we would not have them overlook the letters of "Cecil," and Mr. Willoughby Wood.

It is from the communications of the latter that we may here re-produce with advantage a few words, in contradistinction to that Mr. Spooner is pledged to.

First, as to our degeneracy, and how it has been arrived at:—

"If we would improve the inferior breeds of horses, it is necessary to give them a certain amount of resemblance in particular points to the higher. This process has, in fact, long been at work with the hunter, the hackney, and the carriage horse. In the last century, the first was a quiet-looking animal, well proportioned as to strength, but giving little more promise of speed than the cob which at present carries an elderly gentleman his daily airing; the hackney was, if possible, still stouter, and less fleet; while the carriage horse was a gigantic animal from 16 to 17 hands high, long on the leg, with enormous crest, high fore hand, upright shoulders, long head, and Roman nose. Such were the horses which dragged the 'family coaches' of our ancestors, at a rate of from five to seven miles an hour. How are all these matters changed! The hunter of the present day is seven-eighths bred, if not entirely thorough-bred; he is expected to race across the country after hounds equally high-bred, and whose fleetness has been increased in an equal ratio. The hackney, too, has been crossed with blood (not always judiciously), and is often as speedy as the hunter, though less powerful. While as to the antique 'coach-horse,' that gaunt animal, with his red legs, is now scarcely to be met with in his pristine purity. His legs have been shortened, and turned from bay to black; his crest is lowered; his head has been lessened in more directions than one; while evident crosses of blood, which he shows, have imparted to him a decidedly more modern and aristocratic appearance. His frame is deeper, his body shorter; he can get his hind legs under him; and as to his pace, twelve miles an hour are easier to

him than eight would have been to his venerable maternal ancestors. Such are the beneficial effects of blood—that is, of a superior race judiciously engrafted on an inferior."

Will any one question the truth of this? The next extract we have marked is almost too long to give entire, but the summing up of it may be repeated with benefit to many:—

"Such are some of the improvements which a judicious infusion of higher blood will gradually bring about. Still more valuable, perhaps, will be the quickness, the energy, and the strength of constitutions which it will impart. The dray-horse and the thorough-bred horse stand at the two extremes of the equine tribe; remove the former from his own sphere, and he is useless. A pariah himself, he is unable to fulfil functions nobler than his own. The very reverse of this is the case with the horse of pure blood. Take the racer out of training, and he makes the best of hunters and the noblest of chargers; no horse is superior to him in the drag or the phaeton; and when grown too old for gay callings like these, he will work in the team as steadily as any Dobbin which has done nothing else all his life. This versatility of usefulness it is, which stamps the thorough-bred horse as the universal improver of his race. If few persons are aware of this fact, it is because only a few are intimate with the thorough-bred horse in his noblest forms. The longer he is studied, the more thoroughly he is known, the higher will be the admiration with which he is regarded. And it does require long familiarity with the various properties for which his several families are distinguished, to be able to handle them to the best advantage in the improvement of other varieties; accordingly it will be found that wherever the thorough-bred horse is most known and best understood by the people, there all other varieties exist in the highest perfection. Every Yorkshireman has sympathised with the triumphs of Beeswing, of Van Tromp, and of Nancy, and felt them almost as his own. What county vies with Yorkshire in its hunters, its carriage-horses, and its roadsters?"

One word more on the "mistaken notion"—the judgment that recognises no power or strength but in coarse heads and heavy frames:—

"To know the thorough-bred horse well and thoroughly is not only invaluable to the breeder, but indispensable to him, if he wishes his success to rise above mediocrity. This is the lesson, and a very long one it is in practice, which the farmers of the midland counties have to learn. At the outset they must dismiss the prejudices which represent him as a slight, weedy animal; useless when away from the turf, except as a cover hack or a lady's pad. It is sheer delusion to suppose that blood is necessarily opposed to power. Doubtless there are weeds among thorough-bred horses—bad samples of a noble race. But there are not abundance of feeble animals of any other breed, from the hunter down to the cart-horse? He who wishes to form a sound opinion as to the value of any breed must look at the characteristics of the best individuals before he is competent to decide upon its merits. It is a fact well worthy the attention of breeders, that a considerable proportion of the most successful racers have been horses of great power. I should weary your readers were I to enumerate them all; but, in order to show that the highest blood and the greatest swiftness are not incompatible with a degree of strength and substance which would fit its possessor for any purpose (except the dray) to which the horse is ever put, I will mention four

examples in support of my argument, viz., Melbourne, Lanercoast, Sir Tatton Sykes, and Van Tromp. The first is the sire of an Oaks winner, two Derby winners, and two St. Leger winners. Lanercoast is the sire of a Leger winner, and an Oaks winner. Van Tromp, his son, won the Champagne Stakes, the St. Leger, and the Emperor's Vase. Sir Tatton Sykes won the St. Leger. Here, then, are four horses of first-rate reputation, the two first as sires of winners, and the two last as winners themselves; any one of which would, as a hunter, have been strong enough to carry fifteen stone across the country. To those who know what hunting is, such a character offers more explicit evidence as to power than any other description."

As it is, the tenant farmers lean too much to the half-bred stallion, and we have for this reason at once taken up Mr. Spooner's recommendation to the Royal Agricultural Society. If, however, the plan is to be followed out, let Mr. Strafford at once set fire to his *Herd Book*, and buy up some half-bred bull for a further improvement in the Short-horn. Let us, in a word, at once forget all our respect for a good pedigree, when we come to withdraw it from that "universal improver of his race, the thorough-bred horse."

EAST SUFFOLK AGRICULTURAL ASSOCIATION.

MEETING AT SAXMUNDHAM.

It is rather a hazardous experiment to attempt any signal alteration in the conduct of a society already well established and supported. The direction, however, of the East Suffolk have this year endeavoured still further to improve the character of their meeting, by adopting an amendment which it was urged could only be for the advantage of the Association. This proposition, here for the first time carried out, referred solely to the time at which these exhibitions should be held. For upwards of twenty years the Suffolk show had figured amongst those autumn gatherings, where the farmer came not merely to record what he himself was doing, but to learn what he might expect could be done for him. The majority of these have gradually died out with that topic on which they chiefly relied to give an interest to their proceedings. The county of Suffolk, though often enough distinguished for the opinions advanced on such occasions, had yet something still to fall back upon. It has so fined down again to a purely agricultural association—for encouraging the best breeds of stock, and doing honour to the good conduct and industry of the labourer.

The change we have mentioned has been made with more especial reference to the former of the objects—the exhibition of stock. It has been long felt that however strong in certain classes, the meetings were proportionately weak in others. In the sheep, for instance, as we last year had occasion to remark, there was little or no competition; and it was, we believe, to insure a better display of such kind of stock that the meeting was brought forward from September to July. Beyond this, it was said an increased entry might be expected in almost every department—many breeders objecting to keep up their cattle in "show condition" to so late a period as that at which the society's meeting has been hitherto held. While, even further, still an

earlier fixture might attract the attendance of superior animals, which it has often happened have been exhibited and sold elsewhere, long before the county show came off.

However good such reasoning may really be, and we are by no means prepared to dispute it, the little town of Saxmundham was rather an unfortunate site for the introduction of this experiment. Situated an honest twenty miles from that now strongest of all conduces to a good meeting—railway accommodation—it was almost surprising to find so generally good a show as that held on Wednesday, July 6. In the one especial feature, though, for which the alteration was effected, the result has so far in no way realized the anticipations of those who proposed it. In numerical strength the entry of sheep was never poorer—there was but one exhibitor of Southdowns, and but one also of Leicesters. It is only right still to say that, the Downs more particularly, were very excellent specimens of the kind, and likely enough to hold their own in any company. They are the property of Mr. Sexton, of Wherstead, a gentleman who threatens to take very high rank as a breeder of Southdowns; while another year may afford him a better opportunity for testing the merits of his flock on the home ground—Mr. Overman and other well known men from neighbouring counties, promising to send their sheep, when they can insure greater facilities for doing so.

Before the time comes again, Saxmundham may have a rail of its own, and we may thus dismiss this feature—the change of time, without considering it as yet fairly tried. Putting it thus out of the question, the one great doubt still with us is, as to the policy of fixing on a day so immediately preceding the great meeting of the Kingdom: that of the Royal Agricultural Society. It certainly does strike us that many of the best animals may be kept

for that alone, when they might be found at both, were the local show even yet a little more forward, or perhaps a little later. Having heard this advanced on the ground as the cause of certain short entries, and believing ourselves there may be something in it, we may pass it on for the attention of the managing committee.

The show was in nearly all respects considered below an average, although in its one great attraction it could scarcely have been more generally successful. It is in the Suffolk horse that the Suffolk Association has its chief strength, and here it is strong indeed. Considering how comparatively little we see of this kind of animal elsewhere, the perfection to which he is brought strikes still more forcibly upon the stranger visitor. There was hardly a class but in which he was famously represented, the weakest, perhaps, being the yearlings and foals, or "*fools*," as it is here the custom to call them, at foot. In the aged stallions were included many horses already well distinguished, the entry far exceeding that at Ipswich last year, although the first prize went again to the same breeder, Mr. Stearn, of Elmsett. In addition to the many good points that go to make up the strength, weight, and action of the Suffolk, Mr. Stearn's horse has one recommendation which they do not all possess, and that is scarcely enough considered by those long accustomed to the breed. To the stranger, however, the sour head and small pig eye come as a great set-off to an animal in which there is otherwise so much to admire. Mr. Stearn's sort may yet improve upon this.

The best proof of the early perfection to which these horses are brought—the very best classes in fact of the whole show—were the two and three-year-olds generally, both colts and fillies. They included, in a large entry, some of the best blood in the county; and to this the premiums went, Mr. Wilson taking both first and second for the two-year-old colts, and Mr. Barthropp having a similar distinction for his three-year-old, as well as the first, for the two-year-old fillies. This latter gentleman is particularly famed for his mares, two or three of those which stood side by side, with a foal at foot, developing the grand, powerful form of the draught-horse in a very eminent degree. The race, from the same "stable" with Captain Barlow, for the best gast mare, was very close, and the award much canvassed, although we believe that in the majority of good points opinion went very much with the Judge.

The hacks, cobs, and thorough-bred horses ranked in no ways with those shown for agricultural purposes. The show in this respect was decidedly inferior to what generally has been. There was

only one thorough-bred horse on the ground—the Lion, by Hetman Platoff out of the Lamb, by Melbourne, which also took the prize last year at Ipswich, since when he has considerably improved and thickened. His competitor, Robinson, well-known in this county as a good stock-getter, is but lately dead. The owners of each gave premiums for the best foal by them—but a negative plan, after all, of proving their merit.

Of cob stallions, though there were three in the catalogue, none were shown: the cob mares, on the contrary, were all present, and all very good—the prize, and a commended mare of Mr. Keer's, very clever. If we instance with these a brown hack of Mr. Alan Ransome's, that made a man's mouth water to look at, we think we have said the best of the trotters and roadsters Suffolk or Norfolk have this season thought fit to treat us to.

Of cattle, the red cow of the county was very well represented in nearly all the different classes into which it was divided. They struck us, too, as being really useful-looking beasts, although by no means so complimented by one of their appointed judges, Mr. Parkinson, from Nottingham, who wondered, when shorthorns were to be had, they were ever kept at all. The breeders of the Suffolks maintain, on the other hand, that they have qualities not quite so remarkable in their more fashionable rivals, and that as famous milkers, and good hardy doers, they are anything but open to that wholesale condemnation passed upon them. The shorthorn honours were in the hands of Messrs. Barthropp and Crisp, with Sir E. S. Gooch now taking his ground as exhibitor of them. The display was limited, but good; and the same compliment may be paid to the pigs, in which black and white were again the adverse colours.

The implement department, though not recognised in the prize-list, was still made a prominent feature by the stands of Messrs. Garrett, Ransomes and Sims, Turner, Page and Girling, and Smyth. The rain, which commenced almost simultaneously with the opening of the show, was much against a display of this kind. In addition, however, to the steam engines at work, the new liquid manure drill, invented by Mr. Spooner, came in for the lion's share of attention. It is now in the hands of Messrs. Garrett, and likely, from the general approval passed upon it, to make way very fast in the county of Suffolk.

We conclude, as usual, our report with the prize-list, and such of the speeches, or portions of them, given at the dinner that followed, for which we can find room. This entertainment was very well attended; the room, in fact, being quite full, excepting only at the raised table, occupied by the

president, Lord Stradbroke, with a county member one on each side of him, a clergyman of the county, and no more—at least, it was not until the cloth was removed that any one else had courage sufficient to invade this very prominent privacy. We had occasion last year to compliment the gentlemen of Suffolk on the interest they took in these meetings. We can do nothing of the sort on this occasion, but have only to hope the rail—or want of rail—was once more to blame. We shall look for a stronger “entry” of them on our next visit—to Ipswich.

PRIZE LIST.

JUDGES.

Agricultural Horses:—Mr. W. S. Spooner, Eling House, Southampton; Mr. J. Ward, East Mersea; Mr. S. Wrench, Great Holland.

Riding Horses:—Mr. T. Teverson, Wilbraham; Mr. E. Glead, Hoo; Mr. S. Webber, Ipswich.

Cattle, Sheep, and Swine:—Mr. T. Parkinson, Lay Fields, Newark; Mr. J. Clayden, Littlebury; Mr. T. Boniface, Arundel.

CLASS XI.—AGRICULTURAL HORSES AND COLTS.

	£.	s.	d.
Best stallion, Mr. W. Stearn, Elmsett	10	0	0
Second best ditto, Mr. T. Catlin, Butley	5	0	0
Best three-year old stallion, Mr. T. Capon, Dennington	5	0	0
Second best ditto, Mr. T. Catlin	3	0	0
Best two-year old entire colt, Mr. W. Wilson, Ashbocking	4	0	0
Second best ditto, Mr. W. Wilson	2	0	0
Best one-year old entire colt, Mr. T. Catlin	3	0	0
Second best ditto ditto, Mr. W. B. Chandler, Hacheston	2	0	0
Best mare, with foal at foot, Mr. N. G. Barthropp, Credingham	5	0	0
Second best ditto, Mr. S. Wolton, jun., Kesgrave ..	5	0	0
Best foal, Mr. J. Williams, Trimley	5	0	0
Second best ditto, Mr. T. Catlin	3	0	0
Best gast mare, Captain Barlow, Hasketon	5	0	0
Second best ditto, Mr. N. G. Barthropp	3	0	0
Best three-year old filly, Mr. N. G. Barthropp	5	0	0
Second best ditto, Mr. N. G. Barthropp	3	0	0
Best two-year old filly, Mr. N. G. Barthropp	4	0	0
Second best ditto, Mr. T. Catlin	2	0	0
Best one-year old filly, Mr. T. Catlin	3	0	0
Second best ditto, Sir E. S. Gooch, Bart.	2	0	0

Premiums 7 and 8 are given by Mr. Richard Garrett.

Premiums 19 and 20 are given by Sir E. S. Gooch.

CLASS XII.—RIDING HORSES.

Best entire cob (see book, page 14), given by his Grace the Duke of Hamilton and Brandon; no entries	5	0	0
Best entire thorough-bred horse, Mr. T. Waller, Sutton	5	0	0
Best cob mare (see book, page 14), given by his Grace the Duke of Hamilton and Brandon, Mr. H. Preston, Worlingworth	5	0	0
Best foal for riding purposes, Mr. W. Threadkell, Charsfield	5	0	0
Best foal for carriage purposes, not sufficient merit	5	0	0

Best foal by “Robinson,” a silver cup given by Captain Barlow, Mr. W. Threadkell	£5	0	0
Best foal by “The Lion,” given by Mr. Waller, Mr. C. Jefferson, Melton	5	0	0
Best three-year old riding colt or filly, Captain Barlow	5	0	0
Best three-year old carriage colt or filly, Mr. Charles Roper, Sutton	5	0	0
Best hackney gelding or mare of any age, provided five are exhibited, a premium of £5, given by W. F. Hobbs, Esq., Mr. A. Ransome, Ipswich	5	0	0
Best two-year old riding or coaching colt or filly, given by Mr. Keer, Captain Barlow	5	0	0

CLASS XIII.—CATTLE, SHEEP, AND SWINE.

Best Suffolk bull, 2 years old and upwards, Mr. W. A. Crisp, Chillesford	5	0	0
Second best ditto, ditto, no award	3	0	0
Best Suffolk bull, under two years old, G. D. Badham, Esq., Thurlston	3	0	0
Best bull of any other breed, 2 years old and upwards, Mr. T. Crisp	5	0	0
Second best ditto, Sir E. S. Gooch, Bart., M.P. ..	3	0	0
Best bull under two years old, of any other breed, Mr. Thomas Crisp	3	0	0
Best Suffolk cow, J. Moseley, Esq.	5	0	0
Second best ditto, Mr. W. Threadkell	3	0	0
Best three year old Suffolk heifer, G. D. Badham, Esq.	4	0	0
Second best ditto, Mr. W. A. Crisp	2	0	0
Best two year old ditto, J. Moseley, Esq.	4	0	0
Second best ditto, G. D. Badham, Esq.	2	0	0
Best one year old ditto, G. D. Badham, Esq.	2	0	0
Best cow of any other breed, Mr. N. G. Barthropp	5	0	0
Second best ditto, Sir E. S. Gooch, Bart.	3	0	0
Best three year old heifer, of any other breed, Mr. N. G. Barthropp	4	0	0
Second best ditto, Mr. N. G. Barthropp	2	0	0
Best two year old ditto, Sir E. S. Gooch, Bart. ..	4	0	0
Second best ditto, Mr. E. Cottingham	2	0	0
Best one year old ditto, Sir E. S. Gooch, Bart. ..	2	0	0
The best pure southdown tup of any age, Mr. G. Sexton, Wherstead	5	0	0
The best shearling ditto, Mr. G. Sexton	5	0	0
The second best ditto, Mr. G. Sexton	2	0	0
The best tup of any other pure breed, of any age, Mr. Moses Crisp, Letheringham	5	0	0
The best shearling ditto, Mr. Moses Crisp	5	0	0
The best pen of 5 shearling pure southdown ewes, Mr. G. Sexton	5	0	0
The best pen of 5 shearling ewes of any other pure breed, Mr. Moses Crisp	5	0	0
The best pen of 3 shearling ewes, not pure breed, no entries	3	0	0
The best boar, Mr. S. Wolton	3	0	0
The second best ditto, Sir F. Kelly's premium, G. D. Badham, Esq.	2	0	0
The best sow and pigs, Mr. Thomas Crisp.	3	0	0
The second best ditto, Sir F. Kelly's premium, Mr. W. Threadkell.	2	0	0
The best breeding sow; the premium not to be paid until after the sow has pigged, Mr. T. Crisp	2	0	0
The best pen of 3 young sows pigged since 1st January last, Mr. T. Crisp.	2	0	0
The best fat ox or heifer, bred by a member, under 4 years old, Mr. R. Garrett	4	0	0

HIGHLY COMMENDED.—Entire horse Marquis, foaled 1850, sire Catlin's Duke, belonging to Mr. C. Cordy.

Entire colt, f. 1852, s. Catlin's Duke, belonging to Mr. T. Crisp. Mare Matchett, with foal at foot, f. 1847, s. Catlin's Boxer, belonging to Mr. T. Catlin.

Gast mare, f. 1850, s. Newcastle Captain, belonging to Mr. N. G. Barthropp.

Cart filly, f. 1852, s. Catlin's Duke, belonging to Mr. T. Catlin.

Hackney mare, f. 1847, belonging to Mr. M. Keer.

COMMENDED.—Entire horse, Prince f. 1850, s. Catlin's Captain, belonging to Mr. T. Crisp.

Entire colt, f. 1852, s. Newcastle Captain, belonging to Mr. E. Cottingham.

Mare Doughty, with foal at foot, s. Catlin's Boxer, belonging to Mr. J. Williams.

Cart filly, f. 1852, s. Benham's horse, belonging to Mr. F. Keer.

Riding foal, f. April 1854, s. Robinson, belonging to Mr. H. Toller.

Riding colt, f. 1851, s. Man Friday, belonging to Mr. J. Flatt.

Boar, p. March, 1852, belonging to Mr. T. Crisp.

Sow, p. March, 1853, belonging to Mr. T. Crisp.

Three black sows, p. 1854, belonging to Mr. S. Wolton.

THE DINNER.

Soon after four o'clock about 200 gentlemen partook of an excellent dinner, served up by Mr. Crowe, landlord of the Bell, in the Market Hall. The Right Hon. the Earl of Stradbroke took the chair, supported on the right by Sir E. S. Gooch, Bart., M.P., the Rev. R. Gooch, and T. Waller, Esq., and on the left by Sir F. Kelly, M.P., N. Barthropp, Esq., Capt. Barlow, and J. Southwell, Esq. J. G. Shepherd, Esq., and Lieut. Col. Adair officiated as Vice-Presidents.

After the usual loyal toasts,

The Earl of STRADBROKE said that he was about to propose one to them which might be thought rather curious—it was that they should drink their own healths (laughter). Such an occasion as that upon which they were assembled certainly justified the proposition. At all events, the question placed before the meeting was this—whether they felt that, during the 23 years the society had been established, each and every one of them had, in his particular position, done his best to improve the industry and promote the happiness of his own district (Hear, hear). It was an historical fact that, in the earlier days of this country, the eastern portion of England was that which was most distinguished for growing corn for the English people. But from the improvements which had taken place during the last twenty years, it was a matter of doubt whether or not other parts of the British empire had not proceeded in advance. He read that in Scotland, in the Lothians, there was scarcely to be found an occupation of 300 acres upon which there was not a threshing machine. He was told there was hardly one farmer in that part of the country who did not take advantage of steam apparatus, not only for threshing corn, but as an auxiliary in the feeding of stock (Hear, hear). Now he wished to ask the meeting whether that was the rule in the county of Suffolk, or whether it was the exception? (cheers). He was well aware that there were living now in many parts of Suffolk, men who are quite as competent to farm in the best possible way, and who did farm as scientifically as men in any other part of the country; but the next question was this, was that system of farming general? Did the occupiers generally of 200 acres, or of a smaller quantity of land, make the most of the soil which they

hold under lease or otherwise? (Hear, hear). He was not there to attribute more blame to them than was their due, but he wished to ask the landlords whether they felt that they had performed their part upon all occasions, in making buildings as commodious and as comfortable as they ought to do for their tenants? (cheers). He wished to ask the tenants whether they felt they had taken advantage of the different publications which had appeared during late years much to the public benefit, written as those publications had been by men of great practical knowledge? for he was confident of this, that if the tenants had read these works, and carried out the suggestions which they contained, they must feel that, in many parts of the county, the system of farming which had been carried on had done the greatest possible credit to the respective districts. He feared, however, that he could point out many places even in this county where neglect was shown by the smallness of the fields, by the badness of fences, by the want of draining, and by the absence of artificial manures; for it was by the careful observance of all these, that they were enabled to cultivate the land to the best advantage (cheers). If this were so, as he had described, it was their duty in every parish, wherever they had the slightest authority, to use their utmost exertions upon all occasions to get rid of the faults which had arisen from the omissions to which he had alluded (cheers). There were many subjects that might be touched upon with more propriety in private meetings, or discussed, perhaps, with more advantage through the medium of the farmers' club, than they could be touched upon or discussed on a public occasion like the present. He felt that, amongst many advantages which had been derived in this county, it had been the system for many years to use a large quantity of oilcake. He believed, he repeated, that this had been done with great advantage. But, upon looking to the price of oilcake, it certainly had been so high of late years that it had become a serious question with many with whom he had conversed, whether or not it would be of greater advantage to make a greater use of artificial manures for the purpose of increasing the quantity of corn, than to use so much oilcake as food for beasts; admitting, at the same time, that the whole question depended entirely upon the price of each, and also upon meeting with what, he was afraid, they could not always avoid as regarded artificial manures—he alluded to being taken in by those articles which were often adulterated (cheers). He was now about to touch upon another point, which concerned the machinery used in agriculture: he alluded especially to that improved machinery which it was their happiness every day to see in operation (Hear, hear). He certainly was one of those who felt much gratified whenever any new implement was introduced for use amongst the farmers of Suffolk, and it was with the deepest regret when he saw any new implement so introduced afterwards turn out to be a failure. And yet we knew it was impossible even for the most clever men to introduce implements, constructed with the greatest mechanical skill, without witnessing some of such efforts occasionally ending in such results. It would be remembered that, one or two years ago, at their annual meeting, they were all extremely pleased with the introduction of a reaping machine (Hear, hear). Certainly men of the greatest science in the country looked upon this machine as likely to be productive of immense advantage. However, it appeared that, upon being tried, like many other things, it was not brought to such a state of perfection as to render it being employed advantageously upon the land. He hoped the time would come when the defects now apparent would be effectually got over, so that all might derive the benefit which had been anticipated (cheers). He introduced this subject, be-

cause he found that many excellent people in different parts of the kingdom had looked upon these reaping machines as machines which ought not to be introduced; that they had looked upon them as something which was calculated to be detrimental to the farmers and to the best interests of the country at large (Hear, hear). He did confess, however, that for his own part, it was not only impossible for him to participate in such feelings, but he even carried his conviction further, by asking these questions: What would be said if the farmer was obliged to carry home his wheat upon the backs of his men instead of upon his waggon? What would be said if the farmer had to undergo the trouble of hoeing with his hands, instead of by means of the implement used by his labourers? Surely if the one mode were objectionable and absurd, the principle applied equally to the other (cheers). The fact was this: every improvement in machinery, if good for the landlord, was of advantage to the tenant, and particularly so to the poor man who had to gain his livelihood upon the soil. Indeed, he defied any man in that room, or elsewhere, to show him the farm, upon which much machinery was used, where there was not at the same time more employment for the labourers than before (cheers). He alluded to this question because he hoped the time was coming when the ideas often entertained against the introduction of machinery would vanish, and when it would be the object of every man to use his utmost exertions to encourage the introduction of machinery upon his farms (loud cheers). The next point to which he should shortly allude was one upon which he felt he must touch with more delicacy, because he knew that in connection with it there were differences of opinion: he alluded to the education of the lower classes of this country (Hear, hear). A little reflection would show it was impossible, in a country which was increasing in wealth, and where the upper and middle classes were every day increasing in knowledge and intelligence, to say you will resist education for the lower classes of the people (cheers). But if it were impossible to say this, he was anxious to add that if it were possible it would be unwise (cheers). He should like to ask them all this question: supposing that, by the activity and zeal of talented men who are constantly at work in improving the machinery of the country, more machinery is introduced, how could that machinery be used to advantage unless the labourers were men of intelligence and of sound education? (cheers). He should wish also to ask this question—for there were present many gentlemen who could answer it—Which amongst their labourers were those whom they most valued? which amongst them were those in whom they most trusted? which amongst them were those in whom they placed the greater confidence, and to whom they could leave their farms with more satisfaction than they could to others? Was it not the fact that the labourers in whom they most relied, and in whom they had the greatest confidence, were those who were men of the greatest intelligence and of the most education? (Cheers). He certainly had anticipated no other than an answer in the affirmative. The education which he alluded to was that which fitted a man for the performance of all his duties; which taught the boy those obligations which he would have to perform when he grew up to manhood (cheers). Such was the comprehensive system which he advocated; entertaining, as he did, the opinion upon all occasions, that the best men were those who had had a reasonable and sound education, satisfied too as he was that such men were the most trust-worthy and the most intelligent (cheers). He was old enough to remember the introduction of machinery, which, it was thought at the time, would interfere with labour; the results were the

breaking of a great deal of that machinery so introduced, and the prevalence in some districts of riots. But now in all districts where education had been properly attended to, they found a most salutary change in the fact that the most intelligent labourers were anxious to see machinery introduced. Such was one of the great benefits which this and other districts had derived from education (cheers). He was aware it had been said, if education were extended, it would be difficult to find people to fill the humbler situations of life. He was, of course, aware that these subordinate positions must be occupied for the benefit of society generally; but as that was a question which turned entirely upon the surplus or deficiency of the population, and depended in no way whatever upon education and knowledge, he should leave the subject and proceed to another topic. As regarded their proceedings upon the present occasion, certainly the weather had not been favourable to the exhibition, but he believed there had been no drawback as regarded the stock. A great many horses had been exhibited of first-rate quality, and of perfect symmetry and form (cheers). Though there had been a great deal of stock generally, yet it had not been so large in extent as had been witnessed on some former occasions; but still it was of excellent quality, and he should listen with pleasure to the report of the Judges. He hoped that these meetings would continue to prosper (cheers). He hoped that all would do the best in the parishes where they resided to improve the agriculture of their respective districts, because it would be of advantage not only to themselves but to their neighbours (cheers). With these remarks, he should conclude by proposing Prosperity to the East Suffolk Agricultural Association."

His Lordship subsequently returned thanks for his own health, proposed by Mr. Rowley, and very flatteringly received.

Sir E. S. GOOCH, in returning thanks as one of the members for this division of the county, said—They had been rather unfortunate as far as regarded the rain; but he should say as a farmer that the show generally was a tolerably fair one, which he had been very glad to inspect. The horses were very fine specimens, and they had a right to be proud of the breed. The shorthorns, he thought, had been very much improved. As regarded the riding stock, he was glad to observe that they were getting a better description of animal (Hear). He would exhort them to pay particular attention to the animals from which they bred. This should always be kept in mind. As regarded the show generally, with respect to sheep it was very short, while, with regard to shorthorns, there had been a very fair show indeed. No doubt the show of sheep would have been greater, if they had but the benefit of railway communication (cheers). Such means of transit would be one of the greatest boons possible to the county of Suffolk, as well as a very great boon also especially to the tradesmen (loud cheers). But to return to the former subject. At the last meeting at Ipswich, a very distinguished agriculturist, Mr. Fisher Hobbs, made a suggestion which he thought well worthy of being attended to, and that was upon the shoeing of horses (Hear, hear). The horses in Suffolk were often very badly shod, as from the want of pains taken the animals got what was termed oyster feet. He recommended attention to the subject, commending the practice pursued in cavalry regiments as a mode for remedying the evil. As he had always said, they could not boast of very good riding horses. It was most advisable to attend to this subject, so as to effect an improvement in the breed (cheers). There was another subject upon which he would say a word. Artificial manures had been recommended, and the noble lord had endeavoured to draw out the landlords upon the subject (laughter). From what he had done his

pockets had become light, and they had been so from the same cause for some time past. He did not regret this by any means; but as farming was altogether altered, they had need of better manures than before (Hear, hear). The same remarks applied to stables, and he could speak most feelingly upon the subject. The practice had been to build great stables ten feet high, the forage being placed above the horses. The result was that the forage was completely spoiled, while they could not expect their horses to be kept in health when there was neither light nor ventilation (Hear, hear). If it were put simply as a matter of pounds, shillings, and pence alone, there must be good stables for their horses; repeating, as he would, that as regarded the breeding, whether of cart or riding horses, they could not take too great pains in the selection of animals (cheers).

Sir FITZROY KELLY, who was received amidst loud and prolonged applause, in answer to this toast, said, he had now upon more than one occasion—he thought this was the third—had the pleasure of meeting those who were assembled to promote the interests and prosperity of agriculture. He was one of those who, in times of the darkest adversity, when others looked forward with dread and alarm to the consequences of certain recent legislative measures, ventured, all inexperienced as he was, to call upon them not to despair. He ventured to tell all assembled last year, upon an occasion similar to the present, that, if they would but be true to themselves, and exert the energy which belongs to the character of Englishmen, they might defy all measures of adverse legislation—that if they trusted in themselves they would be sure at last to prevail (cheers.) It was now with unfeigned gratification he had risen to remark how well they had responded to the call made upon them by their best friends. They had realized the expectations of those who thought and who felt that their energy and their exertions would present an effectual counterpoise to whatever adverse circumstances might be brought to bear upon their interests. They now found that, notwithstanding recent events, to which, in that meeting, it would not become him more pointedly to allude—they found such was the state of things at the present moment that he might with fervency and sincerity congratulate them upon their improved position and upon the brightening prospects of agriculture (Hear, hear). And why should they, under any conceivable circumstances, whether arising from political or from legislative acts—why should they despair of the ultimate stability, of the ultimate prosperity of the agriculture of this country? If they would only consider that which indeed most of them, whom he now had the honour to address, were far more practically familiar with than he could be—if they would only consider some few real and undoubted facts affecting the agricultural position of this country, he thought they would come to the conclusion that they had only to continue to use in the furtherance and promotion of their own immediate interests, that enterprize and energy which belonged to their character, to be assured that there was yet in store for those whose talents were embarked in agriculture, a greater, a much greater degree of prosperity than even any that had yet been attained (Hear, hear). They had only to look to one particular fact—indeed, in the ordinary language of the day, he might call it a “great fact”—a fact of the greatest importance, as the result of calculations by all capable of coming to such a conclusion—that in England, at the present moment, the entire production of the soil was not more than one-half of what that soil might be made capable of producing—that, whatever may be now the entire produce of the soil of Great Britain, it may be doubled by the application of enterprize, energy, skill, science, capital (Cheers, and

“How?” from a voice). When they considered the means at their command, for making this vast addition to the wealth and prosperity of agriculture, why should they dread anything within the ordinary compass of ordinary casualties? He trusted the time was arriving when they would not only be again prepared, as they had been in times past, by their own diligence, and by their own energy, to promote not only their own and the general interests of agriculture, but that they would discover—as he trusted they would soon find from those legislative measures which alone could benefit them, a regular annual statistical return of the state of agriculture throughout the country—he trusted they would find, from year to year, that they were constantly enlarging and improving, and increasing the value of the land which they occupied and possessed (cheers). They had only to consider the difference between an inefficient and ineffective system of agriculture, and a system which it was in their power to adopt, and which, to a great extent, had been carried on with great success, not only in some parts of Suffolk already, but in many counties throughout Great Britain (Hear, hear). They had only, he repeated, to consider the difference between the bad system and the good system, to be anxious still to continue those exertions by which the agriculture of the country had been improved, so as to place themselves beyond all the risk and all the danger of adverse times similar to those under which they had so long suffered (Hear, hear).

Mr. SPOONER, in returning thanks to “The healths of the Judges,” expressed the gratification which he had derived from having been called upon to act as judge, and the more especially of such horses, which stood unrivalled throughout the world (cheers). If any proof were wanting as to the excellence of the stock, he would mention a fact which had come before his notice. Upon being called upon to decide upon the merits of the horses, his two fellow judges stated to him that, as they knew the owners, and that as he (Mr. Spooner) was from a neighbouring county, they would consequently be obliged if he would undertake the office, in the first place, of pointing out the two best animals. He felt the responsibility to be certainly very great, and he at first felt disposed to shrink from the challenge. He was rejoiced, however, to find that, in selecting the best animals, the confidence of his two fellow judges was fully justified by the striking fact that each of the horses which he selected had received a prize from the Royal Society of England (cheers). Taking the show of stock altogether, they had abundant reason to rejoice, for the class of two-year-old stallions, the class of two-year-old mares, rivalled the excellence of the best animals on the ground (cheers). While he and his fellow-judges sought shelter in a tent to escape the rain, he put a question to them, as they were residents in Suffolk. He asked them this, “How is it that when we see so many excellent Suffolk horses in the county, we see so many bad ones out of it?” (Hear, hear). The reply was, “It is because the best are kept at home, and the bad ones are sent away” (Great laughter). Notwithstanding, however, the superiority of the Suffolk breed, there were still many farmers who gave the preference to inferior animals, which tended to bring disgrace on the breed—a practice which he for one should always deprecate. He begged of such breeders to recollect the fact that a bad horse required as much to keep him up as a good one—that the same amount of feed was required to keep each animal in condition. It was, therefore, a matter of policy to strive to promote the excellence of the breed. He appreciated the observations which had fallen from the Hon. Baronet. What had been pointed out, was one of the most crying defects in breeding, and could not be disputed. He considered it to be a national evil not to

take proper care, and it was a duty incumbent upon all to see that evil removed as speedily as possible. In conclusion, he could only trust that the society would go on and prosper (Loud cheers).

Mr. PARKINSON also returned his acknowledgments, trusting that the decisions had given satisfaction. With regard to some of the stock which he had had to decide upon, he wished he could offer the same congratulations as Mr. Spooner had been able to do upon the horses. They had, no doubt, had some useful animals, particularly in the shorthorns, and also in the pigs; but with regard to the original stock of the county, he wondered that a county with the intelligence that Suffolk possessed, together with its stud of horses, and its first-rate implements—he wondered that they should still keep on breeding that kind of animal known as the polled beasts. They might be hardy, and they might be good milchers; but he really thought that, from the celebrity which the shorthorns had acquired, at any rate it would not be long before the whole would be superseded (cheers and laughter).

Mr. A. RANSOME returned thanks for the Committee,

stating it had been their zealous desire to promote the interests of the society, as well as the interests which attached to the agricultural labourer (cheers). As regarded the show of stock, he remarked that the Association was lamentably deficient in that valuable animal called "the hack." To him it was a matter of astonishment that so few animals of this kind should have been exhibited. He quite agreed in what had fallen from the honourable baronet, when he stated that in the breeding of animals more attention should be paid for the future. He concluded by suggesting that an adequate premium be offered for the best riding horse. He hoped that three or four members would join in the object, towards which he would offer a contribution of £5 (cheers). A large premium, as he need scarcely remark, would insure a large amount of competition (cheers).

The other addresses following, "The Army and Navy," as well as "The Bishop and Clergy of the Diocese," bore chiefly on our present relation with foreign powers, and indeed, during the earlier part of the evening, the meeting assumed a very warlike tone and character.

BREEDING STOCK—THE CONDITION IN WHICH THEY SHOULD BE EXHIBITED.

We will assume that when the late Lord Ducie, in his official position as President of the Royal Agricultural Society, complained of the condition in which breeding-stock were but too often exhibited, he was attacking an evil that really existed. The general cheers which greeted him when at the Lewes meeting he addressed himself to this abuse, the reiterated approval which followed his remarks wheresoever they were promulgated, and the readiness with which the Council of the Society met his wishes for amendment, all warrant us in supposing that his Lordship did not speak without a cause. The evil, in fact, was only too apparent; while the difficulty of treating it was but equally evident. It was well known that a continued negligence as to this point had brought the system of over-feeding to be considered something like an established custom. It was so feared, and not without reason, that exhibitors might submit with no very good grace to a restriction, which prevented them showing their stock in any state they thought proper, however injurious to the animal, or contrary to the real object of the Society.

In a word, we were on delicate ground. The application of the remedy, however, was well devised, and as discreetly carried into effect. Timely warned that they must sin no more, the majority of exhibitors at once prepared to meet the intentions of the Council. The result, too, was in every way gratifying and encouraging. We missed at Gloucester much of that excess so prevalent at Lewes; while we have the records of the Society to assure us that the meeting, even on this first trial, suffered

but little indeed from the caution which had been issued. In only one description of cattle was any falling off observable; and of this one we had heard rumour on rumour as to how in certain quarters a pampered and highly-artificial condition had been made to pass as the best recommendation for a breeding animal. The index pointed at once to where the offence had been most systematic, and to where, accordingly, we might expect to find it most obstinate.

We must repeat, then, that Gloucester gave us every encouragement to persevere in the good beginning that had been achieved. The juries performed the duty imposed upon them with a most commendable discretion, only making an example where example was absolutely necessary; and yet on the issue of what these gentlemen did, the whole plan is after one brief trial to fall to the ground, and we are to go on again as we have been going on so long. In an otherwise most encouraging report just published in the new number of the Society's Journal, we find the following conclusions on this point:—

"The council last year appointed a committee to report suggestions on the subject of that over-fed condition of animals, which in many instances at previous meetings had been animadverted upon as being inconsistent with their value as stock intended for breeding purposes. The arrangements, however, made by that committee have not attained the object in view. The disqualifications pronounced at Gloucester were not eventually confirmed in every case: animals apparently over-fed at the time having subsequently been proved to be breeding stock. The council have, therefore, reverted to the society's original rule of placing on the judges of the show the

responsibility of awarding the prizes to those animals which in their opinion are the best adapted for the purposes of breeding."

Here is the grand argument against the jury system. We are afraid to say how often it has been used, or how little there really is in it when it comes to be closely examined. "The disqualification at Gloucester, which was not eventually confirmed," is more distinctly given us in a previous number of the Journal. In the stewards' report of the stock exhibited at Gloucester, we learn "that the sow belonging to Mr. Northey, which was disqualified for over-fatness, has since produced eight young ones." Admitted it was so; but what, after all, does this prove? Surely no one will go so far as to say that over-feeding will in every instance—although it does in too many—result in thorough impotency or barrenness! True, that this sow did afterwards produce eight pigs; but will any one who saw her at Gloucester be hardy enough to affirm that she was shown there in *proper breeding condition*, or that the Jury did that which they ought not to have done in condemning her? We hear of prize cows being physicked, exercised, and gradually brought down again, after a meeting in order that they may be fitted for breeding purposes. Then, strange to say, some of them *do* breed. And it is with such logic as this we are to rest satisfied that they were exhibited "in proper breeding condition." The same with bulls, which, after two or three months' reducing, are found in some measure fit for use, and do get stock. It is well known, though, that many of them lose their colour and tone in this process, and that they are never again the animals they were previous to being fattened up for a breeding show.

With all the good they are, and have accomplished, let the Council of the Royal Agricultural Society not forget that they have already admitted this in their proceedings as a growing evil. It is one, too, so thoroughly fundamental in its effects, as to claim their most serious attention. In meeting it, they may no doubt give some temporary offence to a few exhibitors whose success may be endangered by amendment. The community, however, cannot but profit by some such wholesome regulation as that their late excellent President advised, and which his talented successor has endorsed. The man who, then, is desirous of improving the character of his stock will buy or use a prize animal with some chance of that advantage implied in the award. May we hope to see the Royal Agricultural Society of England give all their aid in arriving at so desirable a warranty! As it is, how often are the powers of an animal injured by the pernicious kind of competition he has to encounter!

We care not how this limit is enforced, so that it is still held out *in terrorem*. Whether by judge or jury we will not stop to question. It appears now that the duty is to be again, as it has been from the first, with the judges of stock. We shall be bold to say that it is a duty never yet impressed upon them, and never even affected to be performed. To the judges, however, we have now to look to keep up the character of the Royal Agricultural Society as an exhibition of breeding stock. During our recent visits to different parts of the kingdom, we have noticed with pleasure the invitation given to the judges to suggest anything which might strike them as improvements, or to denounce what they might consider detrimental. We have further been gratified with the straightforward manner in which this appeal has generally been responded to. It is from such authorities as these we should learn to know and keep the right road; and it is in these we are quite willing to put our confidence at the Lincoln meeting. Let them bear in mind the duty they have undertaken, as defined to them in this last report—"to award the prizes to those animals which in their opinion are (*physically and symmetrically*) the best adapted for the purposes of breeding." The words in italics are our own; but we will undertake to say they only convey yet more distinctly the real intention of the Society.

THE TIMBER TRADE OF AMERICA.—Ship timber of late years has become exceedingly valuable, as the demand for ships has increased, and at the present time that demand is greater than ever before, and in the upward tendency of freights is not likely to slacken. We have seen the greatest change in the commercial affairs of the world in the last five years, since the California trade opened, that has ever taken place. The spirit of traffic seems to have seized upon the whole world, and notwithstanding the great number and size of ships, the fastness of their sailing, and the shortening of the distances, we are far from being supplied with vessels, and much further, than when the trade to the Pacific first opened. We formerly had shipyards at the mouths of the river, that the materials might be floated down the streams; but the ship-timber forests have long since disappeared. Then the railways made the woods of the interior accessible; and by them now are most of our shipyards supplied. Trees that are worthless in the interior of New Hampshire and Vermont have gone up in value; and even to the wilderness of Canada the landholder, in estimating his lands, will mark all the trees, and perfectly well knows their worth for spars or ship-building. The hunting up of knees and keel pieces away back upon the hills a hundred miles is what the last generation of carpenters never thought of; and to have agents constantly employed for that purpose would have seemed ruinous to our fathers; it is not only done for these parts, but from our coasts they are transported to Maine, and yet they are not supplied. Lately, more than heretofore, the carpenters have looked south for the materials for the construction of first-class ships, to the immense pine and oak fields from Virginia to Florida. The felling of southern forests for our shipyards, by northern labourers and

northern capital, is a great business, and speculators are all over the lands now, as some twenty years ago they were in Maine. These lands will be ample for the next century's uses at least; and, being where the warm winters will allow of the cutting, when it is difficult to work here, will ever call for

northern men. Some of our carpenters have recently been south, and, we understand, made extensive purchases of lands. To those who pursue the business of ship-building, and properly select their lands, these must be profitable investments, their value increasing every year.—*Newbury-port Herald*.

FOOD FOR THE MILLION.—RICE.

Rice, although the food of a larger number of the inhabitants of the globe than any other kind of corn, is yet scarcely included in the daily bill of fare of the English labourer. This no doubt arises from the fact of its not being the produce of our climate. But such is no reason—seeing that we have become so dependent upon foreign produce—but the contrary, if its merits recommend it; for it frequently occurs that when a deficient harvest is experienced in one climate, another has an abundant one, so that it manifestly becomes the interest of the inhabitants of the two to reciprocate with one another in the consumption of food, each accustoming itself to use so much of that of the other as circumstances may require. And we may just remind our readers that habit is necessary to reconcile the stomach of communities to this or that species of food.

Rice is deficient of gluten and fat, two of the most important elements of food for a hard-working man—a circumstance greatly against its introduction and use in this country. From infancy we ourselves have been rather partial to it, in puddings of every kind, and, by way of experiment, used it one year during nearly four months, dining wholly upon it daily; but it will not do to work upon, for we not only lost weight, but strength, and were glad to get hold of a beefsteak or mutton chop again at dinner.

It was cooked for us in various ways, but principally plain, the rice being boiled whole, and eaten with sugar, marmalade, jam, butter, cream, olive oil, or palm oil. When the rice is boiled with milk, and then baked with eggs, and eaten with cream and sugar, it proves a more substantial pudding, but too expensive for the table of the labourer, both as to cooking and nutritive value.

We also used rice-meal porridge to breakfast for nearly fourteen days in succession, cooking and eating it with milk the same as oatmeal porridge, with this exception, that we used a little ground nutmeg, ginger, and sugar, along with salt, for seasoning. But, although eaten with milk, it has not *stamina* for a working man; otherwise it is a very cheap diet, and easily cooked, not requiring one-third of the time which whole rice does.

Rice is frequently eaten along with curries or fricasees, made either of fish, fowl, game, or butcher-meat, or any compound of them—or, in short, any hash of animal food; and this is probably the best plan in which it is now brought to table. Eaten in this way it supplies the place of potatoes, with which it corresponds in chemical analysis, and makes a sufficiently savoury and substantial diet for a ploughman. On this he can perform his task daily from one year's end to the other without reason to complain. The following is a com-

parative analysis of dried rice and potatoes, from "The Chemistry of Common Life," in proof of what we have just said of them:—

	Rice.	Potatoes.
Gluten	7½	8
Starch &c.	92½	92
	100	100

From this it will be seen that the nutritive value of rice is rather under than above potatoes; but so near equality that the difference would be immaterial in practice, were other things equal. Other things, however, are not quite equal, being more in favour of the latter, we believe, than the former. The mechanical construction of the two, for instance, is very different; the granules of the one being angular, and the other globular. Those of rice, for instance, are angular, and not half the size of the irregularly globule-like granules of the potato; and besides, there are other chemical differences than gluten, for rice is rather constipating, while potatoes are the opposite.

The investigation of this subject, however, is yet in a very imperfect state, for both chemistry and physiology have much to do before we possess accurate information as to the constituent elements, cookery, and nutritive qualities of rice. We ourselves have had several years' experience of potato-fed labourers, but none of rice; and the experiments we have made personally for our own information are not sufficient to establish the question as to the superiority of the one over the other. Our opinion, however, has been generally concurred in, and is also corroborated to some extent by physical evidence. An Irishman, for instance, is not so "pot-bellied" as a Hindoo, which proves, as some have argued, the soundness of the conclusion; for the reason why the latter has been obliged to distend his stomach to a greater degree, arises from the fact that his diet—*rice*—is less nutritive, and he therefore must consume a larger quantity of it, while the former is capable of performing a larger amount of work. This latter conclusion may be qualified to some extent by the difference of climate under which the two labourers have to work; and it may also be said that the Hindoo has a more liberal supply of rice—*i. e.*, is better fed.

Rice is found growing wild around the edges of many lakes in Hindustan. What is thus grown is smaller than any of the cultivated kinds, but superior in quality, fetching a high price, and is principally used by the higher classes, who esteem it a "dainty dish."

The different varieties of rice are cooked much after the same manner, but in various ways. It may be

boiled, for instance, or stewed, or steamed; and in Java a practice prevails of half-boiling half-steaming. It is sometimes boiled loose in an iron pot or pan, or vessel of stoneware; and when sufficiently done, the water in which it is boiled is strained off, and the rice allowed to steam for a short time over the fire, prior to being dished. Currie, sweetmeats, olive, palm-oil, or sauce of some kind is sometimes poured over it, and in other cases the natives dip the rice in the oil, &c., or eat it along with fish, fowl, or meat of some kind. It is in other cases tied loose in a cloth, and then put into boiling water. The Javanese rice-pudding already referred to is cooked thus:—"They take a conical earthen pot, which is open at the large end, and perforated all over; this they fill about half full with rice, and putting it into a larger earthen pot, of the same shape, filled with boiling water, the rice in the first pot soon swells, and stops the perforations, so as to keep out the water; by this method the rice is brought to a firm consistence, and forms a pudding, which is generally eaten with butter, oil, sugar, vinegar, and spices." We quote the foregoing from Dr. Hooper's Medical Dictionary, and the same author adds that "the Indians eat stewed rice with great success, against the bloody flux; and in most inflammatory diseases, they cure themselves with only a decoction of it."

In this country numerous recipes are given for the cooking of rice. "Domestic Cookery, by a Lady," for instance, gives no fewer than twenty-two of them, besides various other dishes, in which it forms a part. But out of this long list, few are fit for the table of the hard-working man, principally owing to expense, but in some cases to too watery a form. We quote one or two of the most likely to be useful.

"CARROLE OF RICE.—Take some well picked rice, wash it well, and boil it five minutes in water; strain it, and put it into a stew-pan, with a bit of butter, a good slice of ham, and an onion; stew it over a very gentle fire till tender; have ready a mould lined with very thin slices of bacon; mix the yolks of two or three eggs with the rice, and then line the bacon with it, about half an inch thick; put into it a ragout of chicken, rabbit, veal, or anything else. Fill up the mould, and cover it close with rice; bake it in a quick oven an hour, turn it over, and send it to table in a good gravy or curry sauce."

Divesting the above of artistic ceremony and outward appearance, our readers will perceive that more than a labouring man may make a comfortable dinner of the odds and ends of cold-meat of any kind, stewed with rice and eggs; for, if properly done in the stew-pan, the latter process of moulding and baking will add little to its nutritive value. Rice, bacon, and eggs, in the pan, would make the heart of many a poor man glad, before he got the length of his own cottage door to dinner; and if he could afford rabbit, veal, or fowl—then, dividing the bacon and eggs, and making two or more dinners with the necessary quantity of rice to each, would be a very great improvement. When parties do not like onions, any other of the many articles for seasoning may be added, according to taste.

"RICE PUDDING WITH FRUIT.—Swell the rice with a very little milk, over the fire; then mix fruit of any kind with it (currants, gooseberries scalded, pared and quartered apples, raisins, or black currants); with one egg in the rice to bind it, boil it well, and serve with sugar."

"BAKED RICE, PUDDING.—Swell rice as above; then add some more milk, one egg, sugar, allspice, and lemon peel; bake in a deep dish."

Miss Leslie, of Philadelphia, the author of "American Domestic Cookery," gives the following recipe for making a baked rice pudding, without eggs, viz:—

"Half a pint of rice, a quart of rich milk, four heaped teaspoonfuls of brown sugar, a heaped teaspoonful of powdered cinnamon. Pick the rice clean, and wash it through two cold waters, draining it afterwards till as dry as possible. Stir it into a deep dish containing a quart of rich milk; add the sugar and ground cinnamon. Set the dish into the oven, and bake the pudding three hours. It may be eaten warm, but is best cold. This is a very good pudding, and economical when eggs are scarce. Some fresh butter stirred in just before it goes to the oven, will improve the mixture."

We are not insensible to the use of an oven, but many poor people are minus such a privilege; and even if they had one, they have not the means of heating it three or four hours daily. Ground rice, boiled from five to ten minutes in rich milk, with sugar and cinnamon, will just make as nourishing a pudding as the above American. If eggs, butter, or fruit are added, so much the better. The latter will require a little more boiling; but any cottager's wife can easily tell when a gooseberry is boiled. Made in the manner we propose, it will require constant stirring, and should be thick and croquant. After being put into a deep pudding-dish, if it be placed on hot ashes before the fire for a few minutes before being sent to table, it will make it more firm and palatable. It should never be touched until cooled to blood heat throughout; and many, if not the majority, as Miss Leslie observes, would prefer it cold.

The great objection to rice, as we have already hinted, is the small quantity of nitrogenous matter which it contains, reducing it to competition with potatoes. No doubt, in this sense, it is even invaluable to a country like England, so much dependent upon foreign potatoes and other produce. It is on this account alone that we have thought it worthy of this lengthened notice; and the following analyses of the two, in their natural state, will enable our readers to calculate which is the cheapest:—

	Rice.	Potatoes.
Water	12	75
Husk and Fibre	3	3
Starch and Sugar	75	16
Gluten	7	2
Fat.....	$\frac{3}{4}$	$\frac{1}{3}$
Ash	1	1

In every 100lbs. of rice purchased from the grocer's shop you have only 88lbs. of dry rice, the balance being water; and of 100lbs. of potatoes only 25lbs. of dry food—equivalent in value, according to the preceding analysis, to 25lbs. of dry rice, or 28lbs. in its natural

state. If 28lbs. of rice, therefore, cost more money than 100lbs. of potatoes, the latter is the best bargain to the poor man, and *vice versa* if otherwise. In other words, 1lb. of rice is about equal to 4lbs. of potatoes. Now, at present we are paying 4d. for the latter and only 3d. for the former; consequently potatoes are one-fourth dearer food to us for eating along with butcher-meat, fish or fowl, than rice; so that more rice may be advantageously consumed, and fewer potatoes.

In the above calculation we have said that one pound of rice is about equal to four pounds of potatoes; and that we are paying threepence for one pound of the former, and fourpence for four pounds of the latter. This our readers will perceive is not quite correct; but if we had said that *three pennyworth of rice is equal to four pennyworth of potatoes*, the statement would have been strictly true. So that the conclusion at which we arrived as to the economy of food is sound.

Another objection may be made as to the price of potatoes and rice. The country labourer, it may be said, can have potatoes at less than the half of what has just been stated, or a halfpenny per pound, and in not a few cases at one-fourth, or a farthing. In other words, a pennyworth of potatoes is equal to three pennyworth of rice; while ground rice, as recommended for economy of time in cooking, cannot be had for even threepence itself.

The objection is good, and cannot be refuted; but what we said had only reference to ourself, so that each party must just judge for himself. Rice can be had at less than threepence per pound, if taken in quantities; and the grinding of 1 cwt. should not cost much. When boiled or stewed along with meat of any of kind, whole rice will be done as soon as the meat; so that such may be preferred: and the same will be the case with fruit. In economical cooking this is a most important point for consideration—one which should never be lost sight of; and also the working-up of the whole of the raw elements purchased. In the cookery books to which we have alluded, for instance, we frequently find 12 yolks and only 6 whites of eggs used, being a waste of 6 whites—the most important part of the egg, too, for a hard-working man. In this respect it is but justice to observe that the mother country is greatly more extravagant than her colony; and when this is applied to cottage cookery, it will appear in its true light when the incomes of the two labourers and prices of provisions are contrasted. The English labourer, with his small wages and high-priced provisions, obviously requires more economical modes of cookery rather than more extravagant. But when eggs, sugar, butter, or fat of any kind are only used in the cooking of rice, it is manifest that ground rice, which may be boiled in five minutes, is preferable to whole rice, which will require at least half an hour, or from three to four hours in an oven when baked. During the winter months, again, when the cottage fire is kept continually burning, whole rice may be advantageously boiled, stewed, or steamed in a pot or pan with a perforated moveable bottom, as potatoes are frequently done. Or cheap ovens may be constructed, so as to bake a pudding, bread, or any

other thing; keeping the cottage warm at the same time.

Boiled rice is sometimes mixed with wheaten flour in the making of bread—or, what is better, ground rice. We know a metropolitan baker who always has rice loaves ticketed in his shop window, and also Indian-corn bread. We have had several of him; but, although excellently baked and promising as to appearance, they have nothing to recommend them to the outdoor labourer.

Mixed with oat, lentil, pea, or bean meal, it has more to recommend it, when cooked in puddings along with a liberal allowance of fat; and also with cabbage. We have tried several experiments with various mixtures of these articles, and can vouch for the increase of substantiality easily accounted for by the increase of gluten. We have also mixed ground rice and Indian-corn meal, but cannot say so much in favour of the mixture, the latter being better without it. In all these cases rice still finds a strong opponent in the potato. Pea and potato pudding, potato bread, kol-cannon (potatoes and cabbage), for instance, are well-known dishes in cottage cookery.

From these observations it will readily be perceived that when rice becomes cheaper than potatoes, as it is to the labouring population of our large towns at present, it may be very profitably used along with meat of any kind, as the curries of the East, where it is so largely used; and that the cheapest and readiest mode of cooking is, probably, stewed rice, eggs, and bacon; stewed meat and rice, with seasoning according to the taste of parties, as it requires the least time and fire from the cottager's wife. Some stomachs, however, object to stewed meats; so that for exceptions of this kind provision will have to be made.

LONDON CENTRAL FARMERS' CLUB.—The anniversary dinner of this club took place at the Crown and Sceptre, Greenwich, on Monday, July 3.—J. Thomas, Esq., of Liddington Park, Beds, in the chair, supported by upwards of forty members and their friends, including Messrs. R. Baker, of Writtle, Essex; T. Owen, of Clapton, Berks; J. H. Sawell, of Muching, Essex; H. Trethewy, of Silsoe, Beds; S. Skelton, of Sutton Bridge, Lincoln; R. Caparn, of Holbeach, Lincoln; Henry and Cheslyn Hall, of Neasdon, Middlesex; T. Knight, of Bobbing, Kent; L. A. Coussmaker, of Westwood, Farnham; G. Wool, of Ulwell, Cambridge; W. Bullock Webster, of Malvern, Worcester; J. Cressingham, of Carshalton, Surrey; J. Wood, of Croydon, Surrey; J. G. King, of Budon, Berks; E. Purser, of New Bridge-street; T. Slater, of Kensington; F. J. Wilson, of Fenchurch-street, &c., &c. In the course of the evening the chairman gave "Success to the Farmers' Club," with which he coupled the name of Mr. Robert Baker, who, in responding, congratulated the members on the good he believed the club had effected. Following this, Mr. Trethewy proposed the health of the chairman—a very efficient one, to whom the com-

pany did due honour. Mr. Caparn subsequently gave "The Royal Agricultural Society," expressing his hopes, as a Lincolnshire man, as to the success of the forthcoming meeting. Mr. Henry Hall returned thanks on behalf of the Society; and Mr. Cressingham, of the Croydon Club, for "The Local Farmers' Clubs," proposed by Mr. Owen. Mr. Corbet replied to "The Secretary," and Mr. Slater, the eminent butcher, to "The Visitors," proposed by Mr. Bullock Webster. The dinner and wines were in every way worthy of the repute Mr. Quartermaine has obtained in his many years' experience of that refined luxury—a white-bait feast.

THE FOUNDER OF THE NEW LEICESTER SHEEP.

SIR,—Mr. Bakewell, of Dishley, Leicestershire—the great luminary, whose rays vivified every branch of agriculture they fell upon—was the founder of the New Leicester barrel-formed sheep. A highly-talented gentleman, Mr. James Ganley, of Dublin—in answer to my letter, whether small or large sheep were the most profitable, and which I leave to the public to decide—remarks:

"Your friend, 'S. A.,' says Mr. Ward's sheep are styled by many Old Leicesters, because they have more wool and size than the pure-bred New Leicesters, and have a great semblance to the best long-wool Lincolns. Really, sir, this is new to us in Ireland; for we thought the Old Leicesters were founded on Bakewell's breed, and continued small."

If the highly-talented gentleman will look into the "Farmer's Magazine" of August, 1842, page 83, he will find it says that "Mr. Bakewell stood alone; and to him we are solely indebted for that beautiful and useful animal, the New Leicester sheep." In the same page it says—"Conjectures have been various: some have considered that the principal crosses were made between the old long-woolled Leicesters and the ill-formed animal that in those days fed upon the grassy hills of Charwood Forest. But, after all, conjecture is not proof. It may be taken as a fact, denying dispute, that all his crosses were made from the best individuals of the different flocks, and these he in all probability crossed again with some of another breed."

In the "Farmer's Magazine" of December, 1841, page 436, it says—"His sheep were smaller than those of his neighbours, but they retained every good point, and had got rid only of the bad ones. The alteration was rapid as well as great in his own flock; and the practice which he introduced, of letting some of his rams, quickly extended the benefit of his system far and wide. The first ram which he let was in the year 1760, at 15s. 6d. for the season. In 1789, he let one ram for 1,000 gs., and he cleared more than 6,000 gs. in the same year by the letting of others. After that—so great was the *mania*, or, rather, the desire for improvement—that Mr. Lawrence calculates that £100,000 were annually spent by the midland farmers in the hiring of rams. *Such was the origin and the eventful triumph of the New Leicester breed of sheep. They have spread themselves in every part of the United Kingdom.*"

I beg to inform the Irish gentleman that a breed of great long-woolled, large-boned, Old Leicester sheep existed before Mr. Bakewell or his father was born. I saw, 55 years back, an Old Leicester ram, bred by Mr. Moses Miller, of Smeeton, Leicestershire, that weighed, alive, 30 stone (of 14lbs. to the stone), and cut 16lbs. of coarse wool. As to the weight of

Mr. Ward's sheep, I have seen three-shear rams, fed upon famous grass land and turnips, that have weighed 60lbs. per quarter—capable of being made to weigh much more. It appears that the heaviest Lincolnshiresheep on record was fed by Mr. Healy, of High Risby, and was slaughtered at Brigg about fifteen years back, that weighed 76lbs. per qr.—and weighed publicly, because there were many wagers about his weight. The heaviest Cotswold sheep on record was a three years and nine months old sheep, bred and fed by Mr. Cother, and exhibited in Mr. Hardcastle's shop in King-street, Baker-street, at the Great Christmas Cattle Show two years back, that weighed 84lbs. per quarter; and thousands of people saw him. As to Mr. Ward's sheep being clifted through their backs, a lean sheep, of course, is never clifted through his back; and all a gigantic sheep weighs *above* 30lbs. per quarter is fat flesh, and not lean. I have seen Leicester sheep cut very thick of fat down their backs, and not clifted. Mr. Ward's sheep have plenty of lean flesh in proportion to the fat, and his wool is about the same quality and weight as the best Lincolns. By the appearance of the long-woolled Lincolnshire sheep upon Lincoln Heath and the Wolds, the Lincolns will thrive in any county upon clover and turnips, or they would not suit Lincoln Heath; and the Wolds, a century back, was as wild as the deserts of Arabia—nay, a wilderness, a rabbit-warren. I am perfectly aware that the Leicester rams have done wonders for the Lincolns and Cotswolds, when put to gigantic ewes of each kind. The greater part of the Cotswold sheep are bred upon poor weak land. I conceive there are very few flocks in the kingdom but what have had a dip, direct or indirect, of the Bakewell New Leicester sheep. The celebrated and far-famed Mr. Bakewell ended his valuable life the 1st of October, 1795, at the age of 69—too early for the good of his country.

86, Vauxhall-street, Vauxhall, Surrey, June 29. S. A.

PRICES OF AGRICULTURAL STOCK.—The last of the principal herds of cattle in the hundred of Bassetlaw, of which the late Earl Spencer's was the type, was disposed of by public auction, by Mr. Strafford, of London, on Tuesday last. It is calculated that, within the last 50 years, not less than 70,000 guineas have been taken in the district in question for animals bred in it by the late Earl Spencer, the Hon. J. B. Simpson, Messrs. J. Parkinson, H. Watson, J. Hall, H. Champion, and others of less note. It was the stock of the latter gentleman which was brought to the hammer on Tuesday last, in the presence of a numerous company. The cows and heifers realized a total of £1,252, giving an average of about £43 each. The best lots sold were the following:—Sylphide, roan, 1849, by Pestalozzi, purchased by Mr. Tainter for 130 guineas; Cyprus, aed and white, 1852, by Lord of Brawith, purchased by Mr. Tainter for 100 guineas; Lady Millicent, roan, 1847, by Laudable, purchased by Mr. Tainter for 94 guineas; Seraph, light roan, 1851, by Lord of Brawith, purchased by Mr. S. Foljambe, of Osberton House, Notts; Carentola, roan, 1849, by Faugh-a-Ballagh, purchased by Mr. Foljambe for 69 guineas. The five bulls realized 1741., giving an average of nearly 35l. each. The principal were General Bates, rich roan, 1852, by Lord of Brawith, purchased by Sir T. White, of Wallingwells; and Lord of Brawith, roan, 1849, by Emperor, purchased by Mr. Armstrong for 52 guineas. After the cattle sale 288 fat ewes were sold in pens of five each. These went off heavily at from 5d. to 6d. per lb. After this 62 fat gimmer hogs were sold in pens of five each, and brought from 6d. to 7d. per lb.—*The Times.*

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR JULY.

In our last month's report we alluded to the very favourable accounts which had come to hand from most of our large grain districts in reference to the general appearance of the grain crops; and this month we have to confirm the statements then made as regards the probable amount of food which will be secured for consumption. Compared with many previous corresponding periods of the year, our local advices are less conflicting on a subject of such vital importance than we almost ever recollect. It is true that some of our correspondents state that blight has made its appearance amongst the wheats, and that the produce in some counties is not likely to turn out so extensive as was at one time anticipated; nevertheless, we may safely venture to observe—and we here deal in *generalities*, leaving isolated cases to deal with themselves, because they cannot have any decided influence upon the total yield—that a finer prospect was never presented than at this moment. The crop of wheat, with the aid of fine weather, is therefore, in our opinion, likely to prove a full average one, and certainly considerably in excess of that produced last year, or even the year before. When we consider that we have been deprived of our accustomed supplies of grain from Russia, and that a considerable decline has taken place in the shipments from the United States, and further, that consumption has continued large, we regard this feature as a most important one, because we have now the prospect before us of abundance, when for some time past we have laboured under the disadvantage of a comparative deficiency. The deficiency, however, has not extended to foreign grain: in other words, we have had an importation of wheat and flour from abroad, *more* than equal to our wants; and it is evident that, notwithstanding there is every reason to anticipate further depressed currencies, we shall continue to receive large importations of grain and flour from various parts of the globe, and which eventually may lead to heavy losses on the part of the importers.

As regards spring corn, we feel justified in saying that we are on the eve of a most abundant return. In Essex, Kent, &c., the cutting of winter oats and rye has already been commenced, and no doubt rapid progress will shortly be made in other districts. With the exception of beans and peas being likely to turn out a light crop, the total yield of

spring corn will, we are of opinion, prove unusually large.

We have now to consider the potato crop. On this point, a great difference of opinion prevails. In some quarters blight has extended itself, but the loss hitherto has not been serious; indeed, we see no reason whatever to look forward to a disastrous period when the crop arrives at maturity. The same observations as regards wheat, may be applied to potatoes: for instance, the breadth of land under cultivation is immense, not only in England, but likewise in Ireland and Scotland. In the two latter countries, an immense surplus produce is expected, and which, no doubt, will find its way to England.

We have now glanced at present prospects, and have given what we consider a faithful report of the progress of agriculture. It may not, perhaps, have the effect of keeping up prices; but on this point we have been equally clear in preceding months. That the present value of food will not be supported, is clear from what is passing in the trade; and we regard the rapid decline in prices as merely the forerunner of even a greater fall, though it may not be so rapid as that which has occurred during the past month.

The advices from our hop districts have been most unsatisfactory. The whole of the plantations exhibit a wretched appearance, and it is clear that the growth will be miserably deficient. The duty has been done as low as £45,000 up to £60,000. The high prices paid in the Borough have induced heavy shipments from the continent, and which have checked what may be termed a serious advance. The growth in Holland and Belgium, last year, must have been very large.

The whole of the crop of hay has now been secured; but we regret to observe that a large portion of it has been stacked in very middling condition. The crop has been by no means heavy.

There has been a slight improvement in the demand for English wool, owing, in some measure, to the firmness with which the colonial wool sales are progressing. Prices, however, have shown no disposition to advance, and the immense arrivals from Australia have tended to check all confidence in the article as one of investment.

The fat stock markets have been fairly supplied with beasts, sheep, &c., but their general condition has proved very inferior. The general demand has

been rather inactive—in many instances heavy—and prices have had a downward tendency.

In Ireland and Scotland the corn trade has been very dull, and prices have given way to some extent. We learn that the stock of wheat, barley, and oats, now in the hands of the growers, is larger than has been generally anticipated.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Notwithstanding that the cattle trade has not been quite so firm as to price as in the previous month, it has continued in a healthy state; and we may add that the returns, as a whole, have been tolerably remunerative. It has, however, been a general subject of conversation that the stock as yet derived from the northern grazing districts has fallen considerably short, both in weight and condition, of some previous years. This circumstance may, in some measure, be attributed to the comparative scarcity of pasture food in Lincolnshire, and the high prices paid for linseed cake. As regards the health of both beasts and sheep, we may intimate that no serious cases of disease have been met with, and that, consequently, the graziers have not much to complain of on this head.

The future state of our markets is looked forward to with much anxiety, both by graziers and breeders. The former have unquestionably paid very high rates for their depastured stock, and the latter are by no means anxious sellers, except at a further improvement in the quotations. In former reviews, we have intimated that low prices were wholly out of the question. We are still of the same opinion, because we perceive that the aggregate imports of beasts and sheep from Holland have this year fallen considerably short of some former seasons, although our markets have offered a great temptation to the foreigner. Much of course will depend upon the ability of the English breeders to meet consumption; but our impression is, that they are not in a position to supply the markets with an adequate number of stock to have any material effect upon value. Evidently the number of both beasts and sheep in our large grazing districts is not in excess of corresponding periods; consequently, in the event of any positive deficiency in our imports from the continent, even higher rates may be anticipated.

The following are the imports of foreign stock into London during the month:—

	Head.
Beasts	4,274
Sheep	12,249
Lambs	1,309
Calves	3,112
Pigs	1,288

Total 22,242

Ditto in 1853	35,795
Ditto in 1852	27,008
Ditto in 1851	24,082

At the out-ports, the arrivals have exhibited a corresponding, if not a greater, decline; and we are of opinion that those of August will be smaller than in July.

Annexed are the total supplies shown in Smithfield:—

	Head.
Beasts	19,740
Cows	540
Sheep and lambs	157,970
Calves	4,123
Pigs	3,110

SUPPLIES AT CORRESPONDING PERIODS.

	July, 1853.	July, 1852.	July, 1851.
Beasts	21,199	18,404	18,493
Cows	560	680	470
Sheep and lambs	169,920	160,190	188,170
Calves	4,315	3,476	2,520
Pigs	2,820	3,067	2,800

The bullock supplies from Lincolnshire, Leicestershire, and Northamptonshire, have amounted to 6,700 short-horns; from Norfolk, Suffolk, Essex, and Cambridgeshire, 2,200 Scots and short-horns; from other parts of England, 3,000 of various breeds; and from Scotland, 660 horned and polled Scots. Beasts have changed hands at from 3s. 2d. to 5s.; sheep, 3s. 4d. to 5s.; lambs, 4s. 4d. to 5s. 8d.; calves, 3s. 2d. to 5s.; pigs, 3s. to 4s. 8d. per 8lbs., to sink the offal.

COMPARISON OF PRICES.

	July, 1853.			July, 1852.			July, 1851.		
	s.	d.	s.	d.	s.	d.	s.	d.	s.
Beef ..	3	2	5	0.	2	4	3	10.	2
Mutton	3	6	5	4.	2	8	4	0.	2
Lamb	5	0	6	4.	4	2	5	2.	4
Veal ..	3	6	5	0.	2	6	4	0.	2
Pork ..	3	0	4	2.	2	6	3	8.	2

There have been several arrivals of stock into London direct by sea from Ireland, and we understand that the shipments have paid remarkably well. The arrivals from Scotland have been of very prime quality for the time of year; but we have observed no improvement whatever in the general condition of the foreign imports. This is somewhat remarkable, considering the lengthened period which has elapsed since the passing of the present tariff laws.

Newgate and Leadenhall have been very scantily supplied with each kind of meat throughout the month; nevertheless, the demand has been in a very depressed state, and prices generally have had a downward tendency. Beef has sold at from 3s. to 4s. 6d.; mutton, 3s. 2d. to 4s. 8d.; lamb, 4s. 2d. to 5s. 8d.; veal, 3s. 2d. to 4s. 10d.; and pork, 3s. 4d. to 4s. 8d. per 8lbs. by the carcase.

NOTTINGHAMSHIRE.

The general aspect of the county is good. Our pastures, which at one time were eaten bare, have been refreshed with the late rains, and have very much improved; the hay harvest is a tedious affair, the crop has fallen very light, and but little has been secured in good condition. Some fields we saw yesterday, in the neighbourhood of Newark, are fit for nothing but litter; as a counterbalance to this, the eiddishes (after-maths) will be good, and may in some cases be mown a second time. The turnip crop also will be good; we have not seen an indifferent crop in the county, where properly cultivated. Some few there yet are, who take a short cut, and manage slovenly, and consequently crop slightly: too much labour can scarcely be applied, and the more, generally, the better the return. Of the potato crop we hear few complaints; the breadth planted is as great as in the average of seasons: we trust we may be spared the evil. The wheat crop is partially good; the breadth sown, as in our former remarks, is great, but in some localities very thin; it must cut up in such situations light, but the ear on all soils is good, and the crop, we have no hesitation in stating, will, with favourable weather, be found an average one. Spring corn has a good appearance, and promises, taken as a whole, an average return. Our corn markets are heavy, and will be now for a time, what they always are at this period of the year—extremely vacillating; we do not calculate on much decline before the harvest is secured, for the stocks of wheat in hand are very light; high prices naturally reduce stores, and what we have on hand will all be wanted. Our cattle markets are heavy; and both fat and lean

stock have suffered some decline in value. The labour market still maintains its position, and good able bodied labourers are scarce. Wages 15s. per week—of course there is some variation from that point; the hay harvest absorbs a good amount, and raises it in some localities.—July 18.

LAUNCESTON, CORNWALL.

We have had rain more or less, some days very heavy, for the last two months; and with the exception of last Saturday afternoon, which was very clear and fine, have had little or no sun; the consequence is that fruit of every description is tasteless and watery. The wheat, more especially the white, has the yellows in it, in some cases very bad. The barley has grown so rapidly that it is exceedingly long and weak; and the heavy rains on Monday last lodged a portion of the crop. With regard to the hay, some fields after the grass had been cut upwards of three weeks are cleared, but the produce is only fit for litter; the other portion now on the ground, from present appearances, will share the same fate; and of the grass remaining, much is really rotting in the bottom. Swedes are at a stand-still, and the weeds are overcoming them, the land being so very wet that it is next to impossible to prevent their growing: a vast quantity of land intended to be sown with white and yellow turnips remain untilled, and all the work of the farm is thrown out of its regular course by the very unfavourable and serious weather. Harvest must be later than we have had it for some years past. The stocks of home grown grain is nearly exhausted, and in the face of all this every article of produce is declining in price.—July 19.

CALENDAR OF AGRICULTURE.

This is the general harvest month in Britain, except in the most northern parts, where it is protracted into next month. Cut grain crops full ten days before a dead ripeness takes place; the straw will be more juicy, and the flour will be whiter and more doughy. Wheat is most generally cut by sickle, set in shocks of 12 sheaves, and built in ricks. Oats and barley are more generally cut or mown by scythe, carried loose, or tied into sheaves some days after being mown. Peas are cut by sickle, and laid into heaps. In fine weather, spare neither pains nor expense in getting the crops cut and housed; hire plenty of hands, and allow plenty of beer to the poor labourers. A sparing parsimony in harvest is the worst-judged economy that can be imagined.

Clean thoroughly by hoeing and scuffling all drilled and green crops; earth up potatoes, and pull by hand the tall weeds that may afterwards arise.

Lay lime and dung and composts on wheat fallows; harrow the lime immediately, and cover the dung by ploughing; both operations, dunging

and ploughing, going on together, or the one following the other as nearly as possible. Continue draining, the folding of sheep, and the soiling of cattle, as before directed.

Keep the lambs always in forward condition, by putting them on the best pastures. The drafted flock of last year will now be fit for the butcher, and ewes may be put to the ram for early lambs.

Sow on well-prepared grounds, in a warm sheltered situation, the seeds of drum-head cabbages, kohl rabi, savoys, and broccoli, for plants to be used next spring. Sow rye and winter vetches for early spring use. Use dung for the vetches; or what may be better in many situations, summer-fallow the land, using dung at the same time, thus adopting every possible known means to secure so valuable a crop in the spring.

Burn ashes, and prepare constantly all kinds of artificial manures for the drop-drill. Gather dung of all kinds, earths for composts, and vegetables for the manure pit. No man will ever do much in farming, who does not apply manures with a constant, a lavish, and an unsparing hand.

METEOROLOGICAL DIARY.

BAROMETER.			THERMOMETER.			WIND AND STATE.		ATMOSPHERE.			WEAT'R.
1854.	8 a.m. in. cts.	10p.m. in. cts.	Min.	Max.	10p.m.	Direction.	Force.	8 a.m.	2 p.m.	10p.m.	
June 22	30.10	30.11	56	72	62	W. by South	gentle	cloudy	sun	fine	dry
23	30.15	30.16	60	76	64	W. by South	fresh	cloudy	sun	cloudy	dry
24	30.18	30.11	56	76	63	W. by South	gentle	cloudy	sun	cloudy	dry
25	30.02	29.90	58	82	68	W. by South	gentle	cloudy	sun	cloudy	dry
26	29.76	29.71	64	70	55	S. West	forcible	cloudy	cloudy	cloudy	dry
27	29.81	29.76	51	63	55	S. West	v. brisk	fine	sun	fine	showery
28	29.69	29.61	51	68	54	W. S. West	gentle	cloudy	sun	fine	rain
29	29.62	29.62	53	69	55	W. & S. West	var.	cloudy	sun	clear	rain
30	29.65	29.83	50	66	58	W. & N. West	gentle	haze	cloudy	cloudy	showers
July 1	29.86	29.94	54	58	57	W. by South	calm	cloudy	cloudy	cloudy	rain
2	29.94	29.94	52	66	59	S. West	gentle	fine	cloudy	cloudy	dry
3	29.88	29.69	56	71	62	S. West	lively	cloudy	sun	fine	drops
4	29.65	29.63	58	69	57	S. West	airy	cloudy	sun	cloudy	showery
5	29.65	29.73	51	62	53	S. West	lively	fine	fine	fine	showery
6	29.77	29.74	53	63	52	S. West	gentle	fine	cloudy	fine	showers
7	29.78	29.73	49	66	57	S. E. & N. E.	gentle	cloudy	fine	cloudy	showers
8	29.77	29.74	54	69	58	Variable, S.W.	calm	cloudy	fine	cloudy	dry
9	29.75	29.80	51	66	57	Variable, S.W.	gentle	fine	cloudy	cloudy	dry
10	29.87	29.91	52	69	58	Var., West	gentle	fine	cloudy	cloudy	rain
11	29.92	29.88	53	63	56	East, var.	gentle	cloudy	cloudy	cloudy	showery
12	29.85	29.86	52	56	54	N. W. & N. E.	gentle	haze	cloudy	cloudy	wet
13	29.88	29.81	49½	66	59	W. N. W.	gentle	fine	sun	cloudy	dry
14	29.81	29.77	52	61	57	Westerly	gentle	cloudy	cloudy	cloudy	dry
15	29.77	29.97	56	69	58	Variable	calm	fine	sun	fine	show e
16	30.10	30.11	55½	71	60	S. West	gentle	fine	sun	fine	dry
17	30.11	30.05	51	69	61	S.S.E. & S.W.	airy	cloudy	fine	cloudy	dry
18	30.05	30.00	56	75	60	S. West	fresh	fine	sun	fine	dry
19	30.00	30.05	58	70	59	S. West	fresh	fine	sun	fine	dry
20	30.09	30.11	55	72	62	S.W., W. by N.	calm	fine	sun	fine	dry
21	30.17	30.22	54	80	65	Westerly, var.	airy	fine	sun	clear	dry

ESTIMATED AVERAGES OF JULY.

Barometer.		Thermometer.		
Highest	Lowest.	High.	Low.	Mean.
30.30	29.390	76	42	61

REAL AVERAGE TEMPERATURE OF THE PERIOD.

Highest.	Lowest.	Mean.
66.433	54.0	60.216

WEATHER AND PHENOMENA.

June 22. The first real summer day. 23. Heat increased. 24. Same. 25. Extreme sultry heat. 26. High wind and rapid change. 27, 28, 29. Showery, chiefly by night. 30. Singular thunderstorm, reports like artillery. 1.2 inch of rain in June.

LUNATION.—New Moon, 25th day, 0 h. 2 m. afternoon.

July 1. Overcast and rain. 2. Sunny intervals. 3, 4. Early sprinkle; good hay days. 5, 6, 7. Showery. 8, 9, 10. Wind varying continually. 11, 12. Rainy. 13, 14. Gradual improvement. 15. Genial day; one sudden shower. 16. Genial; *cirrus* at sunset. 17. More overcast. 18 to 21

inclusive. Summer temperature. 20. Singular, smoky atmosphere; clearing off. 21. Most beautiful.

LUNATIONS.—First quarter, 3rd day, 0 h. 51 m. morning. Full, 10th day, 0 h. 25 m. morning. Last quarter, 17th day, 0 h. 23 m. morning.

REMARKS CONNECTED WITH AGRICULTURE. The table will explain the fickle state of the weather (sadly unpropitious to the hay harvest), till the unexpected favourable change which occurred on the 15th the far-famed and dreaded *Switthin*. He failed again, notwithstanding the rain that fell here, at least, in the afternoon. People ought to be ashamed of such idle superstitions. The splendid weather of the last week is already working out its own *providential* consequences; the supereminently magnificent cereals are already changing colour, and though the public may be terrified or amused by the *talks* of blight, rust, mildew, &c., &c., it may rest confident that, unless some untoward change occur, the prospect *now* will be, as it has long been, of high promise.

J. TOWERS.

Croydon, June 21st.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

ST. BOSWELL'S FAIR.—The sales of sheep stock averaged 1s., 2s., and in some instances 2s. 6d. a-head below the prices of last year.

EXETER FAIR.—The attendance at the cattle market was large, but the amount of stock driven in was decidedly small. Fat beef was well inquired for, and prices must be raised to from 10s. 9d. to 11s. per score. We saw nothing exhibited particularly worthy of attention. There was a few lambs shown, and sold at 7d. per lb. Barreners were 6s. to 6s. 6d. per score; cows and calves from £11 to £16 each; and working oxen £25 to £35 per pair.

FORT-WILLIAM SHEEP AND WOOL MARKET.—This market, for the sale of black-faced stock and wool, was well attended. Business was stiff, and except in lambs, little was done during the day, the buyers not being disposed to meet the views of the sellers; however, towards night a good many transactions took place both in widders and ewes, which have not transpired. The black-faced stock sold at about the same rate, with reference to last year, as at Inverness. A large number of sales took place at, say, widders 1s., ewes 1s. 6d., and lambs 1s. under last year. Wool was hardly offered, and little was done in it; of what was sold, the prices were not fixed. The following are a few of the transactions:—Mr. Ronald Macdonell, Glenfinnan, sold his widders at 1s. 6d. below the Falkirk price last year; Mr. Macdonald, Inverladdie, sold his widders at 23l., his ewes at 12l. 15s., and bought lambs at 9l. 10s. and 7l. 5s.; Mr. Grieve, Landale, bought lambs at 6d. below last year's prices; Mr. Macintyre, Clunes, sold his ewes at 14l., and his lambs at 10l. 10s.; Mr. Maccoll, Appin, sold a lot of lambs to Corrychoille at 7l.; Corrychoille also bought the Ratanag widders 28l. 10s. Mr. Finlay Macrae, Carr, Kintail, sold his Cheviot laid wool (on the Edinburgh Castle steamer) to Mr. Turner at 13s. Mr. Macrae, Morivich, sold (in ditto) his Cheviot ewes at 20l. to J. and W. Roan, Liverpool, his widders at 26l. 15s. to a Fife-shire dealer, and his shot lambs at 9l. 10s. Tallisker widders sold at Inverness, at 30l., ewes 20l. 10s. Kenneth Kennedy, Esq., sold his Glen-Turrit put widders lambs at 11l. Mr. Stewart, Achenzie, sold his widders at 24l. 10s.; Cramachan ewes, 13l. Mr. Bain, Inverness, sold a lot of very superior tups at from 2l. to 3l. with luckpenny. Mr. Macdonald, Keppoch, sold his Fersit widders at 23l.

GARSTANG FAIR.—The quantity of wool pitched was not so great as in former years, neither was the supply of lambs by any means abundant. The best wool at from 8½d. to 9½d. per lb. (very few fleeces, however, at the highest figure), and wool from half-bred sheep at from 4½d. to 6d. per lb. Best mature lambs ranged from 21s. to 26s. each, and those of inferior breed from 10s. to 13s. each. The demand for wools and lambs was good, and little of the former and few of the latter were left unsold at the close of the day.

HELMESLEY FAIR.—There was a good show of all kinds of lean stock at this fair, and jobbers bought rather freely. Lambs were in great demand, and sold well, one prime lot fetching 26s. per head. To-culving cows were much wanted, but only a few were shown, which sold at high prices. There was a very scanty supply of horses, which were of an inferior description.

HORSHAM FAIR.—We had a large fair; about 12,000 sheep and lambs were penned, the greater part being in excellent condition. Early in the day there was little disposition to buy, in consequence of the high prices asked, but towards the afternoon sellers dropped 2s. to 3s. a-head, when the greater part was cleared off; the few sheep which were offered fetched from 34s. to 38s. The greater portion of the lambs realized 18s. to 21s.; a few parcels, very fine, fetched 25s. to 27s., and a few inferior sold from 15s. to 17s. 6d. The quantity exceeds by about 2,000 the number offered last July, and prices may be quoted 3s. lower than at that period. There has been a good business done in beasts; about 1,500 to 2,000 were offered, and all sold; several hundred foreigners (very small) fetched about £5; a few inferior sold as low as £4; some Devons and other sorts realized from £8 to £14. Pigs

were rather plentiful, and cheap; a few parcels, in very good condition, sold from 23s. to 24s. Horses sold pretty well, considering their condition, though it is difficult to quote prices. We heard of £15 10s. being paid for 10-year-old cart-horses.

NEWTON-STEWART MONTHLY MARKET.—The entire stock exhibited, of all kinds, numbered 547 head of cattle. The following is a list of the ruling prices of the market for the different kinds, according to ages:—Three-year-olds, from £10 to £14 each (one lot was said to have realized £15 10s., but we believe it was an exaggeration); two-year-olds, from £7 to £10; stirks, from £3 to £6 10s.; Cud-hags, from £5 to £7; milk cows, £7 to £9; and bulls, £9 to £10 each. There were only four carts of pigs in the market, which were readily sold at prices varying from 7s. to 10s. each, according to age and quality.

OVERTON FAIR.—A rather short supply was penned, notwithstanding which the sale was extremely dull, especially for lambs. The prices were considered to be for ewes about 2s., and for lambs and wethers about 3s. per head lower than last year; ewes, from 32s. to 42s., extra 45s. The price lot for killing realized £3 per head, wether lambs 21s. to 32s., extra 35s. to 37s., wethers 32s. to 45s. The ewe and ram stock was very superior, particularly the ewes of Mr. Budd, and the ram lambs in Class 6, belonging to Messrs. Child, Tasker, and Edney. Mr. Hart's (from Wiltshire) ewes were much admired. The wether lambs generally were not so good in condition as usual.

PERTH LAMB FAIR.—The amount of business done here was very limited. The general price asked for lambs was 18s. a-head. There was only one lot of Cheviots on the ground, for which 19s. a-head was sought; 17s. 6d. was offered, but no bargain was effected, and they left the Inch unsold. So far as we could learn, only two lots of cross-Leeds were sold, viz., one lot, 100 in number, belonging to Mr. Rutherford, Muirhall, were disposed of to Mr. Paton, Bridge-end, at 16s. a-head, and the other, belonging to Mr. Stark, Coats of Fingask, were sold to Mr. Thomson, Montague, at 15s. 6d. The lambs owned by Mr. Bell, Balthayock, Mr. Stewart, Craiglochy, Mr. Lamont, Limepotts, and Mr. Cameron, Logiealmond, and other parties, left the ground unsold. We observed, also, on the Inch, a lot of Highland two-year-old stots, belonging to Mr. Rattray, Logiealmond, and which were bought by Mr. Wilson Greiff, at 6l. 10s. a-head.

SHERBORNE FAIR.—There was a large number of sheep and other stock shown, but prices for every kind were considerably lower. The horse fair was also a very small one, and the quality of the animals was inferior. The price of wool ranged from 10d. to 11½d.

ST. SAIRS FAIR.—The market is the largest market for cattle held in Aberdeen and Banffshire, and the largest for horses north of Brechin. Some idea of the magnitude of the transactions may be formed from the following statement of the number of cattle, horses, and sheep, and the quantities of wool brought into the market for the present and past three years:—

Year.	Cattle.	Horses.	Sheep.	Wool.
1851.....	1120	939	141	153 stoucs.
1852.....	1032	760	255	126 "
1853.....	1024	799	278	91 "
1854.....	1127	726	800	93 "

Cattle: We subjoin a few sales: Three-year-olds—five very fine cross stots, wide horned, possibly the best lot in the market, 30l. a-head; a stot, very heavy, 28l.; eight queys, 17l. 10s. each. Two-year-olds—six heifers, 14l. each; a prime quey, 19l.; a pair of queys, pretty fat, 31l. for the pair. Year-olds—the prices got for those sold varied from 5l. to 10l., according to quality. Cows: In the cow market there was a fair supply of beasts. The demand was good, and a large number sold. A cow was sold for 20l., probably the best cow in the market; a small farrow cow brought 9l. 10s., and another 10l. 10s. Work oxen—a pair sold at 40l.; an ox, 25l.; a pair, very heavy, but in rather lean condition, at

55l. the pair. Horses: A grey work horse brought 52l. 10s., and several others from 28l. to 40l.; a mare, six years old, 31l.; a pair of grey draught mares, 66l. for the pair. Sheep: Seventy cross hogs sold at 18s. 9d. each; for tups 38s. each; seventy blackfaced wethers 17. 1s. a-head).

SALISBURY SHEEP FAIR.—There were 10,000 sheep penned, showing an increase of 1,000 upon the last October fair, but which met with a dull sale from 1s. to 2s. per head lower than last year, or about the same prices as were realized at Stockbridge Fair. The stock was very good, especially ewes and ram lambs. Mr. Moore, of Littlecot, exhibited a pen of rams and a pen of fat ewes, which were particularly admired. There were five prizes for competition, awarded as follows:—A silver cup, value five guineas, to the largest penner, Mr. James Jeffery, of Donhead; do. to the largest buyer, Mr. Parr, Petersfield, Sussex; do. for the best 100 wether lambs, Mr. John Hart, Tisherton Delamere; do. for the best 100 ewes, Mr. Edmund Olding, Ratfin Farn, Amesbury; do. for the best 10 ram lambs, Mr. James Fitcher Fovant.

SEAMER FAIR.—Owing to the great demand for beasts during the spring months, for grazing purposes, a smaller number were exhibited than on preceding occasions; the stock was mostly sold at good prices. Amongst horses of every description, and especially those suitable for cavalry, a great number of sales were effected.

STAGSHAW BANK FAIR.—There was not more than an average show of stock, but there were scarcely any jobbers present, and the demand was exceedingly dull. Indeed a large quantity of sheep were not sold, and either returned to their pastures in the valley of the Tyne and the Kildar, or, if in dealers' hands, driven off to other markets. Nor was the owing to prices having been maintained by the holders; sales were made at lower prices than were current at Appleby, and at a loss of 2s. and 3s. per head, besides expenses. Cheviot hogs sold from 15s. to 20s., and wethers from 20s. to 25s. One lot of Cheviot hogs was sold for only 1s. per head more than was given for the stock when lambs. There was a fair demand for shorthorn cattle, but all other descriptions were difficult to sell even at lower prices.

BISHOPSTOKE, (Thursday last)—The supply of Cheese was about as usual, for which there was a steady trade at late rates.

CHIPPENHAM GREAT MARKET, July 14.—The market was fully attended to-day by factors and farmers, and dealers in cheese and wool—this being our first Wool fair and Ram show. These were upwards of 120 tons of cheese pitched, which was all sold, at the following prices. There was one splendid lot of upwards of 6 tons from one dairy, which was quite an attraction. Broad doubles, 50s. to 60s. per cwt.; old ditto, 58s. to 63s.; Prime Cheddar, 60s. to 75s.; Tim, 45s. to 52s.; Loaves, 50s. to 61s.; Skim, 20s. to 30s.

GLASGOW, (Wednesday last).—The supply of new and old cheese at market to-day was fully better than on Wednesday last, and the demand for it was active. All sold at former quotations. Best old, 58s. per cwt.; second quality, 53s.; and inferior, 48s. per cwt. New cheese at 41s. to 44s. per cwt.

IRISH FAIRS.—TAGHMON was well attended with stock of all kinds, except fat cattle, of which there was none. Store cattle and sheep in better demand than at our last fairs. A good deal of business done both in sheep and cattle. Fat pigs 54s. per cwt.; store pigs, from 35s. to 50s.; creel pigs, from 26s. to 30s. per couple; milch cows, from £8 to £11 per head; springers in good demand; ewes and lambs, 30s. to 37s. 6d.; fat lambs, 12s. to 15s.—**KILREA:** Few cattle were offered for sale, and almost none exchanged owners. The horse fair hill was also badly attended. Sheep and pigs, principally sucklings, were the only ready sale. There were about 10 tons of flax—the greater part of bad quality, one half of which remained unsold. Business in every part of the town was dull, and the fair may, in all truth, be called a poor one.

ALNWICK ADJOURNED WOOL FAIR presented the same dull and languid appearance which marked its transactions last week. A number of dealers from the manufacturing districts in attendance willing to buy, but the farmers were irresolute and doubtful as to the prices offered. Many of the large clips of last year held over, and their holders bewildered

and disappointed at the falling off in value from that time. Some has been sold at the contingent average of this season, but with the certainty of a difference of at least 25 per cent. on the prices easily obtained in 1853. Staplers careless of extensive purchases at this time, and only taking selected parcels fitted to mix with the stock they have on hand. The very choicest clips of all hog would scarcely exceed 24s. The highest authenticated sale of a mixed lot was 23s., but a large portion would not realize that figure; while ewe and Cheviot wool would only range from 18s. to 20s. per stone of 24lbs.

AYR WOOL FAIR.—There was a pretty good attendance, but a general disinclination was manifested on the part of holders to transacted business, farmers being unwilling to sell till the rates ruling in the Highland markets should be ascertained. There were no sales worth mentioning, and no prices can be quoted. Something depends upon the approaching Bute and Lavery markets, but there is a general impression that the late dulness at Inverness will extend over the prices of the season. On Tuesday the same clip of laid that sold last year at 12s. 9d. was bought at 9s., and the rates pointed at were from 25 to 30 per cent. below those of last year.

LEEDS (ENGLISH) WOOL, July 21.—The improvement in the weather has caused a better feeling in these districts this week. Prices quoted the same as last week.

NEWTON STEWART WOOL MARKET.—There was some little business done, but nothing like what used to be at the same market of former years. Owing to the immense reduction in the price of wools, farmers being utterly unwilling to submit to so great a length (about one-third) beneath last year's currencies, and merchants remaining equally inflexible in the upward tendency, a considerable time elapsed before any bargains were struck. However, in the course of the day a few "clips" changed hands at the following rates:—Laid Galloway wool, 8s. 6d. to 9s. per stone of 26 or 28lbs. as agreed on; black-faced white, 11s. to 12s. per do.; washed half-bred hog and ewe, 9d. to 10d. per lb.

THETFORD WOOL FAIR.—About 100 gentlemen sat down to dinner under the presidency of P. Bennet, Esq., M.P., and the company included Sir R. Buxton, Bart., Col. Fitzroy, Messrs. Keary, B. Caldwell, H. Blyth, J. Hulson, R. Overman, H. Overman, H. A. Bartlett, H. Woods, Everard, Fyson, J. Musket, S. K. Gayford, G. Gayford, H. J. Hitchcock, W. Beck, Mycse, Sherringham, K. Cooper, Buck, G. H. Nunn, J. Nunn, F. Nunn, T. Pooley, Robertshaw (Bradford), Sutcliffe (ditto), Palmer (ditto), Thompson (ditto), Fyson, Butcher, Gittens, Youngman, Saler, H. J. Jellings, Flanders, Ferguson, Constable, H. Webb, Robinson, W. Harvey, Mumford, G. B. Ireland, Abbott, Neal, Cooke, Tyrrel, Steel, Simpson, Waddlow, Phillips, Gates, Webb, Hailstone, Mairpiece, Featherstone, Jeffery, &c. The following is a summary of the business transacted: Sold by Col. Fitzroy to Mr. Sherringham, 40 tons of ewe wool and 7 tons of Down hogget ditto, at 25s. 6d. per tod; by Capt. Caldwell to Mr. G. Gayford, 520 fleeces of ewe wool, and between 80 and 100 fleeces of hogget ditto (the property of Mr. Baring, M.P.), at 26s. per tod all round; by the Chairman to Mr. Everard, 103 fleeces of hogget wool, and 123 fleeces of ewe ditto of this year's growth and 171 fleeces of ewe and hogget wool of last year's growth at 11d. per lb. all round; by Mr. G. Nunn to Mr. Hitchcock, 37 score ewe fleeces and two score hogget ditto, at 27s. per tod all round; by Mr. J. S. Nunn to Mr. Everard, 100 tons of hogget wool and 95 tons of ewe, at 28s. per tod all round; by Mr. Hinde to Mr. Hitchcock, the wool of Mr. Wilson of Stowlangtoft (quantity not stated), at 28s. per tod all round; by Mr. Buck to Mr. Everard, 300 ewe fleeces, and 60 hogget ditto, at 28s. per tod, the bargain not to be finally concluded till the expiration of two months; and by Mr. Roper to Mr. Hitchcock, 500 ewe fleeces, and 100 hogget ditto, at 27s. per tod all round.

YORK WOOL MARKET, July 20.—At this our tenth market for this year's clip we had about 224 sheets of wool, 197 of which were sold, leaving about 27 sheets on hand. The transactions of the day have ruled upon the prices of last month. The quality of the good-bred wools shown to-day was admitted to be superior, which, in the absence of any rise in price, would give a turn in favour of the buyers. Scotch and Moor wools, of good quality and in clean condition, were in demand at from 5d. to 6d. per lb.; inferior ditto, in dirty condition, were almost unsaleable at any price.—*Yorkshire Gazette.*

REVIEW OF THE CORN TRADE DURING THE MONTH OF JULY.

The weather, which had not been of the most favourable nature during June, continued cold and wet until nearly the middle of the present month; but since then we have had hot sunny days, with a high range of temperature at night. This change has wrought a great improvement in the prospects for the ensuing harvest, and has consequently given rise to anxiety on the part of those holding stocks to clear out the same previous to the period when supplies of the new crop may be expected to make their appearance in the market. Something like a panic has, consequently, arisen in the trade, and for the moment the desire to realize is so great that prices have become very irregular.

Reaping will perhaps be partially commenced the first week in August, but harvest cannot be general much before the middle of the month; a great deal must, therefore, still depend on the weather; but opinion is now so strongly in favour of a further reduction in quotations, that unless anything very untoward should take place, the downward movement will not be easily arrested. The prevailing impression appears to be that something very like what took place in the autumn of 1847 is about to occur. Most of our readers will recollect that in May of the year named the average price of wheat for the kingdom had risen to 102s. 5d. per qr.: fine weather subsequently setting in, and the importations from abroad continuing on a very liberal scale, prices began to give way, and by the middle of September the average had declined to 49s. 2d. per qr.

That prices of food will be much lower during the next twelve months than they have been since the harvest of 1853, we are prepared to expect; but we do not look for so great a reaction from present rates as took place in the year above alluded to. The position of affairs then and now being widely different, similar results can hardly follow. During the present year, the operations of those engaged in the trade have been characterized by more than ordinary caution; whilst in 1847 a few individuals, whose means were wholly inadequate to carry out the undertakings in which they had embarked, speculated to an enormous extent. Everything which could be collected on the continent of Europe and in America had been bought up at extravagantly high prices, and large supplies continued to be poured into this country during the summer and autumn; the bills drawn against

the same had to be provided for, and to do this forced sales had to be made. Under these circumstances, prices rapidly declined, the principals in the speculation were speedily ruined, and many old and respectable houses were involved; general distrust ensued, and the result was a fall of more than *fifty* per cent. in the value of wheat. A very different state of affairs prevails at present. Our own farmers have all along viewed the prospects for the forthcoming harvest as promising, and have consequently sold out in time. Merchants and millers having distrusted the continuation of so high a range of quotations after harvest as that which has prevailed, have gradually prepared for the anticipated fall, and are almost to a man out of stock. A large proportion of the comparatively moderate stock held by the principal import houses here, at Liverpool, &c., is held on account of foreign shippers, who have only been permitted to draw to an extent deemed safe; there is, consequently, no probability of any ruinous losses, and we consider the trade to be altogether financially in a healthy state. In case, however, the present splendid weather should continue, and the outstanding crops should be favourably secured, prices might, and probably would, undergo a further fall; and we should certainly not be surprised to see good wheat down to 60s. per qr. after harvest.

It is yet too early to say much in regard to the probable yield of the different crops; but we are inclined to think that a somewhat too sanguine estimate of the same is indulged in. Wheat is, in many districts, thin on the ground, and is not so free from defects as could be desired. The blooming time was not altogether auspicious, heavy rain and high wind having prevailed about that period. This in some cases caused an imperfect setting of the corn; and in addition to this, we fear blight will be found to have done rather extensive injury. On the other hand, there are some splendid crops in different localities, and the breadth of land under wheat is certainly greater than in ordinary seasons. We are, therefore, inclined to think that the produce would, should we be favoured with fine weather for harvesting, be *fully* an average, probably rather over. The quality must of course depend in a great measure on the manner in which the crop may be secured.

Of barley, there is, we think, about the usual breadth, and though some of the heavy crops were

beaten down by the rain which fell early in the month, the general appearance promises a full average quantity. In regard to quality, it is too early to speak positively; but the great heat of the last fortnight may, we fear, render the grain steely, and wanting in the kindly properties so much esteemed by the maltsters.

Oats are less and less cultivated from year to year in England; but in proportion to the breadth sown, a fair return may be calculated on. In Ireland and Scotland, the crop is highly spoken of.

Beans have suffered from blight and fly, and will not yield well.

Peas vary materially: in some districts they will give an excellent produce, and in others altogether as unsatisfactory; the general result may be about an average.

Potatoes, until within the last fortnight, appeared to be perfectly free from disease; but we much regret to state that a decided change for the worse has since then taken place, and we greatly apprehend that a large portion of this valuable root will again be lost this year. Within the last eight or ten days we have received very unfavourable reports on this subject from various parts of Ireland, and some of the large potato growers in the neighbourhood of the metropolis state positively that there can be no doubt that the disorder prevails in a very virulent form to a great extent. This is likely to prove a serious drawback to the otherwise cheering prospects for the future.

The hay harvest has been very protracted and expensive; indeed, some quantity even now remains to be secured, though cutting was commenced in the middle of June. A small portion of that cut very early was well got up; but the major part was exposed to nearly a fortnight's rain, and is consequently of wretchedly bad quality. Where cutting was delayed till the second week in July, the whole has been well carried; but in every case, the yield is found to be exceedingly light, and good meadow hay is likely to command high prices during the next twelve months.

We are now about to enter on a fresh epoch in the trade. The harvest of 1853 was decidedly deficient in this country, and over the greater part of continental Europe; that of 1854 is likely to prove satisfactory, though not superabundant. Stocks, it is true, are exhausted to a greater extent than has been the case for many years past; still they have held out to the present time, and are likely to last until the new produce can be rendered available. Those who look to a *very low* range of quotations will, we think, be mistaken; but that lower prices than those consequent on so deficient a year as the last will prevail is tolerably certain. The fall from the highest point obtained is already 15s.

to 20s. per qr.—on some qualities more, on others less; a further decline of 5s. to 10s. per qr. is perhaps warranted by circumstances, but if the reduction should exceed that, we should, we think, speedily have a reaction.

That we are at war with Russia—the largest corn-growing country in Europe—should not be overlooked, when the probable future range of prices is under consideration. The Black Sea ports alone have for years past afforded Great Britain a very large proportion of the entire imports, and so long as the war continues this supply, if not wholly cut off, must at least be greatly interfered with.

Previous experience has proved to us that when those engaged in the corn trade once take up an opinion they usually run to extremes; and we should not be surprised to witness a greater decline than may, after matters shall have been examined more coolly, prove warranted by the actual state of affairs; but in case the fine weather continues, there will probably be no return of confidence until after harvest.

We shall now dismiss this part of our subject, and endeavour to give an outline of what has taken place at Mark Lane since we last addressed our readers.

At that time it had already become pretty evident that quotations would, under the influence of fine weather, be sure to give way; indeed, so strong was the impression that prices would not be maintained, that the heavy rain and boisterous weather with which July commenced failed to check the downward movement. Meanwhile but little wheat of home-growth was brought to market; indeed, up to the period at which we write, there is no increase deserving notice in the supplies of English, and it is evident that farmers have long since sold the bulk of the last crop.

The show of samples on the Essex, Kent, and Suffolk stands on Monday, the 3rd inst., was trifling in the extreme; the millers appeared, however, to be perfectly indifferent about buying, and, unimportant as was the quantity for disposal, it was found impossible to place the same, except at a decline of fully 2s. per qr. on the rates current on that day se'nnight. During the succeeding week the depression increased, and on the 10th prices again gave way 1s. to 2s. per qr.; this was previous to the setting in of fine weather. Shortly after this the temperature rose, and the rain ceased; the effect of this change was greatly to increase the anxiety of sellers to realize, and to render buyers more cautious than ever. The fall from the 10th to the 17th instant was variously estimated at from 3s. to 5s. per qr.; and on the succeeding Monday sellers appeared to be seized by a complete panic, and ac-

cepted almost any price that was offered : notwithstanding which, few purchasers came forward, and at a reduction of 8s. to 10s. per qr. on the rates of that day week only a partial clearance could be made. The total fall since the close of last month has amounted to very nearly 20s. per qr.; and present appearances seem to indicate a further abatement rather than any immediate rally.

The arrivals of foreign wheat into the port of London have not hitherto fallen off to the extent expected, and about 100,000 qrs. have been received during the four weeks ending 22nd of July. Meanwhile the country demand has become languid, and the town millers have not manifested the least inclination to add to their stocks. Importers have consequently had no alternative but to warehouse, as it has been quite impossible to effect large sales from on board ship. The quantity of foreign wheat in granary has increased rather than diminished, and it has become difficult to obtain room. A large proportion of what is on hand consists of secondary and inferior qualities from the Black Sea; to dispose of these in the present position of affairs is altogether out of the question, and holders will be obliged to wait for something to turn up in their favour. Even fine Baltic wheat has receded nearly as much as English; and Black Sea sorts have within the last week or two become wholly unsaleable. The decline since we last addressed our readers up to the present time may, taking all qualities one with the other, be estimated at about 15s. per qr. Very good Lower Baltic red wheat, weighing 61 to 62lbs. per bush., was sold on Monday last at 65s. per qr. This may afford some guide for forming a judgment as to the value of other descriptions.

If the out-standing crops should be secured in dry and good order, the sale of old wheat is not likely to improve much after harvest; still some quantity will be needed for mixing; and as there are hardly any stocks, except here, at Liverpool, and one or two other ports, there is still a chance of what is left being wanted.

The arrivals of wheat off the coast from ports east of Gibraltar have been quite moderate during the month; in the early part a few cargoes were taken for the continent at full terms, but this demand has since ceased completely, and during the last eight or ten days scarcely a bargain has been closed. The last sales reported were a couple of cargoes of Egyptian wheat, at 41s. to 43s. per qr. A lot of 2,000 qrs. of Syrian wheat arrived in London at 50s., and a cargo of Odessa Ghirka from Marseilles at 58s. per qr., cost and freight. These terms would now no longer be obtainable, the sales named having been made previous to the heavy fall in prices on the 24th inst.

The value of town-manufactured flour has of course been influenced by the decline in wheat, but the millers have not as yet given way to the extent of the fall in the raw material. The nominal quotation is still 65s. per sack, which being relatively above the rates at which household flour has been freely offered, the latter has been used instead of the former, as far as has been practicable. The reduction in the price of Norfolk household flour has been even more rapid than that which has taken place in wheat at the close of June; good marks could hardly be bought below 55s. to 56s. per sack, whilst the same may now be had at 43s. to 44s. per sack.

The arrivals of flour from America have not been large, but there have been pressing sellers of parcels in warehouse at rapidly receding rates; such qualities as were worth 38s. to 40s. per brl. a month ago have within the last week been sold at 33s. to 34s., and 37s. per brl. may be considered the extreme quotation for extra fine brands. The stocks remaining on hand are not heavy, and the imports from the other side of the Atlantic will—for a time at least—be comparatively small.

Spanish flour has given way quite as much as any other description, and at Liverpool some very low sales have been made during the last week or two.

English barley has come very sparingly to hand, and seems to be nearly exhausted in all parts of the kingdom; as, however, the maltsters and distillers are not generally buyers at this period of the year, and the feeding demand having scarcely commenced as yet, what has been brought forward has proved amply sufficient to provide for the inquiry, and prices have receded 1s. to 2s. per qr.

The arrivals of foreign barley, though not large, have been more than has been immediately needed; and as there has not been the slightest inclination to purchase, except for present use, anxious sellers have had to give way. Good heavy Danish barley weighing 53 to 54lbs. per bush. may now be bought at 35s., and for some of the inferior southern sorts 26s. per qr. has been accepted. Some quantity is, we believe, on passage to this country from Egypt and Syria, on which heavy losses are likely to be incurred.

The demand for malt has throughout the month been languid in the extreme; the brewers appear to have sufficient for present purpose, and do not seem inclined to add to their stocks. Quotations have, within the last fortnight, become somewhat irregular; the tendency has been decidedly downwards; but too little has been done to allow of prices being given with much accuracy.

The oat trade has participated in the general depression; and we are bound to acknowledge that

we have been greatly deceived in regard to the extent of the supplies of this grain from abroad. Notwithstanding the absence of the usual arrivals from Riga, St. Petersburg, and Archangel, the imports of foreign oats into the port of London during the first six months of the year have in round numbers exceeded the quantity received during the corresponding time last year by 200,000 qrs.; and even now we continue to have good supplies weekly from Denmark, Sweden, and Holland, though we had been assured months ago that these countries would be unable to afford Great Britain further aid. In addition to this, it appears that the Government have not as yet enforced the blockade of Archangel, and we learn that shipments to some extent were in progress for England by vessels under neutral flags.

The deductions drawn from the belief that the want of the annual Russian supply of oats would occasion a scarcity of old corn to be experienced, seem, therefore, to have been fallacious; and we must confess that matters have taken a very different turn to what we were led to expect would have been the case. The prevailing opinion now is that the quantity of oats remaining on hand, with what may yet reach us from abroad, will amply suffice to provide for our wants up to the period the new shall have become available; and under these circumstances, buyers are not inclined to purchase more than needed for immediate requirements. The partial failure of the hay crop has had little or no effect on prices, and the tendency has been steadily downwards since the commencement of the month. The first step in the decline took place on the 3rd inst., and amounted to about 1s. per qr.; for about a fortnight afterwards, prices remained nearly stationary, but the arrivals of foreign continuing to exceed expectation, a further fall of 6d. per qr. occurred on the 17th. This concession failed to lead to a more active demand, and on the 24th inst. (Monday last) oats did not escape the influence of the general depression, and were freely offered 1s. to 1s. 6d. lower than on that day se'nnight. The total reduction since the close of last month has consequently amounted to 3s. per qr., and very good Danish and Swedish feed, such as were then worth 30s., may now be bought at 27s. per qr. Of English none have come to hand, and the receipts from Scotland have been quite insignificant, whilst the Irish arrivals have been only moderate; the consumption has therefore been almost wholly thrown on foreign; but having, during the four weeks ending 22nd July, received 90,000 qrs. from abroad, the smallness of the home supplies has not been felt.

Though the reports in regard to the bean crop are more unfavourable than those of other articles,

and the arrivals have been moderate coastwise, as well as from abroad, no disposition has been shown to speculate on higher prices--on the contrary, the demand has slackened, and the value of both English and Egyptian beans has gradually given way 1s. to 2s. per qr.

The transactions in peas have been of so little importance as hardly to need comment. The arrivals have been insignificant; but as there has been little or no demand, either for splitting or feeding, it has been found impossible to place the small lots brought forward without giving way 1s. to 2s. per qr. in price.

The want of arrivals of Indian corn from the Black Sea has been more than compensated by increased supplies from America. This article has naturally felt the effect of the important fall in the value of wheat; and since new potatoes have become abundant, the demand for Ireland has almost ceased. The business in Indian corn on the London market is generally confined to the sale of floating cargoes from eastern ports, and the quantity offered from Odessa, Ibraila, Galatz, &c., having been comparatively small, the trade has been transferred to Liverpool, to which the American cargoes have for the most part been directed. Last week very good American yellow maize was sold at Liverpool at 32s. per 480lbs., and we question whether this low price would now be obtainable there. Should the potato disease spread in Ireland, as is feared may prove the case, Indian corn would be very likely to become more valuable; but at present there is not the least inclination to speculate in this or any other article.

The full effect of the fall in the price of wheat in our markets on quotations on the continent is not yet known. Up to the time of the latest advices of which we are possessed, holders of the little remaining were still sanguine, and not disposed to follow the decline which was known to have set in in England. There can, however, be no doubt that the value of wheat abroad will sooner or later have to accommodate itself to prices here, more especially as the prospects for the harvest, though not particularly brilliant, are generally allowed to be good in most of the principally corn-growing countries on the continent.

In the north, the weather during the spring and summer has been similar to that experienced here, but they do not appear to have had so much rain, with a somewhat higher range of temperature; we think, therefore, that the yield will be fully equal there to anything we can expect here. Admitting then, that old stocks are completely used up, still there will be a considerable surplus for export when the new crop shall have been secured; and though this may not be available for shipment till late in

the autumn, without an English demand, prices must fall in the Baltic very much below what they have been during the last twelve months. With little or no business, and nearly exhausted stocks, the quotations we received from thence would be much more likely to mislead than to be of any service, hence it would be useless to say more than that thus far prices are relatively much higher there than with us.

In the south of France harvest is drawing to a close, but in the northern departments reaping has only been partially commenced. The reports as to the probable yield vary materially; but, on the whole, we are inclined to think that the result will not be particularly good. We have seen samples of the new wheat from some parts of France, of very inferior quality; and though we do not regard these as a criterion of the average produce of the kingdom, we feel disposed to come to the conclusion that the government are taking pains to put the best possible face on the matter. Our belief is that France will not have much grain for export, and that she may require to import.

In the Italian states the crops of wheat and Indian corn have produced abundantly, and are of excellent quality, the effect of which has been to cause a great fall in prices. This is important, as a bad harvest there would have rendered it necessary to obtain foreign supplies from some other quarter; the Black Sea ports, from whence in years of want Italy draws her foreign wheat, being closed by the war with Russia.

In Spain, Portugal, &c., the wheat crops have, we believe, turned out well. From Southern Russia we have reports on which we can depend; but there can be no doubt that the growth of corn must have been greatly interfered with, in the Principalities, by the marching and counter-marching of hostile armies, and that it would therefore prove difficult to obtain the usual supplies from that quarter, even if peace should be concluded sooner than appears at present probable.

The most recent advices from America speak well of the harvest in the United States and Canada as a whole. In some parts depredations are said to have been committed by insects to an extent likely to detract materially from the produce; but the breadth of land under cultivation having greatly increased, the partial loss in one section of the States would probably be more than balanced by the extra breadth in other quarters, and there can be very little doubt that America will be in a position to afford Europe large supplies of bread-stuffs after the crops shall have been secured. Old stocks appear, however, to be reduced into an unusually small compass on the other side of the Atlantic as well as on this, which will probably have

the effect of preventing so low a range of prices as might otherwise have taken place. Up to the period of the last advices, quotations of flour and wheat were relatively higher there than with us, and the shipments in progress for Great Britain were not important.

CURRENCY PER IMPERIAL MEASURE.

		Shillings per Quarter	
WHEAT, Essex and Kent, white,	67 to 69	extra	71 77
Ditto ditto,	—	—	77 79
Ditto ditto red,	65	69	70 73
Norfolk, Lincoln, & Yorksh., red., . . .	63	67	71
BARLEY, malting, new,	39	40	Chevalier, . . 40 42
Distilling,	36	38	Grinding, . . 35 38
MALT, Essex, Norfolk, and Suffolk, new	70	71	extra 73
Ditto ditto old,	68	69	72
Kingston, Ware, and town made, new	74	75	76
Ditto ditto old,	72	74	75
OATS, English feed,	27	30	Potato, . . 30 33
Scotch feed, new 31 32, old 33 34, . .	Potato	34	36
Irish feed, white,	29	30	fine 32
Ditto, black,	22	28	fine 30
BEANS, Mazagan,	41	43	46 49
Ticks,	43	45	47 51
Harrow,	45	47	49 53
Pigeon,	45	51	53 61
PEAS, white boilers 56 57, Maple 46 48	Grey	43	45
FLOUR, town made, per sack of 250 lbs.	—	—	63 65
Households, Town 56s. 58s. Country	—	—	50 55
Norfolk and Suffolk, ex-ship,	—	—	48 50

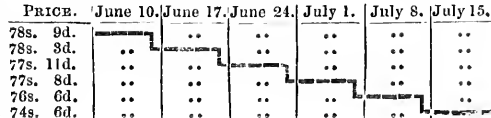
FOREIGN GRAIN.

		Shillings per Quarter	
WHEAT, Dantzic, mixed,	71 to 72	high mixed	73 77 extra 79
Konigsberg,	73	65	71 73
Rostock, new,	69	71	fine 71 75
American, white,	72	78	red 69 71
Pomera, Meckbg., and Uckermark, red	67	70	extra 72
Silesian,	66	70	white 71 73
Danish and Holstein,	67	71	none
Rhine and Belgium,	—	—	old —
Odessa, St. Petersburg and Riga, . .	61	63	fine 65 68
BARLEY, grinding 34 36	Distilling, . .	37	38
OATS, Dutch, brew, and Polands 27s. 29s.	Feed, . .	24	26
Danish & Swedish feed 26s. to 28s.	Stralsund	28	30
Russian,	28	29	French, none
BEANS, Friesland and Holstein,	—	—	40 46
Konigsberg,	47	50	Egyptian, . 43 45
PEAS, feeding,	48	52	fine boilers 53 56
INDIAN CORN, white,	35	38	yellow 35 38
FLOUR, French, per sack (none)	—	—	—
American, sour per barrel 33	34	sweet	35 38

IMPERIAL AVERAGES.

		FOR THE LAST SIX WEEKS.											
		Wheat.			Barley.			Oats.			Rye.		
WEEK ENDING:		s.	d.	s.	s.	d.	s.	s.	d.	s.	s.	d.	s.
June 10, 1854..		73	9	37	1	30	8	49	3	49	1	47	4
June 17, 1854..		73	3	37	3	30	5	48	11	49	10	46	6
June 24, 1854..		77	11	37	1	30	6	52	2	50	3	46	10
July 1, 1854..		77	8	37	2	30	7	48	0	49	5	47	5
July 8, 1854..		76	6	36	6	30	2	48	2	48	7	47	1
July 15, 1854..		74	6	36	10	29	8	51	1	48	10	45	9
Aggregate average of last six weeks		77	3	37	0	30	2	49	7	49	5	47	2
Comparative avge. same time last year		46	9	29	4	19	11	33	7	39	7	35	3
DUTIES,		1	0	1	0	1	0	1	0	1	0	1	0

DIAGRAM SHOWING THE FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT DURING THE SIX WEEKS ENDING JULY 15, 1854.



COMPARATIVE PRICES AND QUANTITIES OF CORN.

Averages from last Friday's Gazette.				Averages from the correspond- ing Gazette in 1853.			
Qrs.	s.	d.		Qrs.	s.	d.	
Wheat....	41,808	74	6	Wheat....	86,290	49	8
Barley....	2,615	36	10	Barley....	2,285	23	11
Oats....	6,447	29	8	Oats....	10,951	20	11
Rye....	27	51	1	Rye....	159	34	10
Beans....	1,680	48	10	Beans....	2,849	40	5
Peas....	191	45	9	Peas....	274	36	8

PRICES OF SEEDS.

BRITISH SEEDS.

Linseed (per qr.).. sowing —s. to 76s.; crushing 60s. to 64s.	
Linseed Cake (per ton)..... £10 0s. to £10 10s.	
Rapeseed (per qr.)..... 68s. to 74s.	
Ditto Cake (per ton)..... £6 15s. to £7 5s.	
Cloverseed (per cwt.)..... (nominal) .. 00s. to 00s.	
Mustard(perbush.) white.. —s. to —s., brown old 10s. to 13s.	
Coriander (per cwt.)..... new —s. to —s., old 10s. to 15s.	
Canary (per qr.)..... 48s. to 52s.	
Caraway (per cwt.)..... new —s. to —s., old 44s. to 48s.	
Turnip, white (per bush.) —s. to —s. Swede 00s. to 00s.	
Trefoil (per cwt.)..... 00s. to 00s.	
Cow Grass (per cwt.)..... 00s. to 00s.	

FOREIGN SEEDS, &c.

Linseed (per qr.)... Baltic, 64s. to 68s.; Odessa, 66s. to 70s.	
Linseed Cake (per ton)..... £9 10s. to £10 10s.	
Rape Cake (per ton)..... £6 15s. to £7 5s.	
Hempseed, small, (per qr.).. —s., Ditto Dutch, 44s.	
Tares (per qr.)..... new, small 58s., large 64s.	
Rye Grass (per qr.)..... 28s. to 35s.	
Coriander (per cwt.)..... 10s. to 13s.	
Clover, red..... 46s., 50s., 54s. to 56s.	
Ditto, white..... 68s. to 80s.	

HOP MARKET.

BOROUGH, MONDAY, July 24.

In some few quarters a slight improvement in the appearance of the crop is spoken of, but on the whole the accounts of the blight and vermin are gloomy in the extreme. Our market is firm; and the duty ranges from £50,000 to £60,000. HART and WILSON.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.

MONDAY, July 24.

These markets are extensively supplied with home-grown potatoes; but the receipts of foreign are very moderate. We have a fair demand for most kinds at full prices. English, 6s. to 7s., and foreign 4s. to 5s. per cwt. Last week's imports were 161 tons from Jersey, 132 baskets from Guernsey, and 24 baskets from Rotterdam.

ENGLISH BUTTER MARKET.

JULY 24.

Our trade is very dull at a rather serious decline in prices.

Dorset, fine weekly	98s. to 102s. per cwt.
Do., middling	86s. to 90s. "
Devon.....	90s. to 94s. "
Fresh, per dozen lbs.....	9s. to 12s.

PRICES OF BUTTER.

CHEESE, HAMS, &c.

Butter, per cwt.	s.	d.	Cheese, per cwt.	s.	d.
Friesland	94	96	Cheshire, new.....	66	80
Kid.....	94	93	Cheddar	66	80
Dorset	100	104	Double Gloucester 60	70	
Carlton	—	—	Single do.....	60	70
Waterford	—	—	Hams, York, new.....	76	84
Cork, new.....	84	94	Westmoreland.....	72	82
Limerick	—	—	Irish	66	76
Sligo	—	—	Bacon	64	76
Fresh, per doz. 12s. 6d. 13s. 0d.			Waterford	—	—

BELFAST, (Friday last.)—Butter: Shipping price, 88s. to 90s. per cwt.; firkins and crocks, 83s. 1. to 93d. per lb. Bacon, 54s. to 60s.; Hams, prime 68s. to 74s., second quality, 60s. to 64s. per cwt.; mess Pork, 90s. 0d. to 93s. per brl.; beef, 105s. to 112s. 6d.; Irish Lard, in bladders, 66s. to 70s.; kigs or firkins, 62s. to 64s. per cwt.

July	Butter.	Bacon.	Dried Hams.	Mess Pork.
21.	s. d. s. d. s. d. s. d. s. d. s. d.	per cwt.	per cwt.	per brl.
1850..	58 0 68 0	37 0 42 0	65 0 70 0	60 0 62 0
1851..	70 0 74 0	45 0 47 0	62 0 63 0	64 0 66 0
1852..	64 0 69 0	50 0 58 0	62 0 66 0	80 0 86 0
1853..	80 0 86 0	58 0 60 0	74 0 78 0	85 0 87 6
1854..	88 0 90 0	54 0 60 0	63 0 74 0	90 0 93 0

COVENT GARDEN MARKET.

SATURDAY, JULY 22.

Peaches and Nectarines are still abundant. The supply of bush fruit is well kept up, and it meets with a brisk sale at about last week's quotations. Grapes fully realize last week's prices. Apricots, both English and Foreign, may now be obtained. Cucumbers vary from 3d. to 1s. each. Very good Potatoes are coming in plentifully. Asparagus is getting over. Carrots and Turnips are cheaper. Among salad vegetables are Radishes at 1d. to 2d. per bunch; and Lettuces at 9d. to 1s. per score. There are also excellent Carrots, Globe Artichokes, and Peas from France; likewise Tomatoes at from 9s. to 12s. a dozen. Cut flowers consist of Azaleas, Cyclamens, Heaths, Lily of the Valley, Pinks, and Roses.

FRUIT.

Pineapples, per lb., 3s 6d to 6s.	Lemons, per doz., 1s. to 2s.
Grapes, hothouse, p. lb. 2s. to 5s.	Apples, per bush., 12s.
Peaches, per doz., 5s. to 15s.	„ des., per doz., 6d. to 1s.
Nectarines, do., 4s. to 10s.	Almonds, per peck, 6s.
Melons, each, 1s. to 2s.	„ sweet, per lb., 2s. to 2s. 6d.
Strawberries, per lb., 6d to 1s 6d	Walnuts, dried, p. bush., 12s.
Cherries, black, p. 12 lbs., 2s to 3s	Nuts, Bar., per bush., 2s. to 2s. 4d.
„ white, do. 2s to 4s	„ Brazil, p. bush., 16s. to 20s
Gooseberries, p. hf. sieve, 2s to 3s.	„ Spanish, per bush., 20s.
Oranges, per 100, 12s. to 18s.	„ Cob, per bush., 12s.

VEGETABLES.

Peas, per bushel, 2s. to 4s.	Onions, per bunch, 2d. to 8d.
Cauliflowers, per doz., 1s. to 3s.	Leeks, per bunch, 2d. to 3d.
Cabbages, per doz., 9d. to 1s 6d	Shallots, green, per lb. 6d. to 8d
Greens, per doz., 1s. 6d. to 2s.	Garlic, per lb., 8d. to 1s.
French Beans, p. 100, 1s 6d to 2s	Radishes, per doz., 9d. to 1s.
Asparagus, per bundle, 2s to 4s	Lettuce, Cab., p. score, 9d to 1s 6d.
Rhubarb, per bund., 3d. to 6d	„ Cos, per score, 6d. to 1s.
Potatoes, per ton, 115s. to 120s.	Small Salads, p. pun., 2d to 3d.
„ per cwt., 7s. to 10s.	Horsradish, p. bundle, 2s. to 4s.
„ per bush., 3s. to 4s.	Mushrooms, p. pott., 9d. to 1s 6d.
„ frame, per lb., 9d. to 1s.	Sorrel, p. hf. sieve, 6d. to 1s.
Carrots, French, per bunch, 4d. to 6d.	Artichokes, each, 6d. to 9d.
Turnips new, do., 2d. to 6d.	Fennel, per bunch, 2d. to 3d.
Cucumbers, each, 3d. to 9d.	Savory, green, per bunch, 4d. to 1s
Spinach, p. sieve, 1s 6d to 2s 6d.	Thyme, per bunch, 6d. to 8d.
Beet, each, 3d. to 9d.	Parsley, p. bunch, 2d. to 4d.
Celery, per bundle, 9d to 1s 6d	Basil, green, per bunch, 6d. to 9d.
Tomatoes, per punn., 1s. 6d.	Marjoram, green, do., 4d. to 6d.
	Watercress, p. 12 bun., 4d to 6d

CHICORY.

LONDON, SATURDAY, JULY 22.

The supply of foreign Chicory is but moderate, of English large. All kinds move off slowly, as follows:—

Foreign root (in £ s. £ s.)	Roasted & ground	£ s. £ s.
bond/Harlingen 10 10 15	English.....	15 0 20 0
English root (free)	Guernsey.....	80 0 86 0
Guernsey.....	York.....	26 0 28 0
York.....		

HAY MARKETS.

SATURDAY, JULY 22.

SMITHFIELD.—A moderate supply, and a sluggish demand. CUMBERLAND.—Supply rather limited, and trade dull. WHITECHAPEL.—Trade dull, at barely late rates. New meadow hay sold at from 60s. to 80s.; and new clover, 70s. to 90s. per load.

At per load of 36 trusses.

Meadow Hay	Smithfield.	Cumberland.	Whitechapel.
50s. to 98s.	52s. to 100s.	48s. to 95s.	
Clover.....	65s. 116s.	65s. 115s.	70s. 118s.
Straw.....	36s. 40s.	36s. 40s.	31s. 40s.

OILS.

	£	s.	d.	£	s.	d.
<i>Olive, Florence half-chests</i>	1	0	0	to	0	0
<i>Lucca</i>	6	10	0	..	7	0
<i>Gallipoli (252 gallons)</i>	53	10	0	..	54	0
<i>Spanish</i>	60	0	0	..	63	0
<i>Linsced (cwt.)</i>	1	16	3	..	0	0
<i>Rape, Pale</i>	2	4	0	..	2	5
<i>Brown</i>	2	2	0	..	2	2
<i>Cod (ton)</i>	39	10	0	..	40	0
<i>Scal, Pale</i>	40	0	0	..	42	10
<i>Ditto, Brown, Yellow, &c.</i>	34	19	0	..	38	0
<i>Sperm</i>	106	0	0	..	107	10
<i>Head Matter</i>	105	0	0	..	106	0
<i>Whale, Greenland</i>	34	0	0	..	35	0
<i>Southern</i>	39	10	0	..	42	0
<i>Cocoa Nut (cwt.)</i>	2	19	0	..	2	10
<i>Palm</i>	2	5	0	..	2	7

WHALEBONE.

<i>Greenland, full size (per ton)</i>	190	0	0	..	200	0
<i>South Sea</i>	180	0	0	..	190	0

PITCH.

<i>British (per cwt.)</i>	0	7	0	..	0	0
<i>Archangel</i>	0	9	0	..	0	0
<i>Stockholm</i>	0	10	0	..	0	0

TAR.

<i>American (British)</i>	0	19	0	..	0	0
<i>Archangel</i>	1	19	0	..	0	0
<i>Stockholm</i>	1	8	0	..	0	0

TURPENTINE.

<i>Spirits (per cwt.)</i>	1	19	0	..	2	1
<i>In Puncheons</i>	1	19	0	..	2	0
<i>Rough</i>	0	10	0	..	0	0

RESIN.

<i>Yellow (per cwt.)</i>	0	8	0	..	0	0
<i>Transparent</i>	0	7	6	..	0	0

HIDE AND SKIN MARKETS.

	s.	d.	s.	d.
<i>Market Hides, 56 to 64 lbs.</i>	0	3	to	0 3 1/2 per lb
<i>Do.</i> 64 72 lbs.	0	3 1/2	0	3 1/2
<i>Do.</i> 72 80 lbs.	0	3 1/2	0	3 1/2
<i>Do.</i> 80 88 lbs.	0	3 1/2	0	4
<i>Do.</i> 88 96 lbs.	0	4	0	4 1/2
<i>Horse Hides</i>	6	0	0	each.
<i>Calf Skins, light</i>	2	0	3	0
<i>Do. full</i>	6	0	0	0
<i>Lambs</i>	2	2	3	2
<i>Shearlings</i>	1	6	1	8

WOOL MARKETS.

ENGLISH WOOL MARKETS.

BERMONDSEY, July 22.—It is difficult and perplexing to write on the English Wool trade just now, as consumers are not disposed to give the local dealers any profit on the prices now demanded, and in many cases obtained, by the growers, and it must be considered a speculation on the part of the dealers now giving the prices named at several wool fairs recently held in the provinces, as the quotations may be considered stationary; and if those prices are realized in the various manufacturing districts, what with expenses of collecting, transit, a difference in terms (ready cash at the fair or farmhouse), and four or five months' credit to the manufacturer, there must be a loss to the local dealer: unless he can buy at lower rates from the farmer, and realize a higher price from the manufacturer, he seems, according to the prices of goods, to be unable to move a step higher in price to meet the market.

	s.	d.	s.	d.
<i>Southdown Hoggets</i> ..	1	0	—	1 0 1/2
<i>Half-bred Hoggets</i> ..	11	1 1/2	—	1 0
<i>Southdown Ewes</i> ..	0	11	—	0 11 1/2
<i>Kent Fleecess</i> ..	1	0	—	1 1
<i>Combing Skins</i> ..	0	11	—	1 1
<i>Flannel Wool</i> ..	0	11	—	1 1
<i>Blanket Wool</i> ..	0	8	—	1 0 1/2
<i>Leicester Fleecess</i> ..	0	11	—	1 0

BRECHIN WOOL FAIR.—Intelligence from Inverness had an unfavourable effect upon the market. The prices ranged for crosses 18s. to 20s.; Leicester, 19s.; Cheviot hogs, 20s. to 23s., all per 24lbs., washed. Black-faced ranged from 13s. to 17s. 6d. for 28lbs., washed. The only large lot of laid wool was sold at 8s. per 24lbs.

CHIPPENHAM WOOL FAIR.—A larger supply than usual was exhibited, and after considerable time spent in debating over the prices, the factor and dealer came together, and the whole was cleared off at the following prices:—Tegs, 27s. to 28s.; mixed ewe and teg, 26s. to 27s.; ewes, 25s. to 26s. per tod, that being about one-third less price than what was obtained last year. The quantity pitched was about 11,000 fleeces, although a greater quantity was sold, as many farmers did not bring the whole of their bulk.

DEVIZES WOOL FAIR, although rather smaller than usual, owing, no doubt, to the indisposition of flockmasters to sell at present prices, contained thirty-two lots, from some of the first wool-growers in the county, including many of the principal farmers on Salisbury Plain, and of the hill portion of North Wilts. There was a large attendance of buyers, and there appeared every chance of the whole being cleared off before the close of the market, at higher prices than have been obtained at any of the fairs hitherto held. Sales were made at 23s., 28s. 6d., 29s., 29s. 2d., 29s. 8d., 30s., and one prime mixed lot, belonging to Mr. Wm. Butler, of Erchfont, fetched 30s. 4d.

PERTH WOOL FAIR.—There were but two transactions—a quantity of laid wool was sold at 7s. 6d. per stone of 24lbs., and another quantity of clipped white wool was disposed of at 10s. per stone. £1 was sought for cross hogg wool, and 17s. offered. In Leicester hogg 24s. was asked, and from 20s. to 21s. offered, but no sales were effected in either of these sorts.

ST. SAIRS WOOL FAIR.—This year the quantity in the market was much about the same as last year. The demand was good, and the prices got were rather higher than was expected. The whole was sold off early in retail, at the following prices. Cheviot wool, 26s. to 30s.; Scotch wool, 16s. to 20s. per stone of 24lbs.

SALISBURY WOOL FAIR.—There were only about 6,000 fleeces offered, and sales were effected at from 11d. to 1s. 0 1/2 d. per lb.

LIVERPOOL WOOL MARKET, JULY 22.

SCOTCH WOOL.—There has been a little business doing this week at rather reduced prices, expecting to be able to replace on lower rates in the fairs now in progress; but at which, so far, few transactions have taken place. This will apply to all kinds of Scotch wools.

	s.	d.	s.	d.
<i>Laid Highland Wool, per 24lbs.</i>	8	6	to	9 6
<i>White Highland do.</i>	11	0	12	6
<i>Laid Crossed do., unwashed</i>	11	0	12	0
<i>Do. do., washed</i>	12	6	13	0
<i>Laid Cheviot do., unwashed</i>	13	0	14	0
<i>Do. do., washed</i>	14	6	16	6
<i>White Cheviot do. . . do.</i>	21	0	24	0

MANURES.

PRICES CURRENT OF GUANO.

<i>Peruvian Guano</i>	per ton	£11 11	0	to	£12 0	0
<i>" D. first class (damaged)</i> ..	"	10	10	0	11	0
<i>Bolivian Guano</i>	"	0	0	6	0	0

ARTIFICIAL MANURES, OIL Cakes, &c.

<i>Peat Charcoal</i>	"	0	0	0	0	0
<i>Nitrate Soda</i>	"	18	0	0	19	6
<i>Nitrate Potash or Saltpetre</i>	"	46	0	0	50	0
<i>Sulphate Ammonia</i>	"	17	0	0	18	0
<i>Muriate ditto</i>	"	22	0	0	23	0
<i>Superphosphate of Lime</i>	"	6	0	0	0	0
<i>Soda Ash or Alkali</i>	"	0	0	0	8	0
<i>Gypsum</i>	"	2	0	0	2	10
<i>Coprolite</i>	"	3	0	0	3	10
<i>Sulphate of Copper, or Roman Vitriol for Wheat steeping</i> ..	"	44	0	0	0	0
<i>Salt</i>	"	1	5	0	2	0
<i>Bones 1/2 inch</i>	per qr.	0	17	0	0	18
<i>" Dust</i>	"	0	18	0	0	18
<i>Oil Vitriol, concentrated</i>	per lb.	0	0	1	0	0
<i>" Brown</i>	"	0	0	0 1/2	0	0
<i>Rape Cakes</i>	per ton	6	15	0	7	0
<i>Linsced Cakes—</i>						
<i>Thin American in bris. or bags</i> ..	"	10	17	6	11	10
<i>Thick ditto round</i>	"	9	15	0	10	0
<i>Marseilles</i>	"	10	0	0	10	5
<i>English</i>	"	19	15	0	11	0

ODAMS, PICKFORD, and KEEN, 35, Leadenhall-street.



Genl. v. d. Grintse.

THE FARMER'S MAGAZINE.

SEPTEMBER, 1854.

PLATE I.

SIR CHARLES NAPIER.

Sir Charles Napier was born on the 6th of March, 1786, and is the eldest son of the Hon. Charles Napier, of Murchiston Hall, in the county of Stirling, a captain in the Royal Navy, by his second wife, Christian, daughter of Gabriel Hamilton, Esq., of Westburn, Lanarkshire. The gallant Admiral is grandson, by a first marriage, of Francis, fifth Lord Napier, brother to Colonel Thomas Erskine Napier, and cousin to Lord Napier, R.N., who died in China, in 1834.

Sir Charles Napier is a farmer as well as a hero. At the dinner given to him, on the 7th of March last, preparatory to his leaving in command of the Baltic fleet, the chairman, Lord Palmerston, in proposing his health, said, in direct allusion to Sir Charles's fondness for agricultural pursuits, "If, gentlemen, I was addressing a Hampshire audience, consisting of country gentlemen residing in that county, to which my gallant friend and myself belong, I should introduce him to your notice as an eminent agriculturist. It has been my good fortune, while enjoying his hospitality at Murchiston Hall, to receive most valuable instructions from him, while walking over his farm, about stall-feeding, growing turnips, wire-fencing, under-draining, and the like. My gallant friend is a match for everything; and whatever he turns his hand to, he generally succeeds in it. However, gentlemen, he now, like Cincinnatus, leaves his plough, puts on his armour, and is prepared to do that good service to his country which he will always perform whenever an opportunity is afforded him."

In replying, Sir Charles Napier, in alluding to these observations, said—"The noble lord has entertained the company by some allusions to my agricultural pursuits, and has given me credit for having devised some plans for improving the agriculture of the country. He has, however, omitted one plan that I recommended to him as a means for getting young lambs early. I will not repeat it here, but I shall be extremely happy to explain it to any gentleman who will apply to me on the subject."

Sir Charles went into the navy as a first-class volunteer before he was fourteen years old. His life has been one of continued activity in his profession, and involves an infinite variety of services to the state. He entered the navy on the 1st of November, 1799, on board the *Martin* sloop, commanded by the Hon. Matthew St. Clair, employed in the North Sea; and, in the spring of 1800, removed to the *Renown*, 74, the flag-ship of Sir John Borlase Warren. He next proceeded to the Mediterranean, where, in 1802, he was a midshipman of the *Greyhound*. After various other employment, he became a Lieutenant in November, 1805. In March, 1807, he was made Acting Commander of the brig *Pultusk*. In August, 1808, he removed to the *Recruit* brig, of 18 guns, in which vessel he fought a smart action with and put to flight, the *Diligente*, French corvette, of 22 guns, and 140 men. In this encounter he had his main-mast shot away, and was himself severely wounded; his thigh indeed was broken, but he nevertheless refused to leave the deck. In 1809 he served with great distinction in the reduction of Martinique, and in the capture of the *D'Hauptoult*, 74. In the first of these he considerably shortened the siege by the manner in which, with only five men, he landed, scaled the walls, and, in open day, planted the Union Jack on the ramparts of Fort Edward. In the latter engagement, his services were sufficiently appreciated, to have him at once posted to the prize.

Passing over a variety of brilliant services, we come to the year 1813, when, in company with the *Furiuse*, 36, which had on board the second battalion of the 10th Regiment, under Lieutenant-Colonel John Pine Coffin, Captain Napier, in the teeth of the fire of four batteries and a tower mounting

ten 24 and 18-pounders, two 12-pounders, and two 9-inch mortars, succeeded in taking possession of the island of Ponza. His services in the brilliant expedition against Alexandria, drew from Captain James Alexander Gordon, the conducting officer, a remark in one of his despatches "that he owed this officer more obligations than he had words to express." Captain Napier had been in command of the *Euryalus*, and, in June, 1815, she was paid off, when the gallant Captain was nominated a C.B. He was not again called into activity until 1829, when, for three years, he was employed in particular service in the *Galatea*, 42. In 1833, he succeeded Admiral Sartorius in the command of Don Pedro's fleet, and gained a signal victory over the more numerous fleet of Don Miguel, off Cape St. Vincent, a service for which he obtained the title of Count Cape St. Vincent, with the Grand Cross of the Order of the Tower and Sword. In 1839, Captain Napier took the command of the *Powerful*, 84, intended for the Mediterranean, where, in the following year, hoisting the flag of Commodore, he became second in command under Admiral the Hon. Sir Robert Stopford, of the force engaged on the coast of Syria. On the 10th September, 1840, he effected a landing at D'Journie, on the Syrian coast, in a manner which called forth the eulogy of his Admiral. In the course of the same month, he defeated a body of the enemy at Kelberson, and on the 27th he bombarded, and necessarily stormed, with a force of not more than 900 allies and 500 Turks, the town of Sidon, protected by a fort and citadel, and a line of wall defended by 2700 men, all of whom were made prisoners. On that occasion, at the head of the British Marines, he broke into the enemy's barracks, and obtained possession of the castle. On the 9th of the following October, he entirely routed an Egyptian force, stationed, under Ibrahim Pasha, in a strong position on the mountains near Beyrout. The result of the forward movement, which had immediately preceded this success, was the surrender of Beyrout itself, and the effect of the victory the entire submission of the army of Soliman Pasha. After co-operating in the memorable attack at St. Jean d'Acre, he proceeded to take charge of the squadron off Alexandria, where he landed, and concluded a convention with Mehemet Ali. For these brilliant services, he was created a K.C.B., included in the thanks of Parliament, and was presented with the cross of the Order of St. George of Russia, and the Insignia of the second-class of the Order of the Red Eagle of Prussia. In November, 1841, after his return from the East, he was made a naval Aide-de-Camp to her Majesty. He was promoted, in 1846, to the rank of Rear-Admiral of the Blue; and in May, 1853, he attained his present standing of Vice-Admiral.

Sir Charles Napier married Eliza Elers, daughter of Mr. Younghusband, and widow of Mr. Edwards Elers, Lieutenant in the Royal Navy, by whom he has issue one son and one daughter.

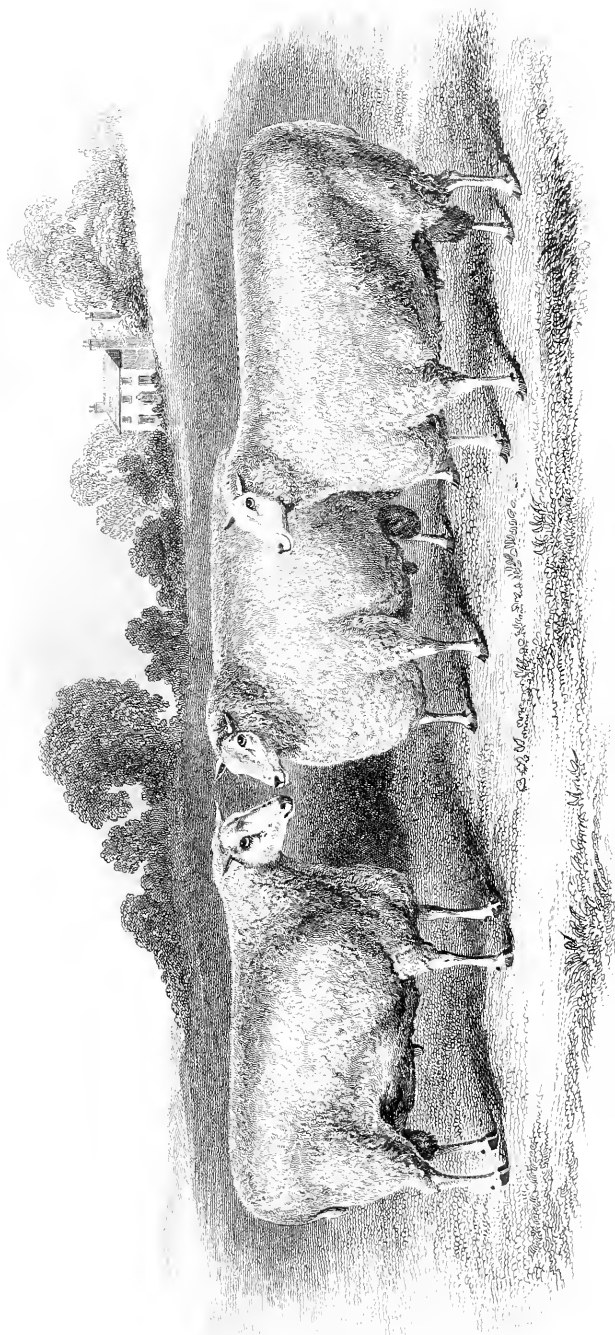
There are few of our readers but who are well aware of Sir Charles Napier's worth as a sailor and a hero. Let it be our further province to honour him as an excellent country gentleman; and to introduce him to the patrons of "the Farmers's Magazine" generally, as Lord Palmerston would have done to the farmers of Hampshire as "AN EMINENT AGRICULTURIST."

PLATE II.

THE IMPROVED LINCOLNSHIRE SHEEP.

The old Lincolnshire sheep, according to Culling, had "thick, rough, white legs, large bones, thick pelts, and long wool, from ten to eighteen inches, and weighing from 8lb. to 14lb. per fleece, and covering a slow-feeding, coarse-grained carcase of mutton." Ellis, an early writer, says "they are the longest-legged, and largest-carcased sheep of all others." The Improved Lincolnshire sheep, of which we give three fine specimens in our plate, were bred by Mr. Jas. Clarke, of Long Sutton, Lincolnshire, and exhibited by him at the late Lincoln Meeting of the R. A. S. of England. The *three-shear sheep*, No. 3 in the plate, received the first prize in the Improved Lincoln Sheep class, and also the first prize in the Special Prize Class. The *four-shear sheep*, No. 2, received the second prize in the Special Prize class, and was highly commended in the Improved Lincoln class, there being no second prize. The *two-shear sheep*, No. 1, is a good specimen of the Improved Lincoln sheep at that age. The Improved Lincoln long-wool sheep are now extensively bred in the counties of Lincoln, Cambridge, Huntingdon, Northampton, Rutland, Leicester, York, and a few in Nottinghamshire, Derbyshire, and Norfolk. They vary much in shape and substance, according to their intermixture of the Leicester blood. The best and largest breeds of the Improved Lincolns do not possess much of Leicester blood in their flocks; but have, by careful selection of both males and females, attained a standing for size and substance, beauty and wool, unattained by any other breed. The three-shear sheep represented in our plate measure 5 feet 8 inches girth, by 4 feet 1 inch in length, and stands 2 feet 7 $\frac{1}{4}$ inches high, and has yielded 51 $\frac{3}{4}$ lb. wool in three years. Mr. Clarke exhibited, at the Newcastle Meeting, a ewe of this breed, which, when slaughtered, weighed 65 $\frac{1}{2}$ lb. per quarter.

We presume no further description is required than what our plate affords. Such substance, wool, and mutton (good lean flesh) are seldom met with.



THE WHEAT CROP.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

The anxieties of the farmer seem never entirely to cease. It is not only the chances of cultivation that he has to encounter: bad seed-times, seasons favouring the more than usual increase of insects, the visitations of blight, or bad harvest weather—all these may be successfully escaped. The barns of the skilful farmer may be full to overflowing; his noble stacks may rise in rapid succession; and yet, after all these happy events, do the markets too keep rising, may he reasonably expect that fair remunerative price for his produce to which all industrious and skilful manufacturers are justly entitled? At a time like this, when the wheat harvest is nearly secured, let us gather together a few facts from various sources, chiefly bearing upon the question of the prices of wheat; let us see what information we can produce against the 1st of September; for such hints may be useful to the farmer on a rainy day, when he, as well as the partridges and the grouse, have a day of rest.

The farmer well knows that it is the foreign wheat which chiefly interferes with the ruling prices of the English corn market. Now the growth of wheat is limited by the mean temperature of certain districts: it refuses to grow productive crops in very hot countries; it dwindles in very cold climates; and yet, as the editor of the *Quarterly Journal of Agriculture* remarks (1854, p. 416)—“Wheat, of all the cereals, requires the most heat; its culture only begins to be of importance below 60 deg. North latitude in Europe, and considerably below that line in the American continent. Meteorological observations lead to the inference that a mean temperature of 39 deg. at least for three or four months is necessary for the growth of wheat: 55 is the minimum of the summer heat. Wheat is not calculated for a tropical heat; it occurs first at altitudes corresponding in climate to the temperate and subtropical zone.” Mr. Whitley in his prize essay (*Jour. Roy. Ag. Soc.*, vol. ii. p. 33), has summed up the meteorological facts influencing the cultivation of wheat, in language which I need not attempt to vary; “for,” as he observes, “some corn-producing plants are exotics—natives of a warmer climate. Their original locality cannot be clearly defined; but there is no doubt that these grains accompanied the progress of agriculture from Egypt to Greece, and were spread from thence over Europe. Wheat and barley have been found growing wild in Persia, Mesopotamia, and on the Banks of the Euphrates; and it has been

contended that the Valley of the Jordan, the Chain of Libanus, or the parts of Palestine and Syria which border upon Arabia, may with great probability be assigned to our cereals as their native country. These valuable grains have been spread over the temperate regions of Europe, where they are naturalized; and the hardy inferior varieties have been pushed as far north as the rigour of the climate will permit. In what part of this cereal zone are our islands situate? Certainly not in that the best adapted for wheat, which is grown in greater perfection on the plains of Europe, and in the dry hot summers of Spain. The summer temperature of the cultivated lands of the British islands varies from 54 deg. to 64 deg.: in the fertile plains of Lombardy it is 73 deg.; and in Sicily, the granary of ancient Rome, it is 77 deg. There is no part of Europe where the wheat crop is pressed into so low a summer temperature as in these islands, and that with a considerable degree of success. In 1727 a small field of wheat near Edinburgh was so extraordinary a phenomenon as to attract the attention of the whole neighbourhood; and up to 1770 its cultivation was little extended. But now abundant crops are seen on the low lands, the most favourable hill districts are invaded, and the culture pushed as far north as the Murray Firth, from whence excellent specimens are sent to the London market. Even in the north of Ireland, where Mr. Wakefield thought it would be useless to introduce wheat, it is now extensively grown. At Hopetoun House, in West Lothian, where wheat has been most successfully cultivated, the average summer heat for 26 years is somewhat below 58 deg. The crop has been pushed so far to the north of Scotland as where the mean heat of the season is only 56 deg.; but then it is only in warm sheltered vales that the harvest can be relied on. We find then that in Scotland the minimum summer temperature required is from 56½ to 57 deg. On the south of England, where the summer days are shorter, and other things being equal, the amount of solar heat in the same time is less—58 deg. are requisite. The influence of seasons and of climate upon the composition of wheat-flour is very considerable. The result of the examinations of wheat by different chemists varies considerably, according to the mode of analysis which they adopted; hence their comparative results can only be well compared with the different wheats which each chemist examined.” Davy (*Agri. Chem.*, p.

150) found 19 per cent. of gluten in the wheat of Middlesex, 23.90 in some Sicilian wheat, 20 per cent. in some Polish wheat, and 22.50 per cent. in some from North America. Vauquelin obtained much lower results: he found in common French flour 10.96 per cent. of gluten; in the flour from hard Odessa wheat, 14.53; in the flour from the Paris bakers, 10.20 per cent. Boussingault, however, obtained higher results than either Davy or Vauquelin: he found in hard African wheat 26.50 per cent. of gluten or albumen; in Sicilian wheat, 24.30; and in Dantzic wheat 22.70 per cent. By deducing the proportion of the nutritive principle from the quantity of ammonia formed from the azote contained in each sample, Dr. R. D. Thomson found that Canadian flour contained 13.81 per cent. of the nutritive principle; Lothian flour 12.30 per cent.; and United States flour, 11.37 per cent.—(*Quar. Jour. Ag.*, 1854, p. 422). Dr. Beck found in wheat-flour from different American States the following proportions of gluten (*ibid* 424):—

	Per cent.
New Jersey	10.90
New York	12.82
Ohio	14.25
Indiana	11.90
Illinois	11.25
Michigan	11.85
Wisconsin	10.85
Georgia	11.75

Of mucilage or starch, Davy found in the wheat of

	Per cent.
Middlesex	76
In Sicilian	72
In Polish	75
In North America	73

Professor Beck found of starch in that of

	Per cent.
New Jersey	70.20
New York	68
Ohio	67.06
Indiana	67
Illinois	66
Michigan	65.60
Wisconsin	67
Georgia	68.93

The increased amount of bread produced from a given weight of flour is thus accounted for (*ibid* 420):—A quartermaster in the United States Army states that “one barrel of flour, or 196 lbs., when in the state of dough, contains about 11 galls. or 90lbs. of water, 2 gals. of yeast, and 3 lbs. of salt—making in all a mass of 305 lbs. 40 lbs. of this, it seems, evaporate in the kneading and baking, the bread amounting in weight to 265 lbs., thus exceeding the flour employed by about 33.50 per cent.

Of the different wheats and wheat-flours thus composed, let us next inquire the amount imported into this country in the year 1853, and, by way of

comparison, the amount 14 years previously. Now this we find in a Parliamentary return of the Session of 1854, No. 1743. It is as follows:—

COUNTRIES.	1840.	1853.
Russia, Northern Ports ..	24,561	252,243
— Ports on Black Sea	243,721	818,930
Denmark and the Duchies	153,481	294,926
Prussia	807,204	1,145,845
Hanse Towns	220,762	223,914
Other parts of Germany..	150,018	185,417
Holland	50,662	57,732
France	48,656	341,444
Italian States	149,342	164,255
Wallachia and Moldavia..	—	227,143
Turkish Dominions	4,802	251,343
Egypt	2,874	357,906
British North America ..	145,041	168,021
United States	355,031	1,582,641
Other Countries	76,604	164,100
Total	2,432,766	6,235,860

The imports in the past six months of 1854 were (*Parl. Paper*, 1854, No. 57, vi.)—

Wheat, qrs.	2,593,138
Wheat-flour, cwts.	2,941,141

The retrospect of the prices of wheat in by-gone years affords us, unfortunately, but little secure data on which to rely, in our calculations as to future prices. Thus:—

	£	s.	d.	
In 1603 wheat was ..	1	15	4	per qr.
„ 1653 „ ..	1	15	6	„
„ 1703 „ ..	1	16	0	„
„ 1753 „ ..	2	4	8	„
„ 1803 „ ..	2	17	1	„
„ 1853 „ ..	2	13	0	„

When this paper comes before the English farmer, wheat harvest will not only be just over, but wheat-sowing will have commenced. Now there are one or two facts which have been produced within the last two or three years, which are well worthy of the farmer's attention—not as offering certain rules for our imitation on all soils and in every situation, but as affording valuable suggestions for new experimental courses of inquiry. It is pretty certain that the best state to which the soil should be brought for the reception of the seed-wheat, is not in all cases well determined. At the July gathering at Mr. Mechi's farm, some fine specimens of wheat ears were produced by Mr. Piper, of Colne Engaine, grown on land which had not been ploughed for several years, and yet had, with the aid of top-dressings of soot and other artificial manures, produced good crops of wheat every year: here was the result from an undisturbed soil. On the other hand, we have the equally successful, yet opposite practice of Mr. Smith, of Lois Weedon, who fallows for wheat every other year—still growing wheat and wheat only, year after year. His practice he thus briefly

describes—(see also his “Word in Season,” published by Ridgway):—“I divide my field into lands 5 feet wide. In the centre of each land I drop or drill my seed in triple rows, 1 foot apart, thus leaving a fallow interval of 3 feet between each triple row. When the plant is up, I trench the intervals with the fork easily, taking my spits about 3 inches from the wheat; and at spring and during summer I clean them with the blades of the sharp-cutting horse-hoe, and keep them open with the tines of the scuffler. Every year, in short, I trench and cultivate $2\frac{1}{2}$ feet out of the 5 for the succeeding crop, and leave the other $2\frac{1}{2}$ for that which is growing. One moiety of each acre is thus in wheat, and the other moiety fallow; and the average yield of that half acre is 34 bushels, surpassing the average yield of a whole acre on the common plan.” Why wheat should be thus grown for a series of years on the same land with success in Essex and in Northamptonshire, and in one place by con-

stantly stirring the soil, and in the other locality by never ploughing, but by merely hoeing the seed in, and hoeing it afterwards for the removal of weeds, certainly seems to be phenomena worthy of our careful study, when we are considering the state of the soil the best adapted for the growth of wheat. Such, then, are a few of the facts relating to the wheat crop, which have appeared during the present year. May this little sheaf of knowledge thus gathered together be useful at the present season to the great farmers of my country. They, I well know, are ever wisely alive to every suggestion which points to an onward road; and the difficulties which they have had to encounter, the storms through which they have successfully persevered, have long since convinced them that it is only by following out the suggestions which nature offers, or man occasionally stumbles upon, by attending to her hints, that the increased prosperity of agriculture can be secured.

THE IMPLEMENT DEPARTMENT OF OUR AGRICULTURAL EXHIBITIONS.

The “Implement Department” is unquestionably not only the safest, but the most satisfactory evidence we have, to the advance of modern agriculture. The breeding of stock, however laudable the pursuit, may become too often, like the breeding of poultry, but an amateur business after all. Or, if not this, it grows, when accompanied with anything like continued success, into an occupation of itself; and one more or less independent of the common business of the farm. The use of improved machinery, on the other hand, is more directly practical in its application. There is not one of the many hundreds and thousands of inventions which we see brought out, and bought up, but the sole and immediate object of the designer's is the better cultivation of the soil. It is possible for a crack breeder to preserve a long line of short-horns, or to remain in vogue for a famous breed of sheep, and yet be really no model agriculturist, either. It would be strange, though, to find any one armed with a proper complement of our best implements, without quickly recognising their effect upon himself and on his acres. It is not too much to say that they improve the mind of the man who has brought himself to appreciate them, almost as much as they do the land to which he has applied them.

It is gratifying to record what the Royal Agricultural Society of England has done towards arriving at this happy consummation. With some obstinate

anomalies existing still in the management of its show of stock, and with a lamentable feebleness in dealing with the abuses so long associated with the conduct of this department, the contrast becomes but the more striking and agreeable. The Royal Agricultural Society has ably done its duty here; in meeting after meeting has it directed that advancement we have achieved. Year by year has it, in its awards and its conditions, compelled the inventor and the manufacturer to adopt the genius of one and the powers of the other to the real wants and uses of the agriculturists. The Society, in this instance, has been nearly all it should be—the pioneer to improvement, instructing its judges what to encourage and impressing upon its exhibitors what to strive for.

A year or two since, and we were even then supposed to have done quite enough. All our readers may, perhaps, not have heard of a certain agitation, which never came to a head, amongst some of the most renowned of our agricultural implement makers. They were quite satisfied. The Royal Agricultural Society had worked wonders in the way of perfecting their machinery. They had, in a word, done quite sufficient; and henceforth the best plan would be to save their funds, and have no more premiums for machinery. Let every firm that wished it have a stall in the exhibition; but let them be at no further trouble or expense in opposing the merits of one article on this stand to

those of another a little further on, constructed and offered for the same object. They were either of them quite good enough.

We are all old enough to remember what a pace the coach travelled when there was no opposition, and how the proprietor or coachman made the customers suit themselves to his convenience, instead of him to theirs. Fortunately for themselves, the implement makers, or this portion of them, never brought their wishes to hearing—fortunately for themselves, as well as their patrons, they still enter for premiums, and engage on trials that tend more than anything else possibly could to keep the world alive to what they are doing, and what they have to sell. The prize list of the Royal Agricultural Society, as now gradually coming to perfection, is the best advertisement for the good genuine maker, as the best security for his customer. It would have been a bad day for either, had these well-satisfied gentlemen had their desire.

Is there anything so likely to encourage or discover excellence as legitimate competition? How are we to arrive at it, in any pursuit or condition, without pitting one against another? And what would the Royal Agricultural Society have done without its premiums—its orders, in fact, in other words, for what was wanted? Strange as it may sound, the opinions which a few of the manufacturers once owned to, but afterwards so discreetly abandoned, have now again been taken up in high places. In the *Times'* report of the Lincoln Meeting, one is startled to find such a commentary as this:—

The Council of the Royal Agricultural Society cannot surely imagine that their premiums of £5, £10, or £20 have any influence whatever in inducing business men, the employers of hundreds of mechanics and artisans, to come to their shows to exhibit large quantities of goods there, and, even where the railways are most liberal, which we understand has not been the case with some in this district, to incur considerable expense in doing so. The obvious truth is, that they come because space in the Society's show-yard has a commercial value without any award of excellence upon trial, and because that commercial value is immensely enhanced by a decision of the judges in favour of any article exhibited. Why, then, should a voluntary association, which works for no pecuniary profit itself, and is bound only to promote the public good in a specified direction, cripple its means of usefulness by money payments to people who are so well off already? If a little exhibitor, deserving encouragement, stands in need of funds, and the society don't know what to do with their money, by all means let them consider such a case; but to be pelting with their £5, £10, and £20 notes large and prosperous manufacturers is a manifest absurdity; and the same arguments apply equally to the breeders of stock,

whose tendency to over-fatten their animals, if it cannot be reached in one way, might, perhaps, be controlled in another. At present the Council, by its management, exposes itself to the imputation of being a mere stalking-horse for the implement makers on the one hand, and the breeders on the other."

The Council of the Royal Agricultural Society must surely be satisfied that their premiums—even in the shape of the five and ten pound notes, which they have been pelting about—*have had* wonderful influence in inducing business-men to come to their shows. How else the commercial value of the space in the show-yard? Is not this not merely enhanced, but actually *created* by a decision of the judges? If, on the other hand, the Society's ground was let as nothing but a bazaar or a market, would it not become that very "stalking horse" which it now is not? Would not every businessman say at once: "I have the best of everything"? It is difficult to imagine what the writer can be aiming at, without he wishes to deprive the Society of that influence which experience has shown us to be the most practically beneficial of any power it possesses.

Would he mean to assure us that "pelting five-pound notes" at people is a mistake? Would he have them contend only for medals and ribbons? Our own experience assures us that even in such an excitable part of the kingdom as Ireland, nothing has proved less effective than offering mere medals, instead of "pelting the people with five-pound notes." Mr. William Torr, one of the judges at Armagh, says:—

"He would now make an observation with reference to one portion of the show which required improvement—he alluded to the exhibition of implements. The show of implements, at Armagh, did not come up to the show of animals in any way whatever; and he thought it behoved the Royal Improvement Society to bestow some little portion of their funds towards effecting an improvement in this respect, for it was his opinion that instead of giving medals and commendations for implements, a portion of their funds should be appropriated to giving prizes. It was very well for the extensive implement manufacturer who could procure skill and labour in the market to get a medal when money was not a matter of moment to him; but with the small manufacturers a medal did not repay their labour, and a 10*l.* note was more acceptable than any such token of superiority."

We shall press no opinion of our own, but let the Council of the Royal Agricultural Society rest assured, on the authority of so good a man as Mr. Torr, that it is long since they have had any such "manifest absurdity" to encounter as this stricture of our powerful contemporary.

THE EDUCATIONAL QUESTION.

The educational question is making progress—just that amount of progress which justifies the expectation that the grandchildren of the present rising generation may derive some benefit from it. The usual parliamentary grant has been voted, with some increase, to be expended chiefly on the national schools, in which the instruction given is very inferior, both to what it ought to be, and what it might be, for the money. Schools of design, and schools of mines, in connexion with the Marlborough House Establishment, have been liberally provided for; but for agricultural schools there is not a sixpence allotted. The magnitude of the grant, and the little which there is to show for it, are beginning to attract attention, and the leaders of the daily press are calling out for that which has been long and frequently advocated in the *Mark Lane Express*—a searching investigation into the revenues of our numerous endowed schools, and the mode of their administration. There are evident symptoms that the time is approaching when the abuses which have overrun them will be reformed, and that they will be remodelled, so as to bring them into accordance with the spirit rather than the letter of founders' wills, and to adapt them to the altered state of society and the requirements of the age.

Deans and chapters are beginning to see that they will be compelled to augment the salaries of the masters of the schools of which they are trustees, and the exhibitions of the scholars, in proportion to the increased value of the property with which they are endowed, instead of appropriating the surplus to other channels. Dulwich College is threatened with becoming something more than a luxurious sinecure for some bachelor of the name of Allen, with a picture gallery attached to it, and an establishment for giving, from its splendid income, an apology for an education to twelve poor boys. The University of Oxford is to be thrown open, and greater encouragement is to be given to the study of the modern sciences in that venerable seat of ancient learning.

This last will be a great point gained towards removing opposition to the diffusion, among the industrial classes, of knowledge that will be useful to them in their respective callings. When another generation shall have arisen, more conversant with chemistry, geology, and botany, and other physical sciences, these will no longer be deemed dangerous, and there will be less dread of farmers,

tradesmen, artizans, and even ploughboys knowing something of them.

Towards the establishment of primary schools, to be supported by local rates, little or no progress has been made. Sectarian jealousies forbid it. We will neither teach secular nor religious knowledge, because we cannot agree about the forms of religion. Lest the labouring classes should imbibe doctrinal errors with the horn-book and the multiplication-table—lest the children of churchmen should be made dissenters, and the children of dissenters churchmen, both are left to grow up in brutal ignorance and heathenish irreligion. That all education should be accompanied by religious instruction does not admit of a question; but that is no reason why secular and religious instruction should be given together by the village schoolmaster, why the church catechism should be forced upon dissenters, and why our youth should be taught the Bible, by its being made a task-book.

There are but five solutions of the question—to leave the children of the poor uneducated; to leave them to be educated by voluntary efforts; to promote the separate education of the children of each religious denomination by grants of the public money to each; to give that amount of religious instruction in the schools, on which all churches and sects can agree, which will consist of christianity so pared down as to be divested of its distinctive characters; or lastly, to separate the secular and the religious instruction—the state furnishing means for the former, and requiring the ministers of each religious denomination to perform the latter. The conditions of a religious education will be fulfilled, if all pupils attending the secular school shall be required to attend the place of public worship to which their parents belong, and to receive religious instruction, on stated days, from their respective ministers. Of all these plans, the last appears to be the most practicable, under the diversity which unhappily exists in religious belief.

In the meantime, while this question has been in dispute, another generation has grown up in ignorance; and much may be effected for their benefit by private exertions for the instruction of adults. The attention which capitalists are bestowing on the improvement of those whom they employ, is one of the best features of the present day. We observed, in a recent article, that nowhere are greater exertions being made to meet the social evils attendant on the manufacturing system, than

in the great centres of manufacturing industry. Manchester, Leeds, and Birmingham are honourably distinguished by their zeal in the cause of education, and in establishing reading rooms, circulating libraries, baths, museums, places of public recreation, and other institutions, tending to improve the moral, intellectual, and physical condition of the working classes.

A most interesting description was given, a few years since, in *Fraser's Magazine*, of a school established at the manufactory of Child's night-lights, and recently of Price's candle manufactory in the *Mark Lane Express*, for the benefit of the numerous boys employed in those establishments, of the success which has attended the undertakings, and the improvements which they have effected in the morals of those employed, even in so unpromising a neighbourhood as the purlieus of Lambeth.

Many similar cases might be mentioned. Among the most recent which have come to our knowledge is that of the news-room and library established by the Poynton and Worth Colliery, for the use of their pitmen. Nor must the attempts which have been made to raise the intellectual character of the militiamen during the period of their training, and to withdraw them from the contaminating influence of the beer-shop, be passed over unnoticed. At Bodmin, an evening school was opened for the benefit of such men of the Royal Cornish Rangers Militia, as chose to avail themselves of it. The paymaster-serjeant of the regiment acted as school-master, and the average number of scholars was thirty.

Why is not something of the same kind attempted among the wealthy farmers of some of our agricultural districts? In the cases to which we have alluded, of a manufacturing and mining population, and of a militia regiment, their concentration doubtless gave great advantages, which are not possessed by the inhabitants of the rural districts. Nevertheless, there is in most parishes some central point to which the farmers' men resort, for such recreation as the beer-shop and its skittle-ground afford; and it is certainly worth the trial, whether the combined exertions of the clergy, the gentry, and the farmers cannot supply them with a rendezvous of a better description. From the Tom-and-Jerry to the even-

ing school would perhaps be too abrupt a transition; though it is not altogether certain whether the means of acquiring a capability of measuring land and timber, and of making those other calculations rendered necessary by the very general adoption of task work in farming operations, would not have its attractions. We know by experience that lectures about "foreign parts" are eagerly attended. At all events, a reading room, where news might be learned respecting the Russian war, would at the present time most certainly be frequented. If arrangements could be made, by which the labourer might refresh himself with a cheap cup of coffee, and even occasionally smoke his pipe, without which he appears too often to think there can be no enjoyment, there are good hopes that such a place of resort might prove a formidable rival to the beershop. This would be a good step in advance, and the transition would be less difficult to more refined and more intellectual pursuits. The evening school and the village library would follow. Adults who are unable to read, might be stimulated to the acquisition of a taste for literature by meetings, at which some entertaining volume might be read aloud. The statistics of the Manchester Library indicate the class of books which would be most popular. We knew an old farm labourer who could not read, but who was, nevertheless, well versed in the history of Robinson Crusoe and his man Friday. He believed both of them to have been real personages, and it would have been cruel to undeceive him. Sir John Herschell has pointed out, in a tract which he published on the occasion of the establishment of a village library at Slough, the benefits which the poor may derive even from the reading of a novel, as a substitute for less innocent amusements. He mentioned the case of a village, in which the blacksmith, who was the only man who could read, had become possessed by some accident or other of "Pamela;" the villagers were accustomed to resort of an evening to the smithy to hear it read by him; and such interest did they take in the narrative, that when they found that the hero and heroine had surmounted all their difficulties and were married, the assembly were so delighted that they rushed to the church, and rang a peal in honour of the bride and bridegroom.

THE POTATO DISEASE.

There cannot now remain a doubt as to the recurrence of the potato disease; and, further, that it has commenced with all its virulence. The reports

from Ireland are more discouraging than those from other districts; from thence it appears to have returned rather earlier than usual. In the east of this

country, and in other parts, it did not show itself so early as some preceding years; and till within the past week or two, sanguine expectations were indulged that this direful visitation had passed away. We are sorry to say it is far otherwise; an untainted field cannot now be found; the disease is everywhere rapidly spreading. The only thing to be done is to modify and curb its effects.

Taking this view of it, and finding there is no time to lose, I request your indulgence to the insertion this week of the few facts and observations I have to offer upon the subject.

I have, as a practical farmer and constant grower of potatoes to some considerable extent, watched the progress of this disease with great interest; and my inquiries have been extensive both as to the prevention of the malady itself, and also the best means of preserving the crop from its further ravages when attacked.

I wish now to give the substance of my inquiries and observations, hoping it may lead to extended experiments, and, I trust, and indeed confidently hope, to great and beneficial results.

Respecting the prevention of the disease, I shall at this time say nothing, but confine myself to the means to be used to preserve the bulbs from further decay, when once the plant is affected; in doing which, I shall take a few facts which can at any time be fully authenticated.

No 1. Has for six years invariably planted his crop early, and so soon as the peculiar specks show themselves on the haulm, giving unmistakable signs of the existence of the disease, proceeded to pull it up; and in this manner: the workman proceeds down the row, having one foot on each side of the haulm, and from between his feet he draws it up, at the same time pressing down the soil and consolidating the ridge. He has in this way preserved his crop entirely from further injury, and taken it up in a very satisfactory state.

No. 2. Has followed the same plan five years with the same result. He has also carefully covered up any stray tubers, and repaired the potato ridge, so as to prevent either rain or air from penetrating freely: is fully satisfied that this is the most effective plan for the preservation of the roots.

No. 3. Has practised early planting, and as the disease appeared he has, for the past four or five years, taken up the crop, "dressed" them (cleaned the potatoes by riddling, &c.), and carefully graved them down in graves about 4½ feet high. By this means his crop has been fully preserved. At this time this year's crop is in grave.

No. 4. Plants early (*i. e.*, March) for the past four

years. As soon as the usual specks confirm the existence of the disease, he has immediately cut off the tops, repaired the ridges (so as "to keep out rain"), and left them till the usual time for taking up. His crop has been the theme of conversation throughout the neighbourhood; it has been invariably saved. Last year he (as a proof) left two rows uncut. The result was that one-half of the potatoes of these rows were affected; but not more than half a peck in two acres were touched on those deprived of their tops. All his neighbours are this year following his example.

No. 5. He is not so early in planting. When the disease appears, he moulds up the potatoes as securely as he can with a moulding-plough, leaving the tops on. He has derived great benefit, but has not wholly stayed the disease.

No 6. Same as No. 4, and tried the same experiment on a smaller scale. He had no loss where the tops were cut and the rows again "hilled up," but full half bad ones on the untouched rows.

No. 7. Has cut his tops off as soon as tainted, "hilled up" his rows, and preserved his crop nearly entire.

No. 8. Same as No. 5, is fully satisfied of its utility; but it is by no means so efficacious as taking off the tops and closely "hilling them up" again.

I might go on enumerating many more cases; but these, I think, will suffice to show that, if the potato haulm is taken off before the root itself is tainted, they may be preserved by careful covering. The exclusion of air and moisture appears indispensable. The practice is fast gaining ground in the district from which I write; and as it is so simple, and really effective, I cannot too strongly recommend its immediate adoption to every grower of this most useful root. I would urge you to lose no time; if your haulm abounds in specks or the brown spots so universally known, off with them at once! Never mind how, but take them off, and mould up the ridge to a narrow and close top; and, as a well known writer says, "I'll stake my agricultural reputation" as to their safety. Be careful on this point. It is of very little service to adopt this practice if the haulm is in an advanced state of disease; the sooner the haulm is off, when the disease appears confirmed, the better. It may be prudent to wait a short time, provided the progress of the disease is carefully watched, as the bulbs will scarcely improve after the haulm is removed; but in no case must the stalk be left long enough to decay. It is then too far gone for the tubers to be saved under this experiment.

"A MAN OF THE WORLD."

British Agriculture is becoming quite a man of the world. All his friends—and he has a good many anxious to be acknowledged as such in a business-like kind of way—are found to be the more and more ready to own it. He is no longer the selfish, shy, exclusive it was once so common and so safe to account him. Whether exactly of his own seeking or not, he has, in fact, been brought rather prominently before the public, where he offers his opinions, debates his rights, and gives and takes with all the now tried discretion and experience of that most desirable of qualifications to a character—a thorough knowledge of the world. He is, indeed, according to the conventional acceptance of the term, a farmer no longer. The farm, as he was wont to call it, is his shop; the soil his raw material, and himself a manufacturer, tradesman, or whatever title may sound best to the ear of so practical an authority as "the commercial man." He buys and sells like other people—of course the one in the cheapest and the other in the dearest market—providing only he knows how to do so. If he does not, there are many now on the list of his acquaintance who will be happy to show how to achieve this grand desideratum. They have more than volunteered this already, anxious only to instruct him in every art and science that may enable him to keep his standing as "a brother tradesman."

And does the British agriculturist reject this handsome offer of assistance? As a man of the world, he most assuredly does not. He welcomes his friends, Manufactures and Commerce, whenever he has an opportunity. The healths of two such distinguished visitors stand amongst the most prominent of those in his toast list. He feels the weight they should have in a society of Englishmen, while he has personally to thank them for so much good-will expressed by them towards himself.

It is true that at times, without the semblance of anything like a real quarrel, there has been some little difference, and may-be consequent coolness between them. We will undertake, however, to say that this has rarely been the fault of the agriculturist. Take him either as landlord or tenant, and you will seldom find him now offering intentional offence to others. It is well known enough that he will occasionally help to "put down" a noisy orator who is arrogating all to himself, and nothing to others. It is true he may ask for the evidence to some such fact as this: "Is it quite

certain, as this gentleman so energetically states, that I am as simply a dolt as he is surely a Solon? Have I, or is there any right, Messrs. Manufactures and Commerce, that I should be treated in this manner by one of your side? I am quite willing to keep friends. I am ever ready to acknowledge you as very good customers; while I hope I may do something in return. I am very much obliged to you for all the hints and advice you have given me; but just admit for a minute that I know something more, perhaps, about my own business than you do. And so caution our noisy friend here to say what he has to say, as the henpecked husband begged of his wife, 'with a little less nonsense about it, my dear, if you please.'"

We may rest assured that it is not the agriculturist—either landlord or tenant, we repeat—whose acts are tending to lessen the happy union between their own class and others in the state. There is scarcely a meeting now passes but that speaker after speaker turns himself to this point. Practical men, whose chief if not whole interest has been associated with the soil, advocate what they feel must be to the advantage of all. There is a great amount of caution against anything like the appearance of insult. The intention is to cement as well as to honour; and they thus cheerfully ask a reciprocity of feeling and assistance, on terms to which neither side need reflect upon but with satisfaction.

Who are the farmers' friends? What are the farmers' chief props and pioneers? Points often enough put, in cross-examination. Practice with science—full and free use of capital—a thorough understanding between landlord and tenant—a hearty union with manufactures and commerce—a becoming regard for those we employ. These, and some few more, are old stories, but they are very true ones, and mark how happily, how with a kind of artless art one of the class of speakers we have referred to has contrived to mingle all, one in with the other. We quote the Honourable Octavius Duncombe, chairman of the meeting of the Cleveland Agricultural Society:

"He trusted that agriculture and commerce would be long united, and that they would see around them on each successive triennial occasion of their assembling there or elsewhere the representatives of those two great interests, combining together landlord and tenant, manufacturer and artisan, so as to prevent at all times anything like

discord between all these parties (applause). He had lived long enough, and had studied sufficient of the history of the country, to know how important the well-being of each of those interests is to the other. He trusted that in future this combination would be so complete, that no spirit of rivalry or distrust might be created, and that the two interests, on the contrary, would be found united for the achievement of one common object, viz., that of promoting the general interests of the district, and the happiness and prosperity of the country at large."

How often might we multiply such addresses as these! and how much do they speak to the credit of the country! Were the farmer that dolt, or mere piece of prejudice, he is sometimes painted as, he would never listen or give the authority of his "*applause*." He is, on the other hand, we must repeat, a man of the world, ready to give and take in the same spirit in which he is treated, and in reality as anxious as any one can be for the lasting union of "agriculture, manufactures, and commerce."

HARVEST PROSPECTS.

Our country is always, at this season of the year, in a most anomalous position: every one is on the utmost stretch to gather correct information as to the coming harvest, and notwithstanding much individual effort is brought to bear upon the subject, much statistical data is sought for by the agricultural journals, and great combination in giving reports from different districts has resulted, yet nothing definite or conclusive can be arrived at: all is yet conjecture, though somewhat nearer the truth. A contemporary has this week a long list of contributors to this desideratum: but we only gather from it the appearances at a certain time, in given districts; and all we arrive at is this:—A promising wheat crop; a fair crop of barley and oats; that beans and peas are injured by fly, &c.; that peas are a fair average, potatoes much tainted, hay very light, and green crops promising. I repeat, all we arrive at is this, and in the present state of our agricultural statistics it may be useful; but it is most unsatisfactory as a guide to agriculturists or to their customers. We want a regular system for the collection of such statistical information; and I trust no effort will be wanting on the part of the producers to induce the Government to accede to it. In the absence of such information, any reasonable opinion is of some value; and, as it has been my pleasing privilege this season to visit several districts extending over a considerable surface of the kingdom, I will venture to give mine. In passing I would observe, that some of the districts visited are yet in a wretched state of cultivation: I trust it only needs a notice to lead to correction. I will further say, that I remarked that properties under able agents were admirably farmed; and I regret to say that I noticed the reverse of this. Let landlords look to it as it behoves them: "Like priests like people." I will take the crops consecutively, and as briefly as possible.

WHEAT.—Previous to the late rains, we had upon all good loams and the lighter soils a highly satisfactory prospect. How beclouded now! Within the

past week or two these crops have suffered very severely, not only from being beaten down, but from actual blight: scarcely a field has wholly escaped. It does not take off large breadths, but patches here and there, and single ears and roots almost everywhere. On all heavy stiff soils the crop is not satisfactory: in many parts it is thin; in others, it evidently shows the drought of March and frosts of April. On those soils where badly farmed, it is scarcely worth harvesting; on the better soils the crop is *now* remarkably varied, and will produce an uneven sample of doubtful quality: the bulk is great, and, should the weather prove propitious, the yield of grain will be good, but I think not a full average. The breadth sown is, no doubt, extensive; and, taking this into consideration, the produce of wheat for the season may be taken at a general average of years, but not more; and the quality will be coarse, and not heavy: the yield of flour not in proportion to the weight of grain. I venture to say that the wheat crop will disappoint very greatly the sanguine anticipations formed of it a very short time ago.

BARLEY.—On all the barley soils the crop is good, and, notwithstanding it has been much lodged by the late storms, it still looks promising. The plant was not too thick, and consequently retained much strength in stem, so as not seriously to retard its progress. The yield will be fair, and the grain will make good serviceable malt, but very little of really fine quality. The grain will weigh well, but be coarse. On strong adhesive lands it was almost impossible to get in the seed owing to the drought, consequently many crops are thin; but they have borne the storms bravely, and I think the best barleys will be from these soils. Fair quality, but light yield.

OATS.—I never knew the crop so varied and unequal; some splendid, others wofully thin and weedy; the height and bulk of some crops are astonishing; the produce on good loamy or open soils

must be very good. On strong lands, where the turnips were late in feeding off, it was a trying task to get in the seed; the crop, of course, is in accordance. For several weeks no rain came, and a most uneven plant is the result, and the growth equally so. This crop cannot be a full average one, and the sample must be uneven; indeed much must be cut before ripening—the difficulty being to decide as to cutting the early or latter growth in the crop.

BEANS.—On all strong loams and open soils this crop surpasses those of former years; and the flowering season was all we could desire, giving evidence of a most productive crop. It has continued progressing till within the past three weeks, when it was attacked by the aphid fly or bean-dolphin, which are at the present time making sad havoc. I greatly fear that most serious injury will result—the increase is astonishing. Fields comparatively free a week or two since are now almost covered. On strong clays the crop is nearly a failure, and many fields have been ploughed up. The bean crop, as a whole, cannot be an average one, nor is the breadth sown great.

PEAS.—This crop is now very generally sown early; the plant, consequently, came up before the drought, and has passed through the most astonishing season for flowering ever known; the podding was enormous, but small. They progressed favourably till the late storms beat them down, and now every symptom of premature ripening shows itself, and the crop is scarcely recognizable from weeds; and the green fly or aphid is greedily at work; so that, notwithstanding such a splendid prospect, it will, like the bean crop, in all probability be an inferior one in yield, and the quality must be defective and very irregular.

POTATOES.—The early growth of this crop was much retarded by a dry sterile season, and the growth of top has been slight, which leads to the supposition that the crop will not be productive, and further, it will be late. The disease has held off rather longer than usual, and the bulbs from suspicious plants are yet right; and from extensive examination, I know this to be the fact. However, it is certain the disease has manifested itself in many districts; large breadths are tainted, and great fears are entertained as to the result. A less breadth has undoubtedly been planted; and should this great source of food prove scanty, it would soon show great influence in the corn market. Why are we not to be made acquainted with the breadth sown? We cannot go on properly without statistical information. The crop cannot, as a whole, be a satisfactory or an average one.

SEEDS.

TURNIPS.—This has been the most precarious season I have known. The dry winter and drought in March made sad havoc with the bulbs, and when

in full flower the frosts in April did irreparable injury. Many crops were destroyed, and many allowed to stand proved very unprofitable. The defective ones have been about three-fifths of the whole. This will make some varieties of turnip-seed dear. Even now much seed is selling at from 40s. to 50s. per bush. The common varieties are yielding badly. The Red Globe, the best of the common varieties, is a poor crop. Swedes prove better.

COLESEED.—The dry spring was very unfavourable to this crop, and few were able to make head against it. Many intended to stand were ploughed up. The yield will be bad from a small breadth of land.

MUSTARD (brown).—The breadth sown this spring was trifling, but it has proved well, and the result is likely to be good; but as the quantity is less, the average crop cannot be that of former years.

MUSTARD (white).—The high price of the past year induced many sowers to supply the market. I do not remember to have seen a larger breadth devoted to this crop, and appearances are highly favourable. The supply will be considerable.

CANARY-SEED.—The low prices comparatively offering for this article have almost forbidden its growth. The breadth sown this year is small. The crops are fair, but the average supply must be much less than usual.

CHICORY.—This has latterly come largely into agricultural cropping. The breadth sown this year is less than usual, and does not look very promising as a whole. Some good crops appear. The supply, however, cannot be an average one.

FLAX.—This is becoming an important crop, and more extensively grown. The crops look very promising, but more profitable for seed than fibre. The crop will far exceed the average for the kingdom, and we wish the growers and dressers every success, as being a novel feature in our agriculture.

HAY AND GREEN CROPS.

HAY AND GRASS SEEDS.—The crop of meadow hay is a truly bad one in almost every district. The months of March, April, and May were peculiarly dry and ungenial for the prosperity of the hay crop, as indeed for all grass crops, the grazing lands not feeding the usual amount of stock. Clovers and grass seeds, although better, have turned out a short crop; the whole, with few exceptions, have been fairly secured—nothing has been got up in first-rate state; but little however is spoilt. The abundance of the straw crop may (with a good supply of cake) in a measure make up this deficiency; otherwise our winter provender would be a matter for very grave consideration: as it is, every effort and economy must be used to eke it out.

GREEN CROPS.—These, as a whole, are very good,

and will aid much to supply the want arising from a defective hay crop.

MANGOLDS.—This is by far the worst of the green crops. I never knew such an irregular plant, and so unaccountable in its growth—from the same seed it is equally so. There will be but few good crops of mangolds; they came up badly; much effort was used to fill up the spaces, but still it is an unsatisfactory crop, many running to seed; and latterly the green dolphin, or *aphis*, has done it much injury. The leaves are curling, and discoloured. A considerable breadth is sown, but the crop will not far exceed a modicum.

SWEDES.—This is a splendid crop, and retains as yet its full vigour, colour, and promising appearance; the crop is a full one throughout. The sowing was accompanied by frequent showers, and the land was in fine condition. Proper artificial aid was put in with the seed, and the early growth was unexampled.

Should it escape mildew, it will be the finest crop on record.

TURNIPS.—These are not quite equal to swedes; but they are growing very luxuriantly, and we have every prospect of an excellent crop. Perhaps it is too forward, and may cause some loss in the winter. Flock-masters must see to it, and, to make up for defective quality in the bulb, give plenty of corn or cake.

COLESEED.—This is progressing rapidly, and will prove well; a large breadth is not sown, but the quantity of food will be great for the autumn—the time when this crop is, according to modern practice, fed off to be sown with wheat.

CARROTS.—The breadth sown with this crop is, I think, very short, and they are backward and weedy. It cannot reach a full average crop, but as it is not much grown for our winter supply, as such will not make much difference in our provender.

THE PAST SESSION.

It is rarely now that the agriculturist turns out of his way to see what Parliament is going to do for him. He is nearly tired of relying upon others, and has come more and more to act and think for himself. The most he would ask at present, of those in high places, is but fair-play in that race he has to run against the world. Let him only enjoy those facilities so readily conceded to others, and we shall find him even less troublesome than he has been. Few classes, after all, have submitted more readily to change of circumstance. Few, indeed, that would have fought their way more honestly through a difficulty, considering how much they have suffered, and what little compensation they have received.

We are here at the close of another session, with one grand, unanswerable reason for any work still undone, or any promise yet to be performed. It is an excuse, too, an Englishman is willing enough to admit. The careful preservation of our honour must ever be the first consideration of a state, as it is of an individual. Before this, all domestic comforts or amendments necessarily await a more seasonable opportunity for their consideration. It has been so here. Every man, with a grievance still unredressed, sees plainly enough "the reason why." Any one, with a hope directly encouraged at the beginning, needs not to ask why his wishes are no nearer fulfilment at the end. Seldom has a minister lived through the labours of his half-year with less call to explain the cause of his having accomplished so little.

It was but little comparatively, we repeat, the farmer had to look for; and even this could have resulted no more in an advantage to himself than to the community. That passage in her Majesty's opening speech which told us to prepare for an extension in the law of poor-law settlement, contemplated but another consistent improvement in the condition of the labouring man. It was one, moreover, which this time would serve him without in any way threatening to injure his employer. On the other hand, it was admitted and prayed for by both as a piece of free-trade long wanted, and without which no such system could be ranked as perfect. The Government evidently had something more than a mere leaning to the wishes of these two powerful classes, and it can scarcely be put down to the fault of those in office that more was not done with the measure. In the game of question-and-answer henceforth to be played at the hustings, let us not forget to inquire as to "What is your opinion on the law of settlement?"

There is another one the cultivator of the soil has been asking often enough—another stone to be laid in the solid foundation of a liberal line of policy, the adjustment of which just now looks rather worse than ever. It would seem, indeed, that the less the farmer has to say the more is he cared for. The more, on the contrary, he complains, the more is he oppressed. There must be something radically wrong in this, and let him ask himself what it is? Are these really ills which he talks of as such? Is it only justice, after all, that he is praying for? And if so, how is it that he is treated with so little consideration? How

comes it that, when he prays for relief from a burden, he has but to wait patiently and—see it increased?

It is the same echo-answer still—the war. This may be something, but this is not all. Speak it out, and there is no class so poorly represented as the agriculturist—none whose battles are fought with so little energy, and none who consequently go so surely to the wall under “force of circumstance.” The experience of the past session furnishes us with but further proof of this. Somebody must suffer—the war requires it. This is amply sufficient, and under such force of circumstance who can afford to suffer so handsomely as the farmer? He is used to it, and we all know how well he bears it. There is no one of course present to say such an argument nay; and as the malt duty is about the heaviest and most unfair imposition he has to contend with—as it is one above all others from which he has so long petitioned for relief, let us increase it forthwith.

This will raise so much: the war demands it, and he will pay it. There is no resisting such reasoning, and so home go the farmers’ friends to tell their admiring constituents how ably they have fought their cause.

It is true there are some honourable exceptions here; but how many, on the contrary, who have professed to go right with the farmer have gone as directly against him! Men who take to themselves high positions as agricultural authorities, and as the leading champions of the cause. Staunch farmers’ friends and consistent free-traders, let us record them—who vote for an increased tax upon malt, in evidence of their attention to their brother farmers’ wants, and their own appreciation of that unrestricted system to which they stand engaged.

The war can be hardly made to answer for all our evils; and our readers, if they so choose, may learn, again, from this past session, how much may be made to depend on themselves.

THE WHEAT TRADE.

SIR,—The season has come round when it is desirable to take a review of the wheat trade during the past year; and by referring to the statistics we entered upon a twelvemonth ago, and comparing them with the results of the year’s commerce, ascertain how far they served us correctly in making an estimate of the resources at our command for supplying the acknowledged deficiency in the home produce. It is impossible to take a step in this inquiry without feeling the want of those data which would be supplied by the establishment of district inspectors, who would collect certain information on the subject: and until such an institution is established, we must be contented to grope along in the dark, judging from analogy, instead of actuality, and leaving it to the conditions of the present and future to rectify the errors of the past.

Upon referring to my letter of the 29th of September, 1853, I find that I estimated the aggregate deficiency in the growth of wheat that year as follows:—

	Qrs.
Deficiency in breadth sown one-fifth, or	3,200,000
Do. in produce on what was sown two-sevenths, or	3,657,143
	<hr/>
	6,857,143
Add to this the average annual importation	5,000,000
	<hr/>
Total	11,857,143

Upon referring, again, to the *Gazette* returns of the sales of wheat in the various towns in the United Kingdom, I find that the falling off during last year, as compared with previous years, was 33 per cent. Now, taking the annual growth of wheat at 16,000,000 qrs., a deficiency of one-third gives 5,300,000 qrs., or thereabouts. If, therefore, the surplus of 1½ million quarters, which I estimated was *in excess* of the average stock of wheat at that season of the year, be admitted, the account will stand thus:—

	Qrs.
My estimated deficiency	6,857,143
Less a surplus of	1,500,000
	<hr/>
	5,357,143
Actual deficiency of 33 per cent. on 16,000,000, say	5,300,000
I shall next turn to the entire deficiency of the season, which I estimated as follows:—	
	Qrs.
Deficiency in crop	6,857,143
Average importation	5,000,000
	<hr/>
	11,857,143
Deduct surplus stock	1,500,000
	<hr/>
Total deficiency	10,357,143

This enormous deficiency has been met in two ways, namely, by an increased importation, and by a *reduction of the stock of English wheat*, under the stimulus of high prices. By a reference to the monthly letter of Messrs. Sturge and Co., of Birmingham, it will be seen that they estimate the present stock of English wheat at *five millions less than usual*; and on the other hand, the importations of wheat, and flour as wheat, from the 5th July, 1853, to the 5th July, 1854, according to the Board of Trade returns, amount to 6,869,430 qrs. The year’s account will, therefore, stand as follows:—

	Qrs.
One year’s importation	6,869,430
Reduction of stock	5,000,000
	<hr/>
	11,869,430
Estimated deficiency	10,357,143
	<hr/>
Surplus in hand	1,512,287

This surplus is about the actual quantity of foreign corn

now in granary, chiefly in London, Liverpool, and Gloucester, and constitutes the principal part of the stock of *old wheat* that the trade will have to work upon at the commencement of the next season. Thus, the scarcity which, under the circumstances of the country, was apprehended as the consequence of the war, has been averted by the stimulus of high prices, influencing both the foreign and the home growers; the latter having been induced, under an apprehension of the war being speedily terminated, to bring their whole stock of wheat to market, without any reference to the future.

One word respecting the sources from whence the bulk of the supply has been obtained. It was feared last year at this time, that in the event of hostilities, the supplies of wheat from Russia would at once be cut off. Two circumstances, however, have intervened, which were not then supposed likely to prevent this—Nicholas had plenty of wheat which he wished to turn into money, and John Bull had plenty of money which he wanted to convert into wheat; and thus, in spite of war, the mutual wants of the hostile nations have operated more powerfully than their mutual animosities, so as to keep the Russian ports open for exportation to the last minute. What may be the case the next year, it is impossible to conjecture.

In regard to America, my estimate of her exporting power, founded upon the past, was considerably under-rated. I have had some intercourse with a respectable merchant of New York, who has explained that, although my statements would

apply strictly to the eastern states of the Union, the exportations no longer rest with them; that large tracts of prairie land in the western states, rich, fertile, and free from timber, have been broken up and sown at once, and the produce can now be conveyed (by railway or canal) to the eastern ports or New Orleans for shipment; and that, consequently, they would in future be able to supply us with largely increasing quantities, whilst they are sure of a market, subject, however, to the common fluctuations of the crops in America, as well as here.

Under the stimulus of high prices, the American farmers, like our own, have shipped largely, and reduced their stocks to the minimum. It appears that we have imported from thence, in the eight months up to the 1st of May, nearly a million and half of wheat, and flour as wheat, which, with the exception of 1847, is more than we ever imported from thence in any year.

From Prussia, too, and other of the countries bordering on the Baltic, an extra quantity has been exported on account of the war, and an apprehension that the stocks might not be safe. From France, the supplies have probably been, as near as possible, balanced by our exports to that country, nor is it likely we shall have much from thence the next season; but this must be discussed in a future letter.

Yours truly,

London, 15th August, 1854.

S. C.

FORESTALLING AND JOBBING IN SMITHFIELD MARKET.

MEETING OF MASTER LONDON BUTCHERS.

On Friday evening an important meeting of master butchers and others connected with the trade, which did not terminate until a late hour, was held at the George Tavern, Commercial-road East—Mr. J. Horton in the chair—to take into consideration the present ruinous practices of “forestalling” and “jobbing,” so much pursued in the Smithfield Market, and the necessity of petitioning the Corporation of the City of London for its suppression.

The CHAIRMAN opened the proceedings by stating that the subject which brought them together deeply interested three classes, viz., graziers, butchers, and the public (Hear, hear). The object sought was to put down a set of men known as “forestallers” and “jobbers,” who for years had been the greatest enemies to the three classes mentioned, and especially to the purchasers at shambles; for when they compelled the butchers to pay a higher price than the cattle would cost in a fair market, the butchers in turn were obliged to charge their customers the extortion price; and here was the whole secret of the present high price of animal food (Hear, hear). These “forestallers” and “jobbers” awaited the arrival of cattle trains at the stations, where they bought up the cattle from the graziers, and then compelled the butchers to pay sometimes 30 per cent. beyond the fair marketable price (Hear, hear). It was an important question, in which the public were deeply interested; for by uprooting the pernicious system they could be supplied with meat at three-halfpence, twopence, and threepence a pound cheaper than they were now paying (Hear, hear). Indeed, it was as important as the great bread question; for it seriously involved the interests of the poor beyond whose reach animal food was to a great degree put by its exorbitant price (Hear, hear).

Mr. COLLINS (purveyor to the Royal Family) said that it would be unnecessary for him to enter into twenty-five years' experience which he had of the baneful results of the trickery of “forestallers” and “jobbers,” for they were almost self-evident, and should be at once met and averted by the proper authorities (Hear, hear). The infamous system was progressing year after year from bad to worse, and its effects had been more keenly felt during the present year than on any previous occasion in the high price of meat (Hear). Notwithstanding the great influx of visitors in 1851, when the London markets were deficiently supplied with meat, it was then three-halfpence to twopence cheaper than during the present year, when the demand was much less and the supply greater (Hear, hear). If he happened to be in the market before 5 A.M., he found it wholly in the hands of “jobbers,” who had the butchers at their mercy, and made them pay what price they pleased (cries of “Shame, shame,” and of “It's too true”). Was that legitimate trade? (Hear, hear). If not, why did the authorities tolerate it? (Hear, hear). That being the case, they should at once petition the Corporation against its being allowed in the new market, which they would prevent, unless they (the Corporation) wished to close the market against the butcher and the public in favour of the unfair illegitimate dealer (Hear, hear). It was well known that these forestallers purchased the cattle, and even sold them again, at the railway stations before they reached the market, thereby defrauding the Corporation of the market tolls (Hear, hear). During February, March, April, and May, through this system the fair market prices were abolished, and many master butchers were thereby reduced to bankruptcy (Hear, hear). He himself had thus lost £30 in one month, which his books proved. As the Lord Mayor confessed himself ignorant of the existence of such abuses, they (the master butchers) were bound to expose the abominable

and intolerable grievance (Hear, hear). The public as well as the butchers were bound to seek its removal, as the price of provisions was the great question of the day. The evil was heavily felt by the poor, who had to go without meat diet through its exorbitant price, which, by the abolition of the forestalling system, would be reduced twopence and threepence a pound (Hear, hear).

Mr. COLLINS, who is the promoter of the present crusade against forestalling and jobbing in Smithfield Market, moved the adoption of the following petition, signed by 600 of the trade, and which was headed—

"The Petition of Master Butchers to the Lord Mayor, Aldermen, and Commons of the City of London:—

"Your petitioners beg to call the attention of your Honourable Court to an evil of no ordinary character, and which, if not speedily prevented, cannot fail to raise the price of animal food to an alarming extent. Your petitioners allude to the disgraceful system of forestalling and jobbing which prevails, not only at all the principal railway stations, but in the Great Metropolitan Cattle Market of Smithfield. Your petitioners beg to state that thousands of head of cattle which are sent to London for the purpose of being submitted to fair and honourable competition in the open recognized market are intercepted by a class of men known as forestallers, and frequently pass through several different hands (especially on Sunday and Thursday evenings) before being sold in a legitimate manner to the regular butcher in Smithfield. By the prevalence of this system large quantities of cattle are divided and subdivided amongst numerous jobbers, till the ordinary rule of conducting a public market has become grossly perverted, and the whole reduced to a system of irregularity and imposition. The system not only inflicts a serious injury upon the original owner of such cattle, who is thus prevented from receiving the proper market price, but is alike injurious and unjust both towards the retail butcher and the public at large; the former being deprived of his legitimate profit, and the latter compelled to pay the most exorbitant prices. Your petitioners would respectfully suggest there should be a fixed time for the admission of stock for each day's sale (except *legitimate foreign arrivals*), as well as a fixed time for the market to be cleared out, or closed. Your petitioners beg to state they are fully prepared to prove the allegations contained in this petition," &c., &c., &c.

The petition was adopted *nem. con.*

Mr. ALBERT, in alluding to the petition, said that by the forestalling system the butcher had to pay 10s. for bullocks, 7s. for calves, and 5s. for sheep, beyond their *bona fide* market value.

Messrs. Hickson, Potter, and Rippington also exposed the vile, ruinous working of the forestalling system, and earnestly called upon all master-butchers, and also the graziers and public, to join in the efforts making to crush the system.

A vote of thanks to the Chairman concluded the night's proceedings.

MR. CULLEY'S DESCRIPTION OF A NEW LEICESTER SHEEP IN THE DAYS OF MR BAKEWELL.

SIR,—The just and wise remarks made in your journal, in the description of the sheep shown at Lincoln, has caused me to send you the far-famed and celebrated Mr. Culley's description of the New Leicester sheep in the days of Mr. Bakewell of Dishley. "The head should be hornless, long, small, tapering towards the muzzle, and projecting horizontally

forward; the eyes prominent, but with a quiet expression; the ears thin, rather long, and directed backwards; the neck full and broad at its base, but gradually tapering towards the head, and particularly fine at the junction of the head and neck—the neck seeming to project straight from the chest; so that there is, with the slightest possible deviation, a continued horizontal line from the rump to the poll; the breast broad and full; the shoulders also broad and round, and no uneven formation where the shoulders join either the neck or the back, particularly no rising of the withers, or hollow behind the situation of those bones; the arm fleshy through the whole extent, and even down to the knee; the bones of the leg small, standing wide apart, no looseness of the skin about them, and comparatively bare of wool; the chest and barrel are at once deep and round in the ribs, forming a considerable arch from the spine, so as in some cases, and especially when the animal is in good condition, to make the apparent width of the chest seem greater than the depth; the barrel ribbed well home; no irregularities of line on the back or the belly, but on the sides the carcass very gradually diminishing in width towards the rump; the quarters long and full, and as wide as the fore legs; the muscles extending down to the back; the thighs also wide and full; the legs of a moderate length; the pelt also moderately thin, but soft and elastic, and covered with a good quantity of white wool—not so long as in some breeds, but considerably finer."

"Such is the Leicester sheep, as Bakewell made him. He found him as different an animal as it was possible to conceive—flat-sided, large-boned, coarse-woolled, slow to fatten, and his flesh of little value."—Taken from the *Farmers' Magazine*, Dec., 1841, page 436.

Mr. Hewitt, the owner of the Dodford flock, has been aiming at the above cast of a Bakewell sheep all his life, with a little thicker collar. His father began breeding rams by purchasing some ewes bred by Mr. Bakewell.

86, Vauxhall-street, Vauxhall, Surrey,

S. A.

July 26, 1854.

COTSWOLD SHEEP v. LINCOLNS.

SIR,—It is plain by the great royal show of stock at Lincoln, that the Cotswold sheep stand pre-eminent in the weight of mutton, and width of frame; and that the Lincoln sheep stand unrivalled in the weight of wool. It appears that Mr. Lane's old prized Cotswold sheep girthed 5 feet 11½ inches; and Mr. John Clarke's old sheep, of Long Sutton, in Lincolnshire, which has taken two prizes in the Improved Lincoln class, girthed 5 feet 8 inches, and he clipped in three years no less than 51½ lbs. of wool. Of course such a sheep, taking his wool into consideration, must be of immense value, to produce sheep upon all land where clover and turnips can be grown. The wool cut from Mr. Lane's sheep in three years is not stated. Common sense says that a dip of the Cotswold with the Lincoln would widen the frame of the Lincoln; and a dip of the Lincoln would increase the weight of wool in the Cotswold. Some of the Lincolnshire breeders say that the two above-named breeds will not amalgamate so well as the Leicester with the Lincoln. Let it be judiciously tried, and grub-up by the roots all old deeply-grafted prejudice before they begin. While the Lincolnshire men have made wool their great object, the Cotswold breeders have made the Bakewell barrel form, with gigantic size, their study to obtain, until the Cotswolds, as they proved at Lincoln, are the best great sheep for carcass upon the face of the earth, and the Lincolns are unequalled for wool. The said Mr. Clark, of Long Sutton, says—"I keep my Lincoln long-woolled character, and have the substance and rapidity of growth of the Cotswolds." A good example for others to follow.

86, Vauxhall-street, Vauxhall,
August 9, 1854.

S. A.

GROWTH OF FLAX.

To Mr. Warnes, of Trimmingham, belongs the merit of having introduced the feeding of cattle with linseed raised upon the farm. Flax-growing, however, has made little progress, even in his own neighbourhood, in the long period during which he has been cultivating it, and that for two reasons. One of these is the reluctance of Norfolk farmers to deviate from the regular and celebrated four-course rotation, which takes its name from the county. The other is the want of a market for the flax in the straw. The former objection might in time have been obviated but for the existence of the latter. Many farmers are convinced of the feeding value of the flax crop, who are disgusted with the trouble of becoming manufacturers during a part of the year, in order to prepare the fibre for sale, and who were disappointed at the low price offered them for their straw, if perchance a purchaser for the crop in that form could be found. That very low price arose, in most cases, from some slight neglect of the minutæ of cultivation, on which the quality of the fibre depends.

The admitted value of the linseed for feeding purposes tempted some to persevere for a time in the cultivation with no other object. They either littered their yards with the straw, or used it for thatching. On the whole, however, the advantages of flax-growing, thus conducted, were not found so great as to compensate for deviation from established routine; and men have given it up who would have extended their breadth of this "golden crop" of Belgium if they could have found a market for the straw as well as the seed. The result is, that, so far from the growth of flax having made much progress in Norfolk, it has retrograded from the point which it had attained a few years ago.

Mr. Warnes himself was partly the cause of this failure, by attempting too much, and riding his hobby too hard. A pamphlet of his is now before us, bearing the title of "*Flax versus Cotton, or a Double-edged Sword against Pauperism and Slavery.*" In this *brochure* he deprecates the establishment of that intermediate interest between the grower and the spinner, for which we contend, and which is so generally considered essential to the extension of the flax culture. He designates it as a removal of everything, root and branch, from the land; adding a hope that landlords will not permit their tenants to fall into plans so deteriorating to the soil and their dependents. He proclaims war to the knife with the steam-engine. The steam-

thrashing mill is a "*monstrum horrendum* that tramples upon the privileges of the husbandman"—an iron man that eats not, and therefore does not consume the farmer's produce. It displaces the labour of the poor, and indirectly muzzles the ox which treadeth out the corn. All processes, whether of agriculture or manufacture, are to be conducted without the aid of machinery. There is to be no division of labour. The farmer is not to be satisfied with raising the flax; he must prepare the fibre, and, if possible, carry the manufacture to its last stage, and sell his flax crop spun and woven into linen cloth. In preparing the fibre, he is to scutch it by hand, though anyone who will take the trouble of looking into the Belfast papers may see that hand-scutched flax bears a lower price in the market than that prepared by machinery. Scutching mills are as great an abomination as steam thrashing mills, to Mr. Warnes. Inventions such as those of Schenck, Watts, and Buchanan, for dispensing with the tedious process of retting, are in equal disfavour with him. The only deviation which he will tolerate in this matter is, that the Belgian method of steeping in running water shall supersede those which have hitherto prevailed in Britain. Flax is with him what a pickled herring is to the Dutchman—a sovereign remedy for everything; a panacea for all the evils, social, moral, and political, which afflict the world. Pauperism in England, and slavery in America, are to disappear before it. It is to empty our prisons and depopulate our work-houses: it is to be taken up as a profitable speculation; but is to serve two masters, by having philanthropy engrafted on it. Industrial schools are to be established, with farms of 200 and 300 acres attached to them, which are to be cultivated by boys, who are to raise and prepare flax, which the younger portion of the female inmates are to spin, and to knit into stockings, gloves, and socks, and the elder portion are to weave into towels and sheets. The refuse is to be manufactured by some of the boys into rope-yarn and sacks. Mr. Warnes would have us not rest content with growing on our own soil a portion of that annually increasing flax produce which our steam-driven spindles consume—and for which, by the way, they have created the demand; we are to eradicate flax from Russia and cotton from America. "Cheap linen," he tells us, "would do more towards the abolition of slavery in the United States than armies and navies ever can."

By the employment of our own people in the production of cheap linen, we are to put a final extinguisher on pauperism, and thus to lay the axe at once to the root of the two most inveterate evils under the sun.

These are pleasing visions, but they are nothing more. All this anti-commercial and anti-machinery feeling is but a fighting with windmills—a running of races against railway-trains—a putting back of the hands of the clock, while the shadow on the dial is advancing.

For good or for evil, the use of machinery is extending itself in every direction; it is the life and soul of our manufacturing prosperity. Of the economic advantages of our manufacturing system there can be no question; that it has its moral and social evils no one can deny. It is in vain, however, to think we can meet them by pulling down our tall chimneys, and attempting to return to domestic manufactures. True practical wisdom consists in going with the current, and at the same time steering clear of the rocks, and the shoals, and the whirlpools, on which, without due precaution, it may carry us. We must accept machine-spun flax and cotton as a fact accomplished. We must endeavour to suck the honey of those industrial hives, and escape their stings—to avail ourselves of their economic advantages, and to meet their evils by appropriate remedies. Nowhere are more zealous efforts making to remedy those evils than in our most busy marts of commerce, and amidst the densest masses of our manufacturing population. Those efforts have every prospect of success, from the energies of the men who make them, and the power of combined action which, from habit of co-operation and concentration of position, they possess. The labouring population of our rural districts suffer under social and moral evils quite as great as those which affect the operatives of our factories. It is for the owners and occupiers of land to remedy these evils, by improving the relations between themselves and their dependents. Flax growing is no more a remedy for them than hop gardens or apple orchards. The prosperity of agriculture is to be promoted not by making the farmer a Jack-of-all-trades, but by extending to it that division of labour which has proved so successful in manufactures. The use of machinery in the cultivation of the soil has increased, is increasing, and will increase, as any one might have convinced himself who attended the late exhibition at Lincoln. Some may deprecate it, but they cannot prevent it; and its extension is quite compatible with an improved condition of the agricultural labourer. The least instructed, even among the labourers themselves, are laying aside their prejudices against it as a displacer of the poor man's

labour. Times are changed, also, since the pamphlet of Mr. Warnes was written. One of his objects in promoting the growth of flax was to find employment for the unemployed labourers of the rural districts. Scarcity of hands is now the complaint among the farmers, and the necessity for an extended use of machinery in the work of cultivation admitted, however reluctantly, by those most opposed to it. It is invading even the least advanced of our agricultural districts. We have drawn attention to what is visionary in the advocacy of flax-growing by Mr. Warnes, with no unfriendly feeling, but because there are those who confound it with that which is valuable and practicable in his system. The valuable and practicable part is the box-feeding, and the feeding with linseed grown on the farm; and to render this more generally available by the farmer, all that is requisite is such a division of labour as we advocate, by which he shall be the grower only of the flax, and not the preparer of the fibre, and such a farther division of labour in the work of cultivation as we shall point out on some future occasion, which will relieve him from much of the trouble and risk attending the flax crop, and prevent it from interfering with the regular routine of the system of farming which he adopts, whatever that system may be.

The sulphur employed in the manufacture of sulphuric acid is derived so largely from Sicily, that Naples possesses a virtual monopoly of the trade; and when, a few years ago, the King of the Two Sicilies involved himself in some dispute with this country, he was very near losing this valuable monopoly. The interruption of the trade occasioned no little stir among those manufacturers—and they are many—whose business depends on the abundance and cheapness of sulphuric acid. Our farmers then knew nothing of the virtues of superphosphate of lime; but, had the stoppage of the sulphur supply taken place now, when sulphuric acid is so largely used for the solution of bones and mineral phosphates, the excitement would have extended to the agricultural interest. As it was, the prospect of the loss of the Sicilian sulphur stimulated our miners, chemists, and manufacturers to make every exertion to fill the vacuum from other sources. No less than fifteen patents were taken out in England in one year for recovering sulphur from the sulphuric acid used in the manufacture of soda. The cessation of the dispute postponed the prosecution of the attempt to some future period; but an impulse was given to research, which had the obstruction continued a little longer, might have caused the total loss of the sulphur trade to Naples. Veins of iron pyrites were beginning to be worked solely for their sulphur. The sulphur of our sulphurets of lead and copper, which is

now dissipated in the roasting process of the smelting of those ores, would have been collected, and means would have been devised for manufacturing sulphuric acid from the native sulphates of lime and barytes, which abound in our island.

In like manner, the hostilities in which the ambition of Nicholas of Russia has involved the world, may deprive his people of the English market for their flax. Important as several articles of the raw produce of Russia are to our manufactures, there can be little doubt that in the event of a protracted war, substitutes for them will be obtained from other quarters. The blockade of the Russian ports has already reduced the Custom-House revenue of St. Petersburg to one-fourth of what it was at this time last year, but even that blockade is not rigorous enough to please our shipping interest. They have memorialized the Government on the necessity of its being rendered more stringent, in order that neutrals may not enjoy advantages, from which they, as belonging to one of the belligerent nations, are debarred. The manufacturers of paper have likewise urged, and the Government have promised, that the attention of our consular and colonial authorities shall be directed to the search for substitutes for flax and hemp, among the fibrous products of other parts of the world.

Necessity is the mother of invention; and the ingenuity of those dependent on the manufacture of flax is at present taxed to discover processes which may render it capable of being spun without going through the process of steeping, technically called retting. Sanguine expectations are entertained by some of the practical men engaged in flax-spinning, that scutching without retting may produce an article which will answer for those purposes to which the greater portion of the flax imported from Russia is applied; that is, for the manufacture of the coarser fabrics, and it is of these that there is the greatest increase of consumption. Twine, sail-cloth, packing bags, and coverings for railway waggons, are more in demand, and ever must be, than cambric pocket-handkerchiefs. If all flax must be retted, it is quite clear that it cannot be produced in Britain, with a profit both to the grower and preparer of the fibre, at a price of less than £60 the ton—Russian flax averages about £40. English flax, scutched in the green state—that is, without being retted—can be sold at that price, and it is expected that it will be of superior quality to that of Russia, for the manufacture of the coarser goods. For the finer fabrics, it will probably be impossible to dispense with the steeping process in some form or other; though attempts are now making to supersede it, by boiling the roving or partially spun flax, or by the use of chemical preparations to free it from the resinous

substances which at present are got rid of by retting.

If green scutching shall succeed in producing a good description of flax for the commoner purposes, it will greatly facilitate its growth in this country. The cost of preparing the fibre will be diminished by one-half; and as it requires eight tons of straw to produce one ton of fibre, the distance from the flax-spinning centres of Leeds, Belfast, and Dundee, at which flax can be successfully grown, will be increased eightfold. A scutching mill, too, can be erected for two or three hundred pounds, whereas one of Schenck's reteries would cost ten times that sum. The crop would also be rendered more rapidly marketable; for the steeping, in whatever way it may be performed, is the most tedious part of the process of preparation.

Among the attempts now making to discover methods by which other fibrous materials than flax may be employed for the purposes to which that alone has hitherto been applied, Dickson's patented machine and liquid may be mentioned.

We have now before us the patentee's account of the substances on which he operated in the presence of gentlemen connected with the flax and hemp trade, and the results which were obtained.

"I have made," he says, "the Himalaya hemp so soft, fine, and white, that it will not only take the place of Petersburg flax—now £60 per ton, the best of which can only make 40s. warp yarn—but it can be used in place of Dutch flax at £80 per ton, and I speak from twenty years' practical experience when I say it is capable of being spun into 60s. warp yarn. I first cut it up into two lengths, and so break it and clean it by my patent machines, as to allow my patent liquid to penetrate it. By this process it is so softened and divided, that it will split, when drawn over the fine hackles, as fine as any Dutch and Belgian flax.

"The Rhæa fibre or Assam grass, when so prepared by the machines and liquid, is a finer and consequently more valuable fibre. It is equal in strength and fineness to China grass at £100 per ton. The Vercam, which very much resembles Belgian flax, is also well calculated for prime warp yarns, and worth £100 per ton. The Nielgherry nettle is a most extraordinary plant; it is almost all fine fibre, and the tow is very much like the fine wool of sheep, and will, no doubt, be largely used by wool-spinners. The pine-apple and jute, for fine purposes, cannot be questioned; and nothing can, for strength, come up to the Calcutta hemp. The *Yucca gloriosa* (Adam's needle) produces a white fibre, that will, when made into rope, lift a fourth greater weight than rope of similar size made from Russian hemp. The Madras hemp and Bombay and Sunn hems will at all times command a

market, when properly cleaned out, at £45 to £50 a ton, for twines or common purposes. The plantain requires no comment, its value being known in the market. But then there is one other fibre more worthy of remark than all the others—the fibre obtained from the *Ananassa sativa* (wild pine-apple), would command any price from £150 per ton upwards, for the spinning of yarn for the fine cambric manufactures in Ireland, as the fibre is finer than anything yet discovered.”

Mr. Dickson does not confine his pretensions to the improvement of these foreign fibres: he proposes to prepare British flax in the green state, as it comes from the field, by scutching alone, or some similar process, without retting. He professes to obtain more fibre from a given weight of straw, and of better quality, the tow double the value of retted tow, and the long flax strong, white, more silk-like, and finer than if prepared by any other process, and worth from £100 to £200 per ton.

If these results are attainable on the large scale, they are of the highest importance. A letter is given from Dr. Royle, dated February 28th, and expressed in the following terms:—“I have received the specimens of East Indian fibres which you have been good enough to put through your machines and liquid. The effect is marvellous on many of them; and I feel, from what I have seen, that your management must be admirable to convert such ugly, rough-looking fibres into silky, hair-like material. Messrs. Noble have by accident sent the other flax fibres also, which I have looked at and admire much. There is a great abundance of fibres in India well worthy the attention of merchants.”

The real questions, however, are how will these fibres and flax, thus prepared, stand the ordeal of the factory, and can they be prepared economically on the commercial scale? Patentees are always sanguine. They are possessed with one idea, and without intending to deceive others they frequently deceive themselves. We must be contented, we believe, to employ retted flax for the finer purposes; but we have good hopes, that for the coarser kinds of goods, green-scutched flax may be used instead of Russian, and that the growth of this crop in Britain may, by these means, be greatly extended.

It is not only our textile manufactures of flax and hemp which are likely to suffer inconvenience from a dearth of fibrous materials: the manufacture of paper is nearly in the same predicament. The war has by no means originated this state of things, however it may aggravate it. The reduction of the duty on paper which took place a few years ago has exercised an important influence. The introduction of a cheap literature also, and the diffusion of a taste for reading, which act and re-act on each other, as cause and effect, have so increased the

consumption of paper as to render it very problematical whether the repeal of the remaining taxes on knowledge, as they are called, would much reduce the cost of diffusing it. Unless new supplies of the raw materials of paper can be discovered, it may be expected that an increased demand will so raise their price as to neutralize the reduction which would otherwise take place on the finished and printed article, in consequence of the repeal of the remaining paper duties, and any modification of the stamp duties which would extend the circulation of newspapers.

We adverted, in a recent article, to the representations which have been made by the paper manufacturers to the Government on this dearth of materials; and the promise of the latter, that our colonial and consular authorities shall be instructed to collect information as to the practicability of obtaining new fibrous substances from our own dependencies, or from foreign countries. While that article was in the press, a letter from Mr. Samuel Gregson to the President of the Board of Control, on the resources of this kind which our Indian Empire affords, has made its appearance. It contains many details respecting the statistics of the paper trade; so interesting to our readers, as well as ourselves, that no apology is required for directing attention to them.

It is well known to those most ignorant of common things, that old rags are used for the manufacture of writing paper, and that for this purpose linen rags are superior to those of cotton. It would be interesting to trace back the metamorphoses of the paper on which we write. We might speculate on the native country of the flax from which its parent rags were made; whether it was grown in Russia, or Ireland, or Belgium; or whether it formed a portion of that much smaller flax contingent which is contributed by English agriculture. We might question it as to what it was in the first complete stage of its manufactured existence, whether cambric, or shirting, or canvas. We might follow it through the different stages of its downward career; we might see it clothing the fair and the wealthy and the mighty; we might trace it from the most aristocratic class of old clothes shops to those of the lowest grade—now forming part of the holiday wardrobe of the shabby-genteel—now pawned to purchase a dinner—now hanging in tatters on the back of the beggar, till its tatters will do duty as a garment no longer. Then we might see it in the shape of a bundle of rags entering one of those establishments which abound in the back-slums of all our great towns, which delight in such questionable neighbourhoods, and are themselves of so questionable a character, that their occupants have been dignified with the title

of "Dealers in marine stores," honoured with a license from her Majesty to exercise their calling, and recommended to the particular care and attention of the police. Had we seen that which now constitutes the snow-white sheet before us, entering one of these receptacles, where it is announced by placard that the best price is given for old rags, for bones, and for kitchen-stuff, or where the mysterious black doll, and the large blade bone, announce the same facts in the language of hieroglyphics, and intimate to the initiated that "bones," in more senses of the word than one, are bought and no questions asked, we should have been reluctant to believe that any connexion could hereafter exist between those rags and ourselves. Still less should we have been disposed to acknowledge any possibility of a future acquaintance with them, had we examined the strange and miscellaneous companions with which they were associated; had we smelled the fœtid odours which the collection exhalled, and breathed the atmosphere with which they were surrounded.

But brighter days are in store for those old rags. This is but their temporary resting-place, on their way to a better country, a purer atmosphere, and a higher destiny. They are bound for the banks of the Medway, the Cray, or the Darent, or some stream equally clear, flowing through fields and by woodlands equally lovely. It was on the Darent that the first paper mill that ever existed in England was established. There they will be purified and renovated, and come forth in a new form, to minister once more to the wants of civilized life, and to be applied to the noblest of purposes or the vilest, to the improvement or the corruption of the mind of man.

It would be interesting to follow them through the course of their renovation, which is now rendered so rapid, by means of the application of machinery to paper-making, that it appears more like an operation of magic than a manufacturing process. We might, again, moralize on the subject, and compare the present and the future state of man to rags and paper, as they have been compared to the caterpillar and the butterfly; but our subject is the statistics of the paper trade, and to that we must hasten. It appears from the statements of Mr. Gregson, that by far the greater portion of the rags employed in the manufacture of paper are of home production, *quoad* rags, from whatever country their raw material may have been originally derived. The rags imported are chiefly from Germany and Italy, and they amount to no more than one-twelfth part of the entire consumption. Our transatlantic brethren are such large consumers of paper, that the internal supply of rags in the United States is unequal to the demand, and

they are extensive purchasers of them in this country. Some may regard this as a proof of the absence of poverty in that land of liberty and equality. There are fewer wearers, it may be said, of rags there than in England; but on the other hand, where there are no beggars and no paupers, old clothes will go into the rag-bag at an earlier stage of their existence, and make their entrance sooner into the paper mill. No argument, therefore, can be drawn from this fact respecting the superior physical condition of the population of the United States, whatever it may prove respecting their intellectual superiority over the masses of the old country.

It appears, likewise, that whereas the annual average quantity of paper made during the five years 1830-1834, prior to the reduction of the duty from 3d. to 1½d. the pound, was upwards of seventy millions of pounds; the average annual consumption for the five years 1849-53 was one hundred and fifty-seven millions, or more than double its amount before the reduction of duty. The consumption of the year 1853 was more than one hundred and seventy-seven millions of pounds, showing an increase, in one year, of about twenty-three millions of pounds, or nearly eleven thousand tons. The total quantity of materials employed in the manufacture of paper is estimated at from one hundred and ten to one hundred and twenty thousand tons, or about a ton and a half of material to a ton of paper. The increase of paper made in 1853, over that of the average of five years preceding, would require more than sixteen thousand tons of material. If this were all made from flax in the state of fibre, without the intervening processes of conversion into linen, and then into rags, sixty-four thousand acres of land would be required for its production. The average annual increase of the flax consumed by our flax-spinning mills is the growth of eighty-three thousand acres, as we have stated in a former article. Comparing this with the hiatus in the supply, caused by the Russian war, we find the flax-spinners estimating the total importation from Russia at fifty thousand tons per annum, of which we know that they expect about one-half to find its way hither, by some circuitous channel, but considerably enhanced in price. There will still be a deficiency of the growth of one hundred thousand acres. It may, and probably will, be supplied by other fibrous materials than flax, from India and other countries, though not very rapidly. Whether those materials shall require to be collected or cultivated, each must be a work of time.

Before the cloud appeared in the east, the scarcity of paper-making materials was attracting attention, and our botanists were looking in all

directions, within our own islands, for new fibrous materials. Patents have been taken out for making paper from wood like the wasp. The cultivation of nettles, mallows, broom, furze, and a variety of other things, has been recommended. If the weeds of our waysides, and hedges, and wastes, can be converted into paper, by all means, we should say, let them be collected, and thus the double object gained of keeping down weeds and making them a source of profit; but if fibrous materials must be

cultivated, it will be better to cultivate flax instead of weeds. We know the former will answer the purpose: the utility of the latter has yet to be proved. As to nettles, their stings are a formidable objection, if there were no other. The scutching of flax is no pleasant employment; but who would work at the scutching of nettles? For flax there must be an extensive demand, were the war brought to a close to-morrow; and with this we take leave of the subject for the present.

THE SHOW OF HORSES AT LINCOLN.

We recur to the show of horses with the utmost attention and zealous interest: the subject is replete with importance to all classes—to the breeders, as affording them encouragement to exhibit specimens of excellence for which this country has been so long celebrated, and from which they may expect to raise a progeny still more perfect; to the purchasers, in whose employment these valuable creatures are conducive to emolument and pleasure; to the nation, as an impetus to the production of those noble animals which are destined to bear our brave soldiers in the battle-field. The increase in the demand for horses which has taken place during the last few years, has very necessarily enhanced their value, and ensured a market for all kinds possessing those qualifications which render them in reality useful. This will prove a powerful stimulus to breeders, by inducing them to rear those which are in request; and a great effort in a meeting of this nature should be, to present models. On this point the Royal Agricultural Society of England have it in their power to confer inestimable advantages, by offering prizes for competition calculated to attract horses of the most valuable description. It must be held in remembrance that the country exhibitions of this society have only been recently introduced, comparatively with the shows in London, prior to the festive season of Christmas, of the Smithfield Club, where fat cattle, sheep, pigs, roots, grain, and implements form the principal features—where horses form no part of the category. At the time when these summer meetings were established in the rural districts, it was generally anticipated that breeding horses for active service would be an unprofitable speculation, and indeed a useless venture, in consequence of the numerous railways which had been formed or were in course of formation: it was supposed these would so thoroughly supersede the use of horses for travelling, that a very limited demand would exist. Thus the attention of the Society was diverted from the subject, and the prizes offered were mostly for horses adapted to agricultural purposes. The few which

were given for the higher classes were insignificant both with respect to number and amount; consequently failing to attract horses of pretension, with other causes, which we will notice as we proceed, the exhibitions have fallen into bad odour with many proprietors of superior animals. Affairs have now assumed a very different aspect: the use of horses has been augmented through the increase of railway travelling; there is a great demand for exportation; and the prosperous condition of the country enables many persons to keep horses for pleasure who were unable to do so previously. War has, unfortunately, become imperative, and horses are in requisition for the troops. These circumstances cannot fail to induce the Royal Agricultural Society to take up the subject with the zeal it demands. The recent meeting of the Driffield Agricultural Society affords assurance of the success which would not fail to attend well-concerted measures. Although the prizes individually were small, they were numerous; in fact they extended to almost every description of horse, from the hunter, hack, carriage-horse, to the ladies', we may say childrens' pony, consisting of sixteen classes and one hundred and fifty-two competitors, exclusive of five classes adapted to agricultural purposes. Yorkshire, it may be urged, is the land of the horse; and a meeting held in that county would inevitably be patronized by breeders. Lincolnshire is so nearly connected by proximity and similar occupations, that no doubt can exist that it would have commanded an equal share of popularity if similar attractions had been offered.

At the Lincoln exhibition the premiums offered by the Royal Agricultural Society for cattle amounted to twenty-three: for horses there were only six, and those were confined to animals suited to agricultural purposes, with the exception of one prize to roadster-stallions, and the special premiums given by the Mayor of the City. There are as many varieties of horses as there are of cattle, and each variety is worthy of attention. The objects to be attained by the exhibition of stock at agricultural meetings are

principally competition, which engenders improvement, the consequent fame attached to those breeds which are considered entitled to prizes, and the precepts afforded to all classes of agriculturists, especially to young beginners. The study of domestic animals, with their various points of excellence highly developed, is a worthy and interesting thesis; and in this category the horse is unrivalled. The kind of stock which a sire begets is a subject of vast importance to breeders, and should form a portion of the estimate whereby his merits are determined: the exhibition of his progeny for this purpose becomes a subject for consideration.

Under any circumstances it is highly improbable that thorough-bred stallions of great fame for racing purposes would ever be attracted to the show-yards of agricultural societies; neither is it at all desirable they should. The rate at which their services are obtained is too high for breeders of less costly stock, and many of them are not calculated to become the sires of those useful animals which it is the object of the farmer to breed. It is no libel on Bay Middleton to say that if he were shown at an agricultural meeting he would not have a prize awarded to him—his celebrity as a sire of racing stock being so thoroughly established; but he possesses defects which are transmitted to his progeny, and which would be fatal to the value of a hunter or a hack. The kind of horses which are adapted to produce first-rate hunters, hacks, and also carriage-horses of the greatest value, from a certain description of mares, are thorough-bred ones, with power, symmetry, action, temper, and constitution—neither the most speedy on the turf, nor the worthless weeds. Owners of these horses very commonly entertain a prejudice against offering them for competition. Two ostensible reasons may be adduced for this: the one already mentioned, namely, the inadequacy of the amount, and want of confidence in the opinion of the judges. It is an unpleasant office to impugn the decisions of gentlemen who undertake such onerous duties, especially in cases wherein matters of opinion, not positive facts, are involved. But it is not transgressing the bounds of the most scrupulous courtesy to observe, that it is scarcely possible to select competent judges of the higher breeds of horses, who are equally capable of forming opinions on the merits of cart-horses. A man who is to judge of the capabilities of horses calculated to become the sires of hunters, must have acquired great experience in the breeding department, and he must likewise be in the constant habit of riding to hounds, or he can never become acquainted with those points and qualifications which are essential in a hunter intended to carry a hard rider.

Knowledge of pedigree, and of hereditary or family propensities, is another very important item in the

selection of sires. Those which are descended from horses whose stock has been distinguished in the hunting-field, are especially worthy of approbation, and greatly to be preferred to those which have merely gained notoriety for speed on the race-course. The action which they transmit to their progeny may be regarded as one of the first causes of superiority. In connection with that great accomplishment the judges have a far better opportunity of deciding than the public, inasmuch as the former see each horse in motion during their inspection, while the latter only see them in their stalls or boxes. When deciding on the merits of a number of horses, the superior qualifications and defects of each must be critically compared, and estimated in proportion to their individual importance; and there are some fatal imperfections, which the most experienced eye cannot detect, unless the horse is led out for inspection. It is highly amusing to listen to the ludicrous opinions expressed by spectators, many of whom fancy themselves judges. There are many qualities and defects which the horse possesses, that are hidden to the eye; they can only be discovered by actual trials, which judges of stock have no means of putting to the test. It is the reluctance which owners of really good and valuable horses entertain against these impediments which prevents them from exhibiting their horses: the difficulties are by no means insurmountable, and, when once removed, there is no doubt the show of horses at future meetings will assume that high character of importance to which it is so justly entitled. The judges should be considered as holding the position of confidential friends, who kindly counsel the inexperienced which horses and mares are the most valuable in their respective kinds for the purposes of breeding; and, concerning the young stock, that which is the most promising to purchase.

We maintain that the breeder who is desirous to rear horses of the highest value, either as hunters or hacks, or indeed for any other purpose under the saddle, must have recourse to thorough-bred sires. And here it may be necessary to introduce a few brief remarks explanatory of the term. It implies a class of our domestic animals, whether it be of horses, cattle, sheep, or pigs, which is derived through a long race of ancestors, each of which has been selected with the utmost care for those superior qualifications which render them most useful and valuable. The thorough-bred horse undergoes the most severe probation in training, and in racing, where his powers of endurance, constitutional stamina, and soundness are unequivocally tested. It is the breeder's fault if he selects an animal for the purpose of procreation, which has proved himself defective in the most important qualities. The thorough-bred horse can sustain a greater share of labour and hardships

than any other of the species. We sometimes see, but with regret, the worn-out racer doing duty in a London cab; or sustaining the abuse, and performing the drudgery of a village butcher's hack; sometimes carrying his inconsiderate master on the road, or his still more inconsiderate boy, who too frequently indulges in a gallop against any one who will accept his challenge; at other times fastened to the gate, and shivering in the cold, while his master is closing a bargain at the farmer's hearth: after his day's work is over, the cold, bleak common is his resting-place. In this pitiable condition he bears the hardships of his fate with courage, and withstands the variable effects of the elements to an extent far beyond what the mongrel can endure. The proposition made by Mr. Spooner to breed from three-parts-bred sires capable of carrying sixteen stone with the fleetest hounds, as a means of regenerating our horses, was noticed in these columns at the time: it may further be observed, there is not such an animal in existence. No horse, unless he be much more highly bred than that which Mr. Spooner describes, can live with hounds when running. There is another impediment in all cases where horses are used for breeding which are not thorough-bred—it is impossible to discover with accuracy worthy of dependence how such horses are descended; and to grovel on in the dark, in that respect, is a chance to which an experienced breeder of valuable stock would be reluctant to expose himself. The risk in this respect is often conspicuous with mares; and it is folly to render the probability of incestuous breeding doubly hazardous. It is universally understood by all practical and observant breeders that the male must be of pure descent if an approach to perfection is anticipated. Would His Grace the Duke of Richmond seek to improve his beautiful flock of South-down sheep by the introduction of rams from the Welsh mountains? or would the late Earl Ducie have brought his herd of short-horns to that perfection at which they had arrived when they were sold, if the common bulls of the county of Gloucester had been substituted for the highly-bred short-horn? The mountain sheep and the common bulls more nearly represent the primitive animals of uncultivated nature than do the southdowns and the short-horns; and the mongrel-bred horse is in a similar position. It may be said that for many purposes more bone and power is required than are generally found in thorough-bred horses. This can only be admitted to a limited extent. If we were to select the most powerful of that class, very few, if any, of inferior breed could be found to equal them for any kind of labour in which the combination of strength and activity is required. It is obvious that thorough-bred horses endowed with those powers cannot be brought into use for ordinary oc-

cupations, in consequence of their value for other purposes; but they are the models to be taken as standards, and the nearer other classes of horses represent them, the nearer will they arrive at perfection, and the more serviceable and valuable will they be. Thorough-bred mares cannot be brought into general use to supply the country with their stock, because we do not possess a sufficient number of those which are endowed with the necessary qualifications; and they are mostly engaged in the costly service of breeding for the turf. To employ light, weedy, powerless animals is folly in the extreme. The recommendation of Mr. Spooner that the Royal Agricultural Society should take measures with Government for the encouragement of breeding horses for cavalry purposes, is a most laudable intention; but at the present regulation prices, farmers will not be inclined to devote attention to the subject. Premiums may be offered for breeding horses of a certain description; and if those premiums are sufficiently valuable, they will no doubt induce farmers to breed horses with a view of gaining them; but if those horses are calculated for the cavalry, they will be still more valuable for other purposes, and will therefore never find their way to the regiments. If Government will make the regulation prices remunerative, the ranks will soon be filled.

The term roadster is one of such expansive comprehension that it might be subdivided into four or five classes with good effect. It may signify a horse 16 or 17 hands high, fit to draw a carriage, brougham, or any vehicle; and for pleasure or business it may signify the powerful, active, beautiful cob, not exceeding 14 h. 2 in., for which a portly gentleman of heavy weight would sign a blank check upon his banker, to be filled up at the discretion of the fortunate breeder; it may signify the speedy hack, nearly or quite thorough-bred, adapted to a light weight; it may signify the lady's graceful palfrey, or even the child's pet pony—all of which are so dissimilar in their characters, that the horse which is calculated to be the sire of one kind cannot be expected to fulfil the same duty in the production of the other, however extensive the diversity of mares. The horses exhibited on this occasion were principally calculated to breed carriage-horses, and for that purpose there were some fair specimens.

It is impossible too often to reiterate the praises which are due to Mr. Tweed, the worthy mayor of Lincoln, and his friends, for having rescued the meeting which took place in their city from the imputation it would otherwise have fallen under, of not offering any premiums for hunters—a class of horses for which the immediate neighbourhood is celebrated. Surrounded as the city is by the most fashionable and influential hunts in England, it

would have been a reflection, truly, had the sporting stranger visited the place, and returned home without some memento that he had been in the land where fox-hunting flourishes, where the farmers participate extensively in the amusement, and where many of our first-class horses are bred. Mr. Tweed has unquestionably taken a step in the right direction, and shown to the Royal Agricultural Society that premiums of sufficient value will attract horses calculated to produce hunters, and also valuable young stock adapted for the chase.

The vicinity of Lincoln could have supplied horses of higher reputation than those which were entered, of which there were nine, and Louthborough was the successful candidate. It is an ungracious task, under any circumstances, to differ from the opinions which gentlemen form who undertake the onerous duties of deciding upon the merits of animals; and where it is matter of opinion, we should in most cases avoid any dissident remarks. On this occasion they are matters of fact, and so materially connected with the important subject of breeding horses, that we cannot shrink from the public duty. Upon examining the pedigree of Louthborough, it will be found that he combines none of that blood so highly prized and distinguished for hunting purposes—such as the Sir Oliver, Fyledener, Orville, Master Henry, Muley, Belzoni, and some others. He is by Mameluke—a very indifferent stock-getter; dam by Smolensko—a sort never famed for endurance, stoutness of constitution, or substance; but the reverse. Mameluke was by

Partisan, notorious for the badness of his fore legs, and which his stock generally inherited. With lively reminiscences of the Smolensko and Partisan defects, he must be a sanguine man who can expect to breed hunters impressed with that stamp of character which will command high prices, from such ancestors. With hereditary bad fore-legs, very narrow hips, and exceedingly light thighs, such an animal is certain to transmit some, if not all, his imperfections to his progeny. It is breeding from such stallions as these which occasions loss to the breeder, fills our fairs with rubbish, and people's heads with the idea that our horses have deteriorated. When such animals are selected for the purpose of procreation, it creates no surprise that suggestions should be offered of introducing some other class of horse supposed to be more free from those defects—possessing substance with well-formed legs; but these desiderata will seldom be found in mongrels, and, where found, will not be transmitted to their progeny. Why thorough-bred horses free from the most important defects should be passed over, it is difficult to determine.

The prize for three-years-old hunting geldings or fillies could not occasion vast trouble to the judges. It was awarded to a brown gelding by Robinson, and, as we were informed, was out of a half-sister to Lottery, the steeple-chase horse, whom he very greatly represented both in shape and colour.

CECIL.

TIPTREE HALL FARM.

One of our Essayists has told us with much humour how the edge was taken off the critic's appetite. He had fallen foul of a translation of one of the ancient poets, which he found on the counter of a considerable tradesman. He was "really grieved to see so much money wasted in such a way." He was "sorry a man of so much repute should give his countenance to such a series of egregious blunders." He was but the yet more acute bookseller at once interrupted him: "They were just going to dinner—plain, humble fare enough; but Mrs. Tonson would be too happy to see the gentleman, if he would only step in." And he did step in. The entertainment was far beyond the modest promise given of it; and, thus gradually worked on, the censor ultimately declared, with his mouth full, "that the poem was commendable, and the pudding was excellent."

Surely our friend Mr. Mechi has read this story with advantage. Can any one be cruel enough to play the critic after partaking of "the plain,

homely fare" he sits down to at Tiptree? Can any caustic observer dare to talk of "capital wasted" when he sees such signs of prosperity before him? Would any one grieve to give his countenance to any such "series of egregious blunders" when he experiences what pleasant meetings they result in? Common gratitude, self enjoyment, at once forbid it. We have walked from the counter to the parlour, and, but arrived here, we declare, with all the authority of a mouthful, that there "the farming is commendable, and the pudding is excellent."

It is, indeed, a hard task to have to criticise Mr. Mechi. The genuine hospitality of the man, his no less characteristic good humour, and the exquisite tact and taste with which he manages his company, all demand our best consideration. The owner of Tiptree, however, is essentially a public man. There is not an experiment he makes, not a shilling he lays out here, but he courts, or rather demands, the expression of public opinion upon it. He openly announces himself as an example for

others. He is a new edition of the ancient masters, demonstrating with copious notes where they were wrong, and where he is right. Like Abernethy, everybody must read his book: he spreads it open before them for that sole purpose. If they do so, and only follow his advice, they will all become like himself, hale, hearty, prosperous men: if they do not, they can but continue the valetudinarians he has so long had to deal with.

It is curious, though, to observe how he essays to bring these recipes into practice. He well nigh shuns the testimony of those who, after all, it is must use them. Year by year, and we see yet less still of the practical man. He is gone, and with him the balance-sheet. No such indecorous persons or proceedings as these now interrupt the triumphs at Tiptree. It is science, and professors, and fraternity, and foreigners that now deliberately pronounce Tiptree Hall Farm to be the best farm in the world. It is gentlemen with their mouths full, who, as one speaker dared to say on Wednesday, declare, on the strength of "not knowing wheat from barley," that liquid manure is astonishing in its effects, and that draining, in all sorts of ways, is a most remunerative recreation.

The world, however, knows all this already. It would be rather odd if it did not. Independently of what Mr. Mechi may have to say for himself, he is very well supported. The plan of showing the farm on a show day may not even yet, though, be known to all our readers, and so we make no apology for even enlarging a little farther upon it. Mr. Mechi himself appropriately enough leads the way; as he himself remarks, "they would never get on if he didn't." Occasionally he halts here and there, to explain what wonders have been done, and how he did them. He has of course a very willing and sympathetic audience, though he treats them very like Nicholas Nickleby's brother strollers did the same gentle public on something of a similar occasion. A London manager was discovered in the house, and everybody straightway did everything to the London manager. The lover, instead of warbling his pastoral to his lady fair, wafted it direct to the London manager. The comic countryman, in place of telling his best story to his admiring comrades, gave it word for word to the London manager; while the heroine of the play died outright with her eye still fixed on the London manager! So it is with Mr. Mechi. He has his London manager in the recognized authority of a contemporary. To this gentleman it is Mr. Mechi, in all arcadian innocence, warbles forth his *Io triumphè*. For this visitor he more especially rattles out his best joke—in his favourite character of the comic countryman; and with an eye still steadily fixed on him, does he

bring down the curtain on the hero, or the Martyr of Tiptree Heath. The gentle public catch what they can of the interesting plot; while continued cries for Mr. Somebody proclaim how much of the success depends upon the London manager.

In a word, there never was anything more systematically puffed. On this occasion there was not only one gentleman, note-book in hand, to write it up, but another as well prepared to speak it up. Mr. Mechi's object may be a good one—Mr. Mechi may have spent large sums in at least attempting to advance the practice of agriculture—and Mr. Mechi is a hospitable energetic man. Still, to prove all this good intent, it must be tried in something of a different fashion. Let Mr. Mechi have courage enough to hear his failings told him by those who are best qualified to do so, and let him be content to take his meed of praise from the same authority, instead of sinking his proceedings into an advertisement as palpable as it is partial. He is reviewed now by the Yankee Colonel of Militia, who, whether his men obeyed him or not—went right or went wrong—never had but one comment to offer—that it was "*done hansum!*"

The English farmer is now all but ignored at Tiptree. His incessant calls for proof—the guarantee that he required for every new discovery he was told to adopt, rendered his interference anything but desirable. His place has been supplied from a more distant quarter; and Scotchmen and Scotch farming had, after the worthy host's own sayings and doings, the rest of the day nearly all to themselves. Mr. Caird, already somewhat notorious for what he has done in this way, was more energetic than ever on the wonders of the north; and Mr. Caird, and Mr. Kennedy, and Mr. Telfer, and Myre Mill and Ayrshire, swim pleasantly enough on the top of that stream which flows over Tiptree Farm. One of the feats duly proclaimed by Mr. Caird was the growth per annum of twenty-five tons of dried hay on a Scotch acre of land. A local report says this was received with cries of "Oh! oh! and laughter;" while one of our own contemporaries, the *Gardeners' Chronicle*, adds—"It was not believed in consequence of being too abruptly announced." There are many things one has heard of, at Tiptree, which have been, perhaps, a little "too abruptly announced."

The farm itself never looked better than it did on Wednesday, the wheat and oat-crops being particularly good, and the management of the land and stock more uniform and judicious than has yet appeared. We are quite willing to admit that Mr. Mechi has done much for Tiptree; what he may have accomplished, however, has little real bearing, so far, upon practical

agriculture. In place of slighting and taunting the English agriculturist on all occasions, our Professor has much still to learn from him. It is this "manner" we have to quarrel with. It is this brief authority his over-eager friends would make of him that one has to guard against—the "*done hansum*" verdict that would have ruined every

farmer in England had he only relied on it. We thank Mr. Mechi for his hospitality; we appreciate his energy; but we deny his right to a position he is so little qualified to claim. None have or continue to speak with more self-confidence, while none have greater errors to confess, or more need to learn.

ON THE ADULTERATION OF MANURES.

It is not many weeks since we urged the importance of applying the sewage of towns as a manure in the liquid form, by means of the steam engine and underground irrigation. We urged it on two grounds. The first was, the hopelessness of its economical conversion to the solid form, and the absurdity of making this conversion, if it is again to be rendered liquid for use with the water drill. The second was, that, if it were applied in its original state, the farmer would escape the risk of falling into bad hands among the manure dealers. On the latter point, we quoted the statements of Professor Johnston, as to the adulteration of manures. On both, we have now the sanction of another eminent agricultural chemist—Professor Way. To begin with the difficulties attending the conversion of sewage to the solid form. On this head we remarked, that deodorising was one thing, and conversion into manure another; what says Professor Way to this? In a recent lecture before the Royal Agricultural Society, on peat charcoal, he stated that, besides the noxious gases engendered during the putrefaction of animal substances, each substance possesses a peculiar odour, strongly perceptible to the senses, in many cases almost inexhaustible in quantity, and yet inappreciable by weight. He enumerated the list of deodorisers—such as the chlorides of lime and zinc, sulphate of iron for decomposition of sulphuretted hydrogen, and sulphate of lime, by which ammoniacal atmospheres are converted into sulphate of ammonia and carbonate of lime. Having shown the action of these substances, he proceeded to consider that of charcoal as a deodoriser, pointing out the errors which have arisen from want of knowledge of its effects on ammonia. He shewed that fresh burned charcoal will absorb ammonia in its pores; but, so far from having it in its power to extract it from a liquid, it permits gaseous matters which it has absorbed to be expelled by water. He considered peat charcoal not available, of itself, as a manure. It had been long before the public as such, and had not advanced in market value, as it would have done had its application proved successful as

a vehicle for sewage. It will take up a large proportion of water—50 to 60 per cent.—and this gives a fallacious appearance of a dry state, to manures with which it has been mixed as a water-carrier. Peat charcoal, then, is neither valuable as a manure of itself, nor has it the power of separating manure from sewage; it only renders sewage portable. Of Mr. Stotherd's process for reducing sewage matter, by a double action of purification, into clear water and an inodorous precipitate, Professor Way observed that, though admirably adapted for sanitary purposes, it has little agricultural importance, as all the most valuable portions remain in solution, and are carried off in the clear water, while the precipitate is comparatively an inert mass. Deodorising, therefore, as we remarked on a former occasion to which we have alluded, is one thing, and conversion into manure another. On the matter of adulteration of guano, Professor Johnston flogged the fraudulent manure-dealers pretty severely; but Professor Way, in a second lecture, literally flayed them. This adulteration, he said, had this year reached a height which it had never attained before. He could speak confidently on this point, from the number of analyses he had been called upon to make. The process of adulteration had been accelerated by various causes. In the first place, there was the limited supply from Peru, which obliged the importers to refuse orders, and caused guano to be selling, in many parts of the country, for £12 and £14 the ton. Secondly, there was a falling off in the supply of materials for making superphosphate of lime, the manure next in importance to guano, and the first to which the farmer resorts as a substitute; bones, likewise, have become scarce in the market; guanos of the phosphate kind, which have always been valuable to the maker of superphosphates, have almost disappeared; and coprolites, or fossil phosphatic nodules, which really form our natural source of phosphoric acid, have so fallen off, that their price has almost doubled. "Here then," said Professor Way, "was a glorious opportunity of making money, which the dealers in adulterated manure

were not likely to let slip—farmers rushing into the market, only too glad to get supplies of manure, and too many of them not over careful, if the truth must be told, whether it were good or bad; and, on the other hand, the nefarious dealer, not even driven to the necessity of adopting a low price to obtain a sale, but revelling in a ready market and enormous profits. In this way, many a ton of good guano becomes three or four of a manufactured article.” Professor Way then entered into a description of the raw materials used by dealers in adulterated guano. Gypsum is the favourite, particularly that produced artificially in several manufacturing processes, because it is finely divided, does not require crushing, mixes readily with the guano, and is not so liable to detection as fragments of the rock, which may have been imperfectly ground. It has other advantages—it burns white, and, even when perfectly dry, gives off water, and so loses weight at a red heat. As good guano burns white when heated sufficiently long, and loses weight also, the farmer who tried his gypsumized guano by this test, would most likely be deceived into the belief that he bought the genuine stuff. Common salt and sulphate of soda are other adulterating ingredients. The former burns white, but does not lose weight; the latter, unfortunately, possesses some advantages to recommend it. Coprolites also, finely powdered, form another source of adulteration. They are particularly adapted to the *conscientious* adulterator; because, being phosphates, he may flatter himself he is not doing the farmer any great harm by giving them for guano. Putting out of the question, however, the fact that they are comparatively inert till heated with sulphuric acid, they are only half the price of guano, and adulteration is adulteration, as Professor Way observes, all the world over. The increasing prices of coprolites are acting as a bar to their use, and, as they burn red, have the additional advantage of being liable to detection. The thoroughgoing manufacturer, however, scouts all these refinements, and goes in a straightforward way to the sand and the loam pit. Sand does not answer the purpose unless very fine. A loam, or clay, so mixed with sand that it will dry and work well, is what is wanted. There was, a few years ago, a regular factory near Bow Common, with drying kilns, furnaces, and grinding mills, in full work for the special use of the manufacturers of guano. There loam or clay might be had of every shade of colour,

to suit the wants of the adulterator, and the taste of the purchaser who scouted the assistance of the chemist, and relied on empirical characters for determining the quality of his guano. If this manufactory was not still at work, others are; for Professor Way finds abundance of loam in the guano brought to him for analysis, in the ordinary way of business, and without any solicitation on his part. In support of these statements, we are furnished with analyses of three groups of guano, consisting of six samples each. The first group consisted of genuine Peruvian guano, as a standard of comparison; the second, of guanos which had been adulterated with gypsum alone; and the third, of those to which sand or loam had been added as well as gypsum. The results will be best exhibited in the following table, in which we have given the average of each group:—

	Group 1. Genuine Peruvian.	Group 2. Adulterated with Gypsum.	Group 3. Adulterated with Gypsum & Sand.
Moisture.....	14.89	10.55	9.83
Sand	1.59	2 04	28 51
Gypsum	—	36.30	20.61
Organic matter and salts of ammonia }	51.42	23.89	14.34
Phosphates of lime and magnesia ... }	30.20	20.92	.73
Nitrogen..... equal to	13.90	6.86	3.04
Ammonia	16.76	8.82	3.69

One of the samples in group 3 was not worth more than £2 per ton at the highest estimate, “though, no doubt, if the truth could be got at, it had been bought as a great bargain at £11.” Such are the penalties which farmers pay for buying cheap guano—for relying on their own judgment in such matters, instead of on chemical analysis, and for being deficient in that amount of chemical knowledge which would enable them to compound artificial manures for themselves. Professor Way has withheld names, but says that each case can be authenticated if necessary. Farmers should have no such delicacy. Let them have whatever guano they purchase analyzed, and let them publish the analysis and the name of the vendor. Nothing checks imposture so much as the dread of exposure.

FARM BUILDINGS.

"Property has its duties as well as its rights." This is a principle so firmly impressed upon every reflective mind, that a person must be possessed of no small degree of self-confidence, or else be destitute of the higher and nobler feelings of our nature, who will venture to deny its truth. But irrespective of the claim which thus exists, we may presume that the agriculturist who enters into a treaty with a landowner for the occupation of his estate, duly agrees that these duties shall be fully performed, so far as he is personally interested. For instance, the land would be of little use to him, destitute of that accommodation for his residence, the proper care and management of his stock, and for the preparation of his crops for market, which constitutes the homestead of the farm; and in proportion as this is suitable and convenient, will the value of the land be increased, and consequently worth a higher rental. Thus "the performance of a duty brings its own reward;" it is therefore an impartial argument which enforces this duty, for *self-interest* prompts to its performance.

It is very evident to every one acquainted with the tillage of the soil, that the farm buildings requisite must depend upon the character and quality of the soil, the system of agriculture adopted, and the stock kept on the land. No plan therefore can be of *general* application; but there are certain principles which *invariably* hold good; and it is only by modifying and applying them, that a homestead can be erected so as to be convenient and useful in the highest degree. The extent of the occupation must necessarily influence the buildings required; and here, as in most points of agricultural economy, the cost per acre is in higher proportion as the farm becomes of smaller extent. The course of farming pursued also influences the accommodation required. The same farming which under one system maintained a certain number of sheep and cattle, and required the labour of so many horses, might, by adopting a quicker course of cropping, combined with the growth of green crops, and their consumption in stalls, &c., support three times the quantity of stock, and increase the demand for horse-labour 50 per cent. It is therefore of the greatest importance for the interest of the landlord, that he should be guided by a discreet and competent adviser, in the erection of buildings for a farm. The course adopted by one tenant might be unsuited to the character and quality of the land, and consequently would not be adopted by his successors; and thus accommodation might be provided which is not only unnecessary, but an incumbrance. In consequence of not being used, they soon get out of repair; and as the tenant is not willing to be at any expense for that which is of no use to him, the dilapidations increase. Thus unnecessary buildings are annoying to the landlord, because they do not bring him any return for his outlay in their erection; whilst from the tenant allowing them to

go out of repair, they eventually cost him a considerable sum of money, in consequence of their dilapidated condition. Hence great judgment is necessary to draw the line between that which is necessary and that which is not required, so that the tenant shall have every necessary accommodation, but no superfluous buildings. The agent therefore holds a responsible position; for whilst on the one hand he has duly to consider the requirements of the tenant according to the system of farming he is going to pursue, he must on the other hand protect the interest of the landlord by approving a plan which will be of *permanent utility* to the property.

The inquiry may arise as to who is the right party to make the outlay. Undoubtedly the landlord should do it; and having done so, let the tenant pay a per centage upon the outlay. There are many objections to the tenant doing these improvements, *even if he is reimbursed*—chiefly because the tenant's capital employed upon his farm would repay him full three times as much interest, as a landlord would receive for his outlay. The tenant's time and judgment being given up to the management of his business, enables him to realize (say) 15 per cent. on his capital employed; whilst with the landlord, the outlay is an ordinary investment, for which he would probably receive 5 per cent. If a tenant builds he cannot be expected to make such substantial work as the freeholder would for his own property. If, however, the tenant agrees to pay his landlord 5 per cent. on the outlay for a proposed set of farm buildings, it is but just towards himself that a plan and contract should be prepared for their mutual approval. The cases will be very few in which a landlord will not be crippling his tenant's means, by allowing his capital which should be expended on the land to be sunk in the erection of farm buildings. Here again, we have the satisfaction of observing, that the interests of landlord and tenant "go hand in hand."

It is a very common practice for the tenant to be required to draw the materials, because he has *horses and carts* at his disposal. Now, this appears very inconsistent. The horses upon his farm are just sufficient to carry out the regular tillage of the land; and consequently, if this additional work has to be done, the ordinary farm labour is neglected. It would be equally consistent to require him, because he has a certain number of men in his employ, to raise the stone required, or to do the excavations, &c.; for these men have the duties of the farm to attend to, and the horse labour is required for the same purpose. The cost for carriage of materials should be added to the other expenses of the buildings, and let the tenant pay interest on the amount. The tenant should be required to keep and leave the premises in proper repair, and consequently it will be to his interest to give *prompt* attention to all dilapidations.

It is the opinion of many persons that the farm-house

is of secondary importance, compared with the other buildings, and that an outlay of money for increasing the comfort of the farmer's dwelling is little else than an extravagant investment of money. But in this we differ; for although we fully advocate the importance of good and suitable accommodation for the stock of the farm, yet at the same time we do not overlook the advantages which result from farms having residences upon them suited for men of capital. The example of one of our most enlightened and liberal landowners in the east of England has proved most clearly the importance of having respectable residences attached to farms. When his property came into his hands, the tenantry were poor, and becoming poorer every year, and their dwell-

ings were in an equally pitiable condition. The course he adopted was to erect residences suitable for men of capital, and hence he soon got men of respectability and property for his tenants. A professional man, or a tradesman, insists upon having a house suited to his circumstances; and we conceive it equally due to the agriculturist that his dwelling should possess those accommodations and comforts which are admitted to be necessary for others who have less capital at their disposal. No peculiarity of arrangement is necessary, differing from other houses of equal respectability. The situation should be healthy and pleasant; and if with a commanding view of the farm, it will enable a more constant oversight to be maintained.

EPIDEMICS, TOWN DRAINAGE, AND MANURING THE LAND.

No. V.

SIR,—There is a question that has long engaged the attention of the scientific world, and which should have formed part of No. 3, but it was inadvertently overlooked; and that is, what is termed oxone. This substance, supposed to be generated in the atmosphere, is considered by Delarue and Berzelius to be an "allotropic modification" of oxygen, occasioned either by electricity or by the "catalytic action" of certain substances: and Scöubein considers it as a higher stage of the oxidation of hydrogen; and to detect the extent to which it pervades the atmosphere, an association has been formed in the medical world (one of the observers residing within a few miles of this place), the amount being indicated by the shades of blue which is imparted to a piece of test-paper shut up in a box. Some months since, when in this gentleman's dispensary, I suggested to him whether this "oxidation of hydrogen" was not nitric acid; when he moistened a bit of the paper, exposed it to the fumes of nitric acid, and immediately produced a deep blue tint!

Removal of error being the first step towards eliciting truth, I am induced to refer to another subject of much greater importance to the agriculturist, on whom must ultimately devolve the solution, or at least the investigation, of all subjects in connection with natural philosophy. That evaporation constitutes the life-springs of vegetation will readily be admitted; and those who take the trouble to read my papers, can be no strangers to the fact that evaporation has hitherto been identified with "heat," on which principle is based the hygrometer; and therefore temperature and evaporation should nearly keep pace with each other. To test this and other no less important questions, in 1845 I mounted a pair of ordinary grocer's scales, and put into each of them about a quart of water: one I connected with the earth electrically, the other insulated from it; and the beam of these scales being suspended to the end of a second beam, counterpoised by weights, I had no difficulty in determining the relative evaporating in-

fluence of the atmosphere and the earth, and the influence of what is termed heat. The difference in the two vessels, and the total from both, I register every morning and evening at 9 o'clock, and the information for 1853 will be found in the following table; the two first columns showing the difference or excess of evaporation in the respective vessels, the third that from both. The reading of the thermometer I have reduced 32 degrees, that being our barbarous freezing-point, instead of 0, as the addition of 32 degrees to the temperature of February, or to that of June, could not fail in creating a serious error. My rain-gauge is a square box 8 inches deep, with a sloping bottom of 2 inches and 10 inches diameter, mounted on a pole above the shed in which I keep my other apparatus, and into which the rain is conducted by a small tube; it was made here, of zinc, and cost me 2s. 6d. :—

1853.	Insulated grains.	Non-insulated grains.	Total evaporation. Grains.	Thermometer reduced.	Rain. Ounces on 100 square inches.	Number of days on which it rained.
January ..	280	20	5370	10	223	22
February ..	615	95	5350	0	45	10
March	375	20	7060	6	97	19
April	805	115	10025	8	199	14
May	1560	225	19225	24	122	13
June	440	25	11895	30	107	17
July	505	—	9620	30	232	20
August	490	20	11235	31	181	15
September .	265	25	8070	26	172	17
October ...	140	20	4695	21	554	28
November .	185	20	3470	11	78	15
December .	250	220	4115	2	23	10
	5910	805	100680	17	2033	200

It will be seen, on reference to the above, that in May, with a temperature of 24 degrees, there was an evaporation of 19,225 grains; whilst in June, with a temperature of 30 degrees, it was only 11,895 grains; although in May there fell 122 ounces of rain compared

to 107 in June ; and a comparison of the other results will afford evidence of the fallacy of the doctrine of heat ; whilst it is a well-established fact, that at the North Pole, and in Canada, during winter, with the thermometer some 20 degrees below zero, evaporation or the drying of cloths is as rapid as it is in this country under the influence of a summer's sun. We are told that the evaporation of 1853 was less than that of preceding years ; whilst the following results show that the contrary is the fact :—

1850.	1851.	1852.	1853.
92,140	92,075	92,080	100,680

In the above totals of 1850 to 1853, there is, however, a marked constancy in the figures—a circumstance that will appear the more striking from the fact of the two first results having been obtained in London, in the vicinity of a mass of fires, and the two latter at this place, on the borders of a forest ; but if reference be made to the periods from which these results are made up, a very different fact presents itself. In London, the evaporating influence of the respective months was pretty constant, more especially during the summer ; but it will be seen, that in May of 1853, the evaporation nearly doubled that of April and June, and was twice that of July ; whilst in 1852, the evaporation of July was 18,855 grains ; and this year the great evaporating month was April, namely, 18,550 grains ; after which, in May, to my satisfaction, it suddenly fell to only 8,765 grains ; and the vegetable kingdom made a corresponding start, it being an unquestionable fact, so far as observation will enable me to form an opinion on such a momentous question, that a high evaporation, whether with or without rain, is inimical to vegetation ; and the land repays for the labour bestowed on it, only when the “sweat of the face”

drops to the earth instead of being evaporated by the air, or when the atmosphere is what is termed close or oppressive. We are familiar with the fact that we import annually from the tropics thousands of tons of sugar and other substances, that cannot be produced in this country ; but of the atmospheric conditions which induce such a rapid growth in the vegetable kingdom we are in the most profound ignorance, although an apparatus in every respect calculated to elicit information on this momentous question has been before the public since 1847. To the propagation of error, thousands of the public money have been expended ; but truth has not yet obtained the support even of a single influential advocate.

Few questions in connection with vegetable physiology have received more attention than the source from which plants derive their carbon, or nourishment : some have advocated the root, others the leaves. About six weeks since, when going through my meadow, an hour or two after a shower, the bottoms of my trousers got wet through ; but in traversing a piece of potatoes and beans, I found these perfectly dry, although on the cabbage-leaves there were large drops of water as if suspended to them : and if water be poured on a cabbage, it will run off as if thrown on the back of a duck, whilst it will thoroughly saturate a potato top as it would a fowl. The cabbage, then, I suspect to be a non-absorbent of rain or dew, whilst the potato is an absorbent—a quality, in all probability, possessed by all plants “attacked” by the fly and other diseases of the kind. This property may tend to throw some light on the “fingers and toes” in turnips, but I have not yet had time to investigate the subject.

FRANKLIN COXWORTHY,
Author of “Electrical Condition.”

Maresfield, Sussex, July, 1854.

THE SMOKE NUISANCE.

In the second volume of Paxton's “Magazine of Botany,” pp. 246-8, are six figures, showing the passage of smoke from the chimneys of *forcing houses* under various modifications of furnaces. At p. 247, we read, “In order to do away with smoke entirely, and to render combustion *complete*, Mr. Witty, civil engineer, constructed a peculiar furnace ;” of that a figure is given. A lively interest was then excited among horticulturists, for their own individual object, and the smoke question was much agitated. Thus in the fifth volume of the same periodical, there are three articles which may even now be profitably referred to. See pp. 13, 14, and 80 ; and again pp. 202, 3 ; from which the following lines are taken as bearing upon the great measure now on the eve of being adopted by legal authority :—“A discovery has been made of a process which, at a very trifling expense, not only removes smoke, but renders every particle of the fuliginous matter available to the

production of heat, and to the saving of an immense quantity of fuel. Thus, by the instrumentality of a *jet of steam*, distributed over a black and smoky surface of even *wetted small coal*, every portion of smoke became instantly ignited.” These facts were observed on the spot, and communicated to the writer in the year 1837, when perhaps the first effective impulse had been given towards a systematic attempt to remove one of the products of combustion. *Pit coal* has always been esteemed one of the greatest treasures of Britain ; but, in common with other terrene blessings, its comforts are attended with countervailing inconveniences. We feel, and are daily made sensible of, the black, offensive nuisance by which our buildings are begrimed and defiled ! But here, even at this very point (while admitting the fact), *truth*, and a serious anxiety for the health of the community, constrains us to appeal to chemical science for a faithful answer to the all-impor-

tant question—"What will be the probable, if not the inevitable, consequences that must result from the combustion of smoke?"

Smoke from sea and pit coal in general consists mainly of a vast quantity of *carbon*, distilled and expelled from coal by a degree of heat not sufficiently great to ignite that carbon; it therefore passes off, combined with other matters (which need not here be noticed) in the black column so much complained of. Now, in order to consume the quantity of vaporized carbon thus passed into the atmosphere, it would require, in round numbers, *twice* the quantity of oxygen gas to be electro-chemically combined with it, and the product would be *carbonic acid*—a gas which, according to Professor Brande, "is perfectly *unrespirable*, for on attempting to breathe it in a pure state, the epiglottis is spasmodically closed, and no air entering the lungs, suffocation is the direct consequence. When it is so far diluted with air as to admit of being received into the lungs, it then operates as a narcotic poison, and this even when a candle will burn in the mixture. Assuming the specific gravity of carbon vapour to be 0.84, and that of oxygen gas 1.11, and that a volume of carbonic acid consists of one volume of oxygen, and half a volume of carbon vapour, its specific gravity should be— $1.11 + 0.42 = 1.53$; or

50 100	cubic inches of ,,	carbon vapour, oxygen gas,	,,	Grains. 12.7 34.6

100 cubic inches of carbonic acid should weigh 47.3

It is therefore specifically heavier than atmospheric air, 100 cubic inches of which weigh 31.01 grains, and must descend and mix with the air to be respired. Considering the vast quantity of smoke which pervades the whole atmospheric volume of London, and of other large cities and towns, and admitting the possibility of converting the carbon therewith combined to *carbonic acid*, does it not become an imperative duty to contemplate the enormous risk that might be incurred by so degrading, if not actually poisoning, that vital respirable air, which, discoloured as it now is by *smoke*, yet sustains the life of above two millions of human beings?

Another great chemical phenomenon must not be overlooked; for not only would the conversion of black smoke into carbonic *invisible* acid be attended with the fearful risk above alluded to, but by the abstraction of oxygen from the *air* itself, *four-fifths* of the entire volume of that *air* would remain as *azote* or *nitrogen*—a gas equally unrespirable as carbonic acid itself.

Much more might be said, but it is to be hoped enough has been stated to induce serious reflection, and, if possible, a pause, even at this critical moment.

Croydon, July 27.

THE LAW OF SETTLEMENT.

No. XI.

Prejudice stops the way, gentlemen: let reason have room. But when prejudice does stop the way, there is little chance of reason getting past; for with eyes inaccessible to light, she is blind, and with ears inaccessible to sound, she is deaf.

I have read of a vast natural cavern in Hungary, which presents a labyrinth so intricate, that when a man is once lost in it, it is almost impossible that he should ever find his way out. I have, too, read of vast districts of land in Persia, once covered with grain, which the impolitic rapacity of the government has converted into tracts for half-famished flocks to wander and graze over.

In these two facts, I find striking resemblances to certain prejudices—and prejudices that we find opposed to us in our present investigation.

The French writer displayed very good sense when he classed all prejudice under one head—*une opinion sans jugement*.

I am not disposed to quarrel with men because they cannot discover truth for themselves; for an amount of effort has to be put forth in the pursuit of truth, for which men generally are incompetent, or, at any rate, disinclined.

But when truth has been discovered, and placed as

conspicuous an object as the Pyramids on the plains of Egypt, or St. Paul's (when the designed improvements are effected) from Fleet-street, there are men who will solemnly assure you that they do not perceive it. And such individuals as these, although they are shown over and over again that there is no part of the policy of the Law of Settlement and Removal maintainable, will yet stick to it that it is necessary for the welfare of the country that it should be maintained.

Reason has been employed in discovering the truth with regard to the operation of the law, times and times. Adam Smith denounced its "impolicy and injustice." Commissions of enquiry were sent out again and again, and piles of evidence were accumulated at Somerset House. Mr. Charles Buller hesitated even upon such a foundation to pronounce condemnation on the law of settlement: he would make assurance doubly sure. The result of this determination was the Committee of 1847; a further enquiry was instituted into the working of that law on the welfare of all classes of the community, and the opinions of the Boards of Guardians upon it were obtained. I have before me the reports that resulted from the enquiry. The Select Committee of the House of Commons reported from time to time the

evidence they had heard, and ultimately agreed in opinions embodied in the following resolutions, which, however, were not reported to the House.

1. *Resolved*—"That the law of settlement and removal is generally productive of hardship to the poor, and injurious to the working classes by impeding the free circulation of labour."

2. *Resolved*—"That it is injurious to the employers of labour, and impedes the improvement of agriculture."

3. *Resolved*—"That it is injurious to the ratepayers, by occasioning expense in litigation and removal of paupers."

4. *Resolved*—"That the power of removing destitute poor persons from one parish to another in England and Wales be abolished."

The first three of these resolutions were passed unanimously; and the majority that passed the fourth contains representatives of all parties, from the friends of political progress to the members of the old Tory school—now nearly extinct.

I shall pass over the statements of the inspectors themselves, in order to exhibit the feeling of the Boards of Guardians upon this subject. A few extracts will suffice.

The Stowmarket Union resolved—"That in the opinion of this Board it is expedient that the law of settlement should be abolished, and any person requiring relief should be provided for, wherever he may require assistance."

The Bosmere and Claydon Union resolved—"That the law of settlement and removal operates injuriously for the poor, and that its abolition would be very desirable; but that such an alteration would render necessary a more extensive and equitable distribution of the burden of maintaining the poor."

The Ipswich Union resolved—"That it is the opinion of this Board that it is expedient to repeal the laws relating to the removal and settlement of the poor, and that the poor be relieved by a general rate made upon the entire property of the kingdom."

The Mildenhall Union resolved—"That the law of settlement, as at present existing, is extremely oppressive to the poorer classes, by frequently compelling their removal in old age to a distance from their families and connections, to spend their remaining years among strangers."

"That the said law has always been found prejudicial to the interests of ratepayers, from the great amount of litigation, &c.

"That for the above and other reasons, the Board of Guardians are of opinion that the law of settlement should be totally and absolutely abolished.

"That in lieu thereof, some means should be devised for equalizing the tax for the relief of the poor, by an improved and uniform system of rating through every union, combined with an Act rendering com-

pulsory the relief of destitution, *wherever it may exist*, without reference to any local circumstances of previous residence, or otherwise, of the applicant for relief."

So truth does progress; but prejudice, with the tenacious hold of a death-grasp, yet keeps the way—that same prejudice that made Galileo choose between the contradiction of his senses and death. And though priests of prejudice and superstition extorted from the philosopher the assurance that the earth was not round and did not move, it was round and did move for all that, and he knew it; and when the people caught the notion and adopted it, then the prejudiced sanctioned it, and pledged their faith upon it.

The English people are not addicted to change. We wear our political garments till they are long past fashion, and threadbare, and cease to have any claim to be called decent. We seem content with precisely the same institutions that served our forefathers, and present oftentimes a very ludicrous appearance as we try to riggle our feet into the high-heeled, red-leathered clogs of a past race, called shoes, with the intention of walking. Free locomotion is a thing not to be attained under such circumstances, and a high political wind is often as dangerous to our equilibrium, as a boisterous breath of Boreas up the streets of Pekin to a nicely-balanced Chinese lady.

It is perhaps well that we love not change, and that all change amongst us must necessarily be preceded by the strong and expressed conviction amongst the people, showing that individual thought and attention have been directed to the subject, and concluding that change is necessary to the welfare of the nation. The Legislature, following the progress of public opinion, records and substantiates this idea when it is matured and can make itself felt.

Two years have now passed since the Select Committee resolved, as we have seen above—two years have elapsed since the Boards of Guardians spoke out in the manner we have noticed—and the law of settlement remains as much a fact as ever! And why? Simply because you and I, and thousands of others like us, good reader, manifest no peculiar interest about the matter, and care not, so little do we think or care about the law of settlement, whether it is repealed or retained in force. By far the largest majority of the clearest thinkers—all our inspectors and statisticians—concur in the opinion that the law in question should be repealed. The fear of change, and the uncertainty and difficulty of agreement about a substitute, forms, I feel satisfied, the principal sticking point, except prejudice, which, as I said before, prefers the shoes it wore when a child, to those better fitting a grown person.

A few words may be said on this subject in another

letter. If we can but agree on what is to be done, the supineness of Government will cease; and whenever the people of England once understand this question, and form an opinion upon it, such an opinion will prove a sure warrant for the removal of pauper settlements "from the region of legislation into that of history, there to serve with 'Wager of Battel,' and other now abrogated absurdities of 'Father Antic the Law,' as memorable examples of the slow progress of reason and justice among the rulers of a just and reasonable people."

No. XII.

The law of settlement, without a leg to stand upon, like some other political anomalies, yet stands.

As I said before, the English people are nowise addicted to change: they hold tenaciously to an old institution, until they see it in all respects well superseded. And, considering that the power of vision is with some people very limited, or impeded by interest, it is often that an innovation has to wait long in the ante-chamber before admission is granted to it.

Now those who only look straight forward, and only behold one or two points of the case before us, without regarding its manifold bearings on the right hand and on the left, may be expected to decide that a solution is easily arrived at. But we have to deal with what, in my opinion, amounts to a *conflict of evils*; and common sense suggests that we should take all reasonable pains to be sure we choose the least, and that whatever course we take we keep sounding our way from time to time.

A simple solution of this question is not possible. No course is free from difficulties of considerable magnitude, and no foresight can deservy with certainty what new mischief may arise. Here lies the reason for the demurrage that we complain of. But, surely, it is false policy to stand still. We ascertain that we are wrong—that our present course is an injustice to the whole body of the working community, and a great charge upon the ratepayers; and we must not be deterred from an attempt at reformation by the risk of failure. Having made up our minds that this state of things cannot continue, we must look with the utmost care at the whole case, "and labour, by prudence and careful amendment, to avoid the most urgent inconveniences resulting from the present law, and to impose on society the smallest practical amount of new ones." By maximising the advantages and minimising the disadvantages inherent in the subject, we shall have secured ourselves from failure, as far as human ability will allow us to do so.

Every one will admit that in any change affecting the law of settlement the following points ought to

be steadily kept in view:—In the first place, as little restraint as possible should be inflicted upon the poor on the one hand, and upon the employer of labour on the other. In the next, the incidence of the poor-rate, like that of any other tax, should be equally and fairly distributed over the whole community, avoiding any unreasonable interference with existing rights of property, or any material diminution of those securities for economy and good management which we now possess.

We have applied this test to the question, *Is any part of the policy of the law of removal maintainable?* and have found that there is not; for all legislation, avowedly for the protection of the poor, is in reality for the oppression of the poor, and tends to shackle the free industry of our country.

And if we apply this test to another question, namely, *Are there any objections, then, to the entire abolition of settlement and removal?* we shall in time receive the same answer—No.

There are, I admit, some very plausible objections to this entire abolition. For instance, it is urged that there would be a danger of insufficient checks upon pauperism and vagrancy. But this danger I have proved to be imaginary, as shown by the experience of the 35th Geo. III.

It is again objected that upon the entire abolition of settlement and removal, a deterioration amongst unsettled labourers would ensue.

It is only in view of this *danger* that the commissioners of 1834 make any defence for the law in question. And the argument they use *itself implies a condemnation of settlement!* For the benefit of a few unsettled labourers, whom the fear of removal affects, all society is to be kept under the injurious law of settlement and removal. If it is desirable to promote a fear of removal, as a means of making relief ineligious, we can effectuate it by less injurious means. As I have previously shown, this means is *indirect, partial, temporary*, while the hurtful operation of the law is *constant and universal*. Besides, the supposed effects of this fear have disappeared with the improved administration of the poor laws; and the safeguard is virtually abandoned by provision for residential irremovability.

Then comes the danger of relaxing the hard conditions of relief. The commissioners say:—"With respect to the hardship on those who may be removed, that a person who applies to be maintained out of the produce of the industry and frugality of others must accept that relief on the terms which the public good requires." And in reference to this, Mr. Coode, in his supplemental report, says:—"This evidently relates not to the moral and industrious labourer, whose independence is preserved by the fear of removal, and who under that fear abstains from applying for relief, but to those who do in fact

apply, and are in fact removed; and the whole passage is a supposed justification of the hardship actually incurred in their removal. It is wholly another question from that of maintaining the independence, industry, and morality of the non-settled labourers who abstain from relief, though perhaps it may involve the approval of the principle of George Buchanan's practice of whipping one scholar for the improvement of the other, and may be understood to justify the hardship on those who are removed, for its moral effects on those who are not."

I quite agree with the commissioners that applicants for relief must be content to receive it in such a way as the public good shall direct; but we have again and again seen that the law of removal is *not identical* in any way with this public good. It has earned for itself rather the epithet—public evil. The good supposed to be produced upon the unsettled labourer by witnessing the hardships suffered by those who accept relief is partial. It only operates on the unsettled: the settled have not this fear before their eyes; and it forms no hinderance, therefore, to their application for relief. We want a *motive* that may act on *all*—the unsettled and the settled, and save *both* from degradation. The work-house supplies this blank (at least, it is the best supply we have at present), and therefore the hardship of removal is *quite superfluous*. Besides, as I remarked before, the safeguard too is now abandoned by residential irremovability.

There are some other less defined objections to the abolition of removal; but they are altogether unworthy of much notice. In my past letters, most of them have been remarked upon and answered, and as they are not material, it is not worth while to refer to them again.

Difficult as it is to foresee the evils that might accrue from the abolition of removal, we can foretell these positive advantages:

There will be an improved use of labour and capital—a dissolution of parish bondage. The change will be in accordance with the spirit of the age, and the improved spirit of public charity.

The abolition of removal must necessarily aid a sound administration of the poor-law in all its details. It would more unerringly expose the indiscriminate and unlimited demand of strangers and vagrants, and would enforce an administration of relief on broader and sounder principles.

The abolition of removal would materially aid to the enforcement of the vagrancy-laws (provided those vagrancy-laws are founded in justice). Settlement has never touched vagrancy, save to increase it; for the removal of vagrants was always found to be inoperative, and therefore never attempted.

The abolition of removal would also facilitate the formation of unions for rating, or raising a common

fund—which are improvements impossible with the present obstacles.

Anxious to sift the subject to the bottom, I have sought to ascertain whether there is any middle ground. Can any course be adopted between the absolute retention, and the entire abolition of the settlement-laws?

How, for instance, would it be to abolish all settlements but birth-settlement, and to have a residential irremovability? Why, birth-settlement, in the first instance, is *very remote in its origin*; that is quite a sufficient difficulty, and would lead to much litigation. But it is also *most cruel in its operation*; and that will not accord with our test above. It is, moreover, *disastrous in its effects* and very alarming to all the poor. Under such a regulation, about five-sevenths of the whole population would be shifted to their birthplaces, so many having acquired settlements. "Such a disturbance," says a writer on the subject, "would exceed in numerical effect, as well as in violence, all the changes ever made, from the origin to the last modification of the settlement-laws." And if we propose to balance such mischief by a residential irremovability, we are met by the extreme opposed mischiefs of a birth and subsistory residence, and the special evils of settlement and irremovability founded on residence.

Well then, giving up that idea as hopeless, would it be desirable to merge the parish settlement in a union settlement?

Such an arrangement would certainly counteract the motive to dispeople parishes; but would aggravate the objection to settling; and the balance of loss and gain to the poor man would be difficult to determine, since his whole gain would consist of a greater area wherein to take his labour and fix his residence—namely, the union—combined with a much increased difficulty of obtaining a residence in any other union; and the benefit of union settlement would, in this case, be inferior to that of abolition. It appears not to me, either, that it would open a new field to labour, nor would it facilitate dispersion.

And with respect to union-settlement diminishing removals and litigation, authorities on the subject seem to agree in saying that when unions were formed (1834), union-settlement might have been deemed desirable; but that now it would effect very little diminution—not one-eleventh, apparently not one-eighteenth. My own experience tells me that a diminution of removals is not really effected; and that removals are by no means harmless and inexpensive within the unions.

It is obvious that a union-settlement would separate the interests of unions, and raise a perpetual conflict of the boards of guardians. Those who have given much attention to the subject say that "con-

tests would be more intense through the greater directness of the personal interests of guardians, and more frequently through their greater facilities." There will be strong parties formed, and personal interests will become apparent at quarter-sessions. I cannot, therefore, say that union-settlement is a good

step towards the abolition of settlement. And no other intermediate ground is to be found. All proposals between the law of settlement and its entire abolition are weighed in the balance, and found wanting. Nothing is effectual—nothing can be effectual—save national freedom. F. R. S.

HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

MEETING AT BERWICK-ON-TWEED.

The good old town of Berwick-upon-Tweed has been once more in a state of siege. It has encountered this, too, with a success which quite eclipses all the glories of the past. That high authority, "the oldest inhabitant," has fairly struck his colours, and confessed that, in the whole history of the time and place, he remembers nothing like it. Never were there seen such continued crowds invading it; and never were they gathered together with a better object. Their presence came as a grateful tribute to the blessings of peace, instead of—as of yore—a forced homage to the horrors of war. They met now on a field where the strife was only as to who should do most for the general good. For this, North and South once more prepared their forces; and here, for a second time, they brought the contest to an issue.

They did so at the bidding of a society somewhat curiously entitled "The Highland and Agricultural Society of Scotland." Under this comprehensive claim, the members essay to represent the agriculture of the north; and it is only fair to add that, through this channel, they do their country every justice. It is rarely that any public body has continued to enjoy such an uninterrupted course of success. Established now for upwards of seventy years, it only further increases in importance and utility. The secret of this long career is, that its object has not only been well directed, but that, as the instrument of good, it has been well supported. There is no institution in which landlord and tenant have together demonstrated with more effect the advantage of a long pull and a strong pull, than the history of the Highland Agricultural Society.

Avowedly the parent of all similar associations, the Highland has a somewhat wider range than any of those which have still taken it as example for their construction and proceedings. It now, in fact, combines in itself something of the Royal English Agricultural Society, with something further of the Smithfield Club, having a show of breeding stock in the summer, and of fat stock at Christmas—a nice distinction, perhaps, which it is

at scarcely more pains to define than its younger brother in the south. There were many animals at Berwick which might have passed muster with the butcher, without any complaint as to their condition. The Scottish Society, however, has never yet, we believe, held two of these meetings in one year. The winter show is a new feature, while the summer or breeding one is at present only arranged for biennially; the meeting at Perth in 1852 being the immediate precursor of that at Berwick in 1854.

From our growing intimacy with the past history of the Society we are inclined to believe it has seldom had a more thoroughly successful day than this first Thursday in August. There were many things which, happily, conduced to this. In the first place, we had once more to thank that railway accommodation which brought visitors, from even very neighbouring districts, who otherwise might not have been present. The fineness of the day was another inducement with these, and one which served, as is now the fashion, to convert what was wont to be considered a mere class-meeting into a general festival. Though lacking the evergreen arches and floral display of the south, the occasion was kept as a kind of general holiday—the shops closed, with everybody alive only to the one engrossing business before them.

So far, the management must have good reason to feel satisfied with the manner in which their object is appreciated by all classes. As we have said already, they are well supported. The innate merits of the meeting, as a display of agricultural produce and ability, depended upon something more than this. The locality was especially well adapted to court the competition of both sides of the Border. We might even have expected something of a trial between the two; and any one, in fact, who started with this assumption, could have found little cause for disappointment. Through all the best classes, the reader will gather even from the prize-list that the Highland Show did not depend solely on Scotland for its attractions. Certainly, by far the strongest of any variety of animals

exhibited were the shorthorns generally, both bulls and cows. It is only fair to say that the Scotch breeders made a very good stand here, and that, if beaten, they were conquered only by those who might show with equal advantage against the world. The premium for the best bull, as well as that for the best cow, it will be found, were both carried off by Mr. Booth, of Warlaby, long renowned as a breeder of the shorthorn. The strongest man against him was Mr. Douglas, of Athelstaneford, a comparatively young beginner, who is, however, rapidly and deservedly gaining a celebrity for his stock. His efforts have already been recognized in England, at the late Lincoln meeting, with a remarkably clever heifer, and, in a lower degree, for a young bull. They were both almost necessarily distinguished at Berwick. Mr. Booth, too, as the careful observer could remark, had been content to bring only his very best animals.

Almost co-equal with the shorthorns we may rank the show of Leicester sheep. It is seldom indeed that one now sees so excellent an entry as was made here. Whether estimated for their pure quality, or for the size to which they may be brought, the show was a remarkable one. The former of these recommendations had, of course, most weight with the Judges; and here, again, the award was chiefly in favour of the Southron—Mr. Douglas once more heading the ranks brought down to dispute it. Justice still must declare that the Scotch farmer has done his duty with the Leicester sheep. The exhibition from the north alone was most commendable, while many considered that, for the locality they were bred in, they were even superior to others placed above them in the fortunes of the day.

Disposing of these two celebrated animals—the Shorthorn and the Leicester—and we have the meeting of the Scotch Society more national in its character. The Polled, Ayrshire, and Highland breeds of cattle had each his separate class, with little or no competition beyond the Border. So, too, was it with the Cheviot and horned sheep and the Clydesdale horses. The Southdown sheep had scarcely any more immediate assistance from the Southern breeder. Mr. Aitcheson, of Alderson, is the Jonas Webb of these parts; and when we say that he fairly beat the Duke of Richmond, we give something of a guarantee as to the excellence of his flock. Of the genuine Scotch breeds the long-tailed Cheviot showed to the greatest advantage. A well-formed animal with a good deal on it, the breed says much for the care that has been taken with them. They had a very uniform character, and Mr. Brydon's tups and ewes especially were the object of much well-merited approval.

The picturesque curling-horned "black-faced" promised in no way so well, in the way of profit at least; while his companion in rough weather and hard fare, the shaggy-coated and equally picturesque-looking Highland ox, we never remember to have seen so poorly represented. We have had far better specimens of him at Birmingham and Baker-street.

Of the Polled and Ayrshire, on the other hand, there was a very good muster—the former kind with the feeder would have a very decided preference; whereas the Ayrshire are recommended for their milking qualities. The Ayrshire cows, indeed, as shown here, partake very strongly of the Alderney both in shape and colour. They have, too, famous udders, and are no doubt all they are represented to be for dairy purposes. Compared, though, with the long and even "Polled" cattle, they make but a poor figure in a show-yard.

In nothing, however, should a Scotch show be more celebrated than in its exhibitions of horses adapted for "agricultural purposes." To this, indeed, the Highland Society confines itself. It recognizes in the prize list neither hunter, hack, nor harness horse: all its premiums are strictly for "agricultural purposes." The sort here shown is supposed by many, not merely in Scotland, to be the best draught horse in the world. With a wonderfully compact and powerful frame he unites capital light action—stepping as true and as active as a Welsh pony. It is only right to say that their exhibitors are quite aware of this accomplishment; for, though all numbered and classed in stalls, there were some half-dozen or so of stallions and others out at a time, going at all sorts of paces, and threading their way through a by no means despicable crowd with remarkable instinct. Our only wonder is, there was no collision or accident; after all, there are none of our countrymen, north or south, can manage a show of horses like the Yorkshireman.

We must candidly confess we were rather disappointed in this branch of the meeting. The horse show was certainly allowed to be "unequal" by those who had most experience of what the Society had hitherto done in this way. The mares and young stock were thought to be the best part of it; but even these hardly "passed" after Ripon. The Clydesdales, from what we saw, seldom "furnish" so quickly as some of our breeds in the South. Of the stallions, the best was an aged horse already distinguished in the records of the Society, and so no longer qualified to compete for the first prize—which, as it was, created some considerable discussion as to the award, whether first and second were properly placed. There were many clever horses, no doubt, but some with a good deal of

"day-light" about them; and altogether, we fancy the Clydesdale horse, like the Highland ox, has had more justice done him on former occasions.

A short entry of both pigs and poultry requires but proportionate comment. There was little of the *admirari* in either. The implement department, on the contrary, was thought to be a great way in advance on what has been. Here, too, the presence of the Englishman had much to do with the success of the occasion, many of our most celebrated manufacturers sending specimens of their workmanship. They were rather surprised to find these arranged in the yard, class for class, like the Shorthorns and Ayrshire. All the ploughs in one row, drills in another division, chaff cutters in a third, and so on. The "make-up" of a stall was consequently destroyed, and some good-natured grumbling a natural consequence. It is questionable to us whether the English plan be not the preferable one. There are few implements whose merits and object do not require continued exposition for those who bring them; while this at Berwick was, of course, an utter impossibility. Briareus himself must have had far more heads than Cerberus, to have attended to so many people looking at so many pieces of machinery as some of our great firms bring together.

The now great feature in the trial list, that of the reaping machines, was set over for Stirling, in consequence, it was said, of there being no corn fit. As it was, Crosskill's Bell was the only one on the ground. The postponement must have been some disappointment to Messrs. Crosskill, their machine having been considerably improved and "eased" since last season. Commencing on the Wednesday, the first day of the Ripon Show, we were unable to be present at the Berwick trials; but, we hear, of all those implements put to work, Howard's general purpose plough seems to have created the greatest impression on the minds of the Scotch agriculturists. A local contemporary thus speaks to the "impression" it made:—"Considerable discussion took place amongst the general spectators as to the merits of the several ploughs, and the feeling among them seemed to be in favour of those which combined, with other qualities, simplicity of structure. A very admirable wheel plough was exhibited by Messrs. Howard, of Bedford, and it attracted greater notice than any other implement on the ground, so that up to the close of the trials it was kept in constant employment, and was attentively watched by many practical men, who seemed to take great interest in its performances, by which the prejudices of most on the ground in favour of the superiority of the Scotch plough were severely shaken. The only drawback from its complete approval arose from an apprehension

that its machinery was not so simple but that if disarranged or out of repair it would not be easily put right again. We should not omit to remark that this plough is fitted with shifting moulds, so that it may be adapted to the land on which placed. Its draught, too, was but three to three and a half, which was less than any other plough whose draught we heard of—some of them rising to five and five and a half."

We must now return to the prize list and dinner report already published, to furnish "further particulars" of the meeting at Berwick-upon-Tweed. The gathering, in many respects an important one, was rendered yet more interesting from the attention the Highland Society is giving, and has given, to the question of agricultural statistics. It is allowed on all hands, by the Government especially, that what has been done here has been well done; and it appears, moreover, to be determined that the collection of such information shall, at least as far as Scotland is concerned, result in something more than a mere experiment. With this object, Mr. Hall Maxwell, the secretary of the society, calls meetings and delivers lectures, resolves himself into a working committee, and really does a great deal of work, too. Mr. Maxwell, in fact, is a wonderfully energetic man. At Berwick he was busily engaged all day in the yard, taking money when things went well, and vehemently assuring the crowd they should not come in at all when they threatened to come in all at once. In the council-room at one minute, on his back at the other end of the yard the next—explaining to the people of Scotland generally on one evening how they should arrange the statistical returns required of them, and demonstrating to the good folks of Berwick, on the next, how it was he could not afford to deal with them. He went through all this, too, with a success on which we can sincerely congratulate him as the most efficient representative of that most efficient association—"The Highland and Agricultural Society of Scotland."

This society, now in its 70th year, was instituted in 1784, and received a royal charter in 1787, its objects being comparatively few and of a purely local character. But the exertions of the society, instead of being restricted to the Highlands, were early extended to the lowlands of Scotland, and directed to the promotion of the science and practice of agriculture in all its various branches. In 1834 it received another royal charter, in accordance with its enlarged sphere of operation.

Premiums amounting to upwards of 2,000*l.* are awarded for reports on every subject connected with the improvement and cultivation of the soil and the rearing and feeding of stock. Encouragement is offered for the management of the dairy, the growth of timber, and useful inventions in agricultural machinery, while the comforts and convenience of the labour-

ing classes are promoted by stimulating proprietors to improve the construction and increase the accommodation of their cottage dwellings.

LIST OF PRIZES.

SHORT-HORNS.

JUDGES.—John Grey, Dilton, Newcastle-upon-Tyne; Chas. Lyall, Kincaig, Brechin; John Outhwaite, Baines, Catterick, Yorkshire. Attending member, Sir John Stuart Forbes.

Best bull, calved before 1st January, 1852, 30L, and the silver medal, Richard Booth, Warlaby, Northallerton; second best, 15L, Thomas Simson, Blainslie, Lauder; third best, certificate of merit, George Shepherd, Shetbin, Tarves, Aberdeenshire.

Best bull, calved after 1st January, 1852, 30L, William Campbell, Tillichowan Castle, Dumbartonshire; second best, 15L, Andrew Longmore, Rettie, Banff; third best, certificate of merit, John Marshall, Chatton Park, Alnwick.

Best bull, calved after 1st January, 1853, 20L, James Douglas, Athelstaneford, Drem; second best, 10L, Nicol Milne, Faldonside, Melrose; third best, certificate of merit, F. H. Fawkes, Faruley Hall, Otley, Yorkshire.

Best bull, calved after 1st January, 1854, 10L, Richard Booth, Warlaby; second best, 5L, Thomas Willis, Manor House, Carperly, Bedale; third best, certificate of merit, Thomas Willis.

Best cow of any age, 20L, Richard Booth; second best, 10L, William Tod, Elphinstone Tower, Tranent; third best, certificate of merit, Thomas Chrisp, Hawkhill, Alnwick.

Best heifer, calved after 1st January, 1852, 15L, James Douglas, Athelstaneford; second best, 8L, R. W. Saunders, Nunwick Hall, Peurth; third best, certificate of merit, W. Campbell, of Tillichowan.

Best heifer, calved after 1st January, 1853, 10L, Richard Booth, Warlaby; second best, 5L, James Douglas, Athelstaneford; third best, certificate of merit, John Haig, Cameron House, Kirkealdy.

Best heifer, calved after 1st January, 1854, 8L, James Douglas, Athelstaneford.

POLLED BREEDS.

JUDGES.—John Collier, Panlathie, Carnoustie; George Brown, Aberdeenshire. Attending member, R. Hodgson, of Carham.

Best Bull, calved before 1st January, 1852, 20L, Sir James Carnegie, Bart., Kinaird Castle, Brechin, and the silver medal to Alex. Boxie, Mains of Kelly, Arbroath, as the breeder; second best, 10L, Alex. Bowie, Mains of Kelly; third best, certificate of merit, Sir A. Burnett, Bart., of Leyes, Crathes, Banchory.

Best Bull, calved after 1st January, 1852, 10L, Alex. Bowie, Mains of Kelly; second best, 5L, William M'Combie, Tillyfour, Aberdeen.

Best Cow, of any age, 10L, William M'Combie, Tillyfour; second best, 10L, Sir James Carnegie, Bart.; third best, certificate of merit, W. M'Combie, Tillyfour.

Best Heifer, calved after 1st January, 1852, 8L, W. M'Combie; second best, 4L, Sir James Carnegie, Bart.; third best, certificate of merit, Sir A. Burnett, Bart.

AYRSHIRE BREED.

JUDGES.—Patrick Graham Barns, of Limekilns, East Kilbride; William Forrest, of Treasbanks, Lanarkshire; John Macfarlane, Faslane, Helensburgh. Attending member, Captain Campbell.

Best Bull, of any age, 20L, Robert Paton, Clobberhill, New

Kilpatrick, and the silver medal to William M'Kane, Lumlock, Cadder, as the breeder; second best, 10L, James Stark, Rosbank, St. Rollox, Glasgow; third best, certificate of merit, William Kerr, Barroder, Lochwinnoch.

Best Cow, of any age, in milk, 10L, Alex. Murdoch, Hallsie, Cambuslang; second best, 5L, A. Findlay, Mainhill, Baillieston, Glasgow; third best, certificate of merit, James Robertson, Hall of Caldwell, Neilston.

Best Cow, of any age, in calf, 10L, and second best 5L, to James Robertson; third best, certificate of merit, John Stewart, Strathaven, Lanarkshire.

Best Heifer, calved after 1st January, 1852, 8L, John Stewart; second best, 4L, Robert Kirkwood, Highlongmuir, Kilmaurs; third best, certificate of merit, James Wilson, Wester Cowden, Dalkeith.

HIGHLAND BREED.—(Same JUDGES.)

Best Bull, of any age, 20L, Neill Malcolm, of Pollalloch, Lochgillhead, and the silver medal as the breeder.

Best Cow, of any age, 10L, Allan Pollok, Ronachan, West Tarbet.

Best Heifer, calved after 1st January, 1851, 8L, and second best 4L, Allan Pollok, Ronachan.

HORSES FOR AGRICULTURAL PURPOSES.

JUDGES.—Robert Findlay, Springhill, Glasgow; John Gibson, Woolmet, Edinburgh; Alexander Rennie, Craighurn, Falkirk; Professor Dick, Edinburgh. Attending member, Captain Falcner.

Best stallion, thirty sovereigns, Charles Phillips, Cracrop, Braampton, Cumberland; and the silver medal, as the breeder. Second, fifteen sovereigns, John Murton, Lambletham, St. Andrews. Third, certificate of merit, John Smith, Grassmarket, Edinburgh.

Best entire colt, foaled after 1st January, 1851, twenty sovereigns, Robert Findlay, of Easterhill, Glasgow; second, ten sovereigns, Thomas Muir, Bowhouse, Lanark. Third, certificate of merit, John Young, Niddry, Winchburgh.

Best entire colt foaled after 1st January, 1852, ten sovereigns, John Pattie, Dalrisken, Tinwald, Dumfries. Second, five sovereigns, James Douglas, Athelstaneford. Third, certificate of merit, F. T. Bryan, Knossington, Oakham.

Best entire colt foaled after 1st January, 1853, £3, Andrew Allan, Clerance, Dundonald. Second, £4, Robert Murdoch, Hallsie, Cambuslang. Third, certificate of merit, William Lawrie, Fernyflat, Edinburgh.

Best brood mare, £20, Andrew Logan, Cropflat, Kilbarchan. Second, £10, James Douglas, Athelstaneford. Third, certificate of merit, Robert Findlay, of Easterhill, Glasgow.

Best filly, foaled after 1st January, 1851, £10, David Wright, Southfield, Preston-paus. Second, £5, Andrew Logan, Crossflat. Third, certificate of merit, John Slate, Sunnyside, Prestonkirk.

Best filly foaled after 1st of January, 1852, £8, Robert Jack, Balcurroch, Campsie, Stirling. Second, £4, Thomas Smith, Chillingham Newtown, Alnwick. Third, certificate of merit, James Douglas, Athelstaneford.

Best filly foaled after 1st January, 1853, £6, William Kerr, Wester Causewayend, Midcalder.

S H E E P.

LEICESTERS.

JUDGES.—William Parker, Yauwath Hall, Penrith; Alex. Scott, Craiglockhart, Edinburgh; John Buckley, Normanston Hill, Loughborough; and Wm. Sanday, Holme Pierrepont, Nottingham. Attending Members: William Aitchison, of Linhope; and John Beatson Bell, of Glenfarg.

Best tup, not more than four shear, £20, Samuel Wiley, Brandsley, York; second best, £10, James Douglas, Athelstaneford; third best, certificate of merit, Samuel Wiley.

Best dunmont or shearing tup, £20; second best, £10; and third best, certificate of merit, S. Wiley.

Best pen of five ewes, not more than four shear, £10, S. Wiley; second best, £5, James Douglas, Athelstaneford; third best, certificate of merit, James Douglas.

Best pen of five shearing ewes or gimmers, £10, John Collie, Ardgay, Elgin; second best, £5, James Douglas; third best, certificate of merit, Thomas Simson, Blainslie.

CHEVIOTS.

JUDGES.—John Graham, younger, of Shaw; Andrew Easton, Todrig; John Marshall, Chatton Park, Northumberland; William Paterson, Twiggles, Dumfriesshire. Attending Members: John Miller, of Leithen; and Finlay Dunn, V.S., Edinburgh.

Best tup, not more than four shear, £15, and second best £8, James Brydon, Moodlaw, Langholm; third best, certificate of merit, Thomas Elliot, Hindhope.

Best dunmont or shearing tup, £15, second best £8, and third best certificate of merit, John Carruthers, Kirkhill, Moffatt.

Best pen of five ewes, not more than four shear, £8, James Brydon, Moodlaw; second best, £4, Thomas C. Borthwick, Hoprig, Langholm; third best, certificate of merit, T. C. Borthwick.

Best pen of five shearing ewes or gimmers, £8, James Brydon, Moodlaw; second best, £4, T. C. Borthwick; third best, certificate of merit, Thomas Elliot, Hindhope.

BLACKFACED BREEDS.

JUDGES.—John Archibald, Duddingstone, and James Stodart, Watson, Noblehouse. Attending member, Robert J. Thomson, Hangingside, West Lothian.

Best tup, not more than four shear, £10, Robert Patterson, of Birthwood, Biggar; second best, £5, James Tweedie, Nether Abington, Lanarkshire; third best, certificate of merit, Robert Paterson, of Birthwood.

Best dunmont or shearing tup, £10, James Tweedie; second best, £5, John Watson, Nisbet, Biggar; third best, certificate of merit, James Tweedie.

Best pen of five ewes, not more than four shear, £6, James Brydon; second best, £3, Adam Blacklock, Minnygap, Moffatt.

Best pen of five shearing ewes or gimmers, £6, Allan Pollok, Ronachan; second best, £3, George Proudfoot, Stidriggs, Moffatt.

SOUTHDOWNS.

JUDGES.—George Willis, Keithock Mills, Forfarshire; and Hugh Watson, Keillor, Forfarshire. Attending member, James Fairbairn, Kelso.

Best tup, not more than four shear, £10, James Aitchison, of Alderston; second best, £5, the Duke of Richmond, Gordon Castle; third best, certificate of merit, Wm. Forster, Burradon, Rothbury.

Best Dunmont or shearing tup, £10; second best, £5; and third best, certificate of merit, Mr. Aitchison, of Alderston.

Best pen of five ewes, not more than four shear, £6, the Duke of Richmond; second best, £3, Robert Oliver, Lochside, Kelso; third best, certificate of merit, James W. Hunter, of Thurston, Dunbar.

Best pen of five shearing ewes or gimmers, £6, Wm. Tod,

Elphinstone Tower, Tranant; second best, £3, Robert Oliver, Lochside; third best, certificate of merit, James Aitchison.

PIGS.

JUDGES: John McLaren, Mill Hill, Perthshire; John Smith, Knibblethmont, Forfarshire; George Willis, Keithock Mills; and John Wilson, Nicolson. Attending member, Mr. A. Bethune.

Best boar, large breed, 10 $\frac{1}{2}$ l., Jonathan Brown, The Height, Wigtou; second best, 5 $\frac{1}{2}$ l., George Hay Plummer Melville, Dalkeith; third best, certificate of merit, Col. Ferguson, of Raith, Kirkcaldy.

Best sow, small breed, 10 $\frac{1}{2}$ l., Jonathan Brown, The Height; second best, 5 $\frac{1}{2}$ l., R. H. Watson, Bilton Park, Wigtou; third best, certificate of merit, R. H. Watson.

Best sow, large breed, 6 $\frac{1}{2}$ l., Henry Atkinson, Alnwick; second best, 3 $\frac{1}{2}$ l., George Murray, Mount Pleasant, Berwick; third best, certificate of merit, Edward Makins, Auchincrow Mains, Ayton.

Best sow, small breed, 6 $\frac{1}{2}$ l., Jonathan Brown, The Height; second best, 3 $\frac{1}{2}$ l., George Moore Dixon, Netherwitton, Morpeth; third best, certificate of merit, R. H. Watson, Bilton Park.

Best pen of three pigs, not exceeding eight months old, 4 $\frac{1}{2}$ l., R. H. Watson; second best, 2 $\frac{1}{2}$ l., Nicol Milne, of Faldonside; third best, certificate of merit, R. H. Watson.

COMMENDATIONS.

EXTRA STOCK.

COMMENDED.—Short-horned cows belonging to George R. Carnegie, Edrom Newton, Ayton.

STRONGLY COMMENDED.—A cow in-calf, belonging to Mr. Malcolm, of Pottalloch.

EXTRA SHEEP.

COMMENDED.—A Southdown tup, Jas. Aitchison, of Alderston.

AWARDS OF PREMIUMS FOR IMPLEMENTS.

For the best two-horse plough for general purposes, £3, J. and F. Howard, Bedford.

Best trench or deep furrow plough, £3, G. Ponton, Linlithgow.

Best subsoil plough for two horses, £4, James Kirkwood, Tranent.

Best subsoil plough for moor and stony land for three or four horses, £4, Robert Law, Shettleston, Glasgow.

Best double mould-board plough for forming drills, £3, G. Sellar and Son, Huntly.

Best improvement on or substitute for the common plough in lifting potatoes, £3, G. Ponton, Linlithgow.

Best two-horse grubber or cultivator, £4, G. Ponton, Linlithgow.

Best drill grubber for green crops, £2, Wm. Purves, Linton-burnfoot, Kelso.

Best Norwegian harrow, £4, James Kirkwood, Tranent.

Best consolidating land roller, £5, W. Crosskill, Beverley.

Best land presser for preparing seed-bed for grain, £5, Scouler and Co., Haddington.

Best pulverizing land roller, £5, Matthew Gibson and Son, Newcastle.

Best harrows for heavy land, £3, J. and F. Howard, Bedford.

Best harrows for light land, £3, J. and F. Howard.

Best common swing-trees or draught-bars, £1, W. Gray, Stane, Shotts, Motherwell.

Best drill sowing-machine for grain, £6, Thomas Sherif, West Barns, Dunbar.

Best horse hoe for drilled grain crops, £6, T. Sherif, West Barns, Dunbar.

Best liquid manure distributing machine, £4, R. Forshaw and Co., Cornwallis-street, Liverpool.

Best turnip cutter for sheep, £2, William Wilson and Son, Berwick-on-Tweed.

Best turnip cutter for cattle, £2, R. Forshaw and Co., Cornwallis-street, Liverpool.

Best turnip cutter for sheep, adapted for attachment to a cart, £3—James Kirkwood, Tranent.

Best linseed bruiser for hand labour, £2—R. Forshaw and Co.

Best grain and linseed bruiser for power, £4—R. Forshaw and Co.

Best root washer, £2—Wm. Crosskill, Beverley, Yorkshire.

Best steaming apparatus for preparing food, £5—Andrew Thompson, Berwick.

Best sheep fodder-rack, £2—James Kirkwood, Tranent.

Best one-horse farm cart, £4—John Walker, Coldstream.

Best stone or iron stack pillars, with framework, £2—Young, Peddie, and Co., Edinburgh.

Best hay tedding machine, £4—Richard Hodgson, of Carham, Coldstream.

Best scythe for general purposes, £1—James Smith, Lawhill, Auchterarder.

Best improvement on any part of the thrashing machine, £5—Peter McLellan, Bridge of Earn.

Best dressing fanners, £4—W. Crosskill, Beverley.

Best weighing machine, indicating from 1 lb. to 2 tons, £4—R. Forshaw and Co.

Best churn worked by hand, £2—Peter McLellan, Bridge of Earn.

Best churn worked by power, £3—Philip Hunter, Nicolson-street, Edinburgh.

Best field gate, constructed entirely of iron, £1—Young, Peddie, and Co., Edinburgh.

Best six iron hurdles for a fence to retain cattle, £2, and best set of traverse divisions, rack and manger, for farm stables, £2—Hernulewicz, Main, and Co., Glasgow.

Best set of farm harness—the premium divided equally between James Duulop, Haddington, and Hunter and Allan, Kelso.

Best machine for making drain tiles or pipes, £6—William Brodie, Seafeld Tile Works, Dunbar.

Best set of tiles and pipes for field drainage, £1—William Brodie, Seafeld, Dunbar.

Best set of tools for cutting field drains—£1, Wm. Cadell, Sons, and Co., Crumond.

THE DINNER

Was held in a pavilion erected for the occasion. There were above 500 gentlemen present, many of whom were tenant-farmers. The Earl of Dalkeith occupied the chair, and was supported by Mr. P. Clay (the mayor of Berwick), the Duke of Roxburgh, the Earl of Haddington, Earl Grey, M. Yvart (President of the Imperial French Commission of Agriculture), Lord Melgund, Lord Blantyre, Lord Neave, &c.

Sir John Forbes and Mr. Baillie, of Millerstein, were vice-presidents.

After dinner the "Health of the Emperor Napoleon" was given with the usual loyal toasts.

The CHAIRMAN, after stating that the Duke of Hamilton had been unable to preside, owing to the death of a very near relative, and explaining the circumstances under which he

had been called to take the chair on very short notice, proceeded to propose "The Highland and Agricultural Society and the agricultural interest." The Highland Society, he said, had now been in existence for 80 years, and, instead of increasing in infirmity as it grew older, it was increasing in vitality and energy (cheers). As a proof of this, he might state that, on a recent occasion, no fewer than 153 persons had been admitted members of the society in one day. One cause of its great success had, undoubtedly, been the influx of the tenant farmers of the country into the association. These tenant farmers had taken a great interest in the society, and the local agricultural societies in connexion with it had contributed much to its success (cheers). As a proof of the very high position which the body now held, he might mention that only last year it was entrusted with the management of the statistical inquiry then instituted. That inquiry had been most successfully conducted, and its success was no doubt greatly owing to the services rendered by the farmers of the country. As to the occasion which had brought them together, he felt that it was unnecessary for him to expatiate on the character of the show; in the presence of so many men of much greater experience than himself, he would not presume to point out its particular features, but he was sure all would agree with him in thinking that it had been a most successful one (cheers).

The toast was drunk most enthusiastically.

Earl GREY, in proposing the next toast, said, I have been requested by the committee of the society to give you "The Agriculture of France and the Imperial Deputation present" (cheers). I have gladly assented to the request made to me by the society that I should give that toast, because I see that it will require very few words indeed from me to recommend it to your acceptance. It is one which you would gladly drink at any time, but particularly at the present moment (applause). Our noble president has already adverted to the circumstances in which the country is now placed, to the peril which our brave soldiers and sailors are now sharing with those of France in the war in which it is the calamity of both countries to be engaged—a calamity which, while we all deplore it, I am sure we all feel is greatly mitigated by the circumstance that it has brought us into our present relations with that great and powerful nation which is our nearest neighbour (cheers). While the nations are engaged in this struggle, it is interesting that we should upon an occasion like the present wish prosperity to the efforts of France in that agriculture which is the basis of her greatness as it is of our own. (Hear, hear). Gentlemen, you will also, I am sure, rejoice with me to have this opportunity to give a cordial welcome to the Imperial deputation which is present on this occasion (cheers). I hope and trust that they have been pleased with what they have seen, not only here but elsewhere, particularly at the recent show of the Agricultural Society of England. Gentlemen, I feel that it is quite unnecessary that I should say more in recommending this toast to your notice, and I will therefore now conclude by asking you to drink "Success to the Agriculture of France and the Imperial Deputation now present."

The toast having been drunk with all the honours,

M. YVART, in rising to acknowledge the toast, was received with loud and long-continued cheering. He spoke in French, to the following effect:—I have to express in my own name, and on behalf of the deputation sent by the French Government, our sincere thanks for the kind reception we have met with, and for the facilities afforded to the deputation to prosecute its inquiries at the Agricultural Exhibition of the Highland Society at Berwick. We have had the privilege not

only of viewing your cattle and implements, but of studying your regulations and usages, that we may usefully imitate them in the agricultural shows of the French Government. The toast, "To the Prosperity of the Agriculture of France" will be received by my countrymen with gratitude. No country is more deeply connected with agriculture than France. No country has more agricultural labourers. This fact results from the great variety of cultivation in France. In the south the farmer adds to the grain crops the cultivation of grasses and the silkworm; in the north, the cultivation of grain goes along with that of the oleiferous plants from which we get oil, and the cultivation of beetroot, from which we get sugar. These numerous and various occupations continually give work to the people; and that is certainly one of the reasons which keeps the labouring classes in France from going abroad. Thus, while in England emigration is diminishing your population, in France the population increases at home. Should any of the British farmers come to France, the French would have great pleasure in showing them the high degree of fertility obtained in French Flanders by the system of small holdings. Not very far from the small holdings they would see in the northern departments large holdings, where the cultivation of the beetroot and the manufacture of sugar are found to combine mechanical science with chemistry and husbandry, and to unite skill in field labour with skill in the workshop. For a long time the mangel-wurzel, or beetroot, has furnished us with sugar and the means of fattening our cattle. The last year was an unfortunate one among the *vigne* (grape trees). The production of spirits was very much diminished, and the loss was great; but, happily, by the beetroot, the French were able to cover a certain part of the deficit. The farming of the centre of France, where the agriculturists are growing wool and rearing sheep, is also worthy of the attention of the British farmer. But there is no feeding with turnips there; the dry and hot climate does not allow the farmers of that part of France to grow turnips on a large scale. They feed their sheep with lucerne, with green plants which grow to the length of some feet. In the west part of France, near the sea-coast of the Atlantic, our farmers can imitate their neighbours of Great Britain. The British farmer would see also, with interest, the cattle of France, and take a deep interest in our mode of rearing them. The horses of France, for agricultural purposes, are not of such a large size as those of Britain, but they are full of energy. The merino sheep have been improved to such an extent that they can now be fed usefully for the butchers' shops. Their wool is always very fine, of high quality. Every year American and Australian agriculturists are coming to France to purchase tups and ewes of this useful breed. And we are improving with your Leicester tups, some of our flock farmers finding this to be profitable, although they find it more so to improve with this breed for the butchers' purposes. As regards the cattle, some of the native breeds are kept pure, being found useful for dairy purposes and for farm work; but in some parts of France the short-horn bulls, imported from Britain, are now in use for improving the breed of cattle; and at the agricultural exhibitions which are held in France, British farmers would see British breeds with considerable interest. Should the British farmer come to France to see, next year, the Universal Exposition and the Cattle Show of 1855, I can assure him that he will meet with a hearty welcome from his agricultural brethren there. I again return my sincere thanks for the very kind and hearty manner in which you have received us (loud cheers).

Mr. BAILLIE, of Mellerstain, proposed "The Tenantry of Scotland." Taking them as a body, they had obtained for themselves a high character throughout the world for their

skill, enterprise, and perseverance; and whether on the borders of the silver Tweed, or in the more remote districts of that which had been called the "land of brown heath and shaggy wood," he believed that their skill and success in the cultivation of the soil was, notwithstanding the cold and fickle climate they had to contend with, unsurpassed in any part of the civilized world (cheers).

Mr. AITCHISON, Lillope, returned thanks. The farmers of Scotland, he said, had always been distinguished by their steady loyalty, their integrity of character, and their patient endurance in adversity. The noble chairman and others had alluded to our close alliance with France in the war in which we were embarked; but, while proud of that alliance, he believed they would not the less be ready to admit that union at home was power abroad, and that nothing was more calculated to consolidate that union than landlord and tenant competing for the same honours in the same show-yard, and celebrating that competition in the same parlour, and exchanging sentiments of confidence and respect (applause). He was sure there was nothing more calculated to produce congeniality of sentiment and reciprocity of conduct than a union of this kind, or more calculated to give an impulse to agricultural improvement, which this Society had of late years carried on at a rate that baffled description, and almost rebuked comparison. Now that the tenantry of this country are no longer locked to law-givers but to lease-givers, he hoped that lease-givers would remember that, if they were the lords of the soil, it was the tenantry who were the producers of its treasures; that, though the former were the Corinthian capital of polished society, the latter were the pillars who supported the fabric, and that these pillars, if overburdened with taxation or by other means, would fall, involving all above them in a common ruin (applause).

The Duke of ROXBURGH proposed the health of the Earl of Dalkeith, whom he complimented for having in so able a manner, after so short notice, discharged the duties of the chair. The toast was received with great cordiality.

The Earl of DALKEITH briefly replied, and thanked the meeting for the indulgence extended towards him in the position to which he had been unexpectedly called. He then briefly proposed the health of the Duke of Roxburgh, to whom the Society owed a deep debt of gratitude for the great interest he had taken in its progress, and the exertions he had made to promote its welfare, especially when occupying the distinguished office of President. The toast was also received with loud applause.

The Duke of ROXBURGH, in reply, said he could only ascribe the warm reception the toast had met with to no merits of his own; he looked on it rather as a recognition of that office which he had for some years the honour to hold in this Society. It had always appeared to him that the chief among the many benefits resulting from the Highland Society was that there was no member of the community who did not participate in its advantages, and who might, in some degree, not advance its welfare. This was the point which he had always endeavoured to keep in view when he was more officially connected with this Society; and it was with feelings of much pleasure that he looked back on the meeting which was held in this town thirteen years, when he had first the honour of becoming one of the Vice Presidents of the Society, and reflecting on the great progress made by the Society since that time. They had for many years seen it taking the lead in all matters of agricultural improvement. They had seen it ever ready and willing to lend a helping hand to all who wanted its assistance and advice. They saw no falling off, as the Show and the prizes of to-day testified, in its more important ex-

hibitions; and, from the excellence of its organization, and the skill, judgment, and order which characterized its management, they now found it employed by Government to prepare a complete report of the agricultural statistics of the country—an honour which had yet been conferred on no similar body, and a duty as yet undertaken by no similar society in the United Kingdom. He trusted the Society would continue to carry on the work of agricultural improvement; and that, while they extended their operations, they would yet more securely strengthen the basis on which the Society rested.

Lord MELGUND next proposed "The Commercial and Manufacturing Interests," to which the Mayor replied; Lord

Blantyre gave "The Directors and Office-bearers of the Society," which Sir J. S. Forbes acknowledged; the Earl of Dalkeith gave "The Judges of the Show," which was responded to by Mr. Watson, of Keillor. "The Successful Competitors" were toasted by Mr. Milne Home; Sir John Majoribanks proposed "The Committee," on behalf of whom Sir George Douglas replied; Mr. Robertson, of Ladykirk, proposed "The Strangers"; Lord Neaves gave "The Peasantry," and the proceedings were terminated by Sir John McNeill's proposing the health of the Secretary, to whose zeal and ability he mainly attributed the success of the Show. Mr. Hall Maxwell replied, and three cheers having been proposed for the Earl of Dalkeith, the meeting separated.

YORKSHIRE AGRICULTURAL SOCIETY.

MEETING AT RIPON.

The Yorkshire show of this year had to suffer from a drawback, which it is hardly too much to say the exercise of a little forethought might have altogether avoided. It so immediately preceded, as to clash with the Highland Agricultural Society's meeting at Berwick; and consequently many visitors and exhibitors, who under more convenient circumstances might have been at both, had, as it was, to take their choice of one. The Ripon show, however, scarcely felt this antagonism so much as might have been expected. Only one, indeed, of the old supporters of the society deserted it, in favour of going farther north. This was a very old friend and near neighbour, Mr. Booth, of Warlaby, who sent his famed short-horns into Scotland—with what success our report will speak to. As it was, he was not much missed at Ripon. By the aid of Lord Feversham, Mr. Towneley, Mr. H. Vyner, Mr. Stratton, Mr. Lister Mawe, and others, a very strong display of the breed once almost peculiar to Yorkshire was brought together. Many, in fact, of the prize animals here were the prize animals at Lincoln, Mr. Towneley's and Mr. Stratton's cows amongst the most prominent of those already distinguished. Mr. Towneley, again, had it all his own way with "Beauty," and some other really beautiful beasts. It was further gratifying to see Mr. Stratton, who had the courage to face the Yorkshiremen on their own ground, taking the first and second premiums in their class with two cows, similarly placed at Bath, both "highly commended" at Lincoln, and that we spoke of on their first appearance, as being sure to hold their own in any company.

The management had little to regret then, in this one of their chief features, while the show of stock generally was a very good one; though perhaps not equal to what it at times has been. It

would certainly not rank *quite* up to that we saw at York last year. The horses, a stronger attraction than even the shorthorns, were well represented in every department, and in some were more than usually excellent. We never remember to have seen better mares and foals, for instance, than were to be found in the hunting and coaching classes. There were many heavy draught mares too, doing full justice to their county, and one or two cart fillies yet better still. The weakest part of this section was unquestionably the stallions, those for agricultural and coaching purposes being a little below the average. The hunters—thoroughbred of course—and roadsters, on the other hand, were very good; some of the old-fashioned Yorkshire sort to be found among the latter, and a well known race-horse or two in the former. The award here was not made until the day after we left, but having ourselves placed the handsome and useful old St. Bennett as first, and The Anchor second, we see no reason to quarrel with the opinion of the judges on this, or indeed on any other of their decisions. It is only right to say that these gentlemen generally were very liberal in their commendations—of the horses, shorthorns, and pigs, more particularly, so much so indeed, that we have been compelled to limit our list to the prizes actually given.

Of pigs, again, there was a very capital collection, one of the strongest we have ever seen at a local show. "Large" and "small" breeds, as they are called, Lord Wenlock's and Mr. Wiley's amongst them, all run to a great size, the prevailing colour for either being white. There were very few blacks in the yard; though it is only right to add that such as there were, showed to great advantage, and had unquestionably the look of being the finer bred.

If we say that the exhibition of sheep did some-

thing more still for the returning reputation of the Leicesters, the Southdowns being terribly out-voted—though, thanks to Lord Walsingham, there were some good sheep of this sort—with this, we think we must close our ramble through the Ripon grounds, and start for Berwick. For the poultry, we confess we had little time to spare; “the *Leeds Intelligencer*,” however, thus kindly supplies the deficiency:—

“There was a numerous collection of birds, but on the whole we scarcely think the quality was equal to some of the preceding shows, whilst in one or two instances the specimens exhibited suffered from a defective classification, for which most probably the exhibitors were more to blame than the committee of management. The Cochin China and Polish breeds were an indifferent show, both as regards number of birds and quality, and we are glad to learn that a more healthy tone appears to be prevailing in respect to poultry, and that the “rage” for the all but monstrosities, which have recently obtained such fabulous prices, is giving way to more sober judgment. The best classes were the Spanish and game birds, of which there were some beautiful specimens; and there were some good geese, turkeys, and ducks of the various breeds.”

We may avail ourselves still further of the opinion of the local press, touching a subject on which our own is tolerably well known. However little supported by others, however unpalatable such a course may be to some of our friends, it must still be the duty of this journal to denounce any evil or absurdity it may find to exist. In pursuance of this, we have already shown the palpable contradiction involved in over-feeding stock for a breeding-show. We shall not repeat ourselves here, but turn to evidence on the Ripon Show—testimony which, if it can be supposed to have any bias, must be in making in every way the best of the meeting under consideration. The *Doncaster Gazette*, a paper of deservedly high position in the county, speaks out in this wise:—“The attention of visitors was directed to the short-horned stock, the first prizes for which were almost entirely monopolized by Mr. Towneley, the obesity of whose stock was generally condemned; although without some degree of fatness, it was admitted, it was all but impossible to obtain the favourable notice of the judges. Of the superior quality and general symmetry of the Towneley herd there can be no question; but it is also true that, had many of the other competitors been as highly fed, they would have shown equal superiority in the eyes of the adjudicators of the premiums of the society. There can be no question that this high degree of fatness is extremely

unprofitable, since the animals become almost worthless for breeding purposes. One fact in relation to this subject we heard of. An eminent breeder, whose cattle have taken prizes in all classes at the royal and sundry provincial shows, has obtained from seven cows, now nearly seven years old, the large produce of two calves! More need not be said of the absurdity of the present system.”

Mr. Towneley, it will be remembered, is the gentleman who refused to exhibit last year at Gloucester, in consequence of the attempt there made to check “the absurdity of this present system.” The *Yorkshire Gazette* is perhaps even stronger still, for the conviction here clearly does not come too easily. In an introduction, written of course in anticipation of the show, we are assured, that “of late years the system of over-feeding which at one time prevailed has greatly gone out of vogue.” A piece of information which we only wish our experience of this year alone would have enabled us to corroborate. By our friend of the *Gazette*’s own experience, after seeing the animals, we learn that “the show of cattle was larger than that at York in 1853, and although the quality was good, yet we cannot say it was altogether superior. The prize animals were very admirable in many essential particulars, but we were sorry to observe what we thought, when we were writing some of our introductory remarks, had been done away with—the practice of over-feeding, which was too evident not only here, but also among the pigs: Among the latter, especially, we observed in several instances a degree of obesity about the poor creatures which was painful to behold. The animals were absolutely in suffering from the enormous weight of fat about them. We hope this society will not encourage any further progression in this direction, but rather increased attention to the make, symmetry, and a tendency to fatten, which are clearly the points to be observed at these shows, which are totally different to the great Smithfield Show at Christmas, and others of a similar character.”

It is not our practice to find fault without good cause for doing so; and we look to the Royal Agricultural Society of England to set the local societies a better example, even though Mr. Towneley’s support may be no longer afforded them.

Amongst the novelties of the implement department was a prize of £50 for fixed barn-machinery, “won cleverly” by those very enterprising makers, Messrs. Clayton and Shuttleworth; and sundry premiums for flax and wool offered by the merchantmen of Leeds. We are glad to hear that Mr. Davy, whose flax-dressing machine received so much encouragement at Lincoln, is now perfecting his in-

vention at Leeds. Another step towards the more hearty union of the now popular toast, "Agriculture, Manufactures, and Commerce."

We should hope this was set down for the Ripon dinner, a part of the proceedings that appears scarcely to have gone off so well as the show itself. The after-dinner discussion, which at these gatherings takes the place of "empty compliment," clearly broke down. We give what there was said on a subject that one would have thought might have had more in it.

In concluding this notice of the Yorkshire Agricultural Society's Meeting for 1854, we must not omit to record the general feeling of regret expressed for the loss of the secretary, Mr. Milburn. It would be difficult to find any man so fully qualified in every respect for the office he held, although we believe we have good reason to congratulate the council on their selection of his successor, Mr. Hannam—a gentleman, who as a practical farmer and successful writer on agriculture, enjoys many of those advantages which so distinguished his lamented predecessor.

LIST OF PRIZES.

THE JUDGES FOR CATTLE.—Mr. Charles Stokes, Kingston-on-Stowe; Mr. William Hunt, Wortley, Sheffield; and Mr. T. Crofton, Holywell, Durham.

SHORT-HORNED CATTLE.

Best bull of any age, 25*l*, Mr. C. Towneley, Towneley Park, Burnley; second, 10*l*, Mr. Henry Vyner, Newby Hall, Ripon.

For the best yearling bull, 20*l*, Mr. C. Towneley, Towneley Park, Burnley; second, 5*l*, Lord Feversham, Duncombe Park, Helmsley.

Best bull calf, upwards of five months old, 10*l*, Mr. C. Towneley, Towneley Park, Burnley.

Best cow of any age, in-calf or milk, 15*l*, Mr. C. Towneley, Towneley Park, Burnley; second, 5*l*, Earl De Grey, Fountains, Ripon.

Best three-year old cow, in-calf or milk, and having had a calf, 10*l*, Mr. R. Stratton, Broad Hinton, Swindon; second, 5*l*, to ditto.

Best two-year old heifer in calf, 10*l*, Mr. T. C. Constable, Burton Constable, Hull; second, 5*l*, Mr. C. Towneley, Towneley Park, Burnley.

Best yearling heifer, 10*l*, Mr. Towneley, Towneley Park, Burnley; second, 5*l*, Mr. T. C. Constable, Burton Constable, Hull.

Best heifer calf, upwards of five months old, 7*l*, Mr. C. Towneley, Towneley Park, Burnley; second, 3*l*, Mr. G. Wentworth, Woolley Park, Wakefield.

CATTLE OF ANY BREED.

Best cow for dairy purposes, 7*l*, Mr. C. Cradock, Hartforth, Richmond.

EXTRA STOCK.

First prize, Mr. A. L. Maynard, Barton-le-Moor, Ripon; second prize, Mr. H. Vyner, Newby Hall, Ripon.

JUDGES FOR SHEEP AND PIGS.—Mr. W. Sanday, Holme Pierrepont, Notts; Mr. Valentine Barford, of Foscott, Towcester; and Mr. Harwood Mackinder, Laughton Grange, Spilsby, Lincolnshire.

LEICESTER, OR LONG-WOOLLED SHEEP.

Best shearling ram, £20, Mr. W. Abraham, Barnetby-le-Wold, Brigg; second, £5, Mr. J. Borton, Barton House, Malton.

Best ram of any age, £10, and second prize £5, Mr. W. Abraham, Barnetby-le-Wold, Brigg.

Best pen of five ewes, £7, Mr. G. Walmsley, Rudston, Bridlington.

Best pen of five shearling wethers, £5, Mr. G. Walmsley, Rudston, Bridlington.

Best pen of five shearling gimmers, £12, Mr. W. Abraham, Barnetby-le-Wold, Brigg; second, £5, Mr. G. Walmsley, Rudston, Bridlington.

SOUTHDOWN SHEEP.

Best shearling ram, £10, Mr. G. S. Foljambe, Osberton Hall, Worksop.

Best southdown ram of any age, £10, Lord Walsingham, Merton Hall, Thetford.

Best pen of five southdown ewes, £5, Lord Walsingham, Merton Hall, Thetford.

BLACK-FACED SCOTCH OR HIGHLAND SHEEP.

Best ram, £5, Mr. R. Pearson, Markenfield Hall, Ripon.

Best pen of five ewes, £1 (the prize offered being £5), Mr. R. Pearson, Markenfield Hall, Ripon.

EXTRA STOCK—SHEEP.

First prize, Mr. J. Borton, Barton House, Malton; second prize, Mr. E. Eddison, Headingley, Leeds.

PIGS.

Best boar, large breed, £5, Mr. T. M. Richardson, Hibaldstow, Kirton-in-Lindsey; second, £2, Mr. T. Craven, Manningham, Bradford.

Best sow, large breed, in pig or milk, £7, the Earl Fitzwilliam, Wentworth House, Rotherham; second, £2, Mr. P. Sturdy, Ingleby Mill, Stokesley.

Best boar, small breed, £5, Mr. G. Mangles, Givendale, Ripon; second, £2, Mr. W. B. Wainman, Carhead, Skipton.

Best sow, small breed, in pig or milk, £7, and second £2, Mr. G. Mangles, Givendale, Ripon.

Best three store pigs of the same litter, from four to nine months old, £5, Mr. S. Wiley, Brandsby, York; second, £2, Mr. A. Fawkes, Leathley, Otley.

Best sow of any breed, £5, Mr. Thomas Craven, Manningham, Bradford; second, £2, Mr. J. Dean, Oatlands Lodge, Leeds.

Best boar of any breed, £5, Mr. G. Mangles, Givendale, Ripon.

EXTRA STOCK—PIGS.

First prize, Mr. G. Mangles; second prize, Mr. Mark Barroby, Dishforth, Thirsk.

JUDGES FOR HORSES.—Mr. Edward Davy, of Hagnaby, Spilsby; Mr. Charles Garfit, of Tabley Hall, Knutsford; and Mr. J. Nainby, jun., Barnoldby-le-beck, Lincolnshire.

HORSES.

For the best stallion for hunters, £10, Mr. H. S. Waring, Darlington; second, £3, T. Groves, Plumpton Hall, Knaresbro'. For the best stallion for coach horses, £10, Mr. A. Hairsine, Holme, Hayton; second, £3, Mr. T. Deaby, Rawcliffe, Selby.

For the best stallion for roadsters, £10, Mr. J. Crompton,

Thornholme, Bridlington; second, £3, Mr. G. Long, Keadby, Wetherby.

For the best stallion for agricultural purposes, £10, Mr. G. Chapman, Thorphill, Whitley; second, £3, Mr. J. Stead, Bishop Thornton, Ripon.

For the best stallion for agricultural purposes, to attend at Ripon on every market-day for the season of 1855, and to travel in the district, £20, Mr. R. Emsley, Markington, Ripley.

For the best mare and foal for hunting, £7, Mr. T. Swarbrick, Sowerby, Thirsk.

For the best mare and foal for coaching, £7, Mr. J. Lee, Thirsk.

For the best roadster mare and foal, £5, Mr. J. T. Robinson, Leekhy Palace, Thirsk.

For the best mare and foal for agricultural purposes, £7, Mr. T. Wetherell, Kirkbridge, Darlington.

For the best three years old hunting gelding, £5, Mr. R. Stockdale, Skerne, Driffield.

For the best three years old hunting filly, £5, Mr. T. Batty, Wallerthwaite, Ripon.

For the best three years old coaching gelding, £5, Mr. T. Wetherell, Kirkbridge, Darlington.

For the best three years old coaching filly, £5, Mr. W. Morton, Ainderby Quernhow, Thirsk.

For the best two years old coaching gelding, £5, Mr. B. Johnson, Frodingham Bridge, Driffield.

For the best two years old coaching filly, £5, Mr. J. Dods-worth, Seamer, Stokesley.

For the best three years old hackney gelding or filly, £5, Mr. H. Vyner, Newby Hall, Ripon.

For the best hackney gelding or mare, not less than four years old, nor exceeding six, £5, Mr. T. Swarbrick, Sowerby, Thirsk.

For the best pair of horses of either sex, for agricultural purposes, worked during the season, £5, Mr. J. Batty, Bishop Monkton, Ripon.

For the best two years old agricultural gelding or filly, £7, Mr. J. Bennett, Snargill, Skipton.

For the best yearling gelding or filly for agricultural purposes, £5, Mr. J. Batty, Bishop Monkton, Ripon.

EXTRA STOCK, HORSES.

A medal was awarded to Mr. R. Gaunt, Wetherby.

IMPLEMENTS.

JUDGES.—Mr. J. Brown, Wrangbrook, Pontefract; Mr. C. Lambert, Sunk Island, Hull; Mr. G. Legard, East Thorpe, Malton; Mr. Peter Stevenson, Rainton, Thirsk; and Mr. C. E. Amos, C.E., The Grove, Southwark.

PRIZES.

For the best assortment of ploughs, £10; and for the best assortment of harrows, £5; Mr. J. Palmer, of Stockton.

For the best cultivator or scarifier, Messrs. Coleman and Son, of Chelmsford, £5.

The prize for the reaping machine was withheld.

For a waggon, Mr. Crosskill, £5.

For a single horse cart, Mr. Banks, of York, £5.

For the best fixed thrashing machine, Messrs. Clayton, Shuttleworth, and Co., Lincoln, £50.

For the best corn drill, £5; for the best turnip drill on the flat, £5; and for the best turnip drill on the ridge, £5; Messrs. Hornsby, of Grantham.

For the best manure distributor, Mr. Palmer, £5.

For the best grinding mill, Messrs. Clayton, £5.

For the best tile machine, Mr. H. Kearsley, Ripon, £4.

For the best Norwegian harrow, Mr. Kearsley, £2.

For Bentall's broad share plough, Mr. W. Busby, £2.

For the best roller mill for corn bruising, &c., Mr. F. Turner, Ipswich, £2.

For a mortising machine, Mr. W. Coulson, York, £2.

For a corn dressing machine, Messrs. Hornsby, £2.

For Nicholson's cake breaker, Mr. W. Dove, York, £2.

For a useful collection of articles, Mr. George Meynell, Northallerton, £1.

For Howard's horse rake, Mr. W. Busby, £2.

For models for horse shoes, Mr. M. Pratt, Ripon, £2.

For Malthouse's (of Ripon) general purpose drill for small occupations, £2.

For a chaff cutter, by Turner, Messrs. Burgess and Key, London, £2.

MEDALS.—For a traversing web and turnip drill, Mr. P. Stevenson, jun., of Rainton, Thirsk; Brinsmead's straw shaker, Mr. Busby; and washing, wringing, and mangling machine, Mr. John Patterson, of Beverley.

HIGHLY COMMENDED.—Mr. Crosskill's improved self-cleansing clod crusher; quadrant regulator in drill, Mr. W. Moore; Smith's haymaker, Mr. J. Palmer; and Hornsby's portable engine.

COMMENDED.—Mr. Crosskill's clod crusher; Cambridge's roller, Mr. B. Stead, Barnsley; single horse cart, Mr. John Barker, Dunnington, near York; barley harrow, Messrs. Lucas and Wright, Lincoln; and Chandler's liquid manure or water drill, exhibited by Mr. Jesse Kemp, Thurlby Grange, Aldford, Lincolnshire.

FLAX.

JUDGES (For Scutched Flax).—Mr. John Wilkinson and Mr. W. B. Holdsworth, both of Leeds. (For Flax Straw).—

Mr. H. Ludolf, Leeds; and Mr. Beilby, Fairfield, York.

For the best specimen of scutched flax, not less weight than 2 cwt., £10, Mr. J. Boyle, Whitebeck Mill, Leeds; second ditto, £5, Mr. R. Beilby, Fairfield, York.

For the best specimen of flax straw, not less than 5 cwt., £10, Mr. J. Atkinson, Shaw Mill, Ripley; second, £5, Mr. J. Boyle.

LONG WOOL.

For the best five ewe fleeces, £5, Mr. C. Barrowby, of Baldersby, Thirsk.

For the best five hog fleeces, £5, Mr. J. Batty, Bishop Monkton, Ripon; second, £2, Mr. J. Booth, Killerby, Catterick.

SHORT WOOL.

For the best five ewe fleeces, £5, Lord Wenlock; second, £2, Mr. J. Ellison, Allerton House, Knaresbro'.
For the best five hog fleeces, £5, Lord Wenlock; second, £2, Mr. J. Ellison.

THE COUNCIL DINNER

Took place in the Town Hall, when about 140 gentlemen sat down to an excellent repast. The chair was occupied by Earl de Grey, the president of the society; and Sir J. V. B. Johnstone, Bart., M.P., was in the vice-chair. On his right, the chairman was supported by the Earl of Carlisle, the Dean of Ripon, the Hon. E. Lascelles, and Col. Smyth, M.P.; and on his left by H. Morton, Esq. (Mayor), W. Beckett, Esq., M.P., and O. Harcourt, Esq.

After the usual loyal toasts, the Earl of CARLISLE proposed the health of the noble Chairman, who duly responded.

Mr. HANNAM, the Secretary, then read a list of the prizes awarded (which will be found elsewhere), after which

The noble CHAIRMAN introduced the subject appointed for discussion at the present meeting, viz., "The best way to ob-

tain yearly servants in agriculture, and to obviate the evils arising from the present system of hiring without character." His lordship observed that these were questions of great and essential importance connected with the agricultural interest, and if any gentleman was prepared to speak on the subject, he should be happy to hear him.

Mr. RUTSON said, as one of the Council who had issued the notice alluded to by the noble chairman, he begged to say a few words, by way of introduction rather than otherwise, with a view of inducing other gentlemen, who were better acquainted with the matter than himself, to offer such remarks upon the subject in hand as might, he hoped, be calculated to lead to a system of hiring servants very different to that which at present exists (Hear, hear). Now he did not expect that they would treat the question precisely as it had been laid down in the notice for discussion; or, at all events, he would ask them to treat it not in that limited way in which it might be interpreted; that is, not only that masters should be shown the best way of obtaining agricultural servants, but rather that they should consider how they might best improve alike the condition of the farmer and the labourer, but more particularly the condition of the latter (applause). He felt quite sure that to those gentlemen who had the opportunity of witnessing the exhibitions which occur in our market-places, he need not say anything to commend this subject to their serious consideration. The scenes which take place there, and likewise in the magistrates' rooms and elsewhere, seem to be inevitably consequent upon that kind of irregularity which always occurs where both parties are not exactly agreed as to the terms of the agreement between them; the one expecting, perhaps, too much, and the other promising or performing too little (Hear, hear). And after the effects produced by drawing particular attention to improvements in the construction of farm implements, and to better systems of breeding and feeding cattle, probably we cannot be said to be too quick or too precipitate in at least making an attempt to do something towards advancing the condition of our fellow-men (applause). He would not occupy their time longer than to raise the questions, is the time now come when man is to have a profit from character as well as from his bodily strength and exertion? and is the time come when the master shall have that security which character will give him? All he could say was that it must be a joint effort, or it would be a failure; they must, landlords, tenants, and all join, or nothing would be done (applause).

Mr. CROMPTON said the subject appointed for discussion on this occasion was one upon which he had looked with much interest, from time to time, and probably his conviction of the importance of the subject had been much strengthened on account of the numerous cases in which farm labourers were concerned which had come before him during the last thirty years, for a considerable portion of which time he had acted as a magistrate of the West Riding (Hear, hear). He did not exactly agree with Mr. Rutson, who said they should hire persons with a character, because that seemed to convey the impression that the agriculturists generally hired servants without characters. Now his impression, and indeed he might say his practical knowledge, with respect to these matters, was, that there are but few women of good character and few men of high character, so far as proficiency and character go, who are not quickly hired when they are at liberty, and who seldom attend the public hirings at all, except for their own amusement (Hear). This class of servants are so well known that they generally either retain their former situations, or if they remove, in order to ameliorate their position, they do not pass away to any great distance from the neighbourhood in which they were before located. As a

general principle, it was true, he thought, that good labourers were seldom without good employment and remunerating wages. But before the present inconveniences connected with the hiring of servants could be removed, it appeared to him that some alteration must be made in the statute law bearing upon the differences as between master and servant. If the law were carried into effect by magistrates who would exert a kindly interference in such cases, they might often have a very beneficial influence in ameliorating the condition of men and women servants employed in the agricultural districts. Cases of great hardship had come before him in his magisterial capacity, on different occasions: for instance, take the case of a man servant who is hired by some one at a considerable distance from the place where he was last in service. Not knowing what his new situation may be, or what the duties he may be required to perform—knowing nothing either of his master or mistress, or of the extent of the farm, and so on, he finds the situation when he gets there very different, perhaps, to his expectations; the master also may be disappointed, and when he requires this man to do something which he (the man) did not suppose or understand he would have to do, and he refuses, the master says, "I engaged you with a 'god's-penny,' and if you do not do as I require you, I will summon you before the magistrates, and they will compel you to obey me." The man very naturally replies, "You hired me under false pretences; I find the place very different to what you said, and, as there is no agreement in writing, I defy you to do your worst." The man, however, is eventually summoned before the magistrates, and in some cases this is a matter of great hardship. (Hear, hear.) He found, and he had no doubt that many of those whom he now addressed had also observed, that the same complaints arose, year after year, from the same farm-houses. The fact is, that some masters, and also some of their wives, are so bad to please—(laughter)—that it requires a man to be a very good servant to please both; and if he endeavours to do this to the best of his ability, it does appear hard that he should at last be driven to prefer some complaint before the magistrates, who in many cases cannot mend the matter. (Hear.) As affecting such cases, he thought the law might undergo some salutary alterations. A magistrate cannot put aside an agreement, unless both parties wish it; and if the man would have the agreement cancelled, and the master is not willing, the magistrates cannot alter or break that agreement; and all that they can do is either to send the man back to his situation or to the house of correction; and surely it is not desirable to send a willing agricultural labourer to a place where he must lose, more or less, his moral character, if it only be on account of the fact of his having been in prison (applause.) Under such circumstances, he felt that before they commenced any other operations with a view to amend these matters, the statute must be altered which regulated the hiring of servants (Hear, hear). He wished also to say a few words in reference to the bastardy laws, in which there appeared to him to be one of the most unjust clauses that was ever enacted. He alluded to the requirement that a female, in order to affiliate a child, must have her evidence corroborated by a witness. He remarked how easily it might happen, in some farm-houses, that there could not possibly be any such witness, and how unsatisfactory was the accommodation provided for men and women servants in many instances. The consequence of the law upon this subject making this requirement is, that even if a magistrate feels convinced of the justice of the complaint made by the woman, yet he cannot make an order against the putative father upon her oath alone. On the general question, he was quite convinced that character would always have its weight,

and that those servants who were known for their good characters would never have to go far in search of good situations (Applause).

Mr. WELLS, of Booth Ferry, thought that the subject under discussion was one which materially affected the farmer. He regarded the question as a farmer's question, principally. He was well aware that character was, or ought to be, the great standard as between the farmer and the labourer. Character should be the essential part of the contract between them (applause). He had ten or twelve men engaged yearly, and he had experienced very considerable difficulty in reference to the point first alluded to by Mr. Crompton. With respect to female servants, there was no difficulty in the matter. Good female servants living in good families could always be engaged without going to any public statutes. If a woman-servant had a good character, and she did not stay in her situation, there were always plenty of farmers who would send over to inquire into that character, and would engage her without her having to go to any statutes at all (Hear, hear). But with regard to boys it was a very different matter, as most of them seem to like a change, thinking that two years at the utmost is quite a sufficiently long period to remain in one situation. Farmers hired their boys at statutes, and it sometimes unfortunately happened that in an agricultural district two or three statutes were held before Martinmas Day. He

thought that the adoption of the principle of a god's-penny was of no use whatever. If they gave a servant a god's-penny, and the contract between them was not in writing, the person hiring the servant could not compel him to serve out his time, unless he had actually entered upon his service; and servants were now perfectly alive to that point (Hear, hear.) It had happened to himself that he had hired servants, who had afterwards gone to other statutes, and who, finding that they could obtain higher wages, had returned him his god's penny. He had been served in this way with four or five boys, and after all the statutes were held he was obliged to fill up the vacancies with boys without a character, all those who had a character having been engaged in the meantime. He conceived that this was a matter which lay entirely in the hands of the farmers, and he felt quite convinced that, if every farmer would use his influence with his brother farmer, and refuse to take a servant without a character, and without having an agreement in writing, the evils now so loudly complained of would be very materially obviated. At the same time he did not wish that they should take any advantage of their servants, who should have a counterpart of any agreement that might be signed between the parties (applause).

The discussion then terminated, and the noble chairman and other principal guests withdrew.

DURHAM COUNTY AGRICULTURAL SOCIETY.

The thirteenth annual meeting of this Society was held on Friday, Aug. 4th, at Darlington.

LIST OF PRIZES.

SHORT-HORNED CATTLE.

For the best bull, calved since the 1st Jan., 1852, £15, Mr. Robert Thornton, of Stapleton.

For the best bull calf, not less than 6, nor more than 12 months old, £5, Mr. Thos. Barber, Sproatley, near Hull.

For the best cow in-milk or calf, having had a calf within the last 12 months, £5, Mr. George Davison, Rudby, near Yarm; second prize £1, Mr. John Emmerson, Over Dinsdale.

For the best two-years-old heifer in-calf, £4, J. C. Constable, Esq., Burton Constable, near Hull; second prize £1, J. C. Constable, Esq.

For the best one-year-old heifer, £3, second £1, J. C. Constable, Esq.

Short-horned cattle belonging to tenant farmers within the county, whose rental is under £200 per annum, and not assessed to the income-tax:—

For the best two-years-old heifer, £2, Mr. Jeffrey Bulmer, jun., of Aislaby Grange; second prize 10s., Mr. George Hutchinson, Woogra, Bishopston.

For the best yearling heifer, £2, and second prize 10s., Mr. Jeffrey Bulmer, jun., of Aislaby Grange.

LEICESTER OR LONG-WOOLLED SHEEP.

For the best aged ram, £3, Mr. Joseph Simpson, Spofforth Park, near Wetherby.

For the best shearing ram, £3, and second-best £1, Mr. J. Simpson.

For the best pen of 5 ewes, £3, Mr. Thomas Crofton, Hollywell, near Durham.

For the best pen of 5 shearing gimmers, £2, Mr. J. Wood, jun., Stanwick Park, Aldbro'.

BLACK-FACED SHEEP.

For the best shearing tup, £2, Mr. William Vickers, Snowfield, Stanhope.

For the best pen of 5 ewes, £2, Mr. J. Wills, Farewell Hall, near Durham.

For the best pen of 5 shearing gimmers, £2, Mr. William Vickers, Snowfield, near Stanhope.

PIGS.

For the best boar, large breed, £3, Mr. Peter Sturdy, Ingleby Mill, Stokesley.

For the best boar, small breed, £3, Marchioness of Londonderry.

For the best sow, large breed, £2, Mr. Peter Sturdy, Ingleby Mill, Stokesley.

For the best pig, the property of a cottager, £2, Mr. W. Braithwaite, Darlington; second prize £1, Mr. Charles Hardy, Headlam.

HORSES.

For the best mare for breeding saddle horses, with a foal at her foot, £3, Mr. C. Pybus, Catterick; second best, £1, Mr. J. Jackson, Lackenby, near Redcar.

For the best mare for breeding harness horses, with a foal at her foot, £3, Mr. James Storey, Seamer; second best £1, Mr. J. G. Grace, Sockburn, Darlington.

For the best mare for breeding cart horses, with a foal at her foot, £3, Mr. T. Wetherell, Kirkbridge; second best £1, Mr. Philip Longstaff, Stainton, near Barnardcastle.

For the best three-years-old colt for the field, £2, Mr. John Emmerson, Over Dinsdale; second best £1, Mr. Joseph Dent, Neasham Hall Farm.

For the best three-years-old filly for the field, £2, Mr. Bryan Harrison, junr., West Newbiggin; second best £1, Mr. John G. Grace, Sockburn.

For the best three-years-old colt for harness, £2, Mr. T. Wetherell, Kirkbridge; second best £1, Mr. John Atkinson High Beaumont Hill, Darlington.

For the best three-years-old filly for harness, £2, Mr. W. Mowbray, Newbottle; second best £1, Mr. John Reed, Park Hill, Coxhoe.

For the best three-years-old cart colt, £2, Mr. Michael Raine, Nunstainton, near Bradbury; second best, £1, Mr. John Atkinson, High Beaumont Hill.

For the best three-years-old cart filly, £2, Mr. R. Emmerson, Eryholme.

For the best two-years-old colt for the field, £2, Mr. C. Pybus, Catterick; second best, £1, Mr. Robert Thornton, of Stapleton.

For the best two-years-old filly for the field, £2, Mr. Jonathan Gill, Aycliffe Mill.

For the best two-years-old colt for harness, £2, Mr. Raine,

Nunstainton, near Bradbury; second best, £1, Mr. John Harris, Woodside, Darlington.

For the best two-years-old filly for harness, £2, Mr. Thomas Lawson, Stapleton Grange; second best, £1, Mr. George Taylor, Midridge.

For the best two-years-old cart colt, £2, Mr. W. Raine, Nunstainton, near Bradbury; second best, £1, Mr. R. Emmerson, Eryholme.

For the best two-years-old cart filly, £2, Mr. John Pratt, Sarton, bred by Jos. Crookes; second best, £1, Mr. John Emmerson, Over Dinsdale.

For the best one-year-old cart or filly, £2, Mr. Phillip Longstaff, Stainton, near Barnardcastle; second best, £1, Messrs. C. and J. Furness, Coxhoe.

Extra Stock.—Mr. R. Thornton's (Stapleton) a three-years-old Heifer, highly commended. Mr. Allison's (Ileighington) Heifer, Violet, commended.

THE ROYAL AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND. MEETING AT ARMAGH.

This meeting at Armagh has been pronounced by those well qualified to judge, to be the best the Agricultural Society of Ireland has yet held. As one of the wits remarked at the dinner table, where this satisfactory announcement was made, "it would be very odd if it was not, for there never was a meeting of the society so far, but that it was sure to be the best ever known." Notwithstanding, however, the comment of the gentleman who thus sacrificed his patriotism to his joke, we are inclined to believe the fact is strictly as he has put it. The Improvement Society of Ireland has gradually gone on improving; exciting year by year more interest amongst those for whose especial benefit it was established, and furnishing in its proceedings something of an index to the more prosperous condition of the people and the country.

"There is no society in Ireland," said one of the most practical of the speakers, "that has done so much for the welfare and improvement of Ireland." There is certainly none whose object could be susceptible of so direct an application, or whose influence was generally so much required. Ireland has too long enjoyed the repute of associating the best land with the worst farmers in the world. Admitting this charge to be a true one, and there can be little doubt about it, we naturally proceed to ask who it is we are to blame? The answer is a sufficiently comprehensive one. It is—or it *was*—everybody. The owner of the soil neglected his duties, oblivious alike of his own well-doing as of that of his dependants. The occupier but too closely imitated an indifference so systematically offered him in the way of example; while the labourer, with less inducement still to exert him-

self, just lived on like superiors, mindful only to trouble himself as little as possible.

The Agricultural Improvement Society has gone the right way to reform this. It is now laying the proper foundation for that improvement it says to effect. It does this by securing the support of those from whom the initiative must proceed. It is not too much to say, that thus far the society owes nearly all its strength and success to the landed gentry of the country. To their credit must it be recorded, they not merely enroll their names and send in their subscriptions, but they give an active support and practical tone to the business of the meetings that can only tend to still more practical results. It is rarely we have seen any meeting more becomingly supported by the gentry of the country than was this, of the Irish Agricultural Society at Armagh.

The general effect of what they are engaged upon will no doubt be a work of time. It is true enough that travelling now from Belfast to the locality this year selected for the show, the visitor might find but little to speak to the influence of an Agricultural Improvement Society. The foundation, we must repeat, however, is being securely laid. He to whom all others should look for example is affording it, and with it he is proffering assistance that can scarcely fail to tell. The best stock in the United Kingdom, as the Armagh prize list and catalogue will show, is now to be seen in the home-farms of the Irish landlords. The best systems of cultivation are being introduced by the same means; and if the tenant does not now make some effort to advance, it will most assuredly be nobody's fault but his own.

It is sometimes urged as a complaint, even against the English Society, that the practical farmer is scarcely as distinguished at the different shows as it would be desirable to see him. The power of purse is too strong, and it, so, often happens that he succumbs before it. However this is to be regretted here, it cannot, from what we have already said, be a cause for any great complaint in a comparatively young country like the sister kingdom. The management must have still heard or felt something of this difficulty; and thus at Armagh, for the first time, came a series of "extra premiums," in addition to Mr. Towneley's Cup, to be competed for by *bonâ fide* tenant farmers "not paying more than a hundred a year rent." The entry in any of these classes, it must be confessed, was not very numerous; in two or three sections there was none at all. We cannot but consider it a laudable endeavour, although under the present conditions not very likely to lead to any very great results. The hundred-a-year limit strikes us as a mistake; surely far more good might be expected were the competition extended generally to *bonâ fide* tenant farmers.

Still with all classes, and it was evinced clearly enough in these hundred-per-annum holdings, there is one strong point in favour of agricultural improvement in Ireland. Seldom is it that less prejudice has been encountered; or, if there had been any, never can it have given way more readily. An exhibition of the Society of Ireland has now very little Irish about it. Without referring to our catalogue, we can scarcely recollect anything but the useful little Kerry cow as peculiar to the country. The Irishman has gone boldly to work, and imported his improvements wholesale. Like the philosophical exquisite, he is easily satisfied—with the best of everything. And he knows where to go for the best, too; as this gathering amply proved. The Durham ox, the Leicester sheep, the Berkshire pig, and the Clydesdale horse were the great attractions of his show-yard. To these he has given in his adhesion, as with these he purposes working out the agricultural improvement of Ireland.

More or less, this must for some time yet be a matter of importation. Some of these breeds, however, are already sufficiently established in the country to furnish the material for a very excellent display without any direct aid from England or Scotland. This was the case in a very capital entry of Leicester sheep, as well as of Berkshire pigs. A large majority of the exhibitors were Irishmen, with, we believe, chiefly Irish-bred animals. Even in the Durham or Shorthorn classes, one of the best shows of the sort ever seen, the home exhibitor was able to make a very good stand. He

had to contend here with the best bred stock in the world, descended from some of our most renowned herds, and against beasts themselves pronounced the most perfect of their kind. Mr. Booth, a name going far back in the history of the shorthorn, brought the prize stock of Lincoln and Berwick; his famous bull Windsor, once more to lead off with. Mr. Towneley, an old friend to this society, sent the pick of his famous cows—Butterfly and Beauty amongst them; and Mr. Douglas his celebrated heifer, the first prize of every class she has been shown in, with two or three young bulls, whose merits, at least in one instance, were scarcely as satisfactorily admitted.

High as these entries tended to rank the character of the Armagh show, they proportionately lessened the opportunities of the resident exhibitors. The show, to be sure, as thus considered, was very uneven: with a number of excellent animals, there were some whose owners must have been more sanguine or less experienced, than one could have imagined. The good, though, greatly predominated, as several well-deserved commendations will speak to; while, in two or three instances, "the award of merit" even went beyond this. Lord Monck, for example, carried off the first premium for the two-year-old bull, beating, amongst others, both Mr. Douglas and Mr. Towneley. It is nevertheless the only fair to add that the decision here was one of the very few in which the opinion of the judges was much canvassed. Popular feeling was certainly in favour of Mr. Douglas's bull as being the best, and the white as only second to him. The award, it will be seen, was the reverse of this. Messrs. Booth and Towneley were, we believe, the only exhibitors from England, and Mr. Douglas the only one from Scotland—at least, in the short-horn classes. They played it, perhaps, a little too much, like the bull in the china shop; although, in addition to Lord Monck, many other of the home exhibitors were well distinguished. Sir Arthur Brooke took the second premium in a numerous entry of aged bulls, with a very superior beast, bred by Mr. Chaloner of Kingsford; and Mr. Richardson of Lisburne, the first prize for yearling heifers, with another of Mr. Chaloner's stock. Lord Monck's bull was, indeed, bred by this same gentleman, whose herd appears to have a high and increasing reputation here. The many commendations we have mentioned will say yet more for the Irish agriculturists' appreciation of the short-horn. There was an evident desire, moreover, to retain some of the extraordinary animals Messrs. Booth and Douglas had brought over, and many nibbles made for them; but prices ranged high, and rumours of four or five hundred a piece were freely circulated. Eight hundred

guineas, indeed, was said to be "the reserve" on Mr. Douglas's celebrated heifer "The Rose of Summer."

Mr. Towneley, it will be observed, has now appropriated the Purcell Challenge Cup, having won it three years in succession, much to the regret of the members of the society. This gentleman, however, has very handsomely offered to present one to be competed for on similar conditions, in addition to the Tenant Farmers' Cup, which already bears his name. An objection to Butterfly, with whom he won it, as having already obtained a first prize at these meetings, was of course over-ruled. We had some hopes, when we first heard of it, that the over-feeding question was to be brought to an issue. The objector in such a case might have had something more to go upon.

With the exception of the Devons, of which there was a moderate show, both in number and quality, the other breeds were indifferently represented. Beyond one or two prize animals, it was too far from home for the Kerrys to make up much of a feature; while in the larger breeds we counted one Hereford bull, one Sussex cow, one Sussex heifer, and three Sussex bulls. The Polled, Angus Galloways and West Highlanders had not always an entry in each section into which they were divided; and though the Ayrshires were at least by comparison better, there was anything but a strong display of them. The manner in which these "other breeds" were jumbled together was somewhat curious as well as amusing. First of all, you came on a Sussex or Hereford bull, then in the next section to the Devon bulls, and from them in another department to the Polled Angus and Galloways; after this, your catalogue returned to the one Sussex cow, next introducing you to the Devon cows, and so on, in both large and small breeds, continually confusing one variety with another. Surely if it is worth while putting the Devons and Galloways into separate classes, it might be as well to keep them separate, and dispose of one sort, as with the short-horns, before proceeding to another.

The show of Leicester sheep we have already remarked as being very excellent—in its way, quite worthy of the Durham cattle. Mr. Torr, one of the judges on this occasion, as well as having a long experience of the society's meetings, declared it was the best sheep show he had ever seen in Ireland. The Leicesters, a mixed entry of Irish and Scotch, were remarkable for being not only numerous, but almost all good; and they were well supported by the other long wools and Cheviots. The Southdown, on the other hand, does not seem to be in such favour: somewhere about half-a-dozen exhibitors made up the entry of what there was.

Despite the first prize being awarded to the Cum-

berland breed, we can only repeat our approval of the pigs, as depending mainly on the Berkshires. We much question whether, for general character, a uniform display of a very good sort, preserving all the best points of the kind, there have been many meetings in any part of the United Kingdom superior to this. The competition was so close and so excellent, that a different set of judges would most probably have, in many instances, made a different award. The conclusion still would be still equally satisfactory. If our Irish friends will only go on as they have done, Irish bacon will soon have a far better reputation.

We have said the Agricultural Improvement Society goes to Durham or Yorkshire for its beef, to Leicester for its mutton, to Berkshire for its bacon, and to Scotland for its horseflesh. In this last-mentioned article there are many sorts for which it need not travel so far from home. These, however, are not yet, at least, recognized in a prize list closely confined to agricultural purposes. To improve here they must certainly take a wider range. With the exception of the Clydesdale mares and a stallion or two, we never remember to have seen a more ragged show of cart horses. Cart horses, indeed, many of them were not; but a weedy leggy animal, that it would be difficult to say what they were fit for. By way of encouraging something better, the Society offered an especial prize of thirty sovereigns for the best Suffolk; but neither of the two horses sent for it was considered of "sufficient merit." Might it not be worth the while of some of our Suffolk breeders to devote a week or so and a good horse to our Irish friends? We fancy the visit might be made to answer in every way.

A well-arranged poultry show brought together almost every variety the connoisseur could wish for—Dorkings, Spanish, Polish, Malays, Hamburgh, and Cochins; with ducks, geese, and turkeys, to complete this branch of the catalogue. Butter and eggs conventionally go together, and the merits of either were not omitted here. The dairy produce was very commendable; the flax exhibition, on the contrary, scarcely so good as had been expected. The same may be said of the implement department, in which the falling off was the subject of very general remark. The most direct evidence of this is that some of our best English makers who were present at Killarney did not think it worth the expense to visit Armagh. The Society give their premiums in medals only. They will have to give more, and, as they were assured, with a better effect, if they turn them into money. The prize list will speak to such manufacturers as were here—Ransomes, Garretts, Richmond and Chandler, Cottam and Hallen, and Smyth of

Peasenhall, amongst them. It would be superfluous to go through a list, the different items in which have already been so fully descanted on at other meetings. It will be sufficient to say that "the Lion" of this department was Ransome's steam engine, to the merits of which the Lord Lieutenant made especial reference, in the very elaborated address which his lordship delivered at the dinner.

We report as much of this as we can well find room for, and with it some very practical remarks from Lord Erne and Mr. William Torr. The latter assured the meeting with much emphasis that they had not only improved their cattle, but themselves; the breed of landlord and tenant was improving in Ireland, and he could tell them "the reason why." It is but fair to say that the meeting received this in the very best humour, and that Mr. Torr "resumed his seat amidst great applause." We must add our word of thanks to the Duke of Leinster as a most able president; with not too much to say himself, anticipating, no doubt, as his Grace did, how well his friends, right and left, would make up for any deficiency in this respect. They had, alas! nearly all, the same common want of discretion; and one or two had to be fairly talked down by their audience before they came to find "they had trespassed too long upon your attention." Lord Clancarty, with his "just one point more;" Lord Claude Hamilton, so eminently distinguished by what *The Quarterly* terms his "exuberant action," and so singularly contrasted by the sober clerical manner of my Lord Talbot de Malahide, who followed him. Excellent as was much of what was here said, how much more effective would it have been, if only, like Mr. Kemble's Shakesperian readings, "a little compressed."

In conclusion, we have to congratulate the Council on some manifest improvements on their arrangements at Killarney. It is true, though, they are even yet hardly perfect; and the Lincoln deputation might have profited a little more by what they saw there. Only one admission, for instance, to the whole yard, and that by as inconvenient a "way in" as it was possible to contrive. The crush was bad enough on the half-crown day; how they managed after that, we, fortunately for ourselves, have no experience. Then again, no dinner tickets for sale in the yard; and, of course, no return checks for those who went out in the town to buy them. The only plan was to request as a special favour that some official would keep your portrait in his mind's eye, and "know you when you came back again." Further than this, the district committee got to open war with the whole of the Irish press,

by not making up their minds as to when these gentlemen should be admitted and when they should not, and thus keeping them for some hours hanging about the doorway. From what we saw, the Dublin, Belfast, and other papers, went to extraordinary pains to report the meeting day by day, and we cannot help thinking that their representatives were very indifferently received. It is fortunately not necessary for us to seek any courtesies of this kind; but, from what we have observed, they are by no means too gracefully accorded by the Royal Agricultural Improvement Society of Ireland. Some further improvement may be effected in this, by the example of the Royal Agricultural Society of England. The council here issue invitations some time before the meeting, enclosing passes, &c., and specifying the time when the yards will be open, to such of the press as they think would wish to report their proceedings. This does away with all chance of inconvenience and annoyance, and no man gets soured by sour treatment. It will be to the advantage of our Irish friends to look to this.

PRIZE LIST.

JUDGES.

SHORT-HORNS.—J. Dale Trotter, Bishop Middletown, Durham; Thomas Parkinson, Leyfields, Notts; Hugh Watson, Keillor, Forfarshire.

LEICESTERS, OTHER LONG-WOOLLED SHEEP, AND SOUTH-DOWNS.—Charles Clarke, Aisthorpe, Lincoln; John Wells, Booth Ferry, Yorkshire; William Torr, Aylesby Manor, Lincolnshire.

SHEEP (CHEVIOTS OR ANY OTHER MOUNTAIN BREED).—Hugh Watson, Keillor; R. S. Skirving, Camptown, Had-dington; Joseph Pacey, Newtown, county Clare.

SWINE.—Benjamin Swatfield, Pilsbury, Ashbourne; Joseph Pacey.

HORSES.—Charles Garfitt, Mere Old Hall, Cheshire; R. S. Skirving.

POULTRY.—W. F. Black, Omagh; Capt. Croker, Ballitore.

DAIRY PRODUCE.—Wm. Murray, Lurgan; John McLoghlin, Dunganuon; James Wilkin, Armagh.

FLAX.—James Brown Boyd, Armagh; Henry Dickson, Gilford, county Down; John Wilson, Armagh.

[We have not been able to obtain any list of the Implement Judges, but we believe many of the above acted in both departments.]

CLASS A.—SHORT-HORNS.

For the best bull, calved on or after the 1st January, 1849, and previous to the 1st January, 1852, 30 sovs.—Richard Booth, Warlaby, Northallerton, England; bull Windsor.

For the second best, 10 sovs.—Sir Arthur B. Brooke, Bart., Colebrooke-park, Brooke-borough; bull Rate-in-aid.

The bulls shown in this section by Mr. J. Wood, of Castle-grove, Strathbane, by Lord Dufferin, by Mr. Babington, of Crevagh, and Mr. J. W. Maxwell, of Finnebrogue, were commended.

For the best bull, calved in the year 1852, 20 sovs.—Charles Towneley, Towneley Park, Burnley; bull Hogarth.

For the second best, 10 sovs.—Sir Frederick W. Heygate, Bart., Bellarena, Newtownlimavady; bull Nimrod.

The bulls shown in this section by Mr. Owen, of Blessington, and Mr. C. P. Leslie, M.P., were *commended*.

For the best bull, calved on or after the 1st January, 1853, 15 sovs.—Lord Viscount Monck, M.P., Charleville, Enniskerry; bull Cadet.

For the second best, 5 sovs.—James Douglas, Athelstaneford, Drem; bull Osman.

The bulls shown in this section by Mr. Stanley, Mr. Clintock, Mr. Marcus, Mr. Causland, and by Mr. Towneley, were *commended*.

For the best cow, in calf or in milk, of any age, 15 sovs.—Charles Towneley, Towneley Park, Burnley; cow Butterfly.

For the second best, 5 sovs.—John Christy, Fort Union, Adare; cow Peach.

The cow shown in this section by Mr. Anthony Babington, Creevagh, was *commended*.

For the best heifer, in calf or in milk, calved in 1851, 15 sovs.—Richard Booth, Warlaby, Northallerton, England; heifer Bridesmaid.

For the second best, 5 sovs.—Charles Towneley, Towneley Park, Burnley; heifer Vestris.

The heifers shown in this section by Mr. Knox, of Jacksonhall, by Captain Borrowes, of Giltown (for two), by Mr. Rowland Campion, of Old-town (for two), by Lord Caledon and Lord Lurgan, were *commended*.

For the best heifer, in calf or in milk, calved in 1852, 10 sovs.—James Douglas, Athelstaneford, Drem; heifer Rose of Summer.

For the second best, 5 sovs.—William Charley, Seymour Hill, Belfast; heifer Countess of Eglinton.

The heifers shown in this section by Mr. Stanley, Mr. Clintock, by Lord Caledon, by Mr. Ball, of Robert's Walls (for three), and by Colonel Kane Bunbury, were *commended*.

For the best heifer, calved on or after 1st January, 1853, 10 sovs.—Jonathan Richardson, Glenmore, Lisburn; heifer Rosette.

For the second best, 5 sovs.—Lord Lurgan, Brownlow House, Lurgan; heifer Myrtle the Fifth.

The heifers shown in this section by Mr. C. J. Knox (for two), by Mr. Douglas, by the Duke of Manchester, and Mr. Turner, of Newtown, were *commended*.

CLASS B.—OTHER LARGE BREEDS.

For the best Hereford or Sussex bull, calved on or after 1st January, 1849, 10 sovs.—the Earl of Caledon, Caledon Hall, Caledon; Sussex bull, Captain Rix.

For the best Devon bull, calved on or after the 1st January, 1849, 10 sovs.—the Earl of Charlemont, Marino, Fairview, Dublin; Devon bull Chieftain.

For the best polled Angus or Galloway bull, calved on or after the 1st January, 1849, 10 sovs.—Lord Talbot de Malahide, Malahide Castle, Malahide; polled Angus bull, Monck.

For the best Hereford or Sussex cow, in-calf or in-milk, of any age, 5 sovs.—the Earl of Caledon; Sussex cow Lady Rix.

For the best Devon cow, in-calf or in-milk, of any age, 5 sovs.—Robert Quin Alexander, Acton House, Poyntzpass; Devon cow Daisy, in-milk.

For the best polled Angus or Galloway cow, in-calf or in milk, of any age, 5 sovs.—Sir Frederick William Heygate, Bart., Bellarena, Newtownlimavady; Galloway cow Maid of Galloway.

For the best Hereford or Sussex heifer, in-calf or in-milk, calved on or after the 1st January, 1851, 5 sovs.—the Earl of Caledon; Sussex heifer Miss Rix.

For the best Devon heifer, in-calf or in-milk, calved on or after 1st January, 1851, 5 sovs.—Roger Hall, Narrow Water, Warrenpoint; heifer Red Rose.

For the best polled Angus or Galloway heifer, in-calf or in-milk, calved on or after 1st January, 1851, 5 sovs.—no entry.

For the best Hereford or Sussex heifer, calved on or after 1st January, 1853, 3 sovs.—no entry.

For the best Devon heifer, calved on or after 1st January, 1853, 3 sovs.—no entry.

For the best polled Angus or Galloway heifer, calved on or after 1st January, 1853, 3 sovs.—Adam Grierson, Ardsalla, Fethard, co. Tipperary; Galloway heifer.

CLASS C.—SMALL AND MOUNTAIN BREEDS.

For the best Ayrshire bull, calved on or after 1st January, 1849, 5 sovs.—N. W. Roche, M.D., Fermoy, co. Cork.

For the second best, 3 sovs.—Wellesley Prendergast, Listerlin, New Ross, co. Wexford; Ayrshire bull London.

For the best West Highland bull, calved on or after 1st January, 1849, 5 sovs.—no entry.

For the best Kerry bull, calved on or after 1st January, 1849, 5 sovs.—the Earl of Charlemont, Marino, Fairview, Dublin; Kerry bull Rory O'More.

For the best Ayrshire cow, in-calf or in-milk, of any age, 4 sovs.—Alexander Hutcheson, Gosford Farm, Market Hill; cow Jenny.

For the second best, 2 sovs.—Sir Frederick William Heygate, Bart., Bellarena, Newtownlimavady; cow Beauty.

For the best West Highland cow, in-calf of milk, of any age, 4 sovs.—Sir Frederick Wm. Heygate, Bart.; Kylloe cow Highland Mary.

For the best Kerry cow, in-calf or in-milk, of any age, 4 sovs.—the Earl of Charlemont; cow (in-milk) Lady Eglinton.

For the second best, 2 sovs.—John L. Gaussen, M.D., Crumlin, co. Antrim; cow Gossip.

For the best Ayrshire heifer, in-calf or in-milk, calved on or after 1st January, 1851, 3 sovs.—Lord Clermont, Clermont Park, Dundalk; heifer (in-milk) Bracelet.

For the second best, 2 sovs.—Lord Clermont; heifer (in-milk) Primrose.

For the best West Highland heifer, in-calf or in-milk, calved on or after 1st January, 1851, 3 sovs.—Sir Frederick W. Heygate, Bart.; Kylloe heifer Heather Blossom.

For the best Kerry heifer, in-calf or in-milk, calved on or after 1st January, 1851, 3 sovs.—Ralph S. Cusack, Bohomer, St. Douloughs, co. Dublin; pure Kerry heifer, in-calf.

For the best lot of two Ayrshire heifers, calved on or after 1st January, 1853, 3 sovs.—W. M'Dowall, Auchteraclure, Wigtonshire.

For the best lot of two West Highland heifers, calved on or after 1st January, 1853, 3 sovs.—no entry.

For the best lot of two Kerry heifers, calved on or after 1st January, 1853, 3 sovs.—John L. Gaussen, M.D., Crumlin, co. Antrim.

For the best of all the prize bulls exhibited at the show, the Gold Medal—Richard Booth, Warlaby, Northallerton, England; short-horn bull Windsor. To the breeder of the best prize bull, the medal—Richard Booth.

For the best of all the prize cows or heifers exhibited at the show, the Gold Medal—Charles Towneley, Towneley Park, Burnley; short-horn cow Butterfly. To the breeder of the best prize cow or heifer, the medal—Charles Towneley.

EXTRA PREMIUMS.

To be competed for by *bona fide* tenant farmers of Ireland, not paying more than £100 a-year of rent.

For the best cow, in-calf or in-milk, of any age, 8 sovs.—Thomas Horan, Armagh; Durham cow Chester.

For the second best, 5 sovs.—David Hamilton, Lowart, Glasslough; short-horned cow Dandy.

For the best heifer, in-calf or in-milk, calved in 1851, 5 sovs.—Joshua Wright, Mullaghmore, Caledon; short-horned heifer.

For the second best, 3 sovs.—William Running, Rich-hill; heifer, cross-breed—a Durham bull and Ayrshire cow.

For the best pen of five shearing ewes, 4 sovs.—no award.

For the best pen of five shearing ewes, not exceeding five years old, 3 sovs.—Joshua Wright, Mullaghmore, Caledon; pen of five ewes, having had lambs in 1854.

For the best breeding sow, over eighteen months old, 3 sovs.—Samuel Corrigan, jun., Fairlawn, Moy; black sow (half Berkshire).

For the best breeding sow, under eighteen months old, 2 sovs.—no entry.

For the best lot of three breeding sow pigs (same litter), under ten months, 3 sovs.—no entry.

THE PURCELL CHALLENGE CUP,

VALUE ONE HUNDRED SOVEREIGNS,

Given by the late Peter Purcell, Esq., for the best animal in the neat cattle classes, possessing most merit of its kind in the estimation of the judges, to Charles Towneley, Towneley Park, Burnley; short-horn cow Butterfly, calved May 1, 1849, bred by exhibitor, got by Jeweller, dam Buttercup, by Garrick, g.d. Burniton Rose, by Expectation, &c.

Second, Richard Booth, Warlaby, Northallerton, with short-horn heifer Bridesmaid.

THE TOWNELEY CHALLENGE CUP,

VALUE FIFTY SOVEREIGNS,

Presented by Charles Towneley, Esq., Towneley Park, Lancashire, to be competed for exclusively by *bona fide* Irish tenant farmers.

For the best lot of three breeding cows or heifers, of any breed, for general purposes, in-calf or milk, not less than three years of age, the property of a *bona fide* tenant farmer—John Christy, Fort Union, Adare, for three short-horns.

CLASS D.—HORSES.

For the best Suffolk Punch stallion, foaled on or after the 1st January, 1847, and previous to the 1st January, 1852, 30 sovs.—*not sufficient merit.*

For the best cart stallion of any other breed, foaled on or after the 1st January, 1847, and previous to the 1st January, 1852, 30 sovs.—Charles Powell Leslie, M.P., Glasslough; Clydesdale stallion Chance.

For the second best, 10 sovs.—Silvester Rait, Rathmoyle, Edenderry; Clydesdale cart stallion Glancer.

The Clydesdale shown in this section by Mr. Shaw, of Glastry, was *highly commended.*

For the best cart stallion, of any breed, foaled on or after the 1st January, 1852, 15 sovs.—Lord Clermont.

For the second best, 10 sovs.—John Ronaldson, Newcastle, Newtownmountkennedy; cart stallion Alexander.

For the best stallion in the above sections, the medal—Charles Powell Leslie, M.P.; Clydesdale Chance. For the breeder, the medal—to C. P. Leslie, M.P.

For the best cart mare, in foal or with a foal at her foot, or having reared a foal in the year 1854, 10 sovs.—George Roe, Nutley, Donnybrook; Clydesdale cart mare and foal.

For the second best, 5 sovs.—the Earl of Annesley, Castlewellan; black cart mare, aged, with foal at foot.

Three Clydesdale mares, shown by the Earl of Gosford, in this section, were *commended*—one of them *highly*.

For the best cart filly, foaled in the year 1851, 5 sovs.—Lord Clermont.

For the second best, 3 sovs.—Nicholas M. Archdall, Rossfad, Enniskillen; Clydesdale filly.

Best cart filly, foaled on or after 1st January, 1852, 5 sovs.—Thomas Butler, Priestown House, Clonee, co. Meath.

For the second best, 3 sovs.—Lord Clermont.

A Clydesdale filly, shown by Mr. Silvester Rait, in this section, was *commended.*

The judges stated that the show of brood cart mares was very good indeed.

CLASS E.—SHEEP.—LEICESTERS.

For the best shearing ram, 15 sovs.—Frederick F. Hamilton, Windmill Farm, Edenderry.

For the second best, 5 sovs.—Rowland Campion, Oldtown.

The ram shown by Mr. Roberts, of Strokestown, in this section, was *commended.*

For the best two-shear ram, 10 sovs.—John La Touche, Harristown, Brannoxtown, Newbridge.

For the second best, 5 sovs.—Rowland Campion, Oldtown.

Mr. La Touche's ram *commended.*

For the best ram of any other age, not exceeding six years old, 10 sovs.—Sir Frederick W. Heygate, Bart.

For the second best, 5 sovs.—Rowland Campion.

Lord Dufferin's ram *commended.*

For the best pen of five shearing ewes, 10 sovs.—Rowland Campion.

For the second best, 5 sovs.—Frederick F. Hamilton.

Mr. La Touche's ewes *commended.*

For the best pen of five ewes, not exceeding five years old, 10 sovs.—Frederick F. Hamilton.

For the second best, 5 sovs.—Frederick F. Hamilton.

For the best pen of five ewe lambs, 5 sovs.—Frederick F. Hamilton.

The ewes exhibited in this section by Sir F. Heygate and Mr. Douglas were *especially commended*, and the whole class *highly commended.*

CLASS F.—OTHER LONG-WOOLLED SHEEP.

For the best shearing ram, 10 sovs.—Silvester Rait.

For the second best, 5 sovs.—N. W. Roche, M.D., Fermoy.

For the best two-shear ram, 8 sovs.—Silvester Rait.

For the second best, 4 sovs.—Silvester Rait.

For the best ram of any other age, not exceeding six years old, 8 sovs.—N. W. Roche, M.D.

For the second best, 4 sovs.—Frederick F. Hamilton.

For the best pen of five shearing ewes, 6 sovs.—N. W. Roche, M.D.

For the second best, 3 sovs.—Thomas Ball, Robert's Walls.

For the best pen of five ewes, not exceeding five years old, 6 sovs.—David Kerr, Clonin, Edenderry.

For the second best, 3 sovs.—Thomas Ball.

For the best pen of five ewe lambs, four sovs.—David Kerr. Mr. Thomas Ball's ewes in this section *highly commended.*

CLASS G.—CHEVIOTS OR ANY OTHER MOUNTAIN BREED.

For the best ram of any age, not exceeding five years old, 8 sovs.—Marquis of Conyngham, Castle Slane, Slane; Cheviot ram.

For the second best, 4 sovs.—Edard M. Barnes, Ardynepark, Innellan, by Greenock; Cheviot ram.

Sir Frederick W. Heygate's, Bart., Cheviot ram *highly commended.*

For the best pen of five shearing ewes, 5 sovs.—Marquis of Conyngham.

For the second best, 3 sovs.—Marquis of Conyngham.

For the best pen of five ewes, not exceeding five years old, 5 sovs. Marquis of Conyngham.

For the second best, 3 sovs.—Marquis of Conyngham.

CLASS H.—SOUTHDOWNS.

For the best shearing ram, 5 sovs.—Thomas Roberts, Strokestown.

For the best ram of any other age, not exceeding five years old, 5 sovs.—William Owen, Blesinton, Wicklow.

For the best pen of five shearing ewes, 4 sovs.—Duke of Manchester, Tandragee.

For the best pen of ewes, not exceeding five years old, 4 sovs.—Duke of Manchester, Tandragee.

For the best ram in Classes E, F, G, H, The Medal—Frederick F. Hamilton, Windmill Farm, Edenderry; shearing Leicester ram (imported).

To the breeder of the best ram in the same, The Medal—Frederick F. Hamilton.

CLASS K.—SWINE.

For the best boar under eighteen months, 10 sovs.—John H. Peart, Bellurgan-park, Ballymascanlon, Co. Louth; white Cumberland boar.

For the second best, 5 sovs.—Andrew F. Knox, Urney-park, Strabane; Berkshire boar.

Lord Caledon's and Lord Clermont's Berkshire boars *commended*.

For the best boar over eighteen months and under thirty-six months old, 8 sovs.—Sir James M. Stronge, Bart., Tynan Abbey, Tynan; Berkshire boar.

For the second best, 4 sovs.—the Earl of Caledon; Berkshire boar.

Lord Lurgan's Berkshire boar *highly commended*, and Mr. George Roe's Berkshire boar *commended*.

For the best boar in the above sections, the Medal—John H. Peart; white Cumberland boar.

To the breeder, the Medal—John H. Peart.

For the best breeding sow under eighteen months old, 8 sovs.—Rev. John Warburton, Kill, county Kildare; Berkshire sow.

For the second best, 4 sovs.—Hugh Anderson, Bushmills, county Antrim; Berkshire sow.

Sir Edward Borough's, Bart., and Mr. A. Warburton's Berkshire sows *commended*.

For the best breeding sow over eighteen months old, 5 sovs.—Sir Frederick W. Heygate, Bart.; Berkshire sow.

For the second best, 3 sovs.—T. William D. Humphreys, Milltown House, Strabane; Berkshire sow.

The Earl of Caledon's, and Mr. Harrison's Berkshire sows *commended*.

For the best lot of three breeding sow pigs of the same litter, not more than ten months old, 5 sovs.—Henry L. Prentice, Caledon; three Berkshire sows.

For the second best, 3 sovs.—Charles William Hamilton, Hamwood, Dunboyne; three breeding sows.

Lord Lurgan's and Mr. Edward Croker's Berkshire sows *highly commended*.

Class L was for poultry.

CLASS M.—DAIRY PRODUCE.

For the best firkin of butter, 70 lbs. weight, suited for the English or London Market, and made on the farm of the exhibitor during the season of 1854, 5 sovs.—Thomas Archbold, Carrmonee.

Second, 3 sovs.—David Patten, Glasslough.

Third, 2 sovs.—James Farley, Clones.

For the best coopered six butter firkins, suitable for the

English and London market, £1 10s.—John Mackwood, Belfast.

For the best firkin of butter, 70lbs. weight, suited for the foreign market, and made on the farm of the exhibitor during the season of 1854, 5 sovs.—J. Waring Fforde, Lurgan.

Second, 3 sovs.—Thomas Archbold.

Third, 2 sovs.—Anthony Babington.

For the best of all the prize butter exhibited at the Show, The Medal.—J. Waring Fforde.

CLASS N.—FLAX.

For the best bundle, not less than 16 lbs. weight of mill-scuted flax, being an average sample of at least half an acre—first prize, 5 sovs.—David Patton.

Second, 3 sovs.—Wm. Shaw, Bandon.

Third, 2 sovs.—John Cargill, Glasslough.

William Roberts, Tynan, new flax, highly commended.

For the best bundle, not less than 16 lbs. weight, of hand-scuted flax, being an average sample of the produce of at least half an acre—first prize, 5 sovs.—Wm. Running, Richhill.

Second, 3 sovs.—Henry L. Prentice, Caledon.

Third, 2 sovs.—David Patton.

CLASS R.—IMPLEMENTS.

The following prizes were given for implements best suited to the wants and circumstances of Ireland:—

For the implement best calculated to turn up and expose to the air and frost of winter the deepest furrow, consistent with regularity of surface, first class medal—Ransomes and Sims, Ipswich.

For the best instrument for breaking up the subsoil, capable of being worked by not more than four horses, first class medal—Robert Gray, Belfast.

For the best grubber or cultivator, to be worked by two or more horses, first class medal—Robert Gray.

For the best drill grubber for green crops, first class medal—Robert Gray.

For the best constructed seed harrow, first class medal—Ransomes and Sims.

For the best break harrow, or other implement for pulverizing the soil, first class medal. No merit.

For the best roller or clod crusher, first class medal—Richardson and Son, Newcastle-on-Tyne. Robert Gray, Belfast, commended.

For the best horse rake, first class medal—Ransomes and Sims, commended.

For the best farm cart, first class medal—James M'Connell Armagh.

For the best drill for sowing turnip seed in one or in two drills, second class medal. No merit.

For the best drill for sowing turnip seed, &c., with apparatus for distributing light, portable manures, the gold medal—James Smith and Sons, Peasenhall.

For the best and cheapest broad-cast manure distributor, first class medal. No merit.

For the best machine for distributing liquid manure, first class medal. No merit.

For the best machine for drilling grain—Richard Garrett and Sons, Saxmundham, commended. James Smyth and Sons, Peasenhall, commended.

For the best horse-hoe for cleaning between the drills of corn, first class medal. Garrett and Sons commended.

For the best machine for cleaning grain, first class medal. No merit.

For the best machine for cutting turnips, first class medal—Ransomes and Sims, Ipswich. Gardener's Cutter, commended.

For the best chaff-cutting machine, first class medal—Richmond and Chandler, Salford. Ransomes and Sims, commended.

For the best machine for crushing oats, beans, or other grain, first class medal—Ransomes and Sims.

For the best apparatus for steaming food for cattle, first class medal—Richmond and Chandler.

For the best and most economical root washer, second class medal. Richmond and Chandler, commended.

For the best thrashing machine, suitable for large farmers, and worked by either horse or steam power, the Council gold medal—Ransomes and Sims.

For the best thrashing machine, suitable for small farmers, first class medal—Ransomes and Sims.

For the best churn worked by hand, first class medal—Wm. Hanill, Armagh. Second class medal.

For the best churn, worked by power, first class medal—Richard Robinson, Belfast.

For the best set of smaller utensils for the dairy, such as milk coolers, &c., second class medal—Richard Robinson, Belfast.

For the best set of horse-power gearing, economically adapted to fit machines, churns, thrashing machines, &c., first class medal—Ransome and Sims.

For the best lot of draining tiles, second class medal—Beresford and Kelly, Florence Court. St. John Blackett Tarbert, commended; Sir Arthur Brooke, Bart., Colbrook, commended; John Wilkin, Caledon, commended.

For the best assortment of hand implements used for the farm, such as draining tools, spades, sickles, scythes, hoes, rakes, wheelbarrows, sackholders, &c., &c., first class medal—John Edmonson and Co., 61, Dame-street, Dublin.

For the best and most economical set of farm harness, second class medal—James McKenna, Armagh.

For the best set of swing-trees or draught bars, second class medal—Ransomes and Sims.

EXTRA PREMIUMS.

Ransomes and Sims, four-horse portable steam engine, first class medal.

Ransomes and Sims, haymaking machine, commended.

Ransomes and Sims, Bruce's manger, commended.

W. and J. Ritchie, Ardee, double mould-board plough, first class medal.

Robert Gray, turn-wrest plough, first class medal.

Arthur O'Heas, Ballymanab, Armagh, for ingenuity of arrangement in his grubber, first class medal.

Thomas Egar, Portadown, portable steam-engine, commended.

THE DINNER

Took place on Wednesday evening, in a pavilion erected for the occasion at the back of the Tontine Rooms, the Duke of Leinster in the chair, supported on his right by his Excellency the Lord Lieutenant, Hon. Colonel Caulfeild, M.P., Lord Talbot de Malahide, Lord Naas, C. Lealie, M.P., the Earl of Mayo, and Lord Erne; on the left by the High-Sheriff of Armagh, Major-General Thomas, Lord Lurgan, Lord Claude Hamilton, Lord Monck, Lord Dungannon, and Lord Clancarty. There were also present Lords Castlemaine, Bangor, Dunlo, and Annesley, Count de Salis, Sir R. Bateson, Sir J. Stronge, &c., &c.

After the usual loyal toasts, the President gave "The health of his Excellency the Lord Lieutenant, and prosperity to Ireland."

In responding, his Excellency said: It is very agreeable to

me to be present at this meeting, and to witness the progress which agriculture is making in this part of the country. Much of that progress is, I think, fairly attributed to the labours of this society, by bringing together large numbers of the finest animals of every breed, and by collecting, I am afraid not quite an equal proportion, but still many of the most approved implements of husbandry, and also for enabling the farmer to see and to converse with experienced agriculturists from any part of the kingdom, and to confer upon the farmer a benefit, the value of which it would be difficult to overrate. But, gentlemen, much as has been done in this way, if the agriculturists of the country wish that it should retain its present proud position at the head of the agricultural countries of the world, they must redouble their exertions. A noble friend of mine, who is present at this table, Lord Claude Hamilton, placed in my hands, the other day, a very curious and interesting account of the proceedings of a French commission appointed by the government of France, to visit the Great Exhibition of 1851, and afterwards to travel through the most important agricultural districts of Great Britain and Scotland. That account shows the attention bestowed by that country upon all the inventions and discoveries that are made in this empire. They give detailed descriptions and drawings of all the most recent machines and implements that have been applied to the purposes of agriculture in this country, and also drawings of the animals of various breeds which they conceive to be best adapted to the soil and climate of their country. I believe that other Continental states are travelling in the same direction, and are now convinced of the importance of increasing the quantity and improving the quality of the produce of the soil to the utmost possible extent. It must be borne in mind that in those countries they have the assistance of the government, and I believe the expense of the commission to which I have referred was entirely borne by the French government, and they also defrayed a considerable proportion of the cost attending on the introduction of new breeds of cattle, and of carrying into effect various agricultural experiments. Now, such an interference on the part of our government would be quite hostile to our feelings and wishes; but we have a resource in the co-operation and union of agriculturists among themselves, and to that resource we must look, if, as I said before, we would retain the position we now occupy as the first agricultural country in the world (Hear). I have adverted to the various ways in which the society has promoted the cause of agriculture in this country in the same manner as the sister societies in Scotland and England have furthered the same cause. But I trust my noble friend near me, and other gentlemen who are members of the council of the society, will not suppose I am in any way dictating to them, if I venture to offer one or two suggestions, which I hope will be received in the spirit in which they are made. I have heard to-day, for instance, that the quantity of implements on the ground did not quite answer the expectations which had been formed. Nothing, I believe, could exceed the beauty and the perfection of the implements which were exhibited, particularly the one which we all saw with so much pleasure. I speak of the moveable steam-engine and flax machine of the Messrs. Ransomes, and some others; but, on the whole, I am afraid that the number did not equal the expectations of the members of the society, and I would venture to offer for your consideration whether additional encouragement to the makers of the implements might not be given. It seems to me, at least, worthy of your attention, again, whether a premium for the best cultivated farm should not be offered. There may be difficulties in the way, of which I know nothing, but I believe it might have a beneficial effect upon agriculture

if a premium were given for the best cultivated farm. I say it with great respect, but I think I have seen in some parts of this district more rag-weed than is consistent with good farming, and that some of the gentlemen upon whose ground I have observed it, would hardly compete with success for such premium (laughter). I do not know how far it might be practicable to diffuse more generally, at a cheap rate, information among the practical farmers, by means of journals, tracts, and other publications, communicating the results of the experience of agriculturists in other parts of the kingdom. These are matters, I think, for the consideration of the council. There is one point, however, upon which I entertain a very strong opinion—namely, how important it is that the society should exert itself to promote, to the utmost, the cultivation of flax, so that the Irish manufacturer should not want an adequate supply of the raw material. I have been informed, upon what I believe to be good authority, that the cotton-spinners of Lancashire are now engaged in producing an article of cotton by which they may or do compete with the productions of the linen manufacturers of Ireland. Now, gentlemen, I have a very great respect for the cotton-spinners of Lancashire. I conceive them to be a most intelligent and valuable body of men, and I am very far from speaking with jealousy of them, believing as I do that the prosperity of that great staple trade, the cotton manufacture of England, is most important to the welfare of the country. It is, therefore, in no spirit of hostility to the cotton-spinners that I speak; but I do say, that I should be sorry to see the extension of that manufacture taking place at the expense of the linen manufacture of Ireland. I think, however, that that must inevitably be the case unless the Irish agriculturists provide the manufacturers with an adequate supply of the raw material at a reasonable rate. Before I conclude, may I, without touching upon ground which is most properly prohibited in this assembly, venture to congratulate you upon the state and prospects of agriculture? I say not a word about the causes. I look merely to the state of things; and I am happy to say that the accounts from all parts of Ireland respecting the condition of the three great classes of the country—the owners, the occupiers, and the labourers—are most satisfactory. His Excellency concluded by proposing the health of the Duke of Leinster, briefly acknowledged by the Chairman.

The EARL OF ERNE, in replying on behalf of the vice-presidents, said it afforded him pleasure to tell them that the society was flourishing beyond all expectation; and he trusted and hoped it would continue to flourish, for he did believe no other body of men could prove so conducive to the welfare of this country; and therefore it became the duty of every man, let him be rich or poor, gentle or simple, peer or peasant, to come forward and assist the society in its endeavours to disseminate sound agricultural information. Ireland had been blessed by Providence with one of the best soils, he believed, in the world; but they had not taken advantage of the gift; they did not cultivate the land as they ought; and one of the reasons, he maintained, why they were such bad agriculturists was, that their soil was too good. They merely scratched the soil, without dipping deep into the bosom of the earth. In England and Scotland the soil was properly tilled, and why should not Irishmen do the same? It made him rejoice to see that upon the whole the society was progressing rapidly in the estimation of the public, for within the last three years their numbers were increased by 700. When he advocated its claims he was frequently replied to in the following terms:—"It is no use, for it never comes into Ulster, and it does little good in Ireland." These were two objections of a grave character, and he would show how he met them. With

respect to the first, he thought they would agree with him that good breeding was one of the most essential requisites in a gentleman, in a beast, or in a society (laughter); and he told the objectors, that the society was too well bred to come into Ulster without being asked; but if they invited the society, he thought they would not be refused. With regard to the second allegation, he replied that this society had, during thirteen years, done much more than either the Scotch or English society—that was to say, taking into account the amount of funds at their disposal. They brought over the best animals from the sister countries, and kept them here for breeding purposes for twelve months; and the result was, they were now able to compete successfully with English and Scotch agriculturists. They had also established branch societies, and had used every exertion to impart good, sound information to the farmers of this country. It had done much for the welfare of Ireland.

Mr. WILLIAM TORR, in acknowledging the complement paid to "the Judges," congratulated the assembly on the very splendid exhibition they had that day witnessed. He had visited many exhibitions in connection with their society, but he could with sincerity say this was by far, as a whole, the best he had ever witnessed; and most decidedly it was the best exhibition of sheep he had ever seen in Ireland. The show of implements at Armagh, however, did not come up to the show of animals; and he thought it behoved the society to bestow some little portion of their funds towards affecting an improvement in this respect; for it was his opinion that, instead of giving medals and commendations for implements, a portion of their funds should be appropriated to giving prizes. It was very well for the extensive implement manufacturer, who could procure skill and labour in the market, to get a medal when money was not a matter of moment to him; but with the small manufacturer a medal did not repay their labour, and a £10 note was more acceptable than any such token of superiority. He congratulated them on the great improvement which was now taking place in agriculture throughout Ireland. By industry and attention they could excel both England and Scotland in agriculture. The minds of the men of Ireland were improving—the minds of the aristocracy were improving; and they had latterly been taught to take care of that land which their ancestors had wasted.

The other toasts included "The Memory of Peter Purcell," "The Army and Navy," "The Royal Agricultural Improvement Society of Ireland,"—"The Highland Society of Scotland," "The Royal Agricultural Society of England and the Royal Dublin Society" (these three Societies thus placed in one toast), "The Royal Flax Improvement Society," &c., &c.; among the speakers to which were Lords Mayo, Clancarty, Claude Hamilton, Talbot de Malahide, Naas, Mouck, and Lurgan, Col. Caulfield, M.P., and Mr. Kirk, M.P.

GLASS BRICKS.—Amongst the more recent inventions patented by manufacturers, we hear of one by Mr. Summerfield of the glass works, Birmingham Heath, for what are termed chromatic glass, or glass-faced grooved bricks. By Mr. Summerfield's process, red or other clay can be combined with glass, and this will secure durability, entire resistance to moisture, and give an ornamental appearance to the building. The form of the brick is also, by means of a groove at the side and end, made so as to add greatly to the strength of the erection, the joints by this means being brought close together, and the mortar acts as a dowel from the shape of the groove.—*The Builder*.

TIPTREE HALL FARMING.

SIR,—As Mr. Mechi lives by agitation, he doubtless is obliged to you for an *exposé* of his doings: by such means—in his own language—you “extend his shop-front, enlarge his advertising sheet, and assist him to puff his commodity.” What a pity that you do not follow in the wake of your cotemporaries: your sanity will be questioned, and a Tiptree bull will anathematize you. What! find fault with the leader of the agricultural forces—the Falstaff of Tiptree, over whose body the agricultural battle has been fought, and who can still fight a whole hour by Shrewsbury clock, and return to the field unscathed, and ready for the wordy fray! and for you to set up your opinion against the *Times* and the *Daily News*, and the Scotch agriculturists, and great leading land-agents, gentlemen farmers, Cockney amateurs, whose experience settles Revett wheat to be barley; but this is excusable, for the fashion of wearing beards makes all faces alike, and really Mr. Mechi should order his crops to be shaved for the occasion, or wait till his Revett's become *polled*, to allow his friends the possibility of discriminating rightly.

Well, as Solomon said, there is nothing new under the sun; and after all, this wind-and-water affair—this light meeting—would evaporate and fly off into evanescent gases, did you not give it solidity by your observations, and thus yield it “a local habitation and a name;” and therefore I will, with your permission, touch the proceedings lightly, and test their substance as I pass. And first, as to the progress from the luncheon to dinner: how delightful! crops growing, sun shining, and champagne effervescing—how could the scene be otherwise than exhilarating? What a stolid calculating being you must have been, not to have let your reason run riot with the rest! Had you been reading Senex, who says, somewhere, that “if you see a multitude of men following intently after another, that most likely they are wrong; for if one hound pick up a wrong scent, all the rest will follow”? Well, I am not disposed to criticize without reason. There has been a false scent; possibly by a drag yearly over the same field; and who can tell, when we are going it with noses breast high, and champagne impelling our speed, but that, after all, the leading hound may have challenged wrong, and the whole pack may again be out?

Well, 'twas nobly done; and at dinner we found every one “had kept his place.” The great tank, that absorbs guano by the freight and dead horses by the score, after all again casts them forth in the shape of real beef and mutton—real Tiptree beef and mutton board fed, and regularly streaked with fat and lean to grace the festive board for the occasion; in fact, it was all Tiptree production, *excepting* the champagne, and that—allow me to suggest—may next year be derived from Tiptree rhubarb. But, did you see the implements? Some of them retiring, as if to shield their

nakedness, amid the green leaves by which they were surrounded; some all bright with colours, red and yellow, ready for the fray of cutting, thrashing, and harvesting; steam puffing, and machinery sufficient for a county; then, the artificial supply circulating underneath, carrying the very life-blood, in the shape of liquified manure, to the extremities of the farm—how edifying! how scientific! But, after all, it is unfortunate that this system of cast-iron arteries and veins is, like our mortal one, subject to derangement; the larger vessels become choked, ossification deranges the functions of the smaller ones, and the disease being deep-seated, is difficult to reach; the pulsation at the heart denotes something wrong; each pulsation reacting upon the centre, informs the physician that the circulation will cease to act unless relieved; but, as the patient is unable to describe its feelings, what digging, what boring, what drilling follows, to remove the obstruction—and then again all is in full play, and not one of the motley group that inspect it but consider it as sound and healthy.

The instruction, the example, the field teaching of Mr. Mechi, the *Times* says, is above all praise: sometimes discursive—always entertaining. “Look on this picture and on that;” see the starved crop of a neighbour, and see this of mine, that with “Hyperion brow” looks like a full five quarters to the acre; and, although Jem Wood says “this farm grew four quarters per acre before I took it,” that amounts to nothing: Tiptree Heath is barren—my farm adjoins Tiptree Heath, and therefore was barren too: my purchase of three thousand is increased by my improvements to ten or even twelve thousand pounds. What was let then at a rental of only 20s. is now valued at a rental of 35s. per acre: the increase is £97 per annum, and becomes the return by way of interest upon upwards of *seven thousand* pounds investment; and, gentlemen, therefore if you have not got capital to do it yourselves, so long as you can borrow it at six per cent. you ought not to lose the chance, for if you only make a calculation you must see that it will pay you.

“I am quite sure,” says Mr. Mechi, “my farming is profitable.” The old watchmen looked serious: they could not see with double, treble, nay quadrupled outlay, that the crops were better than others upon any well-cultivated farm; many even went so far as to say that they had seen—indeed, that they had grown—better; and even yourself was ready to acknowledge that the wheat and oat crops were particularly good, and the management of the land and stock more uniform and judicious than had yet appeared—evident and acknowledged symptoms of improvement. Mr. Mechi had of late had opportunities of inspecting some better management than his own, and, notwithstanding his disposition to appear original, he imbibes the opinions of others, and carries them out to some extent.

Well, the round was delightful, the weather charming,

and the dinner had an additional zest from the keen appetites that its guests brought to table; and you, Sir, was there. Did you find the dinner too good? or did you experience it as too corrupting? It is quite certain it did not get at your heart through your stomach, or you would not have eaten the bread and found fault with the host. No—everyone feels that himself; but everyone does not represent a leading agricultural journal; everyone is not called upon to hold up the mirror to nature—to reflect back truth in her own image; and therefore your duty outstripped your kindly feeling to have painted the Tiptree doings as the host would have you paint them: but to shew to the censors of your judgment that, although your mouth was open to the good things of the table, that your eyes were not closed to things passing before you.

I fear, however, I am becoming prosy—have “got an ingenious method of spinning a tough yarn out of slender material,” and therefore a few brief observations upon the events at the dinner shall bring it to an end.

The bishop and clergy—the Huxtables, the Smiths, the Wilkins, and the whole of that distinguished class who have done so much for and received so much from agriculture, were replied to by their representative, the Archdeacon, whose figurative language portrayed that which was then the flourishing Tiptree Farm as a mere desert twenty years ago, which evinced to the company that the very reverend personage had never seen the farm beyond that period at the time when one Foster occupied it—who said, and as one James Wood confirmed he grew then an average crop of four quarters of wheat to the acre upon the whole breadth; and may I suggest the possibility of Mr. Mechi never having exceeded that quantity? Well, I know the worthy Archdeacon too well to believe that he would ever exaggerate, much less misrepresent; he only merely stated what somebody else had told him, what somebody else had said, what somebody else had somewhere read—that it had been so. Then Mr. Sheriff Wire presented himself; as I am not, known to this gentleman, I presume Mr. Chig Wire, who has long figured politically before the world, and as he was of the London deputation, probably the same gentleman who so greatly extolled the *Revett barley*. He introduced Mr. Mechi as the pioneer of agriculture and of agricultural development—the man who had made two blades of grass grow where only one grew before; and who had wiped out the original curse of mankind by eating bread without the least symptom of sweat upon his brow. What a happy idea—I might say a glorious conception, to farm so highly as to be able to eat one's bread so cheerfully and so much at ease! I always fancied that the farmer lived by the sweat of his brow; indeed I have on sundry occasions, especially when mowing and pitching barley, felt it must be so. And I have under such circumstances ejaculated that the tax upon barley was of all taxes most iniquitous; and only wished to have the Chancellor of the Exchequer at the same occupation without an allowance of beer, to convince him it was so. But I am rambling from my subject; pray excuse me. Mr. Caird replied (Mr. Caird, the author of a certain book upon High-

Farming and Great Profits), who grew all even quarters of corn, and whose expenses and returns came out in round numbers—a mode very peculiar in the practice of these leaders of improvement in agriculture. All their crops are free from blight—all their potatoes free from disease; murrain and pleuro-pneumonia never affect their herds, nor are their sheep liable to rot. Italian re-grass under their management becomes one of the most prolific, one of the most magnificent of crops; and it had in this very year before that memorable 26th of July actually been grown, mown, made, and carried, to the extent of twenty-five tons of hay—dry hay from one single acre. The newspaper says, “(Impossible,)” by which I infer it was doubted, and Mr. Caird continued: “It was done on a Scotch acre (Hear), in the neighbourhood of Ayre (Impossible)”—I quote correctly. Well reading this, and also knowing something of farming, and having never seen or heard of one fourth of that quantity produced from a single acre English, in any season previous to the time of this meeting, I have been led to inquire, and find that an acre Scotch is one-and-a-quarter acre English, reducing it to the rate of 20 tons of dry hay per acre English; assume this at only £3 per ton, and what a sum! Well, we have neither Scotch land nor Scottish management. We southerners are considered as knowing little, I might say *nothing* of management, and indeed, it is made to appear so; for even the editor of the *Agricultural Gazette* says that Mr. Caird was too abrupt with his announcement; it was too overcoming; in fact, it was in cant phrase such a *stunner*, that we could not recover it. Mr. Caird himself said we might wonder and be astonished, for it involved a question of from 5 to 50 sheep, and from 5 to 25 tons of hay per acre, as compared between the soil of Scotland and the soil of this country.

It would really be satisfactory to learn who is the farmer that accomplished this astounding fact: his secret must be worth knowing; and it would be well worth while for every one of Mr. Mechi's company to travel to the extreme limit of the “*North Country*,” to witness such a produce; for even his own *doings* fall so far short of any such successful result, that it would more than overbalance all and everything he has hitherto brought before us. Two points especially should be ascertained—how such an enormous bulk could come to maturity without rotting as it grew; and how it could be manufactured into dry hay on the same land three times before the middle of July. *O tempora! O mores!*

I ask, sir, what is the object that Mr. Mechi seeks to obtain by such a meeting? A mere empty popularity? If, on the other hand, he wishes to take the lead in agricultural progress and improvement, he must pursue another course to attain it. The farmers of this county live sufficiently near to him to become acquainted with his system, and to them who farm for a livelihood it is a very different matter than his farming for the purpose of obtaining popularity. When Mr. Mechi can show the public, especially the agricultural, that he can produce more corn and meat from a given area at a less cost, then he will be listened to; but when there are hundreds of farmers who can and do obtain a

larger produce at little more than half the cost, he must expect that neither his society will be courted by them nor their company required by him at his future meetings. All those who have hitherto, of his school, proclaimed their ability to farm better than their neighbours, have singularly failed. It must require something more than mere assertion to convince us, of the south, of the great achievements of those of the north. We are too far

distant to test them; and although not so credulous as to gulph down every statement, still we are not so stultified against rational observations, or sound principles of improvement, as to reject them because proposed by strangers or carried out by amateurs.

I am, sir, your obedient servant,

AGRICOLA.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

TRIAL OF IMPLEMENTS AND MACHINES AT LINCOLN.

On entering the Trial-yard of this Great National Agricultural Society, we were pleased to find the arrangements for facilitating the objects in view greatly improved upon; there also was considerable advance effected in the dynamometrical testing-machines used for proving the merits of the steam engines, both portable and fixed.

We were again met by resounding praises responding from all the intelligent and sound practical mechanics and engineers to Mr. Amos, for the vast benefit that he had bestowed upon this Society by the invention of a dynamometer, that gives with considerable accuracy the amount of power absorbed by the various machines under trial, performing a given quantity of work; and further, the amount of power required to work the machine while running idle. It also shows the irregularities of the feeding; and therefore lets the judges see with certainty how much of the merit is due to the management, and how much to the machine. As the manufacturers only sell the machines, the public have a right to know the best machine minus the man's help. This tester, or dynamometer, gives the judges but light duties, and makes them pleasant, as the various manufacturers are allowed to see for themselves where their failings are.

This machine, or dynamometer, is between the machine under trial and the engine. It is driven by the engine, and measuring off the power as demanded by the machine under trial, at the close of the trial it gives up a slip of paper, with the whole power absorbed during the trial registered upon it.

We think that the satisfactory way this dynamometer performs its duty ought to prompt the Council of the Royal Society to encourage Mr. Amos to invent and manufacture for them a traction dynamometer, that the field implements might be tested as well as the carts, waggons, &c., which, we have no doubt, would soon work a great change in the amount of power required to pulverize an acre of land a certain depth, the amount of power required to drill an acre a given width and depth, and also to reap it by machinery.

Vast are the improvements that have been brought about in the portable steam engine since the introduction of Mr. Amos's invention, and the great amendments effected in the thrashing machine since the plan of testing them with a given number of horse-power measured off to them; while, when this quantity of power did not vary, the man who fed the machine had a greater power over the machine for good or evil; whereas now, that is detected, and a diagram of the man's management, with all its variations, is shown to him registered in black and white.

We are convinced that, as long as the present imperfect way of trying and adjudicating upon the merits of the field machines goes on, we shall have a continuation of false steps taken, all to be retraced hereafter; whereas, if we had an unerring proof laid before us of the amount of power required to draw one implement as compared with another for the same purpose, we should have rapid improvement take place; indeed, when we reflect what a great difference of power there is absorbed by machines doing the same amount of work, such machines being stationary while at work, what must be the difference that would be brought to view as taking place in those machines that have to traverse over the land while performing their work? We would therefore impress upon the agricultural public the necessity of their joining the Royal Agricultural Society of England, and assisting in bringing the great objects in view to full development. We repeat our hope that the Society will put into the hands of Mr. Amos the bringing out and manufacturing of a dynamometer for testing ploughs, scarifiers, harrows, &c.; as also one for testing drills, carts, waggons, &c.; and we have confidence he will produce one at Carlisle that will keep the judges right. As the power is the bulk of the expense, it is of the greatest importance; we are thus convinced that the amount of improvement would, in a few years, be so great as to astonish the implement makers if just at present exposed to them.

On Saturday, the 15th, we went early to the trial-field, to witness the ploughs, drills, horse hoes, &c. in competition for the prizes. We were unfortunate in the weather, which was showery, the road long and dirty, and the distance such as we had hoped never to have found again, after the inconvenience experienced at former meetings, attributable to the same defect.

Some time after we got to the field, six gentlemen entered into competition with their ploughs for the palm of merit for the best plough for deep-cultivation on strong land: the soil was a blackish mould, five inches deep, resting upon strong tenacious clay, that was cracked by the drought to a great depth. After drawing lots for places, these six champions arranged for action in the following order:—Barker, Busby, Ransome, Howard, Williams, Ball. The word given was to plough round four times, when the judges should expect them to be eight inches deep with four horses in each plough. After the second round, when they had got to the depth of the soil, the grand tug of war began. Here, six horses were given each, and Mr. Barker retired from the field of absurdity. But the other five champions, like the old Czar, would maintain the struggle, no matter how many horses or men might be required to gain the victory. The six horses managed to get six inches deep the next round: then, at eight inches deep, they came to a dead lock. Eight horses were next given, when proceedings went forward by impulses of a few steps at a time, with frequent breakage of swingletrees, chains, and harness, and the occasional refusal of the wiser horses to go farther with their impossible task. At this time the makers nearly all found the want of a few more pairs of handles. As resistance was largely called into play, the masters and men, to keep the ploughs in the ground, put their whole weight upon the bodies. Here the first real outbreak of cries for fair-play took place: some complaining that Mr. Busby's weight gave him an unfair advantage, while Mr. Howard loudly called out for only one man to be allowed to hold the plough; and the horses, after extraordinary struggling, managed to get the eight inches deep. Here all were stopped, until the judges could be with each plough as it proceeded with its ten-inches' deep furrow. This was an interesting point for *Punch's* own reporter; for we believe that there never was anything like it attempted by sane agriculturists. However, it must be done, as the practical wisdom of the Council of the Society had offered a prize to the plough that would plough not less than ten inches deep on strong land, the trial to take place in July while the land is hard and dry. Mr. Ransome had the advantage of all the rest, as he had provided proper chains and swingletrees for such an undertaking; therefore with him breakage was no barrier to proceeding, and the horses got on steadier. It was found that all the rest, from the want of proper tackle, were at a standstill. Here the judges asked Mr. Ransome to give the rest a chance of beating him by lending his tackle for common use, which was at once granted for the amusement of the company, and the play began, out of which was to come wisdom, by eight of the strongest horses in

Lincolnshire being put to Mr. Ransome's plough, with three light-weights as ploughmen holding with all their might, and thus proceeding by a few yards at a time—getting one round at the depth required, making capital work, considering the circumstances, and occasionally even ploughing up the drain tiles. Mr. Williams's plough was next tried, making fair work, considering all things, but inferior to Ransome's; after this Mr. Ball's went through the same ordeal, doing very well, but the draught evidently more severe; then Mr. Howard, whose plough went through its work in good style, with the aid of only one ploughman; last of all Mr. Busby had his turn, but, notwithstanding his own superior weight in aid of his man, his plough refused to stick to the ground, and he was ultimately obliged to give up. It was now evident that the palm lay between Ransome and Howard, who, with the judges, agreed to settle the point on the Monday on the light-land field, where both made very good work, but Howard's, it was evident to all, had the best of it. To this firm the prize was awarded, Messrs. Ransomes' being highly commended.

The general-purpose-plough competition on the strong land took place on Saturday, there being thirteen started, when it was evident that none of the ploughs made by the local makers were equal to the old champions of former years. On Monday eight out of the thirteen started on the light land, where the work was all done well; but on close inspection, and allowances for ground, it was quite clearly between Howard and Ransome, although the difference in favour of either of them over Busby, Ball, and Williams was only a matter of a few degrees as far as the work went. On examining the ploughs, however, we were of opinion that for general arrangement of the working parts Howard's was the best, and Ransome's next; the others are all very good and simple. The judges having now reduced it between Howard and Ransome, they were started on the rye stubble where the reapers had been tried, when, after testing with the dynamometer, they awarded the prize to Ransome's, Howard's being highly commended, and Ball's and Busby's commended.

Four tile machines were tried by the power tester, making tiles of the same size, when it was found that Scragg's machine did the work with rather less power, and was simpler, as also easily managed. To it, therefore, was awarded the prize.

For the prize for the best cultivator, grubber, and scarifier there were the following in competition: Crosskill, Hart, Coleman, Ransomes (Biddell), Bentall, and several others who had no chance. The competition was good, all working well as grubbers; the palm was to be decided at the more severe test of scarifying on the rye-stubble. Thus for the first time have we had this work tried on legitimately prepared land; therefore we may with the greater certainty look upon the winner as the best implement; while as it happens to be the lower-priced implement, it will be more within the grasp of small, as well as large, farmers. After a thorough trial the prize was awarded to Mr. Bentall for his scarifier; Mr. Hart's and Mr. Crosskill's being commended, as we

thought, for their weight—and solid, steady motion through the soil.

For the best general-purpose drill there was a numerous competition, but it was, after a trial, reduced to three—Smyth and Son, Garrett, and Hornsby. After a good trial, the palm of merit was awarded to Mr. Hornsby; and Mr. Garrett's highly commended. We were not a little surprised to see these manure drills being tested with manure very little removed from the common farm-yard dung well prepared for use. This was the climax of unreasonableness, because the amount expended in the extra labour required to put in by drill a sufficient quantity to have any good effect is as much as would buy and apply a quantity of artificial manure that would give a much greater return.

For the best corn and seed drill prize several makers entered the field, but after the trial it was soon manifest that the competition lay between the three champions of the row—Smyth, Garrett, and Hornsby; all these gentlemen's machines doing their work in the most satisfactory way; but as Mr. Hornsby's drill can be adjusted to accommodate all shapes of unevenness of land, to it was awarded the prize. This is truly a masterpiece of simple mechanical contrivances for the work required, and does great credit to the eminent firm who have carried away the prize with it on so many occasions. The peculiar advantages of this drill are the corn or seed box being supported in the centre, which by means of a screw at one end can be raised or lowered endways as the drill travels, so that the box is kept quite level when the drill is travelling on the side of a hill, at an incline of one foot in six, ensuring as regular a delivery of corn or seed as if travelling on perfectly level ground. It has the patent India-rubber tubes for conducting the seed to the coulters, and also two coulter-bars to equalize the pressure upon each coulter. The great superiority of the exhibitors' patent India-rubber tubes over the usual tins has now been fully proved in their very extensive use for four years. It is obvious that the seed is first delivered by the seed-cups with perfect regularity; and the only possible cause of its reaching the ground irregularly, or in patches, as is so frequently the case, is, the very imperfect delivery afforded by the tins. The mere motion of the drill and the form of the tins cause the seed to rebound from side to side until deposited necessarily at varying intervals in the soil. The adoption of this patent entirely does away with the numerous tin cups working within each other, and substitutes simply the continuous and almost indestructible vulcanized India-rubber tubes, through which the seed passes, protected completely from both wind and rain, even in the most boisterous weather, directly and with unerring regularity into the channels made by the coulters. To this drill is fitted the exhibitors' improved patent fore-carriage steerage. Before the introduction of this patent, the fore-carriage steerages in general use required so much power to hold them, that when the wheels came in contact with a large clod or stone, even a strong man could not possibly prevent the drill from swerving. This defect is obviated by the use of the exhibitors' improved patent rack and

pinion, obtaining such a leverage that a strong lad's command over the drill is so complete that the obstruction of the wheels by stones and uneven surfaces has no effect upon the steerage, which passes over almost imperceptibly. Mr. Garrett's drill was highly commended.

For the prize offered for the best drill for small occupations several competitors entered the field; but, after full trial, the competition was again between Garrett, Hornsby, and Smyth; they all three did their work in the most satisfactory way, while the simplicity and facility of altering the arrangements of Mr. Smyth's machine obtained him the award of the prize.

For the best and most economical seed and manure drill for flat or ridge work there were only Messrs. Hornsby and Garrett competing, when, after a trial, the prize was awarded to Mr. Garrett. This is a cheap and efficient drill, for the purpose of drilling, in rows, on either flat or ridge-ploughed lands, turnip and mangel wurzel seed, with rape cake dust, guano, Irish peat charcoal, or any light pulverized manure. The manure-coulters are fixed to a swing bar; while those for seed are attached to levers, to admit of the manure being buried any depth in the soil, and the seed to be deposited directly over it, with a portion of mould between them, for which forks are provided. It is calculated for two rows from 20 to 28 inches apart, and three rows at 16 inches apart; and the quantities may be delivered as required—say, for turnips, 1lb. to 6lbs. per acre; beet seed, 3lbs. to 8lbs. per acre. The manure may be regulated as required, from 2 to 16 bushels per acre. This drill is adapted for the draft of one horse, while its simplicity renders it easy of management, and therefore well adapted for the purposes intended.

For the prize for the best turnip and manure drill on the flat Messrs. Garrett, Smyth, and Hornsby competed; but as the work of the latter, as well as the arrangements of the machine, were the best, the award was made without trouble in Mr. Hornsby's favour. The simplicity of this consists in the India-rubber tubes for conducting the seed to the ground, a plain way of supplying the manure, which it will do, however rough or smooth, in large or small quantities, and in the double-action levers, by which the manure can be deposited deep or shallow, and covered up with any quantity of soil between the manure and seed. This is a most perfect article.

For the best turnip drill on the ridge there were only Mr. Garrett's and Mr. Hornsby's, which were tried side by side, both doing the work well, but the latter without the help of an attendant, and to it was awarded the prize, Mr. Garrett's being highly commended.

For the best liquid-manure or water drill prize there were three competitors—Carson, Garrett, and Tasker and Fowle. The latter acts as a liquid-manure or water drill, or can be used (which is the way really intended) as a dry-manure and water drill; the water and manure apparatus being independent of each other, admits of the application of almost any amount of water (from one to twelve hogsheads per acre), which can be varied to any extent, whilst the distribution of the manure may remain the same; or, on the other hand,

the manure may either be diminished or increased, so that a poor spot may be doubly dressed, whilst the distribution of the water may continue uniform. 2ndly. The box is fitted with patent rotary tumblers, which deliver the manure with the greatest accuracy, every row, and indeed every plant, receiving the same. It is adapted for applying bones, superphosphate of lime, guano, and every kind of concentrated manure, in conjunction with water, or without, as situation and circumstances will allow. 3rdly. As the water is discharged on the principle of gravitation, no power is employed in raising it; and the wear and tear of buckets, &c., is dispensed with, whilst the simplicity of its construction secures it from getting quickly out of repair: it is assisted in this respect by the fact, that as the liquid is not impregnated with the acid properties of the manure, the rusting and injury of the metal it comes in contact with is altogether avoided. 4thly. By removing the manure box and coulters the drill is converted into a water-cart, capable of holding 100 gallons, which will be of great utility at those seasons of the year when not required as a liquid-manure and turnip drill. However, as this drill was not furnished with the means of acting so perfectly when drilling thick fluid, the others came more within the wording of the prize. In the competition between Mr. Garrett and Mr. Caston, the prize without hesitation was awarded to the latter gentleman for his improved Chandler's liquid-manure or water drill. This implement will drill three or four rows of any kind of thick manure from cattle-sheds, piggeries, &c., or water mixed with all kinds of artificial manure, in any quantity varying from three to fifteen hogsheads per acre, either with mangels, turnips, carrots, &c., at any distance, or spread liquid manure broadcast. The recent improvements are in the cistern, which is divided into compartments to suit side-hill land, and the brackets, which are fixed with bolts and screws to a cylinder, instead of chains—thereby avoiding the wear and tear of the cups and chains. For the dry soils and climates this is an invaluable system of sowing root crops, as well as late barleys, as it gives a certainty of an equal braid of the crop sown: it so ensures an equal and fine sample fitted for malting. In fact, any season the braid will come up more even, and quickly, if sown with liquid manure; the advantages of which are well known to every intelligent farmer.

For the best manure distributor, there were three competitors—Garrett, Smyth, and Chambers. These machines were tried, and all three acted very well; but the great competition lay between Garrett's and Chambers, they being able to sow a small quantity (under three bushels per acre) in the most perfect manner, however moist or dry the manure might be; but as Mr. Chambers' machine took about seven feet wide, while Garrett's took only about five, and the price that Chambers' can be profitably made for being less, there is little difficulty in agreeing with the judges that Chambers' ought to have the prize. As this gentleman is a farmer, and will require to put his machine into the hands of some of our agricultural implement-makers to supply the market, we hope he will be sure that he entrusts those only who are

known to make a sound good article. We are the more desirous this machine should get into good hands because we think it is one that all farmers must have for sowing artificial manures, as it is now an established fact that there is nothing shortens the life of farm labourers so much as sowing artificial manure by hand; it is therefore the duty of every employer of those manures to have this machine as a life-preserver, as well as aider in the produce of the staff of life. From the simplicity, sound principles of mechanics upon which it is arranged, the durability of its construction, and perfection of its action when in operation, we look upon this as one of the best implements in the yard. The means by which the quantity of manure is regulated can be suddenly acted upon, giving the power of instantaneously altering the quantity sown on one part and another even within a yard; thus to thin spots and poor parts may be given more manure, and to more fertile parts less, with the utmost certainty and facility, varying from two to more than forty bushels per acre.

For the best horse-hoe on the flat the competition ran between Nicholls, Garrett, Smith, and others; but after a tolerable trial, the prize was again awarded to Garrett's, which possesses all the advantages that are required by a good horse-hoe for flat work, doing it in the most perfect way, considering the various motions it has to go through, to suit inequalities of surface, irregularities in the drills, &c. It is a simple, and at the same time substantial implement; and no man who has a farm tolerably free from stones should be without it. The horse-hoe of Mr. Smith, of Kettering, is a useful economical implement, which possesses a simple, easy, and powerful means of steerage; and to farmers whose land has a smooth surface, it is a capital simple, cheap implement, very easily managed, and acting well as a thinner of turnips (where drilled on the flat), by crossing the drills at such an angle as will leave the bunch of plant in one drill opposite the space left in those on each side of it.

For the best horse-hoe for thinning or setting out turnip, mangel wurzel, carrots, &c., on the ridge or flat, there was but little competition, as all the hoes brought forward, except Martin's and Huckvale's, were of little use. We cannot see in Martin's implement enough different from Huckvale's, to justify its being considered a separate invention; after trial it was soon proved that Huckvale's was the best, as well as the simplest, easiest managed, and most economical in price, being 60 per cent. lower—both being made by the eminent firm of Garrett and Son, who received the prize. We give these gentlemen great credit for the justice they have done to the mechanical arrangements used by each of the competitors, to put in action the same principle employed, to accomplish the object in view. That this implement may always be available, it would be necessary that the crops be sown with a liquid manure drill, so as to ensure a regular braid, thereby preventing the thinner making bad work by missing the gap or vacant space, and taking the plants, as might frequently happen where there was a bad and irregular braid.

For the best reaping machine prize seven com-

petitors entered the field of rye, which was a good standing crop, with no grass in the bottom. This we consider a piece of bad management, as, to make a good test, there ought to have been sown grass seeds thickly on one-third of the field, while another third ought to have been sufficiently manured with some artificial manure, to have caused it to become laid; then there would have been something for the machines to do, similar to what they would be called upon to perform on every farm in the kingdom; and thus the Royal Society's prize would be of far more use as a promoter of improvement in this most desirable auxiliary to farming operations, in the time of scarce labour. However, we give the Society credit for preparing the land properly, by picking off the stones, and rolling, also having no high-backed ridges—thus having the surface as good farmers all have it, tolerably smooth, that the machine or scythe may so work as to leave the stubble short, that the dunghill may be augmented by an increased supply of straw, for littering a greater quantity of stock, while the increased produce derived from heavier manuring will provide more food for such stock.

No. 1 was Mr. Crosskill's, which he calls Bell's; but the chief feature of Bell's invention left being the web set at a high angle. The knife is on M'Cormick's principle, namely, a serrated cutter, working by a reciprocating motion. The reel is Ogle's; and the principle of working—the horses propelling it before them—a Roman invention. This machine is greatly superior to Bell's that took all the prizes last season; but there is still too much of it, and it is far too severe upon the horses. It further requires simplifying, which we have no doubt will be accomplished by the eminent firm in whose hands it is.

No. 2 was Mr. Garrett's. This was a combination of the Hussey and M'Cormick modes of delivery, accomplishing a side delivery by the aid of a man. The cutter was M'Cormick's, and it also had a reel like that machine—indeed, it was all but M'Cormick's reaper, substantially and well made.

No. 3 was Dray and Co.'s improved Hussey. In all its parts this is a Hussey's machine, with only this difference—that it is perfectly made in all its mechanical movements, and the knife has the centre cut out, so that there is no danger of choking where grass, weeds, or twitch are present among the crop. This improvement has reduced the draft at least a third, and the tipping platform makes the work of delivery almost a sinecure; in fact, the only objection that can be raised to this machine, is the back delivery; but really we think that its quality is quite a set-off against the minor disadvantages arising therefrom; and the low price at which a first-rate machine can be sold is greatly in favour of this machine, as a farmer's available article.

No. 4, M. Mazier's—a French gentleman. This possessed a new feature, viz., that of being used to cut backwards and forwards the same side, with the horses going by the side of the crop. The arrangement by which this was accomplished is very clever and ingenious, and we have no doubt will be brought to act well; but it will take a long time, and much care and

trouble, before it is fit to put into the farmer's hands: it only cuts $2\frac{1}{2}$ feet wide at a time.

No. 5 was Bell's original, made by Crosskill. This is exactly the same as the most improved ones made last year, which won all the prizes during the season; but from its unwieldiness and heavy draft, this machine can hardly come into general use, as well as from the extreme difficulty of keeping the cutters in order.

No. 6, Mr. Ransome's automaton reaper (which we thought would never be brought to cut heavy or at all tangled crops) remains not altogether a perfect workman. It would be useless to say much about this machine, as its extraordinary ingenuity has brought it to the knowledge of almost everybody.

No. 7 was Mr. Harkes' rotary reaper. This is on the same principle as the reaping-machine of the late James Smith, of Deanston, which he invented in 1811, and kept improving up to 1834: in 1835 he was awarded a prize, we believe, of £40 for it, at the Ayr Show of the Highland Society, after one of the most successful trials it has ever been our lot to witness; and if Mr. Harkes had attached his horses with swingletrees to the end of the pole, and provided a steerage, we are not sure that this machine would not have surprised the multitude assembled, as well as the judges.

The land, or rather the crop of rye was divided into equal parts or lots. After drawing lots for their places, each reaper was taken one bout, the judges following, and making their observations, and instructing the exhibitors when the delivery and stubble were as they liked it.

No. 1, Mr. Crosskill's, went through this ordeal very well, thus proving that all things must be about right.

No. 2, Mr. Garrett's, cut in capital style; but the work of delivery for the man was a Herculean task that few men would be equal to, even if willing. The delivery was tolerable, but not quite what would please good farmers.

No. 3, Dray and Co.'s, went through this trial in the most perfect style, without requiring any adjustment whatever, and the man could vary the size of the sheaf to suit the caprice of the most eccentric farmer, let alone the most varied climate or condition of crop. The cutting was all that could be desired, and the draught easy for two horses: it was evident that an impression was made upon the judges, as well as the lookers-on.

No. 4, the French machine, from the imperfection of its delivery, was a failure, although the cutting was fair. The cutter is the same as M'Cormick's.

No. 5, Bell's original, made by Mr. Crosskill; this, after proceeding a few yards became choked, from two pair of the cutters being out of order. We were afraid that before it proceeded far something must give way, the draught being extreme against the hill.

No. 6, Mr. Ransome's automaton reaper; this machine had M'Cormick's serrated cutter and cut well, but the automaton, though he showed great energy and exertion, wanted the eye of intelligence to render him equal to his task.

No. 7, Mr. Harkes' rotary cutter and self delivery; this machine was a failure, owing to its being unman-

ageable, for want of a means of steerage, which all propelled machines require. In places where it happened to go somewhat straight, it cut and laid the crop well, and we have no doubt but this machine will do some good work this harvest.

Now, the only reapers that performed like work were Messrs. Crosskill's, Garrett's, and Dray & Co.'s; these three were therefore started to cut their lots out, so as to test their powers of dispatch—this was the exciting moment: off they started, Crosskill's reel getting out of order a little way up the field, then again in some other part coming down, and turning the scale against him; the great draft had also so acted on the horses, that the sweat ran down their legs.

Garrett and Dray were both done as nearly as possible together, and some length of time before the other, both going through their work without a single mistake, and cutting beautifully, but Dray's making by far the best delivery; we were here quite satisfied that the victory was in Dray's favour, as the price of his machine is less than half that of Crosskill's, and forty per cent. cheaper than Garrett's. Although a machine with self-delivery works ever so well when in order, yet if at all times liable to get out of order, we greatly doubt the economy of giving a large sum of money for them until they are more perfectly made, and able to combat with the various difficulties without going out of order. We therefore quite agree with the judges, that for the present, Messrs. Dray and Co.'s reaper is the best fitted to meet the farmer's requirements, as a safe thing to be depended upon, as an able assistance in the harvest field. We are quite convinced that the great cause of Hussey's reaper getting so much into disgrace, was the slovenly way in which the first machines were made, and the imperfect mechanical arrangements by which they were driven; and further, the bad material the cutters were made of, as well as the want of the hole cut out of the centre of the cutters, which prevents choking when cutting grass or damp crops.

On the whole, we were rather disappointed with the reaping machines, as we expected that there would have been more good self-delivery machines brought out this season. It has been said there is only one month in the year to test these machines; we do not agree with this, as we know it is quite within any man's power who has twenty acres of land, to have a trial every day from the middle of April until the snow-storms come to lay the crop he has prepared prostrate. For instance, a few acres of land sown with white turnip, very thick, in the beginning of August would give the first cutting; then pieces sown with rye and Italian rye grass at different periods, from August to November, would last until harvest, when there would be a plenty everywhere. After his turnip pieces were cut, the land could be sown with oats, the same with rye land up to the 1st of July, then the rest of the rye land sown with turnips as before for the following season; so that there is no difficulty in implement makers getting plenty of trials upon green-stuff that is as high and thick on the land as any grain crops are grown; while everybody knows that if a machine will cut, gather, and deliver such crops in a satisfactory manner,

the same machine will do the work in a ripe crop of grain, with less danger of getting out of order.

For the prize for the best portable steam engine, not exceeding eight-horse power, applicable to thrashing or other agricultural purposes, there was a larger number of competitors than ever has come forward at any former exhibition, while the testing of these was more accurate. Indeed, we now think that these tests are perfect, and the result of this year's trial is the yet more satisfactory, from the engines being plain every-day articles, such as the makers send out to their customers, and not that absurd class of engines of former years, technically termed racing engines, with a lot of expensive complicated expansion gear and other appendages quite unfit for the simple operations of the farm. The judges, after the unsatisfactory result last year, arising from the introduction of expansion gear, and other expensive appendages, solicited the council of the society to consult Mr. Amos their engineer, when the following was enrolled as one of the conditions for the judges to observe. "In adjudicating on the merits of the portable steam engines, reference will be had to the price, simplicity of construction, the means provided for easy access to the working parts, economy of fuel, and to the portability of the engine, without losing sight of the strength required for safety, and which will be best secured by the free use of wrought iron instead of cast." This is an extraordinary stride in the right path, as now the awards of the judges will be a safe and sure guide to purchasers as to the merits of each manufacturer, as a maker of this now universally used auxiliary for the furtherance of the farmer's operations; we hope it will soon be available in the field as well as it now is in the farm-yard; indeed, we are very sanguine that next season will be the inauguration of steam, as an economical power for cultivating the soils of our level lands: here first, and on the hills afterwards.

The trial of engines went on to the satisfaction of all parties concerned, who came there to meet and find out the best man; for there was none of that dissatisfaction we heard in former years, of the man at the brake not doing that which was right, the brakes now being greatly improved, especially Mr. Balk's, made by Ransomes and Sims; this is a perfectly self-acting machine, and there can be no doubt we shall have all these sorts in another season.

We consider the quiet result of so many of the makers who could foresee where they would be placed by this, the first searching judge, and had so the good sense to withdraw, a great proof of the value of this tester, giving the judges an easy task—for out of nineteen only nine competed, whose performances we have placed in the following diagram, meritorious as they were considered by good judges of machinery and engineers, as well as by ourselves. These engines were all tested with 14lbs. of coals for each horse-power, the engine was nominally built to work up to, so that it did not matter what number of horse-power the engine was, the tester being weighted in proportion; the result of the time each engine ran is just the same as it would be if all the engines were at the same nominal power.

Makers' name.	Price of Engine,	Horse Power	No. of Revolutions per min.	No. of Revolutions of Tester performed with 1 lbs of coals.	Time the Engine worked.	Proximate Price per Horse Power.	Quantity of coals used per horse power per 300 days.
	£				mins.	£	tons cwt
Hornsby and Son ..	255	8	144.	26586	184. 6	32	6 2
Ransomes and Sims	230	7	150.67	24791	164. 5	33	6 10½
Clayton and Shuttleworth	220	6	115.	20724	102.	36	6 19
Tuxford and Sons ..	215	6	136.32	17614	129. 4	35	8 15
Holmes and Son	215	6	135.92	13500	100.	35	11 5
Allechin and Sons ..	200	6	120.45	11857	93.	33	11 9½
Simpson	220	7	123.69	8863	68.50	31	16 6½
Peneston	175	7	130.62	8260	62.	25	18 5
Crosskill	220	6	135.	8402	62.	36	18 5

It will be seen by the tabular form annexed that when the price and quantity of coals consumed by each engine per year (of three hundred working days of ten hours long) are considered, there was no chance of the judges making a mistake, especially as the first four are all first-rate firms, who use nothing but the best materials, and put the best and highest order of workmanship into every thing they make. It is a great proof of the want of knowledge on this subject, when men can sell engines that consume more extra coals in five years than would buy one of the best engines. Here the Royal Society has shed a light upon the agricultural world, that we hope will not be put under a bushel, but set on the highest eminence, that it may serve as a beacon to warn the users as well as the buyers of steam-engines.

We did not arrive in time to see anything of the fixed steam-engine trials; but, from what we could learn, some of them were too large for the Society's boiler, and therefore they were not tried. However, there were about half a dozen tried in a very satisfactory way; Messrs. Ransomes and Sims carrying away the first prize, Dray and Co. the second, and Tuxford & Sons receiving a commendation. We will offer a few remarks upon these when we pass them in the stand, in our next impression.

For the best portable thrashing machine, not to exceed six-horse power, the competition was not large, but good—much better machines coming forward than used to be brought into the arena of competition when they were the only sort in use.

It is rather strange that Mr. Hornsby, who was the first champion at our shows in this department, should be still the same. The horse-works of his machine are a perfect model of what horse-works ought to be; and the work done was executed in the most masterly manner.

Ransome and Sims' thrasher did its work well, also Garrett's. And a compact two-horse machine of Barrett, Exall, and Andrews performed well for some time; but the man then over-fed the machine, therefore the thrashing was not quite clean; when fed at a proper rate, this machine did well.

For the best portable combined thrashing-machine, not exceeding eight-horse power, with shaker, riddle, and winnower, that will best prepare the corn for the dressing machine, to be driven by

steam—for this prize there was a most numerous competition in thrashing wheat, which was very foul in many cases.

We were delighted with the arrangements in this department. As far as the test of the power absorbed by each machine went, that was accurately delineated by the pencil of the dynamometer upon the diagram it furnishes of the strain exerted by the power employed during every moment of time. This was most satisfactory to all parties, as each exhibitor could see for himself what amount of power had been absorbed by each machine while running empty, and what when fully fed, as well as the variations that took place in the feeding by the man employed. This was as it should be, fair and above-board. But it was not so with regard to the other matters in connection with the recording of how far one excelled another; here were the secrets; whereas the thrashing clean, shaking, riddling, and winnowing records should all be managed openly, so as to leave it out of the power of competitors to grumble, or the judges to give them cause. We do hope and think that this part of the business will be managed upon such sound and unerring principles, as will give satisfaction even to those whose machines are unfit for use. We see no difficulty in arriving at this by a little management. In the first place, a good thrashing machine, with a shaker and riddle, could be kept going, thrashing all the straw over again; a dressing-machine could be employed to clean all up that was thrashed out of the straw; and this weighed and entered in a column of a table properly arranged for the purpose. In the second place, there is nothing to prevent all the caving or riddlings from being riddled over again, so as to catch every corn that may have escaped, as well as the chaff; this, when put through the dressing machine, can be weighed and entered in its proper column.

In the third place, what is there to prevent the chaff all being slowly passed through a dressing machine, which would catch all the grain therein, to be entered after weighing in its place; all competitors, at least, being allowed to know how each other's machine stands. Then the price, simplicity, durability, and minimum liability to go out of repair, would, with the power absorbed, form the sound basis to adjudicate upon, so as to give more universal satisfaction.

After a test upon the thrashing of wheat, those machines that performed their work properly were selected to compete in the more severe test of thrashing barley. The prize was awarded to Messrs. Clayton and Shuttleworth. Mr. Humphries had a special commendation for his machine, and Messrs. Garrett and Son had a commendation for theirs.

The prize for the best fixed thrashing machine, not exceeding eight-horse power, with shaker, riddle, and winnowers, that best prepare the corn for market, to be driven by steam, was competed for by Messrs. Garrett and Messrs. Clayton and Shuttleworth. The prize was, after trial, awarded to Messrs. Clayton and Shuttleworth. These two firms have been the only competitors these two exhibitions, and it has always been a close

run; but the prize still goes, or rather remains, at Lincoln.

For the best corn-dressing machine there was a large number of entries, but few competed for the prize. The competition lay between Dray and Co., Knapp, and Messrs. Hornsby; the last firm, as usual, carrying away the prize.

Knapp's is a capital dressing machine to work after the combined thrashing machine; it is not very expeditious, but gets the grain through as fast as a man can measure it up, making an excellent sample.

Dray and Co.'s is a most useful machine, very expeditious, and making a capital blower by the most simple alteration. This machine is peculiarly adapted for exportation, as it can be unscrewed into a few parts, and packed into a small compass.

For the prize for the best grinding mill for breaking agricultural produce into fine soft meal, a considerable number competed, but only two managed to perform—namely, Mr. Hayes, Elton, Huntingdonshire, and Messrs. Clayton and Shuttleworth. It was found that they both took about the same amount of power to do a given quantity of work; but Messrs. Clayton and Shuttleworth's could be made to do nearly double the quantity of work in a given time, though it took about double power to do it. Their mill is also rather better arranged, the prize therefore was awarded them; and Mr. Hayes had a commendation for his mill. This is a useful farmers' barn machine.

For the prize for the best linseed and corn crusher there was a numerous competition; but none of the mills could come up to those with a large wheel driving a small one. Six of these were tried; and, although to a common observer they appeared perfectly alike, yet the result of their trial abundantly proves how far the original maker still excels the rest. We have arranged the result of this trial in a tabular form, carrying out the result so as to show the amount of power each would take to crush twenty pounds of linseed, well breaking it, and what to crush seven pounds of oats in one minute. All these figures are either whole numbers or decimals.

LINSEED.				OATS.			
Name of exhibitor.	Time taken to crush 20lbs.	Total power absorbed	Power required to crush 20lbs. in one minute.*	Time taken to bruise 7lb. of oats.	Total power absorbed	Power required to bruise 7lbs. in one minute.†	
Turner & Co.	5.0	9.23	46.15	min.			
Stanley ...	3.40	17.79	60.48	0.83	2.86	2.37	
Woods ...	7.25	15.67	113.60	2.13	3.83	5.15	
Ransomes & Sims ...	7.89	18.38	145.01	1.02	2.48	2.52	
Garrett and Son	7.45	24.43	172.0	1.76	2.73	4.89	
				2.30	2.54	5.54	

* The lowest number in this column is the best for linseed.

† The lowest number in this column is the best for oats.

In awarding this prize there was but little trouble, as Turner's mill takes the least power both for linseed and oats, thus it easily gained the prize; but for the second best there was more difficulty in deciding, Stanley taking nearly half the power to crush linseed taken by Woods,

while Woods takes less than one-third of the power to bruise oats.

These roller mills are so well known, that much comment on them is useless; farther than it is evident that one man at least does thoroughly understand their manufacture.

For the horse or steam power chaff cutter prize fourteen competed, who all made capital chaff, but varying a little in length, which renders the adjudication of this prize no sinecure for judges to satisfy themselves, it is therefore clearly a difficult matter to satisfy the exhibitors; however we think that the judges in this department strained every point to arrive at a just award, and we feel convinced they have done so. It would be superfluous for us to detail the result of every machine tried, and we shall only give the first and second performance of the four selected for a second trial, which we shall also put in a tabulated form, stating the power required to cut a given quantity of chaff during two hundred revolutions of the power tester or dynamometer. We have added a column with the quantity of chaff a 100 lbs. of power would cut, which will at once show the superiority of one over the other in the first trial, and in the second trial we give the relative amount of power required to cut 100 lbs. of chaff of the same length by each machine.

FIRST TRIAL.				SECOND TRIAL.			
Exhibitors' name.	Weight on dynamometer.	Chaff cut.	Quantity of chaff (100 lbs. of power would cut.*	Weight indicated by the dynamometer as absorbed.	Chaff cut in two minutes.	Nominal power required to cut 100 lbs.†	Price.
Cornes ..	lbs. 23	lbs. 33.5	145.6	lbs. 7.83	lbs. 54.5	lbs. 14.36	£ s. 14 0
Dray & Co. (Richmond's)	21	32	152.3	—	—	—	9 9
Garrett & Son	49	49	100	11.63	63.25	18.46	15 0
Barrett & Co.	47	45	91.8	10.63	50.5	19.96	16 15

* The highest is the best in this case.

† Here the lowest is best.

In the second trial Richmond's got choked by very careless and bad feeding, which looked as if done intentionally.

The chaff cut by all these machines was first rate; but that cut by Messrs. Garretts' was a degree longer than the others.

Any one looking at these columns will see at once, from the result of the two trials, Cornes' takes the prize; but in the first trial Richmond and Chandler's had rather the best of it.

For the best hand power prize a large number competed, and the merits of several of them was as near par as possible; the quality of the chaff was first rate, but there was a considerable difference in the price of the machines used. These were all well tested, and as there were a considerable number little worthy of notice, we shall only give those who had any pretensions to the prize. They will be found to be the old standard makers, all of whom may be trusted for making a good article. This we shall also put as before, showing the quantity of chaff 100 lbs. of power would cut when applied to the dynamometer working each machine.

Exhibitors' name.	Power used on dynamometer.	Chaff cut in a minute	Quantity of chaff 100 lbs. on dynamometer would cut	Price.
	lbs.	lbs.		£ s. d.
1. Cornes	15	15	100	4 15 0
2. Ransomes & Sims	14.5	14	96.5	4 15 0
3. Smith & Ashby	15	16.75	111.6	5 10 0
4. Barrett & Exall	17	17	100	5 10 0
5. Dray & Co. (Richmond's)	18	15	83.3	7 0 0
6. Garrett & Son	17	11	65.3	7 0 0

When the length of the chaff cut by each machine is considered, there is but little difference in their expedition; the chaff of Nos. 1, 2, and 4 being as near equal as possible, while No. 3 was a little longer, Nos. 5 and 6 somewhat shorter; therefore the decision of adjudication had to rest as much on the simplicity, durability, and cost of the machine as its performance. The prize was awarded to Mr. Cornes, while Ransomes and Sims, and Barrett, Exall, and Andrewes, were highly commended; and Dray and Co., with Messrs. Garrett, commended. We are at a loss to account for Messrs. Smith and Ashby being neglected. The price, quality, and performance surely speak well for them.

For the best turnip cutter there was but little competition, as most of the machines were Gardner's pattern. The only close competitor was Mr. Pierce's Kealy's universal cutter; but the result of the trial proved the old machine to have gained the prize, while Mr. Pierce was commended.

For the best machine to reduce roots to pulp there were many aspirants; but none who accomplished the task—some cutting into thin slices, and others mincing. The latter was the nearest to what was required, and the best machine for that purpose was one by Mr. F. Phillips, of Downham, Suffolk; the competition running between this, Kealy's (exhibited by Mr. Pierce), Nye and Gilbert's, and Simpson's. These were all tried, and all performed well in their own way—Phillips' and Nye and Gilbert's making mince meat, while all the others cut or grated into very thin slices or shreds. None of these could be said to meet the meaning of the word pulp. No award was thought would be given, but the judges very properly ordered the prize to Mr. Phillips, for his most ingenious and efficient mincing machine, being quite a new principle, and tolerably expeditious.

For the best oilcake breaker, for every variety of cake, the competition lay between Garrett and Son, Hornsby and Son, and Nicholson. These machines were delayed in trial for want of any cake of the hardest and thickest description; but after a severe trial the prize was awarded to Messrs. Garrett and Son; Mr. Nicholson's highly commended, and Messrs. Hornsby's commended.

The prize for the best churn was perhaps the most exciting of any, as the competitors, though few, had all great confidence in their respective knowledge of dairy management. We just arrived at the scene of action when the first was done, therefore in time to see the butter weighed. There were five competitors, four with

the same quantity, namely three quarts of cream each, and one with one quart. We enter the whole below, showing the time taken, the quantity of cream, and the weight of butter as it was weighed, without making any remarks one way or the other, as the judges did not agree to a decision on the matter; but these are the facts, on which the public may judge for themselves. We believe they all started at eleven o'clock.

Exhibitors' name.	Quantity of cream.	Time each was done.	Quantity of butter.
	quarts.	b. m.	lbs. oz.
1. Burgess & Key (Anthony) ..	3	11 37	2 11
2. Dray & Co.	3	11 40	3 2
3. Ransomes & Sims	3	11 54	3 2½
4. Hancock	3	11 54	3 2
5. Cogan's Glass Churn	1	11 58	0 12

1. A shade better colour, than Nos. 2 and 3.
2 and 3. Both rather softer and paler than the above; but it was only just perceptible.

4. Best colour and quality.

5. This was managed badly, and does not do justice to the churn.

The whole of the cream was well mixed together before measuring out to each churn, which renders this a most interesting trial, inasmuch as it matters but little whether the immense difference of produce from the same quantity of the same cream arises from the action of the churn, or from the proper regulating of the temperature of the cream at different stages while being churned. With this guide, the fact stares us in the face, that there was within a fraction of one-third of the quantity lost by one churn, or system, as compared with another. If such difference were to be general against butter dairies, there must be fortunes in better management, as well as a vast national benefit. We hope the Royal Agricultural Society of England will appoint some more special, varied, numerous, and widely divided means of arriving at which is the best churn, as it appears to us there is not an implement of husbandry that requires more thoroughly sifting, to find its weak and strong points, than the churn, and none that has been played with so much by amateurs. In every land, and under every climate, this has been a toy for those who have little else to do. Now it is certain some of these, in their zeal to do good, must have hit the mark: let the searching inquiry be made to find him out of the heap, that all may benefit thereby.

We have now done with the trials of implements, and in conclusion must congratulate the Royal Agricultural Society of England on the vast improvements that are accruing from the stimulus given by the various prizes already offered, and also on the great improvements in the means of coming at a correct judgment and decision upon sound principles.

Some of our subscribers may perhaps think that we have already devoted sufficient space to this department of the Lincoln Meeting of the Royal Agricultural Society. Beyond, however, the interest attached to the several trials, and the awards arrived

at, there is far more yet for the visitor to inspect, and the chronicler to report on. When, indeed, we come to consider the great expense which the different manufacturers must incur in so completely furnishing their stalls, we can scarcely deny them that notice which is no less a justice to themselves than an advantage to the public. In accordance with this opinion our correspondent will now proceed to some further detail of the show, selecting, as he goes, the most useful inventions he may discover in his round of visits.

As we entered on our scrutiny, at the first Stand we met Mr. Biggs, of Great Dover-street, Southwark, Surrey, exhibiting his sheep-dipping apparatus. This is one of the most simple, substantial, and economical contrivances for the purpose ever presented to the agricultural public. We hope that the flockmasters who visited the show took home with them some of his invaluable composition, so that comfort and quietude may pervade their flocks, the general influence of which will tend to the increase of both the flesh and the fleece.

At Stand 2 we met the representatives of Mr. Crosskill, of Beverley, so well known as the maker of clod-crushers, for which he has been long famed. He has introduced a new principle, which we believe to be an improvement—that of making this roller self-cleaning; but we think, if it were possible, it would be far better if it were made so as to prevent the adhesion of damp earth at all, as then there would be no disease, therefore no cure required. We have no doubt, if this hint is worth anything, Mr. Crosskill will soon accomplish the work. On this stand we also saw the usual array of carts and waggons, of first class shape and make. We also observed his well known eccentric mill, which carried away the prize as the best bone mill, and Bell's reaping machine, with Crosskill's patent improvements. This important addition to the requirements of an arable farm possesses the self-acting side delivery, so much desired. It has been further improved since last year (when it carried off the whole of the prizes it competed for) being now nearly two cwt. lighter; and although at Lincoln it only received a commendation from the judges of the Royal Agricultural Society, we have since witnessed what it is capable of doing, having seen it fairly tested on the Yorkshire Wolds, at Mr. Edmund Riley's, a well-known farmer at South Dalton, where it certainly performed its work in so satisfactory a manner as must ere long ensure its extensive if not general adoption.

On Stand 3 was McNeill and Co.'s asphalte for roofing houses, &c. We have no doubt, should the war continue, and timber be dear, this will come more into use.

At Stand 4 we found Mr. James Dunlop, of Haddington, exhibiting his improved cart and plough harness. The general improvement in this is its lightness, combined with great strength. Another vast improvement is the absence of that absurd instrument of torture, the bearing rein, for which Mr. Dunlop has substituted a leather rein, about two yards long, fastened to the bridle

by a bright chain about a foot long, while at the loose end there is a buckle and tongue for fastening the horses back, if required, at plough.

On Stand 5 Mr. Isaac James, of Cheltenham, exhibited one of the best liquid manure carts we have ever seen. It is built of timber, securely rabbeted together, and bound by a strong frame, the whole cart weighing only about 7 cwt., and holding 250 gallons.

On Stands 6 and 7 Mr. Boulnois, of Baker Street Bazaar, London, exhibited an assortment of useful emigrants' steel mills, with hand flour-dressing machines, worthy the attention of purchasers, and a capital cheap steaming apparatus on Stanley's principle.

On Stand 8, Mr. F. J. Wilson, of Cadogan Place, Chelsea, Middlesex, exhibited his patent wheel barrows. This plan takes nearly all the weight off the hands of the user, but at the same time renders it more difficult to balance than the old plan of barrow, and is therefore not so well adapted for wheeling on narrow planks.

On Stand 9, Mr. Gibson, of Newcastle, exhibited a revolving cultivator, or grubber, which we saw work, but cannot say that we like it so well as any of the light grubbers, such as Tenant's or Howard's; also one of Ransome's, for general purposes, for strong cloddy land an excellent implement, and worthy the notice of the clay-land farmer.

On Stand 10, Mr. Freeman Roe, 70, Strand, London, exhibited an hydraulic ram, for raising water; this is an invaluable apparatus in many situations, as it will raise water ten feet where there is one foot fall, and so on in proportion.

On Stand 11, Messrs. Holmes, of Norwich, had their portable engines and combined thrashing machine, for which they have been celebrated; also their drills, of every variety, well made, simple, and useful; as well as a very good manure distributor, that is extensively used and appreciated.

On Stand 12, Mr. Samuelson, of Banbury, showed his Gardner's turnip cutter, which is so well known that we cannot spread its fame much wider, although we again are called upon to announce another prize is added to the long list of its achievements. Also, his far and widely talked-of, but rarely used, digging machine.

On Stand 13, Messrs. Burgess and Key, 103, Newgate Street, London, exhibited (for the manufacturer, Mr. Williams, of Bedford) ploughs of all known repute; and also his unrivalled harrows.

On Stand 14, Mr. Richard Read, of 35, Regent Circus, Piccadilly, London, exhibited all kinds and sizes of water engines, with power to discharge with great force from 70 gallons per minute, to the light and pretty syringe, intended for bedewing the rosebud and flowers that bedeck the greenhouse, wielded by the delicate hand of a lady.

On Stand 15, Mr. Smith, of Kettering, Northamptonshire, exhibited his steerage horse hoe, which he has improved since we last saw it. This is a most useful, convenient, economical, little implement, worthy the notice of those who are desirous of being rid of weeds.

On Stand 16, Messrs. Barrett, Exall, and Andrews, of Reading, Berks, exhibited a large collection of engines, machines, and implements, among which there

was a very useful barley aveller or hummeller, simple, convenient, and effectual in its working. Likewise a horse rake, with a capital contrivance for insuring its clearing itself effectually; also a simple, neat, strong, durable, and convenient circular-saw bench, moderate in price.

On Stand 18, Mr. John Whitehead, of Preston, Lancashire, showed his well-known brick and tile machines, that have so frequently taken the prizes of this and other societies, as well as spread the blessings of drainage through many a wet and marshy district.

On Stand 19, Mr. James Hayes exhibited his mills. These are useful little grinding mills, Derbyshire Peak stones, and do their work very well indeed, for which they were commended by the judges.

On Stand 20, Marie Pierre Amaranthe Ferdinand Mazier, of L'Aigle, France, exhibited a reaping machine. This is more as a model than a machine for the farmer. It only cuts two and a half feet wide; the cutter is serrated, with a reciprocating motion. The novelty is that the machinery is in a small, boxed-up, two-wheeled cart, at the back of which, and in the centre thereof, the bar with the fingers or guards and the knife are fixed upon a joint, in the centre of which revolves the crank that gives motion to the cutters. This allows of the said bar being turned over from one side to the other, thus enabling it to come back on the same side that it went up. There is merit in the principle, but we fear it will never come to anything practically useful; the self-delivery used was a complete failure.

On Stand 21, Messrs. Garrett and Son, Leiston Works, Saxmundham, Suffolk, exhibited, as usual, implements, machines, and engines of every class and sort required on a farm, with nearly the whole of which they have from time to time taken this Society's prizes; in fact, as we walked along his stand it appeared as if there had been a shower of prizes and high commendations falling there the day before. Messrs. Garrett are the men whose enterprize has brought Huckvale's horse hoe and turnip thinner prominently before the farmer, so that in those times of scarcity of labour this is the farmer's refuge that will save many a turnip crop from damage.

On Stand 23, Mr. William Pacey, of Lincoln, exhibited a complete fit out of three sets of harrows, made of wood and steel teeth. These are made on the rhomboidal principle, the lightest set covering eight feet and a half and the heaviest eleven feet, that is, they finish that width; for although the harrow is wider by two feet, it has to overlap that width to make equal work.

On Stand 24, Mr. William Pierce, of Cannon House, Queen-street, Cheapside, London, exhibited an extensive collection of implements of the best description, from the best makers.

On Stand 28 Messrs. Braggins and Chester, of Banbury, Oxfordshire, exhibited a large assortment of well made turnip cutters on Gardner's principle, and a useful oilcake breaker.

On Stand 29 Mr. Hugh Carson, of Warminster, Wiltshire, exhibited Chandler's liquid manure drill, which received the prize; also his chaff cutters, which

took a tolerable position at the trial, and are useful stable appendages; as well as Moody's turnip cutter, a useful cutter for slicing roots very thin, to mix with chaff.

On Stand 30 Mr. John Cook, of Eagle, Nottingham, exhibited samples of the native breed of carts and waggons, which we feel sure his good sense will cause him to reduce in weight and lumber, as well as improve in shape and fashion, the next time he exhibits.

On Stand 31 Mr. Robert Hunt, of Earles Colne, Essex, exhibited an improved engine for drawing or separating clover and trefoil seed from the husk. This is a capital machine for the purpose, being more expeditious than anything of the kind we have seen. It consists of the hollow frustrum of a cone, made of cast iron: within this is a drum of the same shape, which, by being drawn towards the small end, is set as close as may be required; this drum is driven at great velocity; the stuff being fed in at the small end, is carried to the wide end, where it enters a blower, which separates the seed.

On Stand 32 Messrs. Clayton, Shuttleworth, and Co., of Lincoln, exhibited a number of first rate engines, for one of which they were highly commended. These gentlemen, by the use of the best materials and workmanship, have earned for themselves many prizes and a large share of public patronage. They also exhibited their combined thrashing machines, both portable and fixed, which were stamped with prizes, therefore we can add nothing more to raise them into the position they merit.

On Stand 33 Mr. Frederick Phillips, of Downham, Brandon, Suffolk, exhibited what he calls a root pulping machine, but we should call it a mincing machine. However, call it what we may, this is a most ingenious thing, simple in construction, effectual in action, and rapid in its performance. The principle employed is that of the circular saw, cutting the root into saw dust, which is fine or coarse according to the speed of the saws, of which there are eight or ten fixed on a shaft, with a smooth disc betwixt each, the periphery of which is even with the bottom of the saw teeth; this prevents the saws from cutting farther into the root than the depth of their teeth.

On Stand 34 Mr. Thomas Scragg, of Calveley, Tarporley, Cheshire, exhibited his simple, powerful, and rapid acting tile machine, to which the prize was justly awarded; he also showed a brick press, an implement we are very sceptical about the value of.

On Stand 35 Mr. Hunter, of Binbrook, Lincolnshire, exhibited drills, horse hoes, and grubbers that are used and thought well of by his farming neighbours; they are a useful set of implements.

On Stand 36 Mrs. Simpson and Son, of Lincoln, exhibited a capital assortment of engines, machines, and implements of agriculture. We congratulate the farmers in the neighbourhood on their having so spirited a firm to supply their wants.

On Stand 37 Mr. Thomas Buxton, of New Malton, Yorkshire, exhibited, in addition to an assortment of new mills, his clod-crusher adapted for rolling wheat or seed lands.

On Stand 38, Messrs. Hornsby and Son, of Grantham, Lincolnshire, exhibited their portable steam engines, for which they have taken every prize they have competed for, with only one exception; and that was lost when such appendages were in action as no sensible farmer would use. This says much; for, when men win annually, they must be the best. They, amongst these, showed their Great Exhibition prize engine, which was a treat for lovers of mechanics to feast their eyes upon. They also showed their dressing machine that has won the prize for many years. Also their horse-thrashing machine, for which they have been so long and justly-famed: this is now about out of demand for home use, though yet available for the foreign market. They likewise exhibited their combined thrashing machine, which, for the perfection of barley thrashing, shaking, and winnowing, was not excelled, if equalled, by any machine in the yard.

On Stand 39, Mr. J. T. Knapp, of Clanfield, Bampton, Oxfordshire, exhibited a corn-dressing machine—a combination of Cooch's dressing machine and the corn-separator: this is a very good contrivance, and accomplishes the work in excellent style—about fast enough for a man to measure it up. But that does not suit the great corn-growing counties: they like to see two men measuring up; but for those who are desirous of making the best sample possible of what they grow, this is a capital implement.

On Stand 40, Mr. E. H. Bentall, of Heybridge, Maldon, Essex, exhibited a large assortment of his broadshares or scarifiers, for which he received the prize. This implement makes a very good grubber and excellent subsoil plough; and one of its best properties is, that its price brings it within the reach of every farmer, and the power required to work it within that of every team of horses.

On Stand 41, Mr. James Comins, of South Molton, Devon, exhibited his well-known and widely-used horse hoes, and his subsoil pulverizer, which is light, strong, and efficient; also a new turnwrest plough, which has some good points about it; and we think he has accomplished a great improvement upon Locock's.

On Stand 42, Mr. J. Bailey Denton, of 52, Parliament-street, London, exhibited a relief map of a drainage area, being a specimen of mechanical modelling of a ground surface; invented, improved, and manufactured by the exhibitor. By the use of this implement, any appropriate system of drainage may be devised, so as not only to secure an effective discharge of injurious waters, but to suggest their profitable application when concentrated by drainage. The improvement consists in the mode of applying parallel slips of copper, so as to indicate contour lines or courses of equal altitude, for constructing the model mechanically. This is a simple means of getting over a complicated task, and will, we think, cause many gentlemen to have model maps of their estates, especially as the cost is so small an amount per acre.

On Stand 43, Mr. Stanley, of Peterborough, exhibited an assortment of roller-mills and steaming apparatus, for which he has been so long celebrated; also chaff-cutters, land-rollers, and pressers of various

well known good sorts, with his wheel roller, invented by Mr. Gilson Martin, of Goose Tree Farm, March, Cambridgeshire; manufactured by the exhibitor.

On Stand 44, Mr. Warren Sharman, of Melton Mowbray, Leicestershire, exhibited hand hay and corn-rakes, made of light tubular-iron. These are light, strong, durable articles, and as low priced as wood-framed ones; also twitch-rakes of the same material, with steel teeth. These we can with confidence commend to the notice of all light-land farmers. His sheet-iron root, corn, and chaff-scuttles are capital things; they are made either of common or galvanized sheet-iron, and are light, strong, and very durable for filling corn into sacks, bushels, or machine in the barn, feeding cattle and sheep, &c.

On Stand 45, Mr. Thomas Johnson, of Leicester, exhibited a large and well-selected assortment of agricultural and horticultural implements and tools; among them we observed some excellent pig-troughs. His churn, invented by Mr. Lorenzo Tindall, is a first-class article, and completely gets over the great objection there was to the old barrel churn, namely, that if turned fast the milk or cream got fixed by the centrifugal force all round the churn in a state of quietude: to avoid this, Mr. Tindall puts the pivots it revolves upon, eccentric to the centre of the barrel, at opposite lines to each other, so that the churn hangs diagonally, thus giving two motions to the cream—one, caused by its gravity, finding its level; and the other, by the centrifugal force, throwing it from one end of the churn to the other, giving that differential movement that quickens the process of churning.

On Stand 46, Mr. Howard, of Bedford, exhibited a series of his far-famed ploughs, in the working details of which he has made several improvements, which consist in greater elegance of design, and more equal proportions, the furrow turners being made peculiarly taper and regular in their curve, and formed upon exact geometrical principles; the furrow slice is made to travel at an uniform rate from its being first cut until left in its final position, and the furrows laid more evenly and in the best form for the reception of the seed, as well as working much cleaner on land inclined to adhere to the breast or furrow turner. After one of the closest contests ever known, the prize was awarded to Messrs. Ransomes and Sims, and Mr. Howard was highly commended for the general purpose plough, Mr. Howard winning the prize for deep ploughing, and Ransomes' highly commended.

On Stand 47 Mr. Selby Hand, of Glington, Lincolnshire, exhibited a very useful chaff cutter, that choked by bad management when on trial; also Coleman's well-known cultivator, of various sizes.

On Stand 48 Mr. Charles Hart, of Wantage, Berks, exhibited his well-known scarifier, or cultivators, of different sizes, which were tried, and performed very well, receiving the commendation of the judges; also his combined thrashing machine, which, since taking the prize last year, has been much improved.

On Stand 49 Mr. George Hunter, of Ulceby, Lincolnshire, exhibited his drills, of different kinds that are

used and approved of in that neighbourhood ; also a very good two-horse cart, at a low price, which we think should have been about half the weight, and made for one horse.

On Stand 50 Mr. Joseph Lee, of Stonnall, Staffordshire, should have had an engine, but was not forthcoming on the trial day.

On Stand 51 Mr. Joseph Long, of Meriten's Wharf, Dockhead, London, exhibited 70 casks of his non-poisonous sheep-dressing composition, which is recommended as a remedy for scab in sheep, mange in horses and dogs, lice in all animals, without the least risk to the animal or the dresser. We hope that those requiring this will give it a fair trial, and make public its merits. He also showed 10 cases of his sheep foot-rot lotion, for the cure of that dreadfully annoying disease ; it also destroys maggots, heals wounds of all kinds, and cures all cutaneous diseases.

Stand 52—Mr. John Patterson, of Beverley, Yorkshire, did not arrive in time.

On Stand 53 Mr. Michael Penestan, of Lincoln, exhibited his portable steam engines, which upon trial were proved to be well suited for the coal mining districts, where coals are plentiful and cheap ; also Cambridge's rollers, of various sizes, moderate in price.

On Stand 54 Mr. William Shephard, of Hoveringham, Notts, exhibited his plough, which was tried and worked very creditably, showing that his neighbours need not go far for a useful plough ; also a miller's cart, well built, neat, and strong.

On Stand 55 Messrs. Smith and Ashby, Stamford, Lincolnshire, exhibited their hay-making machine. This machine is far superior to all others. They also showed their horse rake, which is a useful implement, and a series of different sized chaff cutters, which, both as hand and power machines, were but a few degrees behind the winner, being well made substantial articles.

On Stand 56 Messrs. Turner and Co., of Ipswich, Suffolk, exhibited their roller mills, of a variety of sizes. They have again carried away the prize with ease, which says all that well could be said, as it was a fair run trial, upon the soundest principles that could scarcely err.

On Stand 57 Messrs. Tylor and Sons, of Warwick-lane, Newgate-street, London, exhibited a first class fire engine, equal to thirty men, throws 134 gallons of water per minute 120 feet high. We would commend this to all towns and villages, as its power is the great safeguard against the spread of fire, when it breaks out among thatch, straw, or timber.

On Stand 58 Mr. Walker, of East Bridgford, Ratcliffe, Notts, exhibited his corn and seed drill. This is a nicely arranged and well made machine, and operated very satisfactorily, receiving a commendation from the judges.

On Stand 59 Mr. Edward Weir, of Bath-place, New-road, London, exhibited a number of irrigator, liquid manure force pumps, worthy the notice of all parties who have an opportunity of using sewage water ; also a hose pipe reel. This is a most valuable implement to those who use liquid manure by hose. His draining level is a simple, cheap, light instrument ; but we

thought most of his workman's pendulum level, for use in the drain.

On Stand 60 Mr. James Woods, of Stowmarket, Suffolk, exhibited a series of scarifiers, or grubbers. These are made upon a good principle ; but we think that wrought iron would be much better than cast in every respect. Also a very good one-horse power gear-work, for driving chaff cutters, linseed crushers, bean and oats breakers. Even in this age of steam, we think this a thing there is much use for.

On Stand 61 Messrs. Allechin and Son, of Northampton, exhibited their portable steam engine.

On Stand 62 Mr. Francis Arding, of Uxbridge, Middlesex, exhibited his new principle of chaff cutter, in which there is some merit ; but through a defect in the feeding rollers, it choked when on trial. We expect to be able to say something more favourable of this another day.

On Stand 63, Mr. John Caborn, of Denton, Lincolnshire, showed a useful corn-dressing machine, that operated very well, making fair work and expedition ; but his chaff-cutter was not just the thing.

On Stand 64, Mr. J. J. Capper, of Loughborough, Leicestershire, showed an eight-horse steam engine, and a combined thrashing machine ; but neither stood in the ranks of good performers ; his winnowing and dressing machine was better thought of.

On Stand 65, Messrs. Barnard and Bishop, of Norwich, exhibited an assortment of wirework-seated iron garden seats and chairs, made of galvanized iron, with and without elbows to them. These are very neat and strong ; as are their unrivalled poultry-yard furniture, of all sizes and devices ; also an extensive assortment of galvanized and japanned wire netting, for all sorts of fencing and purposes ; and an assortment of pig-troughs of every variety, made of cast and wrought-iron.

On Stand 68, Mr. Thomas Chambers, jun., of Colkirk, Norfolk, exhibited a new implement, that has been much wanted—a simple broadcast manure distributor, manufactured by himself. The principle of this machine consists of a barrel formed of a series of rings, each having movable projecting pieces (for the delivery of either highly comminuted or rough manure), which come in contact with scrapers, so placed beneath the box that the manure falls directly off, thereby doing away with the certainty of setting fast the joints when the manure has to slide down them ; the pressure of the scrapers on the barrel being regulated also by moveable weights to the greatest nicety, according to the adhesiveness of the manure used. It is also fitted with a quite novel and excellent stirrer, of an horizontal movement, by means of a pair of bevil wheels and crank, which never fails to give a constant and regular delivery from the box to the barrel, however moist the contents of the box may be. It will sow from two bushels to any quantity required, and is so easily adjusted by the slide, that even when at work the quantity can be varied according to the quality of the soil to nearly the two extremes, which in other machines cannot be done to the same extent without the aid of change wheels ; it has, we hear, been perfectly successful this spring in the regular distribution

of the most difficult mixtures, such as guano, blood manure, and salt. We look upon this as a first-rate machine.

On Stand 69, Mr. William East, of Spalding, Lincolnshire, exhibited a drop drilling machine for grain of every description. The advantage of this is, that it drops the seed in the rows at any required distance apart, and therefore is equal to dibbling. We are very favourably impressed with this, and believe that the system would effect a great saving of seed.

On Stand 70, Mr. John Eaton, of Twywell Works, Kettering, Northamptonshire, exhibited a capital one-horse cart on a good principle, and first-rate workmanship and materials; also a capital sheep-crib, very neat and ornamental, at the same time preventing waste of fodder; and an excellent hand power lifting-jack, which is worked with considerable ease, lifting three tons. This the judges very justly commended.

On Stand 71, Messrs. Fowler and Fry, of Bristol, exhibited their patent steam draining-plough: it has been our good fortune to have seen this extraordinary implement at work frequently before, and to have seen it cut through ash-tree roots four inches in diameter, without making any visible difference to its action. On the trial at Lincoln, it deposited the tiles about four feet deep in the most perfect manner: when passing through hollow or over heights, the depth was regulated with the utmost nicety, so that the tiles maintained an equal fall throughout; the means for accomplishing this is very good and effective. The land this machine was tried upon was the same that eight horses could not plough ten inches deep; yet the tiles were deposited about four feet deep by a six-horse steam engine with apparent ease. The drains were opened up, to examine how the tiles were laid, also whether any were broken; but it was found that none broke in the drain, although some broke before they reached the entrance of the drain; this we have invariably seen to be the case. On opening up and stripping the tiles, they were found laid as level as if done by the best workman, with the advantage that they were so tight together, that it was impossible to take up one without breaking the line. We are convinced that for draining all lands free from large stones, or loose gravel beds, there is no hand-draining equal to this.

On Stand 72, Messrs. Hart and Son, of Brigg, Lincolnshire, exhibited their two portable steam engines; but feeling that they had some soft place about them, or too great an appetite for coals, withdrew from competition. They also showed some of Cambridge's rollers, of various sizes, which they seemed to be better at manufacturing.

On Stand 73, Messrs. Dray and Co, of London, exhibited their fixture six-horse power steam engine; this engine took the second place as to performance in the trial-yard, and for its simplicity, compactness, and ease of getting at all the working parts. This engine possesses the additional advantage of elegance, symmetrical beauty, and neatness of design, which, with the excellency of finish and workmanship combined, renders it one of the most profitable machines that those who require its power can obtain. They also exhibited their Hussey reaper, of which we have already spoken. They also

exhibited their own power chaff cutter; this machine has two knives and cutter, expeditiously making excellent chaff; it can by a very simple contrivance be quickly altered to cut straw into $4\frac{1}{2}$ -inch chaff for litter, at the rate of one cwt. per minute; this is a system that saves litter greatly, and makes the manure better.

On Stand 75, Messrs. Forshaw and Co., of Liverpool, exhibited a three-ton cart and cattle-weighing machine; a pen for cattle and sheep is attached, which can be removed at pleasure. The improvements since we last saw it consist in its portability and its capability of being fixed by any farm labourer. These gentlemen also showed some good small weighing machines, sack-barrows, crushing and kibbling mills, with Kase's fire-engine and liquid-manure spreader: this is a valuable adjunct to the farm for many important purposes, and a great safeguard in case of fire.

On Stand 77, Messrs. E. and T. Humphries, of Pershore, Worcestershire, exhibited their combined thrashing, shaking, riddling, and winnowing machine. This machine, on trial, did its work in excellent style, though rather slow, both in thrashing wheat and barley.

On Stand 78, Messrs. John and William Medworth, of Newark, Notts., exhibited a very useful plough. Also a steam cooking-stove that appeared to have some excellent principles about it.

On Stand 79, Messrs. Lucas and Wright, of Lincoln, exhibited a lot of very useful little machines, among which was a neat, strong, and economical sack-barrow and a good Gardner's turnip-cutter.

On Stand 80, Messrs. Mapplebeck and Lowe, of Birmingham, exhibited a large and well-selected assortment of agricultural and horticultural machines, implements, and tools, among which we noticed a bundle or set of splendid draining tools and digging forks made by Lyndon.

On Stand 81, Mr. Robert Hawkins Nicholls, of St. John's, Bedford, exhibited his horse hoe, in which he has displayed a vast amount of ingenuity to make it overcome the difficulty of horse-hoeing crooked drills and unlevel surfaces; though Hornsby and Garrett's steerages applied to drilling machines are doing away, in a great measure, with the want of the first principle in its purity as he has it; and the use of Howard and Williams's harrows, improved grubbers and rollers, have almost annihilated the existence of the second.

On Stand 82, Mr. Edmund Skins, of Metheringham, Lincoln, exhibited a horse-hoe, invented by Mr. Greenham, of Blankney. This is an ingenious thing, and we have little doubt will be brought to what is desired after a little more experience.

On Stand 83, Mr. Alfred Sparke, of Lincoln, exhibited a well got up, strong, and useful circular-saw bench, with a 32-inch saw, parallel gauge, and driving pulley complete. This is the most substantial and cheapest thing of the kind we have seen.

On Stand 84, Mr. Thomas Taylor, of Edingley, Notts, exhibited a turnip drill for flat and ridge work, as well as a manure distributor and turnip drill combined, an improved straw cutter, and a corn-dressing machine.

On Stand 85, Messrs. Tasker and Fowle, Andover,

Hampshire, exhibited Spooner's liquid and dry manure drill. In this the water and manure are separate: one either can be used without the other, or both together, as may be required. This we like; and hope the farmers, in dry climates and soils, will study their own interest by inquiring after its advantages, and so get satisfied before another season rolls on them unprepared.

On Stand 86, Messrs. Tuxford and Son, of Boston, Lincolnshire, exhibited their portable steam-engines. These engines have always stood, and still stand in the front rank; they are on the most compact, simple, and durable principle we know of; the whole of the working parts being inclosed from the weather and dust, prevents an immense amount of wear and tear: the principle, too, of a vertical cylinder is the sound one. We feel that the judges did their duty when they commended these engines.

On Stand 87, Messrs. Harris and White, of Sleaford, Lincolnshire, exhibited an assortment of very useful ploughs, that cut a fair figure in the field of trial. Also waggons of a most unwieldy, ill construction, having more lumber than mechanical principle or common sense about them. Also a two-horse cart, after the same fashion.

On Stand 88, Mr. James White, of 266, High Holborn, London, exhibited an assortment of steel mills for grinding all sorts of grain; also hand flour-dressing machines. Among the rest, a neat little mill that grinds wheat or barley, and dresses the flour, at one operation.

On Stand 89, Messrs. Wilson, of Beverley, Yorkshire, exhibited two of their corn-dressing machines, which are in extensive use, and do their work in a most satisfactory way: they are well made, and of good materials.

On Stand 90, Mr. Thomas Allcock, of Radcliffe, Nottingham, exhibited some chaff-cutters that performed, when on trial, very well, both as regards quantity and quality of chaff produced. He also had some very useful ploughs.

On Stand 91, Messrs. J. and A. Armitage, of Bury, Huntingdonshire, exhibited hollow brick and drain-tile machines, which to all appearance were not liable to get out of repair, being simple, strong, and well made, and possessing, when well managed, the power of producing large quantities of a first-rate article of both kinds.

On Stand 92, Mr. Wm. Bail, of Rothwell, Kettering, Northamptonshire, exhibited a number of his ploughs, for which he has been so long celebrated. These ploughs still rank among those selected for a second trial on all occasions, and either take the prize or are commended: at this meeting, after a severe contest, the latter was his position.

On Stand 93, Mr. James Barton, ironmonger, 370, Oxford-street, London, exhibited several sets of stable-fittings of a useful and ornamental description, with enamelled mangers; also a large assortment of stable-hooks, brackets, and chains of almost endless variety.

On Stand 94, Messrs. T. and H. Brinsmead, St. Giles, Torrington, Devon, exhibited their steam elevator and shaker. This invention produces three effects by one action, namely, first it thoroughly shakes the corn out

of the straw; secondly, it collects again the short straw that has dropped underneath with the grain, and sends it away with the long straw; thirdly, it conveys the corn back into the body of the thrashing machine. It also facilitates the winnowing process. The combined thrashing machine is simple in construction, and very easy of power.

On Stand 95, Mr. Wm. Busby, of Newton-le-Willows, Bedale, Yorkshire, exhibited his carts, which were the only things of the kind in the yard that are made on the true principles of mechanics, both for the economy of manual and horse labour. They were well made, and of capital materials. The build of the wheels in these carts are a mechanical example to all in the yard. A medal was awarded to this cart. He also showed his celebrated ploughs, and the general purpose plough was commended. He also showed the Rev. W. F. Wharton's clodcrusher. This consists of a combination of the Norwegian harrow and the continental triune, and has the same effect as the Norwegian harrow followed by a roller, without consolidating the soil in the least. We consider this a good and economical implement for the purpose on moderately stiff clay land and loams.

On Stand 96, Mr. Richard Coleman, of Chelmsford, Essex, exhibited his well-known and much-approved cultivators or grubbers. When on trial, these implements worked very well; but we especially admired those made of wrought-iron, the simplicity and ease of repairing which far surpass those made of cast-iron; the lightness, combined with strength, acquired by the free use of wrought instead of cast-iron, is a consideration that ought to teach every man the folly of buying cast-iron implements. We are aware weight keeps an implement close to its work, and assists an ill-constructed one to perform work upon hard land; but we know that, when made upon sound principles, so long as there is sufficient strength, no grubber will refuse to perform its office, when land is in a fit state for use. We are always puzzled to understand why it is that we find, in a great many districts where shallow cultivation suits the soil, the heaviest implements; while, where deep cultivation answers best, and is followed out, light, strong, simple implements are those in use. In Scotland, where deep cultivation is the general rule, they will not have an implement that requires more than two horses, if possible, many of them preferring to plough the land rather than put four horses into a grubber. We have no doubt Mr. Coleman, by lightening his valuable implement, will give the Essex farmers the power of proving that an efficient grubbing is as good as frequent ploughing, and more economical.

On Stand 97, Mr. James Cornes, of Barbridge, Nantwich, Cheshire, exhibited his chaff-cutters, of various sizes, the excellency of which has enabled them to take the prizes of this society for many years. He also exhibited a very useful farmer's bone-mill, on the old principle, which has not yet been superseded by any other, profitably, although there are mills that can perform wonders which astonish both judges and lookers-on.

On Stand 98, Mr. William Crowley, of Newport Pag-

nell, Bucks, exhibited a one-horse cart for general purposes, with 4-inch wheels, and with one of Love's skids or stides for hilly countries attached: this is an excellent contrivance, as it takes all the weight off the horses' back, and stops the cart, however heavy the load, when descending the steepest hills.

On Stand 99, Mr. Richard Downs, of Ryhall, near Stamford, Lincolnshire, exhibited some light useful ploughs for very light soils; also a very good light scarifier or grubber, for extirpating twitch out of light soils. This is an implement well-adapted for the purpose intended.

On Stand 100, Mr. William Garner, of Spalding, Lincolnshire, exhibited a great variety of Cambridge's rollers, from 11 to 30 inches in diameter; also a press-wheel roller, composed of a number of discs with cylindrical rims about $2\frac{1}{2}$ inches wide, and a space between of 2 inches: this we do not like, because when rolling along drilled grain, a row happening to fall in the space between these wheels, will rather be pressed out than into the soil. However, in rolling across there is less objection; yet, as a smooth roller, we think Cambridge's the best.

On Stand 101, Mr. Thomas Milford, of Thorverton, Cullompton, Devonshire, exhibited his one-horse carts, to which the judges awarded a medal. These carts have been vastly improved since we last saw them.

On Stand 102, Mr. John Goucher, of Worksop, Notts, exhibited his thrashing-machine, which has a drum on a good principle for bolting machines, but from bad arrangements in the concave, absorbed too much power in its performance; we yet hope better things of it in future.

On Stand 103, Mr. David Harkes, of Mere, Knutsford, Cheshire, exhibited his parallel expanding horse-hoe, which is extensively used and esteemed throughout the northern counties, where ridge cultivation of roots prevails. This is an excellent implement, and the workmanship and material (wrought-iron) are first-rate. He also came forward with a reaping machine, on Gladstone's principle, which consists of a circular knife fixed in segments to a drum or cylinder, with the necessary gearing inside the said drum, to give it a horizontal revolving motion, which cuts the corn, carries it round, and lays it in a straight swathe. It is fitted with reverse motion, so as to throw it either to the right hand or left, or laying two swathes together; and a lever, with a stone fixed in it behind, so that the man can lower it when the knife needs sharpening, which makes it self-sharpening; also a guard below the knife, and a small wheel inside of the drum regulates the knife for the height of the stubble. This machine will not, like many others, work crossing high rounded-up ridges and deep furrows. However, in this age of dry land, either naturally or by drainage, that objection is of little importance. This reaper in the trial-field was a failure, through the want of a means of steering, and the horses being improperly attached; but were these two points attended to, we know that it would perform well, and make good work both as regards cutting and delivery. This is the same machine that the late James

Smith, of Deanston, cut a great part of his crops with for many years, and which received the Highland Society's prize (we believe of fifty pounds) in the year 1835, at the Ayr Meeting, where we witnessed its performance; and although we have since seen a great deal cut by various reaping machines, we think we have never witnessed anything better than its performance then. 'Tis true we may be harder to please now.

On Stand 104, Mr. Arthur Lyon, of 32, Windmill-street, Finsbury, London, exhibited a machine for cutting up sprats and other fish, or any soft substance, for manure. This we think a capital plan, and a very useful machine for the purpose.

On Stand 105, Mr. Oliver Maggs, of Wincanton, Somersetshire, exhibited his combined thrashing, shaking, and winnowing machine, which on trial was found in some points wanting in efficiency; but the shaking was good. There is an important advantage that this plan of shaker has over others; namely, that it can be simply and easily arranged, so as to be either set at a high or low angle, as the crop being thrashed is easy to shake or otherwise, or the straw required to be delivered on a waggon or on the ground—thus never failing in performing its office.

On Stand 106, Mr. Wm. Milton, of Lincoln, exhibited a single and a double-seated child's carriage, made of wire-work, with steel springs. These are exceedingly light, neat, strong, and ornamental, and, if kept well painted, very durable; while their price is moderate.

On Stand 107, Messrs. Sheppard and Edwin Ransome, of Essex-street, Strand, London, exhibited Fitch's economic oven. In this oven the heat is, by a traversing principle, equally diffused throughout a series of chambers, in which baking, boiling, and roasting are simultaneously going on, or individually, as required. This oven is worthy of attention and careful trial, as an economiser of fuel.

On Stand 108, Messrs James Smith and Son, of Peasenhall, Yoxford, Suffolk, and Witham, Essex, exhibited drills of every variety and size, for all purposes, which for simplicity, efficiency, and durability, were but little surpassed by any in the show, when on trial being always close up to the winners; and in that class where the before-mentioned principles must be prominent, they have carried away the prize for the best drill for small occupations. They also showed a capital steering horse-hoe, which can be made to follow any of his drills taking the same width.

On Stand 109, Mr. William Newzam Nicholson, of Newark, Notts, exhibited a great variety of oilcake-breakers, which have for many years stood high at the shows of this Society, frequently carrying away the prize. At the trial this season for the prize for the best oilcake-breaker for cattle, sheep, or rapecake for manure, this machine did its work very well and expeditiously, and was highly commended. He also showed a variety of implements wherein tubular iron was used, where stiffness as well as strength was necessary; thus, also, obtaining the additional intrinsically valuable principles, lightness and durability. For this application he was highly commended by the judges, which we heartily join in.

On Stand 110, Mr. John Henry Saunders, Abchurch-lane, London, did not show his reaping machine, which is on Gladstone's principle, and the same as that shown by Mr. Harkes.

On Stand 111, Mr. Henry Attwood Thompson, of Lewes, Sussex, exhibited two useful one-horse earts, with Love's skid or slide for descending hills, sustaining the weight off the horse's back, and checking the descent of the cart. He also showed a drainage level of great merit, which deserves the attention of those who are in any way engaged in taking levels, as a most simple and convenient investment.

On Stand 112, Mr. John Whitmee, of 18, Fenchurch-buildings, London, exhibited his corn-crushers of different powers; these are simple machines, and do their work in a very fair way.

On Stand 113, Mr. Hancock, of Sandbach, Cheshire, exhibited his churns.

On Stand 114, Mr. Charles Revell, of Lincoln, exhibited a very useful corn-dressing machine on a good and simple plan, which on trial worked very well, and deserved the commendation it received from the judges.

On Stand 115, Messrs. Ransomes and Sims, of Ipswich, Suffolk, exhibited an assortment of ploughs to suit every soil in the world. Their plough—under trial in competition for the best plough for going ten inches deep—after a severe and close contest lost the prize, but was highly commended. Their plough for general purposes—after trial on strong clay, and light land upon the limestone rock—ran Mr. Howard's Champion Plough so close, that they were then taken into a stubble field and tried, when again they were at par; but when the dynamometer was applied, Ransome's proving the lightest draught, decided the prize in their favour, and Howard's was highly commended. We like this close running, as it ensures all the ability of these eminent firms coming fully into play to reduce the draught, which is of the greatest consideration next to a well-turned furrow. We observed on this stand their East Anglican cultivator or grubber. This is a light, strong, and effective scarifier or grubber, made (as all such things should be) of wrought iron. These gentlemen have this year made a great advance in the steam engine class, having gained the prize for the best fixture steam engine, and the second for the best portable steam engine. Here, too, we found Davy's patent decorticator, or, as we would call it, unsteeped flax hackling machine. This machine breaks the seed-holls and woody part of the flax plant, without steeping. This long-wished-for and much-desired process separates the seed and woody part from the flax, as soon after harvest as the crops are sufficiently dry, without steeping, whereby the whole of the strawy or woody parts, seed and holls, are saved as food for stock, nothing coming off the land but the flax. The manner in which this machine did its work was truly astonishing. However, we are rather sceptical about scutching it as it leaves this machine. We are inclined to think that it will be found better to put it through some steep or retting process before scutching; however, experience will do the rest. This machine gets over the great difficulty of giving the farmer power to

prepare this important crop so as, first, to retain all the refuse as food; and, secondly, to reduce the weight almost to the minimum, and the power of compressing it into very small bulk, for transit by rail, &c. Great credit is due to this eminent firm for the care and perfection of work displayed in bringing Mr. Davy's invention out: we trust he will receive the reward such ingenuity is entitled to. This machine is fairly entitled to the merit of being the greatest novelty of the year, and, if its benefits are equal to its promising performance, we may with safety say, the inauguration of a vast national advantage.

On Stand 116, Mr. William Smith, of Little Woolstow, Fenny Stratford, Bucks, exhibited his reaping machine. This has never been tried, and therefore is only in embryo. However, it is in the able hands of Messrs. Ransomes and Sims; and if there is anything to be made of the principles laid down, we shall soon hear of its arriving at an efficient state.

On Stand 117, Mr. Robert Cotgreave, Ipswich, Suffolk, exhibited a draining plough. This is on exactly the same principle as Mr. McEwing's, of Blackdub, Stirling, by the aid of which he drained his farm thirty inches deep, twenty years ago. We recollect seeing it working on his farm, taking out twenty inches deep at one operation, with twelve good horses drawing it. We know this will do well on subsoils like the Carse of Stirling, where a stone is a great novelty to fall in with; but where there are stones, we have no faith in it.

On Stand 119, Messrs. Cottam and Hallen, of Winsley-street, Oxford-street, London, exhibited an assortment of sets of stable-furniture, made of cast iron, enamelled; also, harness-room fittings of the most complete and perfect kind. These are worthy the attention of gentlemen and horse-keepers generally. Also, pig and dog-troughs, garden-seats and stools, flower-stages, walk-borderings, with ornamental vases and pedestals, all well made to suit the purpose intended.

On Stand 120, Messrs. Hill and Smith, of Brierley Hill, Dudley, Worcestershire, exhibited several sets of stable fittings, of handsome pattern and good principle; enamelled mangers; also, cast iron water-pipes, iron stable wheelbarrow, Budding's lawn-mower, game-proof and every other variety of wire netting, with an assortment of his iron fencing, so frequently awarded prizes of merit by this society and others. We admired an assortment of wrought iron ornamental garden-seats, folding camp-stools, and flower-stands, in which artistic taste was well developed.

On Stand 123, Messrs. Gibbs, of Halfmoon-street, Piccadilly, London, exhibited, as usual, several hundred kinds of grasses and other agricultural seeds; also, a large collection of dried specimens of grasses, and specimens of roots, which were beautifully preserved. There was something admirable in the quiet, neat, methodical, and orderly way in which everything on this stand was, as usual, arranged. As we looked at it, a powerful feeling of confidence pervaded us, as it appeared to our mind that the simplicity and neatness of the stand gave a token that honour and integrity were the architects thereof.

On Stand 125, Mr. William Bullock Webster, Malvern, Worcestershire, showed the model of a digging machine (from the Dublin Exhibition), invented by one of Mr. Dargan's Irish workmen. It is stated that this machine is intended to be used by steam or horse-power, for the purpose of digging the surface of the land to the depth of eighteen inches, by spade or fork. We have but little hope for the advance of agriculture in our sister isle, if she is to depend upon this principle of digging machine for the furtherance thereof.

On Stand 126, Mr. George Bruce, of 52, Nelson-street, James-street, Liverpool, exhibited black varnish, represented to be better than paint, and more durable and much cheaper. We are aware that black paint is poor weak stuff, and a good cheap varnish is much wanted; therefore, we hope this will have a fair trial.

On Stand 127, Messrs. Tree and Co., Charlotte-street, Blackfriars-road, Surrey, exhibited a variety of Ewart's cattle-gauge, and key to the weighing machine, on the principle of the slide-rule, for ascertaining the carcase-weight of cattle, adapted in its use for various breeds, both sexes, and for different states of condition. We have used these rules, and found that they are an invaluable instrument to the farmer, who, in many cases, is for several months out of the habit of examining fat stock, and therefore liable to be deceived in their weight, putting him in a very unfair position to cope with the everyday dealer or the butcher.

On Stand 128, Mr. George Chivas, seedsman, Chester, exhibited specimens of his orange-jelly turnip. These were extraordinary bulbs, for the stage of maturity they had arrived to. They had been sown the first week in April, and were about four inches in diameter, on an average, with—as we were told—only fair cultivation.

On Stand 129, Messrs. Lawson and Sons, of Edinburgh, exhibited a selection of all the useful grasses, standing beside the sample of their seeds: also, the different varieties of twitch, standing beside their seeds: so that a farmer, finding any mixture in the seeds he was about to buy, could, by comparison, find whether it was bad or good. We are of opinion that less twitch would be sold among ryegrass, if this plan were more generally adopted by seedsmen. They also exhibited models in wax of all the agricultural roots and horticultural fruits of our country.

On Stand 130, Mr. Wm. Thorold, Hamlet of Thorpe, Norwich, exhibited three boxes of models of portable farm-buildings—a plan that has at various times been discussed by calculating men. We quite agree with the exhibitor, that there is much sound reason in the plan of portable buildings; but we rather think they would be moved at less expense, taken down in convenient parts, and fitted up again, than by any unwieldy crane. Although there is much feasibility in the proposition, we fear there is not that economical practicability about it which will induce any cautious man to try the experiment, although we think, by having them to take down and put up with facility, it would be great advantage in many cases.

On Stand 131, Messrs. George Gibbs and Co., 26, Down-street, Piccadilly, London, showed samples of an immense number of grass-seeds, with the plants in many cases, and directions for their cultivation; also, a collection of dried specimens of the cereal grass, wheat, barley, rye, and oats; specimens of some of the natural grasses; a large and capital collection of swedes, mangold, turnip, carrot, and various other agricultural roots, in splendid preservation, with excellent samples of the seed of each. This stand was very neatly and well arranged, their exhibition generally doing great credit to the taste of the managers thereof.

We have now finished our task, and are pleased to give our congratulations on the success of this meeting to all parties who have in any way contributed to the exhibition we have endeavoured to review. At least, we have done our best to fulfil the duty we have undertaken; and if we have been severe, or somewhat hard, it has been with a good intention, for, in a great matter like this, it is the national good, and not that of individuals, which must be studied.

We may congratulate the farmer—

On the speedy establishment of the reaping machine as one of the implements of the farm;

On the production of Chambers' manure-distributor, which will with economy perform that work which was thinning our population;

On the production of Davy's unsteeped-flax hackler, which will now put the farmer in the easy and profitable way of growing and sending to market flax, which is of vast importance at this time, the war keeping our linen trade almost at a stand for want of the raw material;

On the grand means achieved by Mr. Amos, of fairly testing the amount of power absorbed by machines while at work, during any given time, which will be a powerful means of purifying our mechanical contrivances, rendering them what they ought to be; and

On the arrival of the time when we can mechanically weave a network of tubes through our stubborn clays (by the mighty monarch, Steam), rendering them dry, mellow, and free; converting them from the production of twenty bushels to that of forty per acre. We congratulate Mr. Fowler on his success, and hope that his steam engine and draining plough may never stand still, as long as there is an acre of land to drain in the kingdom.

THE EXHIBITION OF PIGS.

The only classification adopted by the society is that of "Large Breed" and "Small Breed"; and considerable difficulty always arises in distinguishing between the two, so as to pronounce with certainty in which class some of the animals ought to be shown. For it is less the actual dimensions than the peculiarities of form that mark these groups of "large" and "small" breeds, the latter being found, in some instances, to exceed some of the former in size and weight. And although the judges are always directed to withhold prizes from any animal, however meritorious, if entered (according to their judgment) in a wrong class, it frequently happens that a

"small breed" pig possesses such amazing frame and flesh as to exclude the really small from fair comparison. Perhaps a better way of ensuring equality of competition would be to follow an entirely different principle of classification: for instance, take the purposes for which the animals are bred and fed, and give two or more sets of prizes for the individual specimens best qualified for these purposes respectively. Swine are employed for producing two varieties of valuable meat, pork and bacon: one set of prizes might be offered, therefore, for boars and sows best adapted for breeding fine porkers, and another set for larger bacon hogs; apportioned, of course, between boars, sows, and sow pigs, as at present.

And now with respect to the show at Lincoln: we have certainly seen better—taken as a whole—but many of the animals were of a very superior order, particularly in the small-breed classes.

CLASS I.—BOARS OF A LARGE BREED.—First prize to Henry Blandford, of Sandbridge, near Chippenham, Wilts, for "Jack," 2 years 3 months and 2 weeks old, a pure Berkshire, black, with white face and feet; dam Star, sire of dam Pocock. This is a very large hog, but with rough hair, and a rather coarse quality of flesh. The second prize to Matthew Harvey and Joseph Branton, of Langford, near Newark, for a white boar, 2 years 11 months and 2 weeks old, of very great size, good quality, and little offal; somewhat of small-breed character. The judges highly commended "Charley," a white boar, 3 years and 4 months old, belonging to Mr. Francis Frudd, of Bloxholm Manor, near Sleaford; sire, a boar of the late Mr. Charles Mainwaring, of Coleby-hall, near Lincoln. This animal is of immense weight—no less than 74 stone, alive; he has rather a small-breed character. We noticed also in this class a very well-made pig, of exceedingly good quality, exhibited by Mr. Jonathan Brown, of Height, near Wigton, Cumberland.

CLASS II.—BOARS OF A SMALL BREED.—First prize to Mr. William Northey, of Lake Lifton, near Launceston, for a 1 year and 3 months old black boar of the improved Leicester breed, having a very thick form and substance, and beautiful quality, though rather too short at the tail. The second prize to Mr. Solomon Ashton, of Peter-street, Manchester, for "Yorks," 1 year and 2 months old, of pure small breed, white with blue spot; a remarkably well-bred and valuable hog. The 42 months old improved Oxfordshire black boar of Mr. Samuel Druce, of Eynsham, near Oxford, was highly commended; certainly a compact, well-formed animal—very good, short, and deep. Besides one of Mr. Northey's and one of Mr. Turner's boars, which were commended, we were pleased with a boar, "The King of Hearts," exhibited by Mr. George Mangles, of Givendale, near Ripon, Yorkshire, a very large animal, but still quite in character.

CLASS III.—BREEDING SOWS OF A LARGE BREED.—We have seldom seen so large a sow as the first prize one, shown by Edward Robinson, of Green Bank, near Lymm, Cheshire. "Amazon" is 2 years and 2 months old, white, with a few blue spots, immensely long, and having very deep sides. The Rev. Edward Elmhurst, of

Shawell Rectory, near Lutterworth, Leicestershire, showed a remarkably fine sow (highly commended). W. B. Wainman, of Carhead, near Cross Hills, Leeds, is also highly commended for a white sow of large Yorkshire breed, having very great length and great sides. Mr. Peter Wright, of Church Minshall, near Middlewich, Cheshire, Mr. William James Sadler, of Bentham Purton, near Swindon, and Mr. Moses Cartwright, of Stanton Hill, near Burton-on-Trent, exhibited animals remarkable for their symmetry and fine fattening qualities.

CLASS IV.—BREEDING SOWS OF A SMALL BREED.—In this Class, which the Judges have honoured with a "general commendation," Mr. Mangles takes the prize for the "Queen of Diamonds," 2 years and 4 months old, Yorkshire breed, white; sire "Guy Fawkes," dam "Lucy," of beautifully fine quality. Mr. Northey showed some capital sows in this class; so did Mr. Thomas Horsfall, of Burley Hall, near Otley, Yorkshire. Mr. Samuel Gill, of South Normanton, near Alfreton, Derby, showed a very pretty sow; and the Earl of Radnor's white sow, of Coleshill breed, is very superior, with good back, and fine quarters.

CLASS V.—THREE BREEDING SOW PIGS, OF A LARGE BREED.—Mr. Sadler takes the prize for a pen of three sow pigs, 7 months and 1 day old, pure Berkshire breed, dark spotted; sire "Wellington," dam "Duchess of Gloucester," sire of dam "Barrington." Mr. John Harrison, jun., of Heaton Norris, near Stockport, showed a pen of almost equally meritorious animals; very useful, and uncommonly good in character.

CLASS VI.—THREE BREEDING SOW PIGS, OF A SMALL BREED.—The prize was carried off by the Earl of Radnor, for three 5 months and 2 weeks old white pigs of his Lordship's celebrated Coleshill breed; sire "Farrington," dam "Old Bess." In this class we more particularly preferred the pens of Mr. W. B. Wainman; of Mr. Thomas Crisp, of Gedgrave, near Woodbridge (of a Suffolk breed); and of Mr. S. Druce. The judges commended the pigs of Mr. Thomas Greetham, of Wragby, Lincolnshire, which are certainly very large for their age; but rather deficient as respects the quality of their flesh.

POULTRY.

We are sorry to notice this year so comparatively poor a show. Lincolnshire seems not to have surmounted the old prejudice that it showed when it underrated Mr. Handley's exertions. Lincolnshire is yet decidedly behind in attention to poultry: a department of farming in this respect from which, if properly conducted, a good profit may be derived. We should be glad to see a county so celebrated in other respects, take the lead in this also; and we advise that the old motto, "What is worth doing at all, is worth doing well," be constantly kept in mind.

The exhibition in question is, in our opinion, not nearly so meritorious as it might have been. True, the time of year is not very suitable to the show of birds in full feather; because, after having performed the duties

of the spring, they are necessarily out of condition. We venture to ask, then, whether it would not be well to give prizes for chickens—encouraging the production of early maturity? Prizes for adult birds might be left for Birmingham to award at Christmas.

The benefits of this annual poultry show are two-fold: it affords to amateurs an arena wherein to enter into friendly competition; and to the landowner or occupier it affords an opportunity to judge of the comparative excellence of breeds. The eye will not alone decide which is the sort adapted especially to any locality: we must consult experience to come at this knowledge. We do not intend to diverge into any remarks in this direction however; and we only say, by way of introduction to some detailed notice of the fowls exhibited, that there may be three classes of profit—breeding for fancy, breeding for eggs, breeding for the table. The first change with fashion; the second is certain profit; while the third is, although the most neglected, the most remunerative of the three. Of the first we shall say nothing. The Spanish, Hamburg, and Polish fowls are respectively good layers, bad sitters, and consequently fitted for those who require large supplies of eggs. The Cochins, China, Malay, Dorking, and Game fowls are good layers, good sitters, and good nurses. But while the Dorking and its kindred varieties are excellent for the table, the Malays and Cochins Chinas can seldom be served up except as roasted, because of bad colour. Mr. Soyer says that, as a rule to be observed in the kitchen, white-legged fowls should be boiled, and black-legged poultry are fit only for the spit.

With these ends in view, our judgment may be aided; and we may presume that they are the same as influenced the decision of those gentlemen who awarded the prizes.

Amongst the Dorking fowls, Mr. Davis won the first and second prizes for two lots, severally consisting of a cock and two hens, chickens of 1854. The third prize was awarded to Mr. Joseph Smith; and the fourth to James Lewry, of Handcross, Crawley, Sussex.

For Dorking fowls more than one year old, Mr. Davis, of Spring-grove House, Hounslow, was again successful. Mrs. Townley Parker took two prizes, and Mr. Gelderd, of Kendal, brings up the prize list. This latter lady and gentleman are again successful competitors in Class III.—Dorking cocks of any age. Viscount Hill is a highly commended exhibitor of Dorking fowls.

In Class IV. for Spanish fowls, Mr. Davis stands first and third, Mr. Botham second, and Mr. Gelderd fourth.

In Class VI. for Cochins China fowls, Mr. Gelderd bears off the two first prizes, Mr. Taylor, of Hounslow, the third, and Mr. Sandy, of Nottingham, the fourth. Lincolnshire for the first time successful in the class for Cochins China cocks of any age, in the property of Mr. Pocklington, of Boston; we thought a cock and two pullets, 4 months and 3 weeks old, exhibited by Mr. Fairlie, discovered marks of good breeding. Mrs. Walker's were commended. It did not strike us that the specimens for the ninth class—game fowls—were up to the mark. It is a valuable and beautiful species, and we hope that its perfect proportions and splendid plumage may not be lost to us, because those men who traded in

its pugnacious propensities are becoming extinct. To Mr. Worrall, near Liverpool, Mr. Adkins, near Birmingham, and Mr. Cox, near Derby, were the 1st, 2nd, and 3rd prizes respectively awarded. Mr. Lowe sent from Tamworth some fair specimens.

Prizes and commendations were withheld from the two first classes of Hamburg fowls. In the second and third, Mr. Sylverton, Mr. Andrew, Mr. Dixon, and Mr. Ashcroft were successful competitors.

The lovers of these pencilled and spangled must have been very much disappointed.

Mr. Oldham, of Derby, and the Rev. T. Lyon Fellowes, of Acle, Norfolk, took prizes of Malay fowls.

Mr. Adkins, of Edgbaston, Birmingham, whose Polish Fowls were the admiration of the judges last year at Lewes, preserves his fame, and carries off the two first prizes; to Mr. Rawson, of Walton-on-Thames, is awarded the third prize, for a pen of Poland fowls, consisting of one cock and two hens.

Viscount Hill's turkeys merit great commendation, and he wrests the prize away from Lincolnshire, which thanks to Mr. Pocklington, of Boston, and Mr. Maw, of Crowle, yet maintains a fair position in this class.

In geese, Lincolnshire is beaten. The first prize is adjudged to a lady (who succeeded both this year and last amongst the Dorkings) named Townley, of Lancashire; the second and third are awarded to Mrs. Hill and Mr. Rawson, both of Walton-on-Thames.

From the prize list for ducks, we take the following names—Mr. Beavington, of Hounslow, Mr. Davis, of Hounslow, Mr. Gelderd, of Kendal, Mr. Botham, Slough, Mr. Teanby, of Hull, Mr. Punchard, of Suffolk, Mr. Worrall, of Liverpool, and Mr. Keyworth, of Lincoln.

We avoid making any detailed critical remarks upon the inmates of the different pens. Our desire is not to improve by detecting and exposing faults, but by commending excellencies. As these excellencies do not by any means predominate, it is perhaps better to close our report now, hoping that the "celebrities" will fly to the rescue at Carlisle next year.

We cannot close, however, without saying that the exhibition of Dorking fowls merits, perhaps, more individual notice than we have given it. Excellence was certainly more observable here than elsewhere.

These observations were made under the rays of a broiling sun—wonder not therefore, O reader, at the high temperature of our remarks.

A MONTHLY COUNCIL was held at the Society's house, in Hanover-square, on Wednesday, the 2nd of August. The following Members of Council and Governors of the Society were present: Colonel CHALLONER, Trustee, in the Chair; Lord Southampton, Sir John Villiers Shelley, Bart., M.P., Mr. Raymond Barker, Mr. Hodgson Barrow, M.P., Mr. Barnett, Mr. Barthropp, Mr. Garrett, Mr. Brandreth Gibbs, Mr. Hamond, Mr. Fisher Hobbs, Mr. Lawrence, Mr. Milward, Mr. Sillifant, Prof. Simonds, Mr. Simpson, Mr. Turner (Barton), and Prof. Way.

The following new Members were elected :—

Ahrens, Ernest, Neu-Schlagsdorf, Mecklenburg-Schwerin
 Barnes, Thomas, M.P., Quinton, Chirk, Denbighshire
 Bird, William, Crouch Hall, Hornsey, Middlesex
 Boote, James, Weston Hall, Nantwich, Cheshire
 Brunskill, Stephen, Kendal, Westmoreland
 Byron, John, Mablethorpe, Alford, Lincolnshire
 Edwards, William, Crewe, Cheshire
 Elmhirst, William, Manor Ho., West Ashby, Horncastle
 Garbutt, Thomas, Yarm, Yorkshire
 Hall, James, Scarboro' Hall, Beverley, Yorkshire
 James, John Angell, Bridgetown Farm, Stratford-on-Avon
 Landor, Thomas Eaton, Shiffnal, Shropshire
 Lawrence, Alfred, Hengrave, Bury St. Edmunds, Suff.
 Lawson, Charles, jun., Edinburgh
 Legg, Benjamin, Bexington, Bridport, Dorset
 Lynes, George Boulton, Hackleton House, Northampton
 Mainwaring, William, Brinsfield, Ludlow, Shropshire
 Meek, George, Braunbridge Park, Crawley, Sussex
 Peel, Sir Robert, Bart., M.P., Drayton Manor, Staffordshire
 Smith, Edward W., Tickton Hall, Beverley, Yorkshire
 Tunnard, Rev. John, Frampton House, Boston, Linc.
 Wilson, Fuller Maitland, Langham Hall, Bury St. Edmunds
 Wilson, Frank, Binbrook, Market Rasen, Linc.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, submitted the monthly report on the accounts, from which it appeared that the current cash-balance in the hands of the Society's London bankers was £776.

FINES.—Mr. Simpson, Chairman of the Fines Committee, presented the report of that Committee, when the Council ordered that immediate steps should be taken for the recovery of the fines for non-exhibition, and a list be laid before them at their next meeting of persons who should have failed to make those payments.

PROTESTS.—Mr. Barnett, senior steward of the cattle-yard at the Lincoln meeting, reported the protests made against awards of the judges on that occasion. The Council referred these protests to the investigation of the stewards, with a request that they would report upon them to the Council at their next meeting.

The following communication was received from the Earl of Clarendon, with the best thanks of the Council :

" Foreign Office, July 21, 1854.

" Sir,—I am directed by the Earl of Clarendon to transmit to you a copy of a list which has been sent home by Her Majesty's Chargé d'Affaires at Lima, of those Islands and places in Peru where guano is to be found; and I am to request that you will state to the President and Members of the Royal Agricultural Society that Lord Clarendon has transmitted another copy of this list to the Lords Commissioners of the Admiralty, and has requested that the Admiral in command of Her Majesty's squadron on the Pacific station may be directed to make such a survey of the places named by Mr. Sullivan as containing guano, as the means at his disposal will enable him to undertake. Lord Clarendon has also instructed Mr. Sullivan to furnish the Admiral with all the information he can obtain on this important subject.

" I am, Sir, your most obedient humble servant,
 " E. HAMMOND."

" To the Secretary of the Royal Agricultural Society."

NITRATE OF SODA.—Mr. Pusey transmitted various communications received from the Earl of Clarendon in

reference to searches instituted for natural deposits of the nitrates. At Mr. Pusey's suggestion, Prof. Way had drawn up the following short memorandum of easy means by which saline depositions may be tested as to the amount of nitrates contained in them :—

Characteristics of Nitrates of Potash, Soda, &c.—All the ordinary nitrates are readily soluble in water. The nitrate of soda crystallises in cubes. The nitrate of potash in long prisms. When exposed to a gentle heat the nitrates fuse, giving off oxygen gas. On this character is founded the most simple and certain means of distinguishing these salts from all other natural saline deposits—namely, to throw a portion of the supposed nitrate on red-hot fuel, when "deflagration," or a greatly increased and violent combustion of the fuel, will result. A mixture in which the quantity of alkaline nitrate is too small for the production of these phenomena, will hardly pay for importation into England. All nitrates are valuable, though not in an equal degree, for agricultural use.

J. THOMAS WAY.

FRENCH AGRICULTURE.—The following letter from Mr. Herbet, Consul-General of France in England, was laid before the Council, acknowledging, on the part of the Minister of Commerce and Public Works in France, the attention paid by the Council to the deputation sent by the French Government to the Lincoln Meeting, and offering for the acceptance of the Society a selection of agricultural works published in Paris under his Excellency's auspices :—

" Londres le 22 Juillet, 1854.

" Monsieur,

" Son Excellence M. le Ministre de l'Agriculture, du Commerce et des Travaux publics, voulant reconnaître les procédés obligeants du Conseil de la Société Royale d'Agriculture d'Angleterre pour les délégués du Gouvernement Impérial, et désireux en même temps de témoigner du vif intérêt qu'il prend au travail et au succès de cette honorable Société, m'a chargé de lui offrir, en son nom, divers ouvrages publiés sous les auspices de son ministère, et dont vous trouverez la liste ci-inclus. Je m'empresse de vous la transmettre, dès qu'ils seront parvenus à Londres.

" Ayant pu apprécier moi-même de nombreuses reprises la bienveillance du Conseil de la Société Royale, c'est avec le plus grand plaisir, Monsieur, que je m'acquiesce de la commission de son excellence M. Magne. Il me reste à vous remercier personnellement pour l'extrême courtoisie avec laquelle vous avez constamment accueilli les personnes que j'ai eu l'honneur de vous adresser et les demandes que j'ai été chargé de vous soumettre.

" Veuillez agréer, Monsieur, les nouvelles assurances de ma considération très-distinguée.

" Votre très humble et très obéissant Serviteur,

" Le Consul Général de France,

" ED. HERBET.

" J. Hudson, Esq., Secretary to the Royal Agricultural Society of England."

On the motion of Mr. Fisher Hobbs, seconded by Lord Southampton, this communication was received with the liveliest satisfaction by the Council, and a complete set of the Society's Journal ordered to be offered for the acceptance of the French Government, in acknowledgment of the valuable donation then announced to the Council.

His Excellency Lord Cowley transmitted to the Council, from Paris, a complete set of the Transactions of the Imperial Agricultural Society at Valenciennes, addressed to his care by the President of that body, for presentation to the Royal Agricultural Society of England, in acknowledgment of the set of Journals offered to the Valenciennes Society in the year of Lord Ashburton's Presidency, and transmitted through the Consul-General of France in England.

NATURE-PRINTING.—Messrs. Bradbury and Evans, of Whitefriars, presented to the Council a series of beautiful and striking specimens of their "nature-printing," or process by which vegetable productions may be printed off in their natural size and colour in almost perfect fac-simile. The objects selected for the series consisted chiefly of common wild flowers and well-known agricultural and other plants, of which both the strength and the delicacy of the details were given with daguerreotype exactness. These specimens were much admired by the members, and the value of such a process in an agricultural point of view fully recognised.

MISCELLANEOUS COMMUNICATIONS.—From Col. Owen, conveying the thanks of the Board of Trade from the committee appointed by the Council to co-operate with Mr. Brandreth Gibbs, in reference to the French Exhibition; from Mr. Miles, M.P., President of the Society, transmitting a letter from the Agricultural Society of India; from Miss Bannister, of Steyning, details of the successful results attending her cultivation of the *Dactylis glomerata*, of which she forwarded to the council on that occasion various specimens, as well as of the hay made from it; from Mr. S. Clarke, of Crewkerne, on the Potato disease; from Mr. Hill, Medical Superintendent of the Clifton Lunatic asylum, inquiries on the management of sewerage; from Mr. Adderley, M.P., on the successful subsoil under-drainage of Mr. Dumolo; and from Mr. Pullan, of Chester, suggestion for a prize for the construction of a domestic corn-mill.

The Council having arranged that the prizes for Implements next year should be decided on the first Wednesday in December, appointed a General Carlisle Committee, and requested Mr. Fisher Hobbs to attend to the preparation of the land for the trial of implements. They then adjourned over the autumn recess to the first Wednesday in November.

POTTED BUTTER.—The following is Mr. Ballantine's recipe. The butter is taken warm from the churn, and it is an invariable rule never to work it or dip into water when intended to be salted. The dairymaid puts it into a clean tub, previously well rinsed with cold water, and then works it with cool hands, till the milk is thoroughly squeezed out. Half the allowed quantity of salt is then added, and well mixed up with the butter, and in this state is allowed to stand till the next morning, when it is again brought up, any brine squeezed out, and the remainder of the salt added. It is then potted in kits, which, when full, should be well covered and placed in a cool dry stove. A small quantity of salt is usually sprinkled on the surface. The quantity of salt used is half a pound to 14lbs. of butter.—*Quarterly Journal of Agriculture.*

PRICE OF HALF-BRED DOWN AND LEICESTER HOGGET WOOL, SOLD FOR THIRTY-TWO YEARS.

DEAR SIR,—As the price of English wool is looking up, perhaps the statement of the price of half-bred Down and Leicester hogget wool for 32 years, sold off a large farm in this county, may be interesting to your readers at this time.

Yours truly,

Castle-acre Lodge, Aug. 19.

JOHN HUDSON.

Per tod of 28lbs.

	s.	d.		s.	d.
1822.....	36	0	1833.....	52	0
1823.....	44	0	1830.....	45	0
1824.....	56	0	1840.....	35	0
1825.....	50	0	1841.....	33	0
1826.....	28	0	1842.....	29	0
1827.....	35	0	1843.....	26	0
1828.....	39	0	1844.....	38	0
1829.....	31	0	1845.....	38	0
1830.....	41	0	1846.....	35	6
1831.....	37	0	1847.....	33	0
1832.....	35	0	1848.....	24	0
1833.....	58	0	1849.....	28	0
1834.....	60	0	1850.....	28	0
1835.....	52	0	1851.....	34	0
1836.....	56	0	1852.....	36	0
1837.....	42	0	1853.....	43	0

Average for 32 years, 39s. 3½d. per tod of 28lbs.

CAUTION TO FARMERS.—About a fortnight since, Mr. White, the much-respected tenant of "The Park Farm," near Tewkesbury, Gloucestershire, sustained a severe loss by the death of five valuable cows; all the exertions of two experienced veterinary surgeons proving unavailing—death, in almost every case, occurring within twelve hours after the beasts were first attacked. The symptoms appearing so unusual and extraordinary, it was thought that probably there might be some poisonous herb growing in the pastures which the cattle had eaten; and, in order to satisfy himself upon the point, Mr. White sent one of the stomachs to Mr. Herepath, the eminent analytical chemist of Bristol, for examination; but not finding any vegetable impurity of any kind, Mr. H. was induced to try for minerals, and found a quantity of green paint in the stomach; quite sufficient, he said, to cause the death of the animal. Now, as the cows were not known to have had access to any paint of any kind, it was a mystery to their owner as to when they could have eaten it; but, remembering that the pasture where they had been feeding had some eighteen months since been dressed with the refuse of a scavenger-heap from Tewkesbury, the field was searched, and a quantity of paint (apparently the scrapings of painter's kettles) found. These the deceased cattle had, no doubt, licked up whilst feeding, and been poisoned thereby. Surely if painters generally were aware of the poisonous nature of their refuse, little persuasion would be required to induce them to bury it, instead of throwing it to their ash-heaps, and, as in this instance, causing so serious a loss to their neighbours.

IMPORTANT TO FARMERS.—A question having arisen in several districts of South Wales as to the liability of farmers to pay duty upon riding horses, the commissioners, in order to save trouble and avoid appeals, directed the following queries to be put to the Board of Inland Revenue: First, Whether any farmer keeping several horses—say four—and consequently riding, himself or family, one or more of such horses to fairs, markets, worship, &c. (such horses at other

times being kept for farming purposes only), would be liable to any, and what, duty? Secondly, Whether such person keeping one horse only for his calling, and occasionally himself or family riding such horse, would be liable, and, if so, to what duty? The answers returned by the Board were—that only

one horse is entitled to be kept for the purposes before mentioned, at the duty of 10s. 6d.; and if other horses are ridden by the farmer or his family, they are liable, according to height, to the duty of £1 1s. or 10s. 6d. If one horse only be kept, then the duty of 10s. 6d. is payable.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR AUGUST.

The appearance and prospect of the crops have formed the chief topic of discussion and consideration this month. It is most gratifying for us to be in a position to write most favourably on the subject. In the first place we may observe that, notwithstanding that blight has made its appearance in some districts, the yield of wheat is turning out unusually large and of very fine quality; that harvest work, under the influence of remarkably fine weather, has progressed with great rapidity; and that farmers in general are well satisfied with their produce. The fact that a large quantity of wheat has been grown this year, and that, too, in the finest possible condition, has had considerable influence upon the wheat trade. Prices have suffered a rapid decline; but it has become a question in some quarters whether the fall is not rather premature, seeing that not more than one-fourth of the crop has as yet been carried. However, it is clear that the growers are determined to take advantage of present rates, seeing that over 4,000 quarters of new wheat were on sale in Mark Lane on the 28th inst. At present, our decided conviction is that we have grown one of the best crops on record as regards acreable yield and general quality; and when we bear in mind that the extent of land under wheat culture is far in excess of many former years, we are led to the conclusion that the total growth will prove enormous. There is, however, much yet to be done ere harvest work is brought to a close; and a return of wet and ungenial weather may have a very decided effect not only upon the condition of the new wheats, but likewise upon their value. The growth of barley is certainly large, though we doubt whether it is equal to last season. The samples as yet sold at Mark Lane have been comparatively inferior. The oat crop, however, is good; but that of peas and beans, especially the latter, is small. We have now commenced the consumption of the new crop of wheat with an unusually small supply of old in farmers' hands; but we find that, notwithstanding the war with Russia, and the high value of wheat and flour at New York, there are nearly, or quite, 1,000,000 quarters of foreign grain and flour in warehouse,

This is rather a significant fact, because, in the event of home-grown wheat continuing to fall in price, we shall have importers forcing the markets, even at a ruinous sacrifice, in order to realize.

Much misconception prevails in some quarters on the subject of the supply of old wheat still on hand. We have been informed that in some portions of the country they are good, and further, that some of the growers have the whole of last year's crop in the stack-yards. These instances must be very rare; indeed, for our part, we incline to the opinion that the actual supply was never smaller than it is at present. As regards spring corn, there is little or nothing on hand.

The pastures have not exhibited that abundant supply of grass which we have witnessed in some former seasons. However, depastured stock has fared tolerably well, and we have heard of very few cases of disease amongst either beasts or sheep; but it is certain that the immense consumption of meat is rapidly draining the country of stock, and that prices will continue very high in consequence.

Numerous conflicting statements on the subject of the potato disease have reached us almost daily. That it has extended itself throughout the country not a doubt can exist; but we hesitate not to say, from personal observation, that many of the reports have been overcharged, and that the losses up to the present time are not so serious as has been represented. We make this statement advisedly, because we have every reason to know that some remarks on this important subject have been written for particular purposes. Out of the large supplies of new potatoes disposed of in London during the month, not one-tenth portion of them has shewn any signs of disease. When we consider the vast importance of the potato crop, bearing as it does directly upon the value of the better kinds of food, it must be evident that mis-statements are calculated to produce uneasiness and uncertainty in the minds of the growers of wheat and other grain; at present, therefore, we regard the crop as a large one, not forgetting that a very extensive breadth of land has been planted with potatoes this season.

The markets for the sale of both hay and straw have been rather scantily supplied. Prime old hay

has sold freely, and from its scarcity, prices have ruled quite equal to last month. New meadow hay has realized 65s. to 85s., and new clover 70s. to 95s. per load. Most of the new hay disposed of has been in fair average condition.

The wool trade has been tolerably active. The late public sales of colonial having gone off extremely well, and at enhanced rates, viz., 1d. to 1½d. per lb., notwithstanding the large supplies brought forward—55,600 bales. English wools have commanded more attention; hence the trade has been decidedly healthy, and we may pretty safely calculate upon a higher range in the value of home-grown qualities.

The growth of seeds, this season, has been a large one. The samples on show in our various markets have been in good condition, and we are informed that the yield of rapeseed in Holland is considerably in excess of last year. The imports of linseed have shewn a large arrival even from Russia. There are about 30,000 quarters now on passage from the Sea of Azoff, whilst the shipments from Calcutta have exceeded those of 1853 to this period by about 10,000 quarters. The abundance of the supply has produced rather an inactive sale for cakes, and, in some instances, prices have had a downward tendency.

In Ireland, the cutting of wheat and oats has progressed rapidly, with remarkably fine weather for the in-getting of the crops. The yield is large and of fine quality, but our accounts relative to potatoes are decidedly unfavourable. In Scotland, harvest work has been commenced under the most favourable auspices. Farmers generally have expressed themselves well satisfied with the prospect before them. The corn trade has been heavy, at drooping currencies.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Most of the leading markets held in the month just concluded have been tolerably well, though by no means heavily, supplied with stock as regards number; but the general weight of the beasts, sheep, and lambs has continued very deficient; indeed, the quantity of meat disposed of has been unusually small, the time of year considered. The prime animals have, therefore, been in great request and prices have ruled very high, with little or no prospect of a decline in them for some months. Whilst on the subject of value, we may briefly allude to a meeting of butchers in the metropolis on the subject of forestalling in Smithfield market. No doubt they have had great difficulties to contend with, for some considerable period, in obtaining any-

thing like a fair return for their outlay of capital in Smithfield. Those who give large credits are compelled to bring additional capital into their business, and those who are not good judges of live stock frequently purchase at a loss, arising from the deficiency in the weight of the beasts and sheep, compared with their bulk; hence it follows that the present state of our markets offers a serious drawback to the butchers' interests, and has induced a spirit of opposition to the so-called "forestallers." At the meeting in question, we were informed that numerous jobbers are in the habit of meeting the cattle-trains on their arrival in the metropolis on Sunday evenings, and purchasing large droves of stock from the drovers at low prices, and thus they are enabled to rule the market on the following day. This statement can be true in only very few instances, because drovers in a general way have no power to dispose of property entrusted to their care to convey to certain salesmen. This statement then is not likely to strengthen the cause of the butchers. But are they not aware that for the last fifty years at least the country is visited by those technically called "jobbers;" men who are possessed of a large amount of capital, and who visit the graziers in various distant localities, and who buy extensively, not only for Smithfield, but likewise for nearly all the other great markets in the kingdom? These parties invest annually many millions of money, and sometimes they make a considerable profit, at other times they are severe losers. These transactions, then, do not partake of the character of forestalling; they are merely speculative purchases, just on the same principle that corn and other articles are bought, in order to realize a profit. It is a system which no Act of Parliament can touch; in point of fact, *were it not for the operations of the speculative class the price of meat in London would be considerably higher than it is now.* Corn is a speculative article: as well endeavour to check the importation of wheat as to attempt to put down speculation in it and in fat stock. There is, however, one difference to be noticed, viz., in the event of a declining or losing market, corn can be warehoused at a trifling cost; but the stock once in London *must* be sold in a few days, or the loss upon it would be enormous.

The consumption of meat, arising from the great prosperity in our manufacturing districts, and the full employment afforded the operative classes, continues on a most extensive scale. Such, indeed, is the extent of the demand, that it is with the greatest difficulty that it can be met. The falling off in the importations of stock from the continent has contributed to give stability to prices, and we may safely conclude that any serious decline in the quotations is out of the question. Lean stock, as

might be anticipated, is selling at enormously high rates—too high, in our opinion, to admit of small graziers extending their business; and another feature in connection with feeding is the comparative scarcity of good food in some parts of England. The yield of the hay crop has turned out very inferior to last year; the supply on most farms being by no means so good or so fine as could be desired. We may observe, however, that the turnip and carrot crops are likely to be unusually large. Should they come up to present expectations, the supply of winter food will be large.

The presence of cholera in the metropolis has had a most depressing influence upon the veal trade, and a rapid fall has taken place in prices.

The following are the imports of foreign stock into London during the month:—

	Head.
Beasts	5,506
Sheep	19,770
Lambs	1,178
Calves	2,495
Pigs	2,176

IMPORTS AT CORRESPONDING PERIODS.

Aug.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
1847	4,185..	18,489..	874..	1,942..	—
1848	2,526..	14,266..	871..	2,135..	—
1849	2,913..	15,981..	1,179..	1,000..	302
1850	4,277..	17,376..	2,370..	1,945..	581
1851	5,342..	24,342..	4,431..	2,569..	2,009
1852	5,316..	23,623..	3,576..	2,867..	1,856
1853	4,929..	22,436..	2,579..	2,908..	2,055

At the outports about 4,000 head of stock have been landed, chiefly from Spain and Holland; but they have been received in very middling condition. The annexed statement shews the total supplies of English and foreign stock shown in Smithfield:—

	Head.
Beasts	21,384
Cows	530
Sheep and lambs	164,920
Calves	4,286
Pigs	3,870

STOCK SHOWN AT CORRESPONDING PERIODS.

	Beasts.	Sheep & Lambs.	Calves.	Pigs.
1849.....	18,133..	173,620..	2,480..	2,200
1850.....	19,390..	181,490..	2,348..	2,291
1851.....	20,317..	181,900..	2,648..	2,732
1852.....	21,049..	165,770..	3,350..	2,785
1853.....	24,345..	172,102..	3,431..	2,990

About 10,000 short-horns have been received from Lincolnshire, Leicestershire, and Northamptonshire. The arrivals from other parts of England have been under 3,000 of various breeds; and from Scotland, 350 horned and polled Scots. Beef has sold at from 3s. 2d. to fully 5s.; mutton, 3s. 4d. to 5s.; lamb, 4s. 2d. to 5s. 6d.; veal, 3s. 2d. to 4s. 6d.; pork, 3s. 4d. to 4s. 8d. per 8lbs., to sink the offals.

COMPARISON OF PRICES.

	August, 1850.					August, 1851.			
	s. d.	s. d.	s. d.	s. d.		s. d.	s. d.	s. d.	s. d.
Beef ..from	2	6	3	10	....	2	4	3	6
Mutton	3	2	4	2	....	2	10	3	10
Lamb.....	3	6	4	6	....	3	10	4	10
Veal	3	0	4	0	....	2	4	3	6
Pork	3	2	4	0	....	2	4	3	8

	August, 1852.					August, 1853.			
	s. d.	s. d.	s. d.	s. d.		s. d.	s. d.	s. d.	s. d.
Beef ..from	2	4	4	0	....	3	0	4	6
Mutton	2	6	4	2	....	3	4	5	0
Lamb.....	4	0	5	2	....	4	6	6	0
Veal	2	8	4	0	....	3	4	5	0
Pork	2	6	3	6	....	3	0	4	0

The prevailing hot weather has operated as a serious check to the trade in Newgate and Leadenhall, yet the general quotations have ruled high. Beef has sold at from 3s. to 4s. 8d.; mutton, 3s. 4d. to 4s. 8d.; lamb, 4s. 2d. to 5s. 4d.; veal, 2s. 10d. to 4s. 4d.; and pork, 3s. 4d. to 4s. 8d. per 8lbs. by the carcase.

M I D - K E N T.

When I last wrote you, the staple crop of this district—"the hops"—looked very bad certainly, but not worse than they had been known to do on former occasions at the same time, and afterwards recovered. Unfortunately, however, there is no recovery this year, and those which were bad in June and July are worse now, with some slight exception of here and there a piece not severely attacked, which the fine weather in July improved very much, while at the same time it was fatal to those which were much diseased—they being unable to bear again so much sunshine. The result is, that the crop of hops is calculated not to amount to more than one-fourth or perhaps one-fifth of an average one. Now it is easy to infer that being so much below the standard of consumption, the price must necessarily advance. This, however, has in a measure been neutralized by the late act of the Legislature reducing the duty of foreign hops, as well as other causes difficult to explain, but, as will be known, the price of hops has always been fluctuating. Not unfrequently the same description of hops will realize three times the amount at one season that they will command at another; and the plant itself is also of that changeable uncertain character as to coincide with such fluctuations. Speculators on the crop therefore estimate its extent by the amount of duty, and a sort of gambling has sprung up, based on that source of revenue, and some of our speculating men calculated the crop to amount to no more than would pay £40,000 duty at one time, while a good season exceeds £200,000; however, the prospect has brightened a little, and £70,000 seems more likely to be the sum named. However, as my purpose is to describe the crop, I may say that it presents many features: those which were not very severely attacked by vermin in early spring, and had received judicious management during the summer, have turned out well since the hot weather set in; while many that were in the last stage of disease had their period of existence hastened by that change, and soon after looked as black as the autumn foliage of trees in a city. Some there are of a medium quality—the really good being the fewest of any. Speaking of corn, I may say that the wheat looks remarkably well everywhere, but it is very late—much of it being far from ripe yet (the 10th of August), while oats are still later, and I think hardly so good as the wheat. Barley is not extensively grown here, neither is it of the best quality, but it is tolerably good: straw, of course, being plentiful. Beans are far from good: a blight having affected the bloom, they have not set well, and an immoderate amount of stalk is the consequence. Peas have been good, but the late rains have not benefited them much: thus

I hear of great losses in that crop. Our hay crop was various, and the getting of it in was equally so: the early and late seasons being good, while the middle was wet, and much hay was spoiled in consequence. However, the subsequent rains have kept up the feed tolerably plentiful, and been useful to other green crops. Turnips looking pretty well when they were down; but the great bulk of that crop are those that are sown after harvest on newly ploughed up stubble, which this season will be late; nevertheless, on the whole the season has been more favourable than the one last year, so that the fallows, fruit plantation, hop garden, &c., look much cleaner than they did then, and, if we be favoured by fine weather to secure the corn, I think the season may, on the whole, be called a productive one, despite the hops, which are certainly bad, and just around here of more consequence than anything else—so much capital being at stake in their culture. Potatoes I had almost forgot to say are good, and but very few traces of disease: the crop is also very abundant—better than for many years past. The fruit, of which much is over now, has been various: the quality not being good, while the quantity was sufficiently large, except in currants, which have been thin. I cannot close the article without mentioning an incident in the way of cautioning some of your agricultural friends who may be in the habit of stacking hay in buildings; for a neighbour of mine imprudently stacked some in his barn, which overheated, fired, and the whole farm-buildings, with a stack of beans and some old hay in a stack near by, was totally consumed. Such disasters are I am aware not solitary, but they ought to be less frequent, and the insertion of this may add another link to the chain of evidence against such proceedings. I might also add that the tenant was not insured, and must consequently be a heavy loser. * *

DERBYSHIRE.

We are coming gradually into the throng of our corn-harvest. Reaping has commenced in the south of the county. In some localities, corn will not be ripe within the month, so great is the diversity of soil and climate. The western and north-western districts are always late. Where reaping has begun, the wheat crop cuts up well—everywhere well headed. Some fields will cut up light for bulk, but all must yield well. Barley is an excellent crop—perhaps, never better. Oats are more varied, but, taken as a whole, will be an average crop. The bean crop is deficient, and very filthy. We trust a gracious Providence may favour us with fine weather, to secure so bountiful a harvest. The hay harvest is nearly over. It has been a tedious affair, and some part of the crop has not been well secured. As regards bulk, the crop has been a light one. The potato crop promises better than it has done for several years last past. The complaints about the disease are very few, and what we have seen are splendid specimens. Should we be spared the evil, we shall have a most ample return of this crop, which will tell upon the bread question. The breadth planted was very great; and as far as we can now calculate, the return will be most abundant. The turnip crop is a good one. Some fields there are which form the exception. They have been managed in a slovenly manner throughout, and are now a disgrace to the owners. Those who mean to grow turnips must never begrudge the expense. We consider there is no great secret about them: we never have a failure. Plenty of manure and plenty of labour are the two main ingredients in the receipt. Our fat stock markets are without much variation. Lean stock lower, arising from the scarcity of food. The pastures are everywhere very bare, and the aftermaths will be very light. The demand for labour continues unprecedented. It has been, in many localities, a most difficult matter to get half a sufficiency to secure the hay crop; and how the corn crop is to be gathered is no mean problem to solve. The crops in the locality where the writer resides will be ready to cut in a week, and now every hand is employed at high wages; but where one extra hand is to be had from, he knows not, to begin the harvest with. It will be doubtful if money will obtain a sufficiency. We thought the reaping machines were to have come in to our aid, with vast improvement; but farmers now look on them as fancy traps. We examined those exhibited at Lincoln, but think the principles of all wrong. To state what wages are would be diffi-

cult, but those you meet with modestly ask you 30s. per week. The labour question is becoming as important a one as rent, and, on many arable farms, is equal to a rise of twenty per cent. We have always expressed our satisfaction at the labourers' prospect. It is cheering to have no complaining in our streets; but how far this labour question will eventually affect other interests of the community, we are not able to define. We can only say we never knew it so scarce.—August 17.

SOUTH YORKSHIRE.

Upon the weather of the forthcoming month depends, in great measure, the successful labour, or otherwise, of the husbandman, during the past year. All things considered, a more gratifying period never presented itself. Corn crops are daily arriving at a state of maturity, and will henceforth gradually fall before the hands of the reapers. Pastures have received material benefit from late rains; while turnips, influenced by the same cause, generally look full of growth, and promise a satisfactory crop. Thus, with the blessing of Providence, we trust plenty will be everywhere found, and avert in some degree the horrors of famine and war. We have now written of the appearance of this district in general; but, looking at matters separately, we find wheat extremely variable in condition, quantity and quality. On some lands, cutting has already commenced: on these, quality and quantity are alike good. On others, some time must elapse before it is ready; consequently, it will be in a greater measure liable to atmospheric influences. In some few districts, it is seriously mildewed; and the crop put down at from thirty to thirty-six bushels per acre is only now credited with six or nine. Happily, such disastrous instances are rare; nevertheless, they do exist. Rust has also shown itself with very injurious effect. We never saw less laid corn. The checks which the plant received in spring, rendering it thin upon the ground, has increased the strength of the straw, and so been the means of protecting it from the more than average fall of rain during the latter part of July and early days of August. We find very few really extraordinary crops, as we have sometimes done in former years. The prospect of sixty bushels per acre is this season, indeed, a very rare instance. On the whole, therefore, while we have known years when there were many heavier crops than this, yet we have seen none where there was so much land under wheat cultivation; and although covered with less than an average number of plants, yet the very favourable time for the flowering and feeding of the ears must ultimately, with a propitious harvest time, give a more than average yield. The crop of barley will prove decidedly the best of the year, although the last season will not be ready for the scythe for some time to come. The whole, or nearly so, of the early-sown will be ready to cut during the forthcoming week (August 14). In some districts, it is badly laid, and will require great care in harvesting, clover and seeds having grown through it, consequently requiring a greater length of time before it is ready for stacking. We have had one or two samples shown to us; but their colour and quality did not come up to our anticipation, having evidently dried too quickly. Beans promise well; and, although in some situations upon the limestone fith was at one time complained of, they have podded well, and will ultimately give a fair crop, but are good where they were sown early, but bad where sowing was deferred. The wet weather has been the preservation of the turnip crop. Previously to the rain, the "finger-and-toe" disease was very generally manifesting itself to an alarming extent. In some instances, too, we also notice that they have come up only partially, although in these we believe their absence is much to be accounted for by careless and improper drilling, as well as by the use of artificial tillages, which prove certain destruction to the seed when placed in too great proximity. They, however, now manifest a healthy growth; and in more minutely inspecting a crop of "Orange Jelly," we were much surprised to find such fine bulbs, and of a quality superior to anything we had before observed. Their hoeing, with the exception of those sown after tares, has been completed; and the workmen were never more generally ready for the commencement of harvest, the slight delay having enabled us to bring up all arrears of work, and make foldyards ready for autumn and winter feeding. Many have

bre: adopting the plan of the East Riding farmers, by mucking their seeds intended for wheat with the unfertilized litter. Upon the Yorkshire wolds, this system has long been highly approved of, and attended with perfect success. Potatoes generally look more healthy than of late years; and, so far, we see few indications of disease, which will, it is hoped, improve their yield. At present, they come to the markets in plenty, and realize from 2s. 4d. to 2s. 6d. per bushel. The markets for grain are altogether influenced by the weather; but the harvest is not sufficiently advanced at present to justify any further material reduction in the value of old grain, as some time must elapse before new is in a proper state to grind by itself. Stocks of old in farmers' hands are unprecedentedly low. Wool has shown an improved tendency in its value, and at the advanced prices many lots have changed hands. At our late fairs, little has been done in the sale of lean stock; and although fat has shown a depressing value, improved pastures and a good aftermath enable sellers to hold on.—Aug. 14.

EDINBURGHSIRE.

Since our last, favourable weather has preponderated, and the progress of the various crops towards maturity has been on the whole satisfactory. Harvest has now commenced along the coast, and in early localities, and would be prosecuted with vigour if the weather settle dry and favourable. The result of many inquiries and our own observation leads us to the conclusion that the wheat crop will be about an average one, while barley and oats will rather exceed an average; but so little of the new crop has been thrashed out, that we are still unable to say anything in regard to quality; and at all events this must yet depend in great measure on the character of the weather during harvest, as scarcely a sheaf is yet secured in the yards. Fortunately there are plenty of reapers, including a fair sprinkling of Bell's machines, which appear to do the work pretty satisfactorily. The potato crop still keeps tolerably sound, though of late unfavourable reports increase, and fears are entertained that more or less loss will again be sustained in this crop; in the meantime, however, it is satisfactory to the growers in this county that the disease has not up to this time committed such ravages as in other parts of the country. The breadth of land under this crop is very large, and we should estimate it at a fourth more than in any year since 1846, and probably it was never exceeded previous to that year; consequently the individual interest in the crop is very important, and the farmer's profit will be very much influenced by the issue of the crop. At present, though the market is well supplied at moderate prices, there is no semblance of a glut such as we have sometimes experienced about this period, when the farmers, frightened by the progress of disease, rushed their produce to market irrespective of price. Turnips are everywhere a luxuriant crop, and should they continue to grow as they have done, we may expect in their maturity a very gratifying result. Grain markets have been seasonably well supplied by the farmers, especially with wheat and barley, and under the influence of dull reports and drooping currencies from the south, the trade here has been very lifeless, and the fall in the price of wheat and barley has rather exceeded the pace in Mark Lane. The stocks in farmers' hands are now greatly reduced, indeed we never saw the yards so thoroughly cleared in this county as at the present moment. The imports from abroad are also falling off, and the stocks in the seaports must be diminishing; so that millers will be of necessity thrown upon the resources of the new crop at an earlier period and in a greater degree than usual; and much may depend on the scale in which farmers bring forward their new crop for regulating prices during the next three months. Stock markets have been very heavy, and the tendency of prices has been decidedly downwards. At some of the principal provincial lamb markets held recently prices have ruled 2s. to 4s. a-head under those of last year. Wool is 30 per cent. cheaper since last year.—Aug. 25.

BUCKWHEAT TO KILL QUACK (SWITCH?) GRASS.

—EDS. RURAL:—I have read with considerable attention your correspondents' articles on the subject of exterminating quack, and think they are very good, but think that we have a

way here in old Herkimer that is better than under-draining or summer fallowing. Under-draining of itself will not kill the quack, but summer fallowing will, if it is well attended to. The way we take to exterminate it is simply to "choke it out," by sowing a grain that has a rapid growth, and which covers the ground so completely as to give the quack no chance for "breathing." This grain is buckwheat. The mode of procedure is to plough the ground in the fall, and again in the spring; then harrow the ground two or three times, at intervals of two weeks, or oftener if the quack grows very fast: be sure to keep the quack down, so that the blades get no more than three or four inches long. Sow between the 12th of June and the 1st of July. Use half a bushel of seed more per acre than is usually sown. If the ground is not strong enough to bring a heavy growth of straw, use manure freely, as the object is to promote a heavy growth of straw, that will effectually smother any plant that is under it. The advantage this method has over that of summer fallowing is, that summer fallowing only kills what quack is brought on top of the ground by the plough and harrow, the rest is left free to sprout and grow again; and as long as it has a chance to sprout, it will retain life. Buckwheat kills it by stopping its lungs (leaves); and the next year, the ground, when turned over, will have the appearance of a half decayed straw-stack, thereby giving it an excellent coat of manure.—J. A. W.—*Mohawk, June 1854.*

GURNEYISM AS APPLIED TO GRAZING.—About two years since the spirited owners of the Pinchbeck Flax Rettery, near Spalding, Lincolnshire, requiring additional space upon which to dry their flax, applied to the proprietor of an adjoining arable field of 20 acres for its use. Being a thoughtful farmer, somewhat of the old school, and a clever man of business, he did not forget what "spreading flax" did for land forty years ago; and desiring to retain his land, as also to accommodate his neighbours, he at length made a proposal which has proved advantageous to both. The land was let upon lease for 21 years, divided into four equal parts, and laid down to grass—the proprietor to retain the use of the grass. One of these divisions is at all times, and in alternate courses, to be cleared for the stock; and no flax is to remain on the ground to dry longer than 14 days, so that the drying, clearing, and stocking shall proceed as uniformly as possible. In this way it frequently follows that more than one part is at liberty to receive the stock; but more generally three parts are under the flax in its various stages, and only one stocked. The great fact, however, is this: that, notwithstanding tramways and trampling, laying out and gathering in, &c., this field of 20 acres has well and satisfactorily grazed during the summer no less than 267 large long-woolled hogget sheep. Surely this is great proof of the value of the system: it ought to be more extensively tried, and proper results given, both experimentally and scientifically.

NEW WEATHER-GLASS.—For some years I have been in the habit of watching the condition of the gum in my wife's camphor bottle, which stands in our bed-room; and when not disturbed, it makes a capital weather-glass. It answers my purpose as well as a barometer that would cost me twenty-five or fifty dollars. When there is to be a change of weather, from fair to windy or wet, the thin flakes of the gum will rise up; and sometimes, when there was to be a great storm, I have seen them at the top. When they settle down clearly at the bottom, then we are sure of grand weather. Any farmer who will watch his wife's camphor bottle for a season, will never have occasion to watch the birds, or locusts, or ants, for indications of a change in the weather.—*Literary Journal.*

METEOROLOGICAL DIARY.

BAROMETER.			THERMOMETER.			WIND AND STATE.		ATMOSPHERE.			WEAT'R.
	8 a.m.	10 p.m.	Min.	Max.	10 p.m.	Direction.	Force.	8 a.m.	2 p.m.	10 p.m.	
1854.	in. cts.	in. cts.									
July 22	30.22	30.20	62	85	66	S. West	airy	fine	sun	clear	dry
23	30.22	30.15	60	86	68	Every way	var.	fine	sun	smoky	dry
24	30.16	30.11	63	87	69	East	brisk	fine	sun	fine	dry
25	30.11	30.11	63	88	70	N. East	lively	fine	sun	fine	dry
26	30.12	30.10	65	75	63	E. N. E.	strong	cloudy	sun	cloudy	dry
27	30.11	30.16	60	72	63	E. N. E.	brisk	cloudy	sun	cloudy	dry
28	30.19	30.20	57	69	56	N. N. E.	lively	fine	sun	cloudy	dry
29	30.21	30.11	49	74	62	S. East	gentle	fine	sun	cloudy	dry
30	30.03	29.90	59	82	67	Southerly	var.	fine	sun	cloudy	dry
31	29.84	29.70	62	77	64	S. West	lively	cloudy	cloudy	cloudy	rain
Aug. 1	29.69	29.71	*	*	58	S. Westerly	airy	cloudy	fine	fine	showery
2	29.73	29.80	52	74	62	W. N. W.	airy	fine	sun	cloudy	showery
3	29.83	29.88	58	59	57	N. N. E.	airy	cloudy	cloudy	cloudy	wet
4	29.92	29.92	51	56	52½	N. N. E.	brisk	cloudy	cloudy	cloudy	wet
5	29.97	30.05	52	59	55	N., N. by W.	airy	cloudy	cloudy	cloudy	showery
6	30.06	30.07	53	66	56	North	gentle	cloudy	sun	fine	dry
7	30.06	30.06	53	65	56	N. East	gentle	cloudy	fine	fine	dry
8	30.06	30.00	52	73	58½	Westerly	gentle	fine	sun	clear	dry
9	30.00	29.91	56	72	61	South, var.	gentle	cloudy	cloudy	fine	dry
10	29.90	29.85	58	75	63	W. by S. by N.	gentle	cloudy	sun	fine	dry
11	29.93	29.98	56	72	62	N.W., S.W.	var.	fine	sun	cloudy	dry
12	29.98	29.92	59	70	60	S. West	lively	cloudy	fine	fine	dry
13	29.92	29.80	56	80	70	South	fresh	fine	sun	fine	dry
14	29.76	29.85	63	73	61	S. West	fresh	cloudy	sun	clear	dry
15	29.86	29.87	56	69	55	S. West	gentle	fine	cloudy	fine	showery
16	29.87	29.96	53	67	55	W. by N.	gentle	fine	fine	fine	showery
17	30.00	30.02	48	62	53	N. West	gentle	fine	cloudy	fine	showery
18	30.10	30.15	46	69	58	W. by N.	gentle	fine	sun	cloudy	dry
19	30.16	30.10	53	74	64	W. by South	airy	fine	sun	cloudy	dry
20	30.05	30.10	59	76	69	S. West	gentle	cloudy	sun	clear	showery
21	29.90	29.77	58	69	62	S. West	lively	cloudy	cloudy	fine	showery

ESTIMATED AVERAGES OF AUGUST.

Barometer.		Thermometer.		
Highest	Lowest.	High.	Low.	Mean.
30.26	29.35	82	41	61.6

REAL AVERAGE TEMPERATURE OF THE PERIOD.

Highest.	Lowest.	Mean.
72.5	56.4	64.45

WEATHER AND PHENOMENA.

July 22. Glorious day; sun heat, at 4.5 P.M., 124 degrees. 23. Beautiful till about 5 P.M., then a smoky haze. 24. Sun sets as a red globe. 25. Superb. 26. Strong current; lower clouds rapid; upper scarcely move. 27. Cold air. 28. The easterly wind very ungenial. 29. Change approaches: black stratus clouds. 30. Distant thunder; great heat again. 31. Rain commences late in the evening; 3-10ths of inch reported.

LUNATION.—New Moon, 25th day, 3 h. 15 m. morning.

* August 1. Fine till 4 P.M.; close shower; heat not taken, being absent. 2. Showery P.M. 3, 4, 5. The easterly winds, as usual, this year have brought cold and rain. 6, 7. Much improved. 8,

Summer day. 9. Heavy clouds; clearing off. 10, 11, 12. Fine harvest weather; some clouds. 13. Very hot, close; overcast evening. 14. A mere sprinkle. 15, 16, 17. Change of wind, again bringing showers and low temperature. 18, 19. Harvest days. 20. A shower early, but a perfect summer day. 21. Close and oppressive; a few light sprinklings.

LUNATIONS.—First quarter, 1st day, 10 h. 28 m. morning. Full, 8th day, 1 h. 17 m. afternoon. Last quarter, 15th day, 1 h. 50 m. afternoon.

REMARKS CONNECTED WITH AGRICULTURE.—OUR COMPARATIVE PROSPECTS. In July, the entire volume of rain amounted to about 2½ inches. In the July of 1853, it measured 5 inches 90 cents. The total of August instant (to the 18th day) stands at 1½ inches, the chief of it on the 2nd and 3rd days; that of 1853 (to the 18th) was below 3-10ths of an inch. But then rain came on just at the critical period of harvest, and nearly 2 inches of water were measured. The rains of the present month were mostly propitious for the fodder and root crops, without causing any injury to the corn. Reaping, weathering, and carrying proceed steadily, and our harvest-home is of rich promise.

Croydon, Aug 22.

J. TOWERS.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

BEDALE FORTNIGHT FAIR.—We had a small show of cattle, which was equal to the demand, and prices as before. A large number of mutton sheep had ready sale. Beef, 6s. 6d. to 7s. per stone; mutton, 6d. to 6½d. per lb.

CARNWATH LAMB FAIR.—The show was comprised principally of blackfaced lambs, with a few lots of good Cheviots and greyfaced; also a limited number of half-bred. There was an average show, at least, and the stock was good and fresh. The buyers were few—more especially from England and the Border counties. This market was considered to be the duller ever seen here; and one particular reason assigned is the unexpected number of north country lambs that are now shown here—being a new feature in this market—which had the effect, along with the short number of buyers, of making it a very dull one for stock brought from the Highlands or the south of Scotland.

ELGIN MARKET.—There was a large and excellent display of all kinds of cattle, and a good attendance of dealers, but the market was remarkably stiff. The prices sought in the earlier part of the day were so high that purchasers would not listen to them, and the consequence was that scarcely a transaction took place until towards the afternoon, when sellers began to lower their tone a little. It required hard driving, however, to do business at even the following figures, which are very high:—Mr. Mackessack, Grangegreen, sold a lot of two-year-old crosses at £20 (the top figure of the market), and another lot at the same price; Mr. Scott, Maubeen, sold a lot of do., at £16; Mr. Cruikshank, Newfield, a lot of do., at £14 15s., and another lot at £12 5s.; Dr. Ross, Linksfield, a lot of do., at £15; Mr. Cruikshank, Cloves, a lot of three-year-olds, at £14; Mr. Sellar, Westfield, a lot of two-year-olds at £13, and a lot at £3; Mr. Cruikshank, Lochs, a lot of three-year-olds (Highlanders), at £12 5s.; Mr. Leslie, Rothes, a lot of two-year-old stots £11 15s.; Mr. Mackessack, Miltonbrae, a lot of two-year-olds, polled, at £12; Mr. Macdonald, Hillside, a lot of do., at £11 5s.; Mr. Anton, Colfield, a lot of two-year-old polled stots, at £12; Mr. Hayes, Kinnedra, a lot of two-year-old crosses, at £12 10s.; Mr. Cruikshank, Barmuckity, a lot of two-year-olds at £9 10s.; Mr. Grigor, Findrassie, a lot of two-year-old queys, at £9 10s., &c. &c. The best beasts were all sold; but a considerable number, not remarkable for good qualities, left the green without a purchaser. In milch cows very few transactions took place. The prices sought were very high—from £12 to £25. There were a few sheep on the ground, which were sold at a late hour at a pretty high figure.

GLOUCESTER MONTHLY MARKET.—The supply of cattle and sheep was unusually small for the season of the year, consequently the trade was very brisk. Beef sold readily at from 6½d. to 7d., mutton 6½d. to 7d., lamb 7½d. to 8d. per lb.; pigs from 10s. to 11s. per score. The market was cleared at an early hour.

IPSWICH LAMB FAIR.—The number of lambs penned was above the average of the last seven years, there being at least 40,000 head. Trade throughout was exceedingly slow and unsatisfactory. On Tuesday there was scarcely anything done until the afternoon, when a few sales were effected by the holders slightly giving way. The lambs were not in such fine condition as last year by fully 1s. per head, and compared with that date prices were from 3s. to 4s. per head lower. There was a fair inquiry for dark-faced ewe lambs for breeding purposes, which fetched from 26s. to 31s. each. Mr. Daking, of Washbrook, sold a fine lot at 28s., and Mr. Miller, of Boyton, realized 26s. for a pen of the same description, and 18s. for a lot of wethers. Mr. Everett, of Brightwell, had a fine pen of Downs, which were sold at 24s. per head. Mr. Wolton, of Newbourn, exhibited a large pen of beautiful pure Downs; but though many inquiries were made, there was no satisfactory offer, and they quitted the fair unsold. Of the flocks belonging to Lady Harland, a pen of white-faced were disposed of for 27s. 6d.; the other pens, consisting of Downs and half-breeds, found no buyers at the prices demanded. At the resumption of business on Wednesday morning, no satisfactory

change took place in prices; in fact the sellers were obliged to submit to still lower terms before a transfer could be made. As on the previous day, the greater part of the stock remained unsold. There was an unusual quantity of store sheep shown, but the demand was principally for dark-faced breeding ewes, for which from 38s. to 44s. per head were freely given. The show of fat sheep was the smallest ever known. There was, however, much inquiry for this description of stock, and we believe one or two lots sold at 8d. per lb. by weight. As usual, the tups shown by Mr. Sexton, of Wherstead, were justly admired. There was a large show of Irish beasts, in poor condition, but very few sales were effected, and the fat beef was not worth mentioning. Mr. Edwick and other dealers brought a large number of serviceable ponies into the field, which met a ready sale at high prices.

KILGERAN FAIR.—This fair was attended with cattle and dealers, and much business was done for good prices. Although we cannot quote any advance, yet the trade was active and in a healthy state, and not as it has been for the last two months; yet young cattle and sheep were of a slow sale; but every other kind of stock was selling well.

LALESTON FAIR.—The attendance was small in consequence of the weather, and the fair being but little known, as it has been only lately established. The cattle were sold at lower rates than at previous fairs in the neighbourhood.

LINCOLN FAT STOCK MARKET.—There was only a short supply of both beasts and sheep, and consequently prices were a trifle higher than our last quotations. Beef realized from 7s. to 7s. 9d. per stone; and Mutton, 6d. to 7d. per lb.

LUDLOW FAIR was well supplied. Pork at late quotations; Mutton, 6½d. to 7d. per lb.; good store ewes in request at high rates. Beef of best quality from 6d. to 7d.; prime steers sold exceedingly well. A large fair of horses and carter's sought after at satisfactory prices, but at less rates than some few months past.

MARLBOROUGH LAMB FAIR was well attended, and many of the pens were remarkable for symmetry and shape. A very large number were penned, trade ruled brisk, and prices took an upward tendency, realizing fully 2s. per head above the price obtained at Tan-hill. The following prizes were awarded; and it was the subject of general observation that no prizes were ever awarded with more judgment, or were better deserved:—Prize 1. A piece of plate of the value of £7, for the best 100 wether lambs, bred by the competitor, and not having been fed on any artificial food, Mr. Vaisey, Grove-farm. Prize 2. A piece of plate of the value of £3, for the second best 100 wethers, bred by the competitor, and not having been fed on any artificial food, W. B. Canning, Esq., Chisleton. Prize 3. A piece of plate of the value of £7, for the best 100 ewes, good in tooth, bred by the competitor, and not having been fed on any artificial food, R. Canning, Esq., Ramsbury-park. Prize 4. A piece of plate of the value of £3, for the second best ditto, Mr. Wentworth, Avebury. Similar prizes to the above will be offered at the fair on the 23rd November, but without restriction as to feeding.

MARTOCK FAIR was well supplied with sheep, there being nearly 1,000 penned. Beasts and pigs were also plentiful. A good sale was effected at the following prices:—Beef, 10s. to 10s. 6d. per score; barreners, 14. to 12½ each; mutton, 5½d. to 6½d. per lb.; Pigs at former rates.

NEW ROMNEY FAIR.—Up to two o'clock, the number of lambs sold was 3,759, in 93 lots, averaging 22s. 7½d. each. Of old sheep there had been 1,995 sold in 37 lots, averaging 35s. 10d. each; 101 ewe tugs in four lots, averaging 30s. 3d.; 2,256 wether tugs, in 11 lots, averaging 34s. 9d.; 199 two-year old wethers, in 7 lots, averaging 57s.; 10 maiden barreners, in one lot, averaging 46s. The total number penned was 18,262; last year there were 12,500 penned.

PENRITH FORTNIGHTLY FAIR.—There was the largest show of fat sheep and lambs, &c., we remember seeing this season. The butchers found fat a good deal better to buy, prices being 5½d. to 6d. per lb., sinking offal.

PRIDDY FAIR was well supplied with all kinds of stock, but the sale was dull at downward prices. The horse fair was not so well attended as on former occasions, and the sale was bad; a decline of full 20 per cent. on horses has taken place in the last three months. There were not many sold.—*Sherborne Journal*.

RUGBY FAIR.—Beef, 6½d. to 6½d.; mutton, 6d. to 7d. per lb.; all sold. Stores dull of sale, at sinking prices. It was a large fair, and well attended.

SHREWSBURY FAIR.—There were plenty of buyers, and a large supply of stock of all kinds, which were cleared off early at good prices. Beef made 6d. to 6½d., but the prevailing price was 6½d.; veal 6d., wether mutton 6½d. to 7d., fat lambs 6½d. to 7d., porks 5½d. to 6d. Store cattle and good cows and calves sold well; store pigs unaltered.

ST. LAWRENCE FAIR.—The supply of cattle was large,

and the sale for all descriptions was remarkably good, at about the same prices as have been lately realized.

THURSBY LAMB FAIR was well supplied with lambs, both of the Cheviot and half-breds, in good condition. Although the amount of business done was not so extensive as on previous occasions, yet remunerative prices were obtained for those sold, the prices varying from 11s. 6d. to 19s. each.

YORK FORTNIGHT MARKET.—The supply of and demand for fat beasts were about equal, at from 6s. 6d. to 7s. 6d. per stone, as per quality. The show of mutton was above the demand, trade being heavy, at from 5½d. to 6½d. per lb., as per weight and quality. Grazing sheep and lambs were in great supply, with very heavy sale; prices tended downwards, and many unsold. Lean beasts, in English, Irish, and Scotch, were in good supply, with slow sale, at prices in favour of the buyer. Calving and dairy cows were in about equal supply and demand, at lowering rates.

REVIEW OF THE CORN TRADE DURING THE MONTH OF AUGUST.

Though the month of August has nearly been brought to a close, a very large proportion of the corn crops of Great Britain still remains unsecured. The commencement of harvest has this season been ten days to a fortnight later than the usual period, and the work has been interrupted from time to time by showery weather; indeed, during the first week in the month, the rain was so heavy and general, as to put a temporary stop to carting; and some mischief was done to the standing corn by wet. Notwithstanding the disadvantages alluded to, fair progress has been made during the last fortnight, and we have reason to conclude that the result of the harvest will, as a whole, prove satisfactory. It is yet too early to speak very positively as to either quantity or quality; but a general idea may be formed from what is already known. We have spared no pains to collect information, and our friends in different parts of the kingdom have readily responded to our enquiries.

With regard to wheat, we are inclined to think that the estimate we ventured to give before cutting had been commenced, viz., a full average in quantity, will prove rather too low: we have heard of several instances where the yield to the acre has astonished the growers; and though this may be the exception to the rule, still we are inclined to make some alteration in our previously offered opinion; and we now believe that, as far as regards quantity, there will be a decided excess over ordinary average seasons. The quality must of course depend on the weather which may be experienced, as a considerable part—certainly more than one half of the entire crop—still remains in the field. That which has been secured presents great variety of quality, ranging from very inferior to very fine. No better proof of this can be given than the wide difference

in prices, sales having been made on the same day, and at the same market, at 50s. and at 70s. per qr.

Barley is a heavy crop. The proportion carried is probably rather more than of wheat; but sufficient is still exposed to render the weather for the next week or two a matter of serious importance. The colour has suffered considerably by the wet weather in the early part of last week, and there will be a large portion of coarse quality. We have, however, seen some fine samples; and even the discoloured parcels might be manufactured into good malt, the berry being large and plump, and the corn kindly and well-matured.

Oats are quite as well spoken of as other sorts of grain; but they do not appear to have been so extensively cultivated on this side of the channel as in Ireland, and the result of the crop there will therefore, in a great degree, regulate the future range of prices. Of this we are not prepared as yet to report with accuracy; but we may say that we have thus far heard few complaints, and we know that the breadth sown was large.

Beans have suffered from blight, fly, &c., and will, we believe, give but an indifferent return.

Peas have yielded well, and are of handsome quality.

With the single exception of beans (which crop is not very important), we regard the probable result of the harvest as highly satisfactory. The three most important crops—wheat, barley, and oats—will, there is every reason to conclude, be considerably above an average, and the reign of high prices may therefore be considered as at an end. This our agricultural friends will, we are sure, not regret, so long as they have a prospect of obtaining something like remunerating rates for their produce, and we think that this will be the case during the

next twelve months. Stocks of old corn have been reduced into a very narrow compass in this country, as well as abroad, in consequence of the great deficiency in the harvest of 1853 in Great Britain, France, and some of the other continental states; and it is not likely therefore that quotations will be reduced to the level which has prevailed since the first commencement of free trade. At the same time, farmers will have to be contented with much lower prices than those recently current; good qualities of wheat will probably range somewhere between 50s. to 60s., barley about 25s. to 30s. per qr.; and other grain and pulse in proportion.

There is one matter of great importance to which we have not yet referred, viz., the potato crop. That the root has been attacked by the disease which has been more or less general since the year 1846, does not admit of doubt. As yet, it is impossible to say to what extent the injury may spread; and when the effects of this visitation in 1846 is recollected, no surprise can be felt that considerable uneasiness should prevail on the subject, more especially as regards Ireland. The accounts from thence have, within the last few weeks, become rather alarming; and making full allowance for the excitable character of our Irish fellow-subjects, still we fear that the loss of this useful article of food will be important. Should it prove as great as some of the reports from thence are calculated to make us believe, the prices of grain would no doubt be influenced thereby after awhile; but thus far, the effect has been to depress rather than enhance the value of food, as large quantities of potatoes have been thrown on the markets, and forced off at the best prices obtainable.

The uncertainty which still attaches to the final result of the harvest, the prospects of a partial failure in the potato crop in Ireland, and the acknowledged shortness of stocks of old corn, render it impossible to speak positively in respect to the future; and we wish it therefore to be distinctly understood that what we have said in the foregoing part of this article as to the probable value of grain after harvest shall have been completed, must be subject to the proviso that the remainder of the corn crops shall be secured in good order, and the potato disease prove no worse than it has been for some years past.

Before dismissing this subject, it may not be out of place to say a few words in regard to the relative value which old wheat is likely to maintain. That it will rule higher than new can scarcely be questioned. For some time past, the deliveries from the growers have been so small, that the presumption is, that most of the farmers have been completely cleared out, and that we shall have to depend on

granaried stocks of foreign for the required quantity for mixing with the new.

London is nearly the only port in the United Kingdom at which any large quantity of foreign wheat is held; and of what is held here, a great portion is of inferior quality. It strikes us therefore that really fine parcels are not likely to recede materially in value, more especially as the receipts from abroad will be comparatively insignificant, the large shipments made throughout the summer having drained the different continental ports of old stocks.

By the official accounts, it appears that the importations into the United Kingdom during the last three months have been, of wheat and flour, as follows—

	Qrs.	Cwt.
Month ending June 5	611,992	373,761
“ July 5	357,104	222,479
“ Aug. 5	281,950	250,103

The falling off the last two months has, it will be perceived, been very great; and at present, there is, we believe, very little on passage to this country. A comparison between the above imports and those in the corresponding months of 1853, may perhaps prove of some interest. The latter were in the

	Wheat.	Flour.
Month ending June 5	525,000	341,964
“ July 5	331,193	369,843
“ ug. 5	691,000	379,000

We shall here close our remarks as to the probable future, and proceed to give our usual retrospect of the course of the trade during the month, at Mark Lane.

Until supplies of the new crop began to make their appearance, the arrivals of homegrown wheat into the port of London became smaller from week to week; and with the addition which has been lately made by the deliveries of new, the receipts have thus far been on a very moderate scale. During the first eight or ten days in August, we had unsettled weather, with a considerable fall of heavy rain; this was not without influence on the trade, and part of the depression which had taken place in July was recovered, the sales made on the 7th inst. being at prices 3s. to 4s. per qr. above those current on that day se'nnight. A week of bright sunshine sufficed, however, to shake the returning confidence; and on the 14th about 2s. per qr. of the advance was lost. On this day a few parcels of new wheat were exhibited, principally Talavera, the growth of Essex; the best samples were taken by the town millers at 70s. to 72s. per qr.: the quantity brought forward up to this time was, however, too insignificant to allow an opinion to be formed as to the quality. On the 21st there was a better supply, about 1,000 qrs. being shown altogether, of which

about 700 qrs. were the produce of Essex, 200 qrs. from Suffolk, and only 100 qrs. from Kent. The quality was extremely various; some of the Essex white wheat was so coarse and ill-conditioned that it was difficult to find buyers for the same at 50s. to 55s., whilst a lot of Kentish red, also very damp, sold at 50s. per qr. The better-conditioned qualities brought from 60s. up to 70s. per qr. One lot of red, about 100 qrs., was exceedingly well-matured, almost perfect in the berry, and weighed 64lbs. per bushel: this was readily placed at 67s. per qr. Old wheat, owing to its extreme scarcity, brought relatively higher rates; still, as compared with the prices of the preceding Monday, a decline of 2s. per qr. was pretty generally submitted to. From this period up to the 28th inst., very little change occurred in quotations: with an increased quantity of new wheat on Monday, and a want of activity in the demand, sellers had to make a further concession; and the fall during the week may be fairly estimated at about 5s. per qr.

The arrivals of foreign wheat have fallen short of 30,000 qrs. this month, which is much below what we have for a considerable time been in the habit of receiving: we question, however, whether stocks in granary have been much diminished, as the country demand has been of a retail character, and local buyers have conducted their operations with extreme caution throughout the month. The fluctuations in prices have been nearly the same as those which have taken place in the value of English wheat. In the early part there was a rally of a few shillings per qr., which was, however, subsequently lost, and quotations are now lower than they were at the close of last month. Within the last week rather more anxiety to realize has been displayed by sellers, and very good red Baltic wheat has been offered at 66s. per qr.

Danzig wheat may be said to range in value from 62s. to 72s.; but the latter price is only procurable for very superior high mixed, of which the quantity on the market is trifling.

Quotations of Black Sea wheat are perfectly nominal; no disposition having been shown to purchase these kinds, of which a very large proportion of our granaried stock consists. That the importers of the same will be very heavy losers cannot be questioned; the principal part of what is held here belongs to Greek firms, who were large gainers by the high range of quotations last year, and are believed to be in a position to stand the consequences of the altered position of affairs.

There has not been much doing in floating cargoes; still occasional sales have taken place from time to time during the month. Several cargoes of Egyptian wheat have changed hands within the last week or two, at prices ranging from 36s. up to

38s. 6d. per qr., cost, freight, and insurance, whilst for Marianopli, Berdianski, and similar descriptions, relatively higher prices have been asked.

The top price of town-made flour, which was put down at 60s. per sack towards the close of last month has since been reduced to 55s. The London bakers have acted as though they reckoned with confidence on a further fall, declining to purchase beyond what they have needed from week to week. The consumption of bread in the Metropolis has no doubt been diminished in consequence of the reduced price of potatoes; and many of the bakers state that they are not doing nearly their usual amount of business.

Norfolk household flour, after having been done as low as 43s., rallied to 46s. per sack; subsequently a small reaction took place, and last week there were more sellers than buyers at 45s., which may be considered to be about the present value.

The importations of flour from America have not been by any means large, and fresh qualities have gradually been reduced into a narrow compass. The ordinary kinds have met with comparatively little attention, though offered at low rates, whilst really good sorts have been much sought after, and have, notwithstanding the fall in wheat, rather risen than receded in value. Good useful brands may be quoted from 32s. to 34s., whilst for choice sorts 36s. per barrel has been realized.

Supplies of old barley of home growth have for some time past ceased to come forward, and previous to the new making its appearance, quotations were perfectly nominal. The opening price for the latter was 32s. to 33s.; higher rates were at first asked, but the business actually done was, we believe, at about the terms named. With increased supplies, the value of the article has given way; and on the 23rd inst., very good qualities sold at 30s. per qr. The weight of the new barley is generally heavy and the berry large, but the colour not so bright as could be desired. As yet, we cannot speak positively regarding its malting qualities; but we are disposed to think that our maltsters will experience no difficulty in selecting samples well adapted for their use. The yield to the acre is well-spoken of, and the probability is, that prices will after awhile settle down somewhat below what they are at present.

The fall in the value of foreign barley has been considerable since our last; and good Danish has lately been offered at 27s. to 28s. per qr., without exciting much attention. We believe that the bulk of what is held at this port is the property of the foreign shippers who have held on too long, and will be severe losers.

Egyptian barley has become almost unsaleable, though offered at 21s. to 22s. per qr. in granary.

Floating cargoes on passage from Alexandria might now be bought below 20s. per qr., cost, freight, and insurance; the nett proceeds to the shippers will therefore be very meagre, freight and insurance from thence being heavy items.

The malt trade has naturally been influenced by the depressed state of the barley market. Brewers, anticipating lower prices, have refused to purchase, and the operations have been on a very restricted scale; 70s. per qr. may be regarded as an extreme quotation, and excellent qualities of ship-malt might be bought at 65s. per qr.

Though the arrivals of oats of home growth have been very small, and the importations from abroad only moderate, this grain has participated in the general depression. The downward movement which had already set in last month, was added to by the knowledge that shipments to a considerable extent had been allowed to be made from Archangel by neutral flags, and that we should in all probability receive 100,000 qrs. from thence. As yet, only about a third of that quantity has reached us; but the effect has nevertheless been greatly felt; the first cargo was retailed out at 26s. to 27s. per qr. Since then sales have been made at 20s. 6d. up to 25s. per qr. according to quality. Other sorts of foreign oats have receded in nearly the same proportion; good 40lbs. Swedes having been sold at 25s., and fine Danes at 26s. per qr.

As yet, we have had no supplies of new oats, either coastwise or from Ireland; but arrivals may be shortly looked for, and as the quality is expected to be very fine, a further decline in prices of old foreign is confidently reckoned upon. Old oats are certainly very scarce; and unless the new should prove exceedingly dry, so as to allow of their being used alone, prices of old cannot well be expected to give way further.

The continued decline in the value of oats and feeding barley has naturally had its influence on beans; and, notwithstanding the belief that the crop will prove defective, prices have given way 2s. to 3s. per qr. during the month.

Egyptian beans in granary have lately been offered at 31s. to 32s. per qr., and purchases of floating cargoes on passage might be made at 30s. to 31s. per qr., cost, freight, and insurance.

The quality of the peas of this year's growth is very satisfactory, and the yield is, we believe, good. Some of the samples brought forward at Mark Lane have been of very fine quality. The small lots which came forward early realized high prices; and we believe that 60s. per qr. was exceeded for superior boilers. Since then, a material decline has taken place; and on Monday, fine breakers

were obtainable at 48s. to 52s., and grey and maple peas at from 36s. to 40s. per qr.

A fair extent of business has been done in Indian corn, and most of the cargoes close at hand have been disposed of; for Egyptian 25s. to 26s. per qr. has been paid, cost, freight, and insurance, whilst fine Galatz has not been offered below 35s. per qr. At Liverpool, considerable purchases have been made within the last week or two, on Irish account; and the latest quotations there, were for good qualities 33s., up to 36s. for fine per 480lbs.

Should the potato disease spread, Indian corn might perhaps rise in value; but America will be enabled to furnish us with plentiful supplies; and we do not, therefore, look for material improvement under any circumstances.

Before we conclude our remarks, we shall take a brief review of the position of the corn trade, and the prospects for the harvest abroad.

In the northern countries of Europe, the crops are not as yet wholly secured, though carting appears to have made more progress on the continent than with us. Letters from Danzig state that there was still a good deal of corn in the fields in that neighbourhood; and in Poland, harvest had not up to that time been concluded. Wheat is almost universally described as a good crop, in quantity as well as in quality; and spring corn will, we believe, give a large yield in all the countries bordered by the Baltic. Rye has also produced abundantly all over the North of Europe; and the only complaint is, that of a partial failure of the potato crop. Old stocks of wheat, and indeed of all grain, appear to be nearly exhausted in the Baltic; and no supplies of new having yet come forward, hardly any business has been done. The last sales reported at Danzig were at 52s. for ordinary old Polish wheat, weighing 58 to 59lbs., and at 55s. to 56s. for fair qualities of ditto, weighing 61 to 62lbs. per bushel.

The Silesia and Uckermark wheats will, we believe, be of fine quality, and give a good yield. The reports from Pomerania are also favourable; and we have as yet heard of no well-founded complaints from any quarter. Prices for new wheat have not as yet been fixed, though a contract is said to have been concluded at Rostock for a future delivery at 54s. per qr. free on board. Whether this be actually the case or not, we are not in a position to determine; but our belief is, that prices will have to recede below the figure named before business with Great Britain will become practicable.

Next month we shall probably be able to speak more positively respecting the result of the harvest abroad, and the rates at which it may be expected that contracts for spring delivery may be closed at.

In France the crops have been for the most part secured. As regards wheat, we are inclined to think that the result of the harvest will be very similar in that country as in this. There will be great variety of quality; but a fair proportion will be fine, and the aggregate produce superior to that of ordinary average seasons, as regards yield as well as quality. Prices have already fallen materially in the principal French markets; and the decline would probably have been greater but for the smallness of old stocks and the pressing wants of millers and dealers, who have for months past been acting on the reserve.

In Spain and Italy the crops have turned out excellent: from the former country we shall probably hereafter receive supplies of wheat and flour, but from Italy exports continue to be prohibited.

The latest advices from America inform us that harvest was fast drawing to a close even in the Northern States, and the general result was considered to be favourable. No supplies of the new produce had yet come forward, and the quantity of old wheat and flour on hand having been reduced into a very narrow compass, prices had risen, in the face of the dull English advices and the prospects of abundant crops.

CURRENCY PER IMPERIAL MEASURE.

		Shillings per Quarter	
WHEAT, Essex and Kent, white.. old	61	to 63 extra	65 70
	Ditto new	56	60 62 64
	Ditto red, old	58	63 64 65
	Ditto new	51	57 58 59
Norfolk, Lincoln. & Yorksh., red..	50	52	56
BARLEY, malting, new.. 30 31	Chevalier..	32	33
Distilling .. —	Grinding..	—	—
MALT, Essex, Norfolk, and Suffolk, new	66	67 extra	69
Ditto ditto	old	64	65 68
Kingston, Ware, and town made, new	70	71	72
Ditto ditto	old	68	70 71
RYE.....	—	—	38 40
OATS, English feed .. 22 26.....	Potato..	26	29
Scotch feed, new 28 29, old 30 31 ..	Potato	31	33
Irish feed, white .. 25	26	fine	28
Ditto, black .. 18	24	fine	26
BEANS, Mazagan.....	39	41	44 47
Ticks.....	41	43	45 49
Harrow.....	43	45	47 51
Pigeon .. 43	49	50	56
PEAS, white boilers 45 50.. Maple	38 40	Grey	35 37
FLOUR, town made, per sack of 280lbs..	—	—	50 55
Households, Town 47s. 48s. Country	—	—	47 48
Norfolk and Suffolk, ex-ship .. —	—	—	40 43

FOREIGN GRAIN.

		Shillings per Quarter	
WHEAT, Dantzic, mixed.. 65 to 67	high mixed ..	69 extra	73
Konigsberg .. 61 67 ..	—	67	69
Rostock, new .. 65 66	fine ..	67	69
American, white... 63 67	red ..	62	65
Pomera., Meckbg., and Uckermark, red	61 65 extra ..	67	
BARLEY, grinding 21 27 ..	Distilling ..	28	30
OATS, Dutch, brew, and Polands 25s., 27s. ..	Feed ..	22	24
Danish & Swedish feed 25s. to 27s.	Stralsund	26	28
Russian..... 21 25 ..	French..	none	
BEANS, Friesland and Holstein ..	—	40	42
Konigsberg .. 42 44 ..	Egyptian ..	35	36
PEAS, feeding .. 40	46	fine boilers	45 47
INDIAN CORN, white..... 35	38	yellow	35 38
FLOUR, French, per sack (none) ..	—	—	—
American, sour per barrel	28 30	sweet	31 34

IMPERIAL AVERAGES.

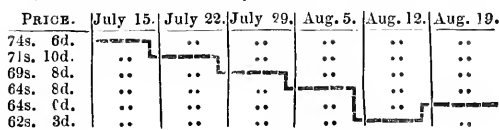
FOR THE LAST SIX WEEKS.

WEEK ENDING:	Wheat.	Barley.	Oats.	Rye.	Beans	Peas.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
July 15, 1854..	74 6	36 10	29 8	51 1	48 10	45 9
July 22, 1854..	71 10	37 1	30 7	47 9	48 11	45 4
July 29, 1854..	69 8	36 3	29 10	45 8	47 5	47 3
Aug. 5, 1854..	64 8	35 9	29 11	43 5	47 4	41 7
Aug. 12, 1854..	62 3	34 8	28 11	40 1	45 0	43 6
Aug. 19, 1854..	64 0	34 6	27 9	43 1	49 10	44 8
Aggregate average of last six weeks	67 10	35 10	29 5	45 4	47 11	44 8
Comparative ave. same time last year	52 0	29 6	21 11	35 6	40 8	36 6
DUTIES.....	1 0	1 0	1 0	1 0	1 0	1 0

COMPARATIVE PRICES AND QUANTITIES OF CORN.

Averages from last Friday's Gazette.			Averages from the corresponding Gazette in 1853.		
	Qrs.	s. d.		Qrs.	s. d.
Wheat...	45,925	61 0	Wheat...	76,976	51 1
Barley...	2,212	34 6	Barley...	1,896	29 7
Oats	7,492	27 9	Oats	8,271	22 0
Rye.....	43	43 1	Rye.....	113	34 10
Beans....	3,457	49 10	Beans....	3,117	40 11
Peas	197	44 8	Peas	476	34 9

DIAGRAM SHOWING THE FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT DURING THE SIX WEEKS ENDING AUG. 19, 1854.



PRICES OF SEEDS.

BRITISH SEEDS.

Linseed (per qr.).. sowing —s. to 64s.; crushing	56s. to 60s.
Linseed Cakes (per ton).....	£10 0s. to £10 10s.
Rapeseed (per qr.).....	new 56s. to 60s.
Ditto Cake (per ton).....	£6 15s. to £7 5s.
Cloverseed (per cwt.).....	(nominal) ... 00s. to 00s.
Mustard (per bush), white 10s. to 12s.,..	brown old 10s. to 13s.
Coriander (per cwt.).....	new —s. to —s., old 18s. to 20s.
Canary (per qr.).....	42s. to 48s.
Carraway (per cwt.).....	new —s. to —s., old 44s. to 48s.
Turnip, white (per bush.) —s. to —s.,..	Swede 00s. to 00s.
Trefoil (per cwt.).....	new 16s. to 20s.
Cow Grass (per cwt.).....	00s. to 00s.

FOREIGN SEEDS, &c.

Linseed (per qr.).....	Baltic, 64s. to 68s.; Odessa, 66s. to 70s.
Linseed Cake (per ton).....	£9 10s. to £10 10s.
Rape Cake (per ton).....	£6 15s. to £7 5s.
Hempseed, small, (per qr.).. —s.,..	Ditto Dutch, 44s.
Tares (per qr.).....	new, small —s., large —s.
Rye Grass (per qr.).....	28s. to 35s.
Coriander (per cwt.).....	10s. to 13s.
Clover, red.....	46s., 50s., 54s. to 56s.
Ditto, white.....	68s. to 80s.

HOP MARKET.

BOROUGH, MONDAY, August 28.

The general account from the plantations of the state of the crop are unfavourable. The mould continues to make considerable ravages both in Mid Kent and Sussex, and the high winds of the last few days have been prejudicial to the hops. The market has exhibited much animation, and many speculators' purchases have been made at prices fully equal to last week's rates.—Duty £50,000 to £55,000.

HART AND WILSON.

POTATO MARKETS. BOROUGH AND SPITALFIELDS.

MONDAY, Aug. 28.

The supplies of English potatoes continue seasonably good, and in excellent condition; but those of foreign are very limited. The demand is steady, as follows:—Regents 80s. to 95s., and Shaws 65s. to 75s. per ton. Last week's imports were 1 box from Lisbon, 60 from Amsterdam, 4 sacks from Guernsey, and 22 tons from Jersey.

ENGLISH BUTTER MARKET.

AUGUST 28.

We notice a dull opening of our Butter trade to-day, with every prospect of prices giving way.

Dorset, fine	102s. to 104s. per cwt.
Do., middling	92s. to 96s. „
Devon	96s. to 98s. „
Fresh, per dozen lbs.	9s. to 13s. per dozen.

PRICES OF BUTTER, CHEESE, HAMS, &c.

Butter, per cwt.	s.	d.	Cheese, per cwt.	s.	d.
Friesland	100	102	Cheshire, new	66	80
Kiel	94	93	Cheddar	68	80
Dorset	100	101	Double Gloucester	60	70
Carlton	—	—	Single do.	60	70
Waterford	—	—	Hams, York, new	76	84
Cork, new	84	94	Westmoreland	72	82
Limerick	—	—	Irish	66	76
Sligo	—	—	Bacon	74	78
Fresh, per doz. 12s. 6d. 13s. 6d.			Waterford	—	—

BELFAST, (Friday last).—Butter: Shipping price, 88s. to 92s. per cwt.; firkins and crocks, 9½d. to 10d. per lb. Bacon, 54s. to 60s.; Hams, prime 68s. to 74s., second quality, 60s. to 64s. per cwt.; mess Pork, 87s. 6d. to 90s. per brl.; beef, 105s. to 112s. 6d.; Irish Lard, in bladders, 66s. to 70s.; kegs or firkins, 62s. to 64s. per cwt.

Aug.	Butter.	Bacon.	Dried Hams.	Mess Pork.
s. d.	s. d.	s. d.	s. d.	s. d.
25.				
1850..	64 0 70 0	37 0 42 0	65 0 70 0	60 0 62 6
1851..	65 0 73 0	45 0 47 0	62 0 66 0	61 0 66 0
1852..	72 0 78 0	50 0 56 0	66 0 70 0	85 0 90 6
1853..	85 0 96 0	58 0 60 0	74 0 78 0	80 5 87 6
1854..	88 0 92 0	54 0 60 0	68 0 74 0	80 0 93 0

OILS.

We have had a very dull market for Linseed, at from 34s. to 34s. 6d. per cwt. on the spot. Rape Oil moves off slowly at our quotations. Palm is quiet, but not cheaper. There is a good inquiry for Seal and Cod Oils, at extreme rates. Spermin is wanted. The prices realized are £104 to £106 for mid. to fine.

	£	s.	d.	£	s.	d.
Olive, Florence half-chests	7	4	0 to 1	5	0	0
Lucia	7	10	0 ..	8	0	0
Gallipoli (252 gallons)	56	0	0 ..	57	0	0
Spanish	51	0	0 ..	53	0	0
Linseed (cwt.)	1	14	0 ..	1	14	6
Rape, (cwt.)	2	4	0 ..	0	0	0
Brown	2	2	0 ..	2	6	0
Cod (ton)	38	10	0 ..	39	10	0
Seal, Pale	40	0	0 ..	43	0	0
Ditto, Brown, Yellow, &c.	34	0	0 ..	36	0	0
Sperm	104	0	0 ..	106	0	0
Head Matter	102	0	0 ..	104	0	0
Southern	39	10	0 ..	42	0	0
Cocoa Nut (cwt.)	2	0	0 ..	2	11	0
Palm	2	5	0 ..	2	7	0

WHALEBONE.

Greenland, full size (per ton)	190	0	0 ..	0	0	0
South Sea	180	0	0 ..	0	0	0

PITCH.

British (per cwt.)	0	8	0 ..	0	0	0
Archangel	0	10	0 ..	0	0	0
Stockholm	0	12	0 ..	0	0	0

TAR.

American (British)	1	4	0 ..	0	0	0
Archangel	1	16	0 ..	0	0	0
Stockholm	1	13	0 ..	1	14	0

TURPENTINE.

Spirits (per cwt.)	2	3	0 ..	0	0	0
In Pinechons	2	1	6 ..	0	0	0
Rough	0	10	3 ..	0	0	0

RESIN.

Yellow (per cwt.)	0	6	0 ..	0	0	0
Transparent	0	5	0 ..	0	0	0

WOOL MARKETS.

BRITISH WOOL MARKETS.

	s.	d.		s.	d.
Down tegs	1	0½	to	1	1½
Half-breds	0	11½	—	1	0½
Ewes, clothing	0	11	—	1	0
Kent fleeces	1	0	—	1	1½
Combing skins	0	11	—	1	1
Flannel wool	0	11	—	1	1
Blanket wool	0	8	—	1	1
Leicester fleeces	0	11	—	1	0½

LEEDS ENGLISH WOOL MARKET, Aug. 25.—There is now a better assortment of combing wools at market, and manufacturers having supplied their more immediate wants resist a further advance. Prices are firm at last week's rates.

LIVERPOOL WOOL MARKET, Aug. 26.

SCOTCH WOOL.—There is more business doing in Laid Highland Wool, and as the new clip comes forward slowly, prices are rather stiffer. White Highland has been very much inquired for, and but little to market so far. Crossed and Cheviot of a good show and character, have been in demand, and command full quotations.

	s.	d.	s.	d.
Laid Highland Wool, per 24lbs.	9	0 to 10	0	0
White Highland do.	12	0	13	0
Laid Crossed do. unwashed	11	6	12	6
Do. do. washed	12	0	13	6
Laid Cheviot do. unwashed	13	0	14	6
Do. do. washed	14	6	16	6
White Cheviot do. do. do.	22	0	24	0

FOREIGN WOOL.—The progress of harvest operations, reported from all quarters as going on satisfactorily, gives a firm tone to our market, and the buyers act with much more confidence, and the business by private contract has been considerable, at full prices.

FOREIGN WOOL MARKETS.

CITY, MONDAY.—The imports of wool into London last week amounted to 151 bags from Hambro', 24 from Madeira, 14 from Ostend, and 1,179 from Adelaide. As two more series of Colonial wool sales are expected to take place this week, the business doing is comparatively small. Prices, however, continue to be well supported.

LEEDS FOREIGN WOOL MARKET, Aug. 25.—There has been no change in the trade since our last.

MANURES.

LONDON, Monday, August 28.

The imports of Peruvian Guano last week were 3,800 tons, and 2,792 tons exported.

The trade for Linseed Cakes is brisk, and our quotations are maintained, and still higher prices are anticipated.

PRICES CURRENT OF GUANO.

Peruvian Guano	per ton	£11 11 0 to £12 0 0
Do. first class (damaged) ..	„	10 10 0 11 0 0
Bolivian Guano	(none)	0 0 0 0 0 0

ARTIFICIAL MANURES, OIL CAKES, &c.

Nitrate Soda	„	17	0	17	10	0
Nitrate Potash or Saltpetre	„	35	0	40	0	0
Suphate Ammonia	„	17	0	18	0	0
Muriate ditto	„	22	0	23	0	0
Superphosphate of Lime	„	6	0	6	0	0
Soda Ash or Alkali	„	0	0	8	0	0
Gypsum	„	2	0	2	10	0
Coprolite	„	3	15	0	4	5
Suphate of Copper, or Roman Vitriol for Wheat steeping ..	„	44	0	0	0	0
Salt	„	1	5	0	2	0
Bones ½ inch	per qr.	0	17	0	0	18
„ Dust	„	0	18	0	0	18
Oil Vitriol, concentrated	per lb.	0	0	1	0	0
„ Brown	„	0	0	0	0	0
Rape Cakes	per ton	6	5	0	6	10
Linseed Cakes—						
Thin American in bris. or bags ..	„	10	17	6	11	10
Thick ditto round	„	10	5	0	10	10
Marseilles	„	10	0	0	10	5
English	„	10	15	0	11	0

ODAMS, PICKFORD, and KEEN, 35, Leadenhall-street.

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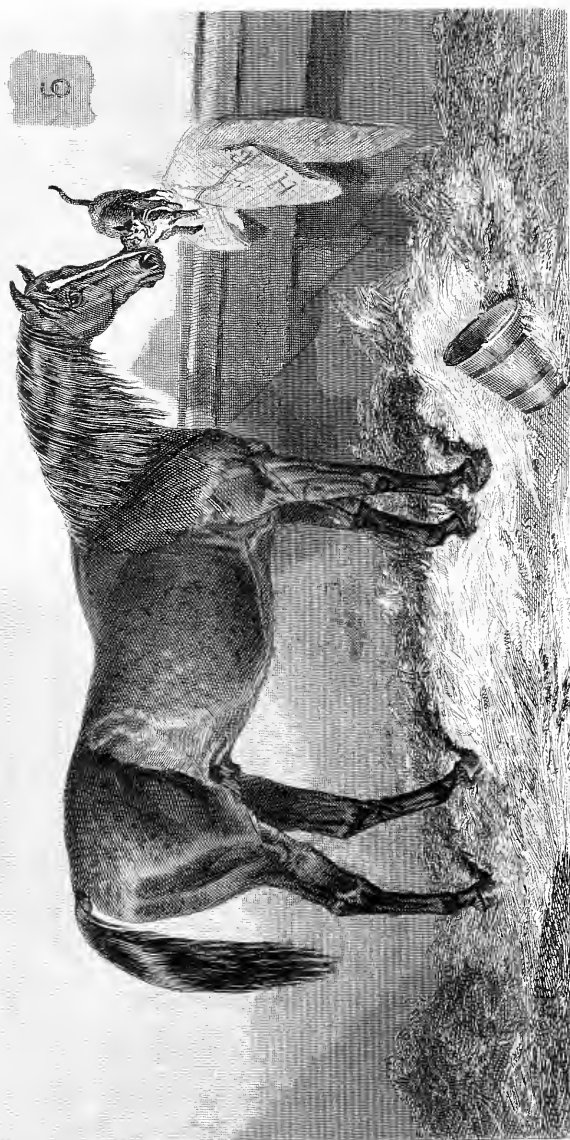


Illustration of a horse and rider, showing the horse's head and the rider's figure. The horse is standing on the left, and the rider is on the right, holding a small object in his hand. A bucket is on the ground near the rider.

THE FARMER'S MAGAZINE.

OCTOBER, 1854.

PLATE I.

"FAY," A SHORT-HORNED COW.

(HERD-BOOK, VOL. 10, PAGE 365.)

THE PROPERTY OF MR. HENRY SMITH, OF THE GROVE, CROPWELL BUTLER, NEAR BINGHAM, NOTTINGHAMSHIRE.

Roan, calved 27th March, 1848, bred by Mr. William Smith, of West Rasen, near Market Rasen, Lincolnshire, the property of Mr. Henry Smith, of the Grove, Cropwell Butler, near Bingham, Notts. Got by Baron of Ravensworth (7811), dam (Fairy) by Evander (6981) g. d. (Flirt) (bred by Earl Spencer) by William (2840), gr. g. d. (Lady Bird) by Firby (1040), gr. gr. g. d. (Zabetta) by Rodney (1392), gr. gr. gr. g. d. by Tyrant (1537).

The First Prize of Twenty Sovereigns in Class 12 was awarded to Fay, and the Gold and Silver Medals as the best animal exhibited in any of the Cow or Heifer Classes at the Smithfield Club Cattle Show, December, 1853.

He also obtained the Prize of £5 in Class 7 for Short-horned Cows, at the Birmingham and Midland Counties Exhibition of Fat Stock held at Birmingham in December, 1853.

PLATE II.

MELBOURNE,

SIRE OF WEST AUSTRALIAN, SIR TATTON SYKES, CANEZOU, CYMBA, ETC.

Melbourne, bred by the late Mr. H. Robinson, in 1834, was got by Humphrey Clinker, dam by Cervantes, her dam by Golumpus (by Gohanna), great grandam by Paynator, out of Sister to Zodiac, by St. George—Abigail, by Woodpecker.

Melbourne is a beautifully dappled brown horse, standing sixteen hands high. He has a lean, though long and rather large head; a long neck, finely arched, with a full "flowing" mane. He has good shoulders, immense quarters, gaskins, and arms, with capital hocks, knees, and feet. He is very large in the bone; in fact, his chief points are the great length and power he develops. If anything, he droops a little in the back; but this is most probably from age, Melbourne having now reached twenty summers. He is a very quiet-tempered horse, and on the best possible terms with those about him—his "first favourite" and constant companion being the cat Mr. Hall has introduced into the picture.

Melbourne's stock, like himself, are nearly all large, fine-framed horses; his favourite son, West Australian, being one of the most perfect specimens of the thorough-bred horse ever brought to the post. They are not all, however, so remarkable for handsome appearance. Sir Tatton Sykes, on the contrary, was one of the very ugliest horses we ever saw in work, and many other Melbournes have the large, plain, and somewhat curious head. If, though, not all ornamental, they have generally the recommendation of being useful—a far more important item in the balance sheet.

Melbourne is announced to hold his Court this year at the Turf Tavern, Doncaster—fifty mares at forty guineas each. The subscription, we believe, is full; so that Mr. Robinson enjoys an income of something like two-thousand a year, because, as the lads say, "he belongs to Melbourne."

THE AGRICULTURE OF A PORTION OF NORMANDY.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

The agriculture of some portions of Normandy, as far as I have seen during a recent visit, does not appear to differ materially from that of several of our English counties. The great value of wood for fuel leads to the careful preservation of their extensive woods. These in many places, as between Dieppe and Havre, and Havre and Rouen, very largely and beautifully clothe the hill tops. Wide pastures, many of which are planted with fruit trees, occupy to a great extent the valleys; and this causes much of the scenery of this province to bear a close resemblance to that of Devonshire. Cider, too, is made to a considerable extent, and is the common drink of the lower orders.

The fields are often of a tolerable size, and the farms appear to be in a state of fair cultivation. When I saw them, immediately after the harvest of this year, the stubbles seemed to be pretty tolerably free from weeds. There are, however, no turnips growing in the district through which I have passed. They appear to rely chiefly on their pastures—on their rape, and on their mangel wurzel for the winter food of their cattle. The sugar beet is also largely cultivated for the sugar manufactories, which are here extensively carried on; the chief supply of French sugar, indeed, is obtained from this source. The quality of the refined sugar made from beet is excellent in colour and strength. The sugar manufactories which I have seen are handsome erections, with their machinery and other apparatus kept in the nicest order. The same remark applies to the courts and other little enclosures which surround them, these being remarkably well kept, and covered with beds of flowers and evergreens. A similar observation applies even to the extensive cotton manufactories which abound around Rouen—everything looks neat and clean; flowers in profusion were in September surrounding these buildings—flowers which, however publicly displayed in France, no one appears to injure.

The public care bestowed in the collection of manure in these districts is very considerable; the very street sweepings which are daily removed furnish a large supply; and the same remark applies to the sewage of their houses. This is very commonly received into and carried away in *tubs* for manure. This, however, rather tends to discourage the use of water-closets; or if what is here called a water-closet is used, it is very often a water-closet with either the water omitted, or it is furnished with a trickling stream of little service. Then

again, the corners, and other places in a town, which in England are furnished with a urinal communicating with a sewer, are in Rouen, and in one or two other Norman towns which I have seen, supplied with small neat tubs of a peculiar construction, totally free from smell; and these are daily removed and replaced.

The diet of the agricultural labourer is chiefly bread and vegetables; where an English farm labourer consumes bread and cheese or bacon, a farm labourer of Normandy makes his meal of bread and an onion, or a pear, or some other common fruit. The women (who here do the most of the work, for they are now even rapidly introducing women as the money-takers and signal-mistresses at the railway stations) live on the same fare. Tea is hardly known; and yet there is witnessed in these a general healthfulness of appearance; and I could but observe an evident self-respect which I wish right heartily I could see more widely diffused amongst the English labourers. Here are no rags to be seen—no drunkenness; the shops where wine is sold seem to be the least frequented of any.

The cows of Normandy appear to have nothing particular in their breed; they are of a moderate size, and are commonly of a description somewhat resembling a cross between the Hereford and an inferior Scotch. Their horses are not good—their heads are large, their hind-quarters bad. Stallions abound of all sizes. Their ploughing seems good: this is done chiefly with wheel ploughs, many of these closely resembling the common Suffolk plough. Their harrows are frequently furnished with wooden teeth. The mode in which they harness their horses is bad; they make their rope traces much too long, and hence the horse is considerably too far from his work. All these practices, however, have now many and an increasing number of good exceptions; and as it was some time since truly remarked, although in most of the important branches of agriculture, such as the rotation of crops, the breeds of cattle, and implements of husbandry, England is no doubt far in advance of her continental neighbour; yet in the discovery of chemical appliances, in the creation and management of artificial manures, their ingenuity and skill may afford us the most valuable assistance. It cannot fail, indeed, looking at the immense surface of France, the variety of its climate, soil, and productions, when the active and

acute mind of its people is turned towards these subjects, that important and most beneficial results should follow. It will befall those interested in these pursuits in England, and especially members of the English Agricultural Society, to institute and maintain a correspondence with their farming brethren of France, which, the more intimate it should become, would redound with greater advantages to both countries.

The noble spirit of agricultural improvement has now, indeed, for some considerable period displayed itself in France, and this was some time since graphically sketched by Mr. J. Evelyn Denison (*Jour. Royal Ag. Soc.*, vol i, p. 263); he also noted very truly, "that till recently the two countries have differed most widely in all that relates to agriculture—that, seeking the same end of improved cultivation, they set out almost from opposite points, and employ very different means—would increase rather than diminish the interest of an examination. In England the land is in great measure owned by large proprietors, and cultivated by tenants possessed of capital and skill. In France the land is almost infinitely subdivided among small proprietors. In England the individual enterprise of landlords and tenants detects deficiencies, and supplies the remedy. In France, from the want of capitalists, the government is obliged to take the part of instigator and chief agent in the career of improvement.

"In comparison with the English system of enclosures, France may be called one vast open field. You may travel from Calais to Paris, from Paris to the German frontier, to the Alps, to the Pyrenees, and scarcely see a hedge or a partition-fence of any sort. This vast open field (unlike the open districts of England, where the operations of farming are generally conducted on the largest scale) is cut up into the smallest conceivable plots of every variety of produce. As far as the eye can reach, over vast plains bounded by sloping hills, you see the surface varied by every description of crop; none perhaps above an acre or two in size, the larger portion not more than the fourth or the eighth of an acre. Here a vineyard 100 yards by 20, there a strip of wheat, lucerne, barley, oats, potatoes, clover, vetches. Few roads intersect this extensive garden, which, from the nature of the cultivation, must be traversed every day in all directions by the proprietors and cultivators of the various lots. The owner of a plot of lucerne, half a mile from the high road, must pass one neighbour's vineyard, another's wheat, and fifty such varieties, to reach his own plot, where he must cut his lucerne, make it into hay, and carry it home, either on his own back, or piled on an ass or horse, along the narrow paths which intersect the plots. The residences of these

proprietors are almost invariably congregated into villages or towns, and lie therefore, for the most part, quite wide of their respective allotments.

"Upon English principles of farming and of rural economy, it is difficult to imagine how such a system of cultivation can be carried on successfully and profitably for a series of years. How is manure to be made? How are cattle, the great agents in reproduction, to be kept, and restoration to be made to the land? It is clear that over this vast open field, thus laid out, no cattle can depasture; and, though a certain amount of stock may be kept in stables, the amount must be limited from the want of winter food, as few or no turnips are seen, and the transport of manure to the distant plots, from the want of roads and tracks, must be operose and expensive.

"Such is the condition of a large portion of the surface of France. There are extensive tracts of forest, of pasture, of vineyard, and in some parts of corn lands, which have not been subjected to this process of division; but the desire to possess an interest in the land, however small, is a ruling passion among the population of France, and the principle of division is proceeding in its unchecked career. What results will follow from this hitherto unproved experiment, occupies, as may be well supposed, no small share of public attention in France. The comparative advantages of large and small properties have been discussed under all their aspects, and speculated upon as to all their consequences, agricultural, social, and political. There is no doubt that in several articles of produce, and especially in that of wine, the increase has been considerable under the new order of things. But, again, no culture makes so small a return in manure as wine, and it does not appear that, with increased quantity, there has been an improvement in quality, and in no product is quality so important as in that of wine. Mons. Chaptal, in his able work on the 'Application of Chemistry to Agriculture,' enters at length on the subject of large and small properties; and in deciding in favour of the subdivision of lands, after enumerating many of its favourable features, thus escapes from the difficulties of the question:—

"'After all,' he says, 'we do not see the principle of subdivision prevail in those districts peculiarly suited to the larger culture; the vast domains of La Bauce, of La Brie, of Soissormais, of Haut Languedoc, remain without division, and are still the granaries of France. The rich pastures of Normandy, of Poitou, of Anjou, feed the same number of cattle, our large forests continue in their integrity, the population and the means of subsistence are both considerably increased, our markets are abundantly supplied. Ease is on every

side extended over our fields, industry makes rapid progress, the public imposts are readily and regularly paid. Let us take care how we disturb, by laws affecting property, this general harmony, and this public well-being, which assure the happiness and prosperity of our country.'

"In this state of divided means throughout the country, the government steps in, and, partly by establishments maintained entirely at its own cost, partly by aiding local institutions with its patronage and funds, leads the way in the path of improvement.

"The establishments maintained entirely by the government are—

- | | |
|----------------|-----------------------|
| 1. Sheep Farms | 3. Veterinary Schools |
| 2. Model Farms | 4. Haras or Studs. |

"The institutions aided by government funds and patronage are—

- | | |
|---------------------------|-------------------------------|
| 1. Public Lectures | 3. Local Associations |
| 2. Agricultural Societies | 4. Departmental Model Farms." |

Upon the whole, then, I feel assured that the young English farmer may wend his way to the beautiful fields of Normandy with pleasure and advantage: he will find upon the points to which I have alluded much food for profitable reflection; he will behold a country strongly resembling our own noble county of Devon; and if he misses the larger farms of England, and the evidence of similar results of capital, he will, on the other hand, observe a great amount of general content, and an almost total absence of excitement. Such a tour will in its results lead him, I think, on the one hand to cling still warmly and thankfully to his own country; but on the other, he may derive many profitable hints, and it will certainly add to his respect for our gallant and enlightened neighbours.

FARMING OF OXFORDSHIRE.—AGRICULTURAL GEOLOGY.

In Mr. Read's prize report on the farming of Oxfordshire, in the last number of the Journal of the Royal Agricultural Society, we have been gratified to find a recognition of principles in agricultural geology which have long been asserted in the *Mark Lane Express*. Our readers can scarcely need to be reminded how repeatedly we have urged the importance, in an agricultural point of view, of those superficial deposits which are treated, in our present geological maps, as if they had no existence, and how we have contended that, while the rock formations define the general agricultural characters of a district, the superficial deposits produce upon each formation soils of every quality, from the highest to the lowest value. These will be found to be the views of Mr. Read with respect to the soils of Oxfordshire, one of those portions of England in which the regular strata are supposed to have the greatest influence on the soil.

For reasons which we need not particularize, the Government Geological Survey has retarded rather than promoted the advancement of agricultural geology; and the Agricultural Society of England cannot be said to have forwarded geological investigations to the extent which might have been expected from so enlightened a body, marching under the banner of "Practice with Science." Nevertheless, they recognize the importance of geological knowledge to the farmer so far as this—that, according to the heads which the Society prescribe, the candidates for the prize essays on the farming of a county are expected to commence with a description of the geological divisions, and then

proceed to the agricultural divisions. The object aimed at has doubtless been to obtain from practical farmers a map of the soils of the county, or such a description as should be equivalent to a map, for comparison with existing geological maps, in order to ascertain how far the geological and the agricultural areas coincide. Such comparison is, undoubtedly, the true inductive process by which to determine the relations between the soil and the rock on which it rests. The result, however, has been, that the essayists in general do little more than reproduce, in an abridged form, such information respecting the distribution of soils as is to be found in the reports to the Board of Agriculture, and in "Morton on Soils." This is accompanied by a wood-cut map of the substrata of the county, copied from some of our existing geological maps—and not unfrequently copied with their existing errors. The agricultural divisions are either dismissed as coinciding with the geological divisions—subject, however, it is added, to considerable variations of soil within each geological area; or the variations are said to be so intricate as to defy description within reasonable limits. The essayists, however, are not to be blamed for the course which they pursue. The geological task assigned them has been, to make bricks without straw. In addition to that knowledge of farming which they may be expected to possess, they are required to furnish that kind of geological knowledge which no man yet possesses; because, to obtain it, much investigation is required, in a field as yet scarcely cultivated. We have maps of the substrata, from

which the superficial deposits, which in most cases constitute the soil and subsoil, are supposed to be removed; but maps of the soils there are none. The construction of the geological maps of the substrata has been a work of much time, labour, and expense. The construction of a map of the variations of soil would be equally tedious, laborious, and expensive. The chance of obtaining the fifty pounds which the Society offers as a prize for the best essay on the farming of a county, or even the prize itself, would not pay for the shoe-leather which must be expended in making such a map. The consequence, therefore, is as we have stated—that we have only in these essays a repetition of the existing imperfect information respecting the agricultural geology of the districts to which they relate, and that no progress is made in original research towards the required knowledge of the mineral variations of the substrata in greater detail than is shown in geological maps, and of the surface-geology which those maps ignore.

Mr. Read has so far followed the established formula, that he has described the areas occupied by the outcrops of the strata, and has given the usual geological map, illustrated, as is not always the case, by sections; but he has, at the same time, ventured to think for himself. He declares that, while the numerous alternations of clay, stratified rock, and sand give rise to the numberless soils which mark the county, the theory that “the surface of the earth partakes of the nature and colour of the subsoil on which it rests” cannot be rigidly applied to this county, as a great part of its agricultural condition is due to the various deposits of gravel which cover the strata, and form a soil the very opposite, in many cases, to the stratum on which they rest. He thus sums up the geological part of his subject:

“This is a brief description of the geology of Oxfordshire, and, with the assistance of the maps and sections, may be tolerably plain to those conversant with the county. But farmers want maps which show the superficial accumulations and alluvial deposits. This is the geology—the geology of the surface—that is most useful to agriculture. It can be of little benefit for an occupier of the Thames meadows to look at a geological map, and see his land described as Oxford clay; or for the proprietor of the barren heights of Shotover to know that his land rests on the Portland oolite. In the one case, ten feet of gravel, in the other, twenty feet of ferruginous sand, must exert such direct influence on the nature of the soil, that it matters little what deposit is buried below. Therefore, admitting that the rock formations define by their mineral character the general agricultural features of a district, the superficial deposits produce those numerous varieties of soil found in that district. It is to be hoped that geologists will pay the same attention to the surface of the soil as they have devoted to the substrata. Then the farmer will be as much benefited by their labours as the miner, and, receiving a fair share of assistance, will place a higher value on their important discoveries.”

It is needless to state that in these opinions and this hope we heartily concur. But the question remains, Who is to make these maps of the geology of the surface, and of agriculture, which are to be so useful to the farmer and the landowner? They may be of two kinds—private maps of estates, on the scale of the tithe-maps; and public maps of counties, on the scale of the Ordnance Survey, or, which would be preferable, on the Ordnance Survey enlarged to the scale of two inches to the mile. The private maps would cost, all expenses of digging and boring and copies of maps included, one shilling and sixpence the acre, or £48 the square mile. They would go into the utmost possible minutiae of detail, both as regards the mineral variations of the substrata, and the depth and composition of the soil and subsoil, dependent on the superficial deposits. The amount of information which would be obtained by such a systematic examination of the superficial and substratal resources of an estate would be cheaply purchased at a cost of one shilling and sixpence the acre; but, as far as our information extends, it would appear that, while there are many landowners who would gladly avail themselves of it, if they could obtain it gratuitously, there are few willing to purchase it even at that trifling expense. Public or county maps, on the two-inch scale, could of course go much less into detail; but they could not be made for less than £2 10s. the square mile, exclusive of the cost of enlarging the Ordnance Survey, and of engraving and publishing the geo-agricultural details. At neither of these rates, for the public or the private maps, would a person, possessing the requisite geological and other knowledge for their construction, realize a larger remuneration for his time than that of an ordinary land-surveyor. Still, if there were the prospect of sufficient sale for the maps, at the price of the Government geological maps, to ensure that amount of remuneration, there are qualified persons who would undertake the work. We know not how much the geological maps of the Government cost per square mile; but we should be very much surprised if it is not more than £2 10s. They are on the scale of one inch to the mile. They give only the outcrops of the strata, as they are grouped together under a classification founded on organic remains; and they repudiate the surface-variations on which the variations of soil depend. Could not county maps, on the scale of two inches to the mile, which should comprise the geology of the surface, as well as that of the substrata, be brought out by subscription among the landowners of the counties and our leading agricultural and scientific associations? Such maps would be so much more valuable than those of the Government Geological Survey, as to supersede the necessity for

its being extended over the eastern half of England—that is, into any counties not already commenced; and as the Government would thus be relieved from the expense of that survey, they might reasonably be expected to take upon themselves the charge of enlarging the scale of the

Ordnance maps, and the cost of publication. The subject is well worthy the attention of those land-surveyors who possess sufficient geological knowledge for the undertaking; and the time is favourable for bringing it under the notice of the Government.

AGRICULTURAL POSSIBILITIES.

"What I want are facts," writes Mr. Dickens, as the opening sentence of his last novel. May we be allowed to echo him. What *we* want are facts. What the practical agriculturists of this kingdom want are facts to go upon. It has been our duty to continually impress the necessity of this caution upon them. However unpleasant at times it may have been, we have never hesitated to warn them equally against the ravings of the mere enthusiast and the specious declaimings of the more assuming pretender. Amiable theorists, armed with just sufficient argument to deceive themselves, are not exactly the models for the working farmer to imitate. Self-constituted authorities, whose indomitable assurance is often their chief strength, must give us something more, perhaps, than the *ipse dixit* of "I say so and so," before we bring ourselves quite to understand that all they say is right, and all that we do is wrong.

What we want are facts. Not the mere generalities of laying out three or four times as much money as we have, to get thirty or forty times as much by it. Not the spirit and energy to put into practice every wild scheme every wild man may proclaim as the first great principle of agricultural progression. Not the delightful anticipation of what *may* be done if we will only try this, or venture our all in that. Agriculture is unfortunately, in the hands of many of our "modern instances," but a mere plaything, instead of the all-engrossing real business of life. Surely, then, it becomes us the yet more carefully to weigh over all that is so flippantly or hastily offered to our notice. We may, as we are so complacently assured, be but "slow coaches" and "old watchmen"—have only small means and less abilities—have been born in England instead of Scotland, and so forth. Let it be so. We confess our weakness. We want the inspiration or impudence which has made practical farmers of men who have comparatively had but little practice at all.

We want something more than this; and what we do want are facts. They have come at last. The greatest of the day is undoubtedly the Tiptree Hall Farm; one which would have ruined any *bona fide* farmer to make it what it is. We take this to

be a fact. Tiptree, however, is something more than this. It is the strongest censure to be found on the English farmer as he is. Everything is worked out to this end. Every one speaks of it with but this moral to his address. See! what is done at Tiptree, and what is done somewhere else too! only it must not be in England. With liquid manure for the text word, we had some such orations as these at the last gathering held there. And we had something more. We had some facts. "Mr. Caird," we quote our own remarks on the occasion—"Mr. Caird, already somewhat notorious for what he has done in this way, was more energetic than ever on the wonders of the North. One of the facts duly proclaimed by him, was the growth per annum of twenty-five tons of dried hay on a Scotch acre of land. A local report says this was received with cries of 'Oh! oh! and laughter;' while one of our contemporaries, *The Gardeners' Chronicle*, adds, 'it was not believed in consequence of being too abruptly announced.'

In simple fact, and what we want are facts, it was *not* believed, and it *never* has been believed. The readers of the *Mark Lane Express* cannot fail to have remembered the communications we have received from both Scotch and English agriculturists on the subject. By both has this story been alike ignored. Those, too, who move amongst farmers, will have found that it has been never mentioned but to be ridiculed. So strong, indeed, has this feeling become, that Mr. Caird has at last ventured upon "an explanation," for which we refer to another column. Following this, we give a letter in comment upon it from "An Agriculturist," who was present at Tiptree when this startling announcement was made. We recommend both these communications to the perusal of our readers. We must confess that we hold Mr. Caird's "explanation" to be anything but satisfactory, the more especially so when "taxed" by the letter of our correspondent. Mr. Caird is specious, diffuse, and great, as usual, on the advantages of guano and liquid manure. But does he prove his case? He said at Tiptree that twenty-five tons of dried hay had been grown on a Scotch acre of land, or as he now writes it, "twenty tons of hay per acre."

When people laughed, and cried *Oh! Oh!* at such a story, we perfectly well remember his reiterating "the fact" with something of the air of a man who pitied the ignorance of those he was addressing; or as he now writes, any want of faith in so startling a statement could only be attributed to limited knowledge. A very favourite argument, by the way, is this with gentlemen who know too much. What we want, however, are facts. We ourselves have carefully abstained from mentioning the name of Mr. Telfer, though from the first apprised that it was to him we were really to look for a solution of this wonder. Will he now give us it? Mr. Caird says Mr. Telfer has grown per annum five-and-twenty tons of dried hay to the acre. "An agriculturist," and we think we may include every agriculturist in the kingdom, says he never did anything of the kind. Our own Correspondent, moreover, adds, that Mr. Telfer has never laid claim to the achievement of this extraordinary feat. Here we are on the horns of a dilemma. Mr. Caird asserts that an hitherto impossible crop has been grown, and he asserts this upon the authority of Mr. Telfer. From not merely a personal introduction to the latter gentleman, but from what we have heard others say of him, we are inclined to place every reliance upon his word; while we can only assure him, that the agricultural world looks to him with some good cause to clear himself from any participation in this extraordinary affair.

"*In truth,*" writes Mr. Caird, "one of the most serious obstacles to agricultural improvement is to be found in the limited standard which some agricultural teachers have set up as the fixed boundary of agricultural progress. There is no presumption so great as that which glibly cries 'Impossible!'" *In truth*, as Mr. Caird says, one of the most serious obstacles, as we take it, to agricultural improvement, is to be found in the wild, absurd, and bombastic effusions of some of our agricultural teachers, who care not what they say, or what injury they do, so as it may suit their object. In furtherance of some such policy as this, we have another attempt to bring the English and Scotch farmers into bitter opposition one with the other. We believe, however, with more than one of our correspondents, that the farmers themselves of these two countries have little to do with the matter; and that the Scotch no more identify themselves with Mr. Caird and his miracles than we do here in England. And yet it is with such sayings and doings as these — with such puffery and quackery, that we are to break through the boundaries of truth and fact, and aid the progress of British Agriculture!

The time and place were well chosen. No wonder, as Mr. Beale Brown said, he would not have

answered for the man's life anywhere else. And yet, reflect on the ignorance and impudence of those who could question such a tale from such a man, and on such an occasion! "There is no presumption so great" (we repeat from Mr. Caird), "as that which glibly cries Impossible!" Thus admonished, we cry out no more, but anxiously await the announcement of the next great fact. For what we want, Mr. Caird, are FACTS.

TO THE EDITOR OF THE TIMES.

SIR,—Some remarks which I made at the last agricultural gathering at Tiptree have caused a discussion, in which I feel that I have been misunderstood, and therefore beg the favour of a little space for explanation.

The most interesting feature of Mr. Mechi's farm this year was his liquid manure system, and on this he chiefly enlarged in the way of instruction. It is not used directly to the corn crops, but the excellence of the mangold fields shows how beneficial it is to them. The Italian rye-grass is the only unsuccessful crop, and Mr. Mechi, when his own illustration failed him, very fairly adduced the experience of others. He told us of the marvellous results obtained by Mr. Kennedy, in Ayrshire, whose Italian rye-grass affords keep at the rate of 70 house-fed sheep an acre. And Mr. Telfer, of Ayr, who was on the ground, corroborated this statement from his own experience, he having got from three cuttings of this prolific grass in one season as much green food as would have made 20 tons of hay per acre! It was, perhaps, no wonder that many were startled by such statements, seeing that this is ten times the number of sheep and ten times the weight of hay which are usually got. Men cried out, "Impossible!" They would not believe it. Perhaps it is impossible in the eastern counties, and, at any rate, it may be useful to point out the advantage which the moister climate of the west gives it in the growth of grass. The difference between the annual rainfall of the east and west of Great Britain is reckoned at 10 inches. An inch of rain is equivalent to 100 tons of water to an acre; so that, on an average, nature gives to the western farmer 1,000 tons more water per acre than to his eastern competitor. In the growth of grass we know that it is all needed, for in Ayrshire, where these enormous crops of grass are grown, both Mr. Kennedy and Mr. Telfer feel the necessity of permitting no waste of liquid. During summer they apply the liquid manure early in the morning and late at night; not showering it high into the air, but directing the stream straight to the roots of the grass, so that none may be dissipated in mist, and as little as possible lost by evaporation. Now, the mechanical labour, even when aided by machinery, of applying 1,000 tons of water to an acre of land must ever present a serious obstacle to the farmer of the eastern districts; and even when he has done this, he is only on the level whence the western farmer starts. I am anxious to press this point on public attention at present, that it may be duly considered in any scheme for applying town sewage to agricultural purposes. In so far as I know,

there is not a single instance yet published of the profitable use in this country of town sewage applied by pipes. The case of Edinburgh is on a totally different principle. There the sewage water is run over the land by irrigation in hundreds of tons to the acre, instead of by tens of tons, to which it must necessarily be restricted in applying it through pipes by machinery. And, seeing that the solid manuring matter of town sewage is diluted in many hundred times its weight of water (as has been shown by Professor Way), we need not wonder that the report of the late Board of Health, while fully illustrating the beneficial application to crops of rich farm-yard sewage through pipes, is comparatively silent with regard to town sewage similarly applied. Great caution is therefore necessary in founding conclusions of general application from the success of farm-yard sewage in the moist climate of the west.

The possibility of growing such crops of grass under any circumstances was doubted by many. But wherefore impossible? A good crop of meadow hay weighs about two tons. A stalk of Italian rye-grass is twice the length of meadow grass. If the stalks stand equally thick on the ground, the Italian rye-grass will thus weigh twice as much as the meadow grass. But if there are two stalks of Italian rye-grass for one of meadow grass, the crop of the former will be four times the weight of the latter. To those who have seen Mr. Kennedy's and Mr. Telfer's crops, it is unnecessary to say that both these conditions are fulfilled; and it needs but the repeated application of farm sewage to this rapidly growing grass, in a favourable climate, to secure three such cuttings in a season as Mr. Telfer affirmed he had got. To the diligent, as Mr. Mechi said truly, time is money, and the axiom could not be better illustrated than by growing three crops in a single season in place of one. A startling statement of any kind is always doubted, and disbelief in matters of this kind is usually in proportion to limited knowledge. Many farmers, because they have never seen it themselves, would say that it is "impossible" on any land in this country to grow superb crops year after year without manure—to have beans, wheat, mangold, potatoes, cabbages, oats, and swedes following each other in any succession (provided the land is kept clean), each crop most luxuriant, all carried off the ground, and not a particle of manure applied. And yet this may be seen in half an hour's ride from town by the North Kent Railway, on the drained portion of Plumstead-marsh, occupied by Mr. Russell. When guano was first introduced, many deemed it impossible that a brown powder, brought thousands of miles across the ocean, would be a hundred times more valuable for the growth of crops than an equal weight of good farm-yard manure. In truth, one of the most serious obstacles to agricultural improvement is to be found in the limited standard which some agricultural teachers have set up as the fixed boundary of agricultural progress. There is no presumption so great as that which glibly cries "Impossible" in an age which has produced the electric telegraph.

I take the opportunity while writing to you of sending

the result of some experiments made by me this season at Baldoon, on the application of manure to wheat, and in continuation of similar ones made last year. In the centre of a 50 acre field, one acre was left without manure, all the rest of the field receiving 2 cwt. of Peruvian guano per acre in autumn, at the time the seed was sown. The produce of the acre undressed has been tested against that of the adjoining acre, which received Peruvian guano, and this is the result:—

One acre, with guano, 32 bushels, 63lb. weight	£	s.	d.
per bushel, at 6s. 6d. per 60lb.	10	18	4
One acre, without manure, 25½ bushels, 60lb. weight per bushel, at 6s. 6d. per 60lb.	8	5	9
	£2	12	7
Cost of 2 cwt. of guano in 1853	1	0	0

Profit per acre, besides one-fourth more straw .. £1 12 7

The inferiority in the quality of the unmanured wheat, as shown by the weight per bushel, is worthy of notice, as well as the fact that the unmanured wheat was a week later in ripening than the other.

The second experiment was made to test the value of nitrate of soda and common salt as a top dressing to wheat in spring, and the result in this case has been extremely profitable. The wheat was sown in December, after a heavy crop of swedes, all drawn off; and the whole field was top-dressed in April with 1 cwt. of nitrate of soda and 1 cwt. of salt per acre, given in two applications, at a fortnight's interval, one acre near the centre of the field having been left undressed. This and the adjoining acre have been thrashed, and yielded as follows:—

One acre, with nitrate and salt, 42 bushels, worth 6s. 6d.	£13	13	0
One acre, without manure, 30 bushels, worth 6s. 6d.	9	15	0
	£3	18	0
Cost of manure, 1 cwt. nitrate, 18s.; 1 cwt. salt, 2s.	1	0	0
Profit per acre.....	£2	18	0

These two experiments supply little that is new, as they only corroborate hundreds of others made in various parts of the country in previous years. But they are useful in impressing upon the British grower the power he might possess of increasing the produce of his wheat crops. It is not merely a question of profit to the farmer. Here are two substances, the application of which in certain known quantities to the soil give an increase which may be stated, on the average, at one quarter of wheat per acre, or an addition of nearly one-fourth to its natural produce. An addition of one quarter an acre all over the country would be equivalent to the food of one-fourth of our population. It would make all the difference between plenty and scarcity, between the cheap loaf and the dear loaf, between steady prosperity and a drain of gold, with all its commercial disturbance. And yet the arrangements for the supply of articles known to possess such qualities, instead of being a prime object of care to the British Government, are intrusted to the charge of some unofficial consul at the antipodes!

JAMES CAIRD.

9, Little Ryder-street, St. James's.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Mr. Caird's letter in yesterday's *Times* appears to me to throw some doubt on the veracity of your recent correspondents relative to Mr. Telfer's monster crop of hay, and at the same time to *evoke* the question which forms the plea for his communication. As one of those who had the pleasure of enjoying Mr. Mechi's hospitality at his late gathering at Tiptree Hall, I venture to allege, unless my ears deceived me, that Mr. Caird said that 25 tons of hay could be made off a Scotch, or 21 tons off an English, acre; and when exclamations of "*Impossible!*" were heard throughout the tent where we were assembled, he turned round upon his astonished listeners, and emphatically added—"*It's no use doubting the statement, gentlemen, the thing's been done,*" and, pointing to Mr. Telfer, said, "*here's a living witness.*" Now, in addition to "*the thing*" being a *physical impossibility*, it has not been done. Mr. Telfer *never makes hay*; nor does he allege ever having cut more than 70 tons of Italian rye-grass per statute acre, which, if converted into hay, he thinks would produce about 11 tons. Well might Mr. Beale Brown declare, as he did, that "*he would not answer for any man's life who should make such a statement as Mr. Caird had done, at his ensuing sheep show!*" This only showed how far this northern monstrosity had gone beyond the power of argument, and reduced common sense and practical experience to an exclamation of despair! And had Mr. Caird's assertion been a fact, how much more strange would fact appear than fiction! The Saxon tillers of the soil can well afford, in farming matters, to give the Scots their due, and their complacency is not much disturbed by being told their own faults, especially when shown a rational way to mend them; but when suddenly asked to swallow Mr. Caird's awful bolus, and jump at once from *two to twenty* tons of hay per acre, why even the double-quick rate of "*agricultural progression*" which they have of late years been asked to make *over Mr. Mechi's prostrate body* becomes a mere snail's pace, and they can't do it.

Nothing, however, appears too savoury for Mr. Caird's sanguine temperament. Perhaps it would be unreasonable to ask him to come down from the clouds and subdue his mind to the *rationale* of farming; for ever since he brought forward Mr. McCullagh, of Aughness, as a model potato grower and profit-making farmer, and recommended every occupier to get a bag and an unlimited supply of sea-weed, and do as he did, he has been so caressed by *savans*, and soars so high above the drudgery of pointing out every-day errors in the practice of farming, such as can be comprehended by ordinary minds, that he is not likely to descend to prescribe remedies that could be accomplished by ordinary means. Mr. Kennedy, of Myremill, was recommended to our notice; but he is only as yet *trying an experiment*, and that on his own freehold, and he is a rich banker to boot. Mr. Mechi is in the same happy position as to his land; and while we can heartily thank him for continuing, as he began, a chivalrous pioneer into the dim futurity of agricultural science, we shall not be so unreasonable as again to ask him for a sight of his "*balance-sheet.*"

Scotch farmers, with some reason, are proud of their national husbandry, especially when they consider at how recent a period systematic farming began in Scotland, and how much they have done for their country within the last *seventy or eighty* years; but, from an extensive acquaintance with them, I can affirm that, as a body, they assume no superiority over their brethren in the south, well-knowing the different circumstances in which they are placed, and the different soils they have to cope with; and when they see isolated and eccentric cases of individual hobbies brought forward by Mr. Caird and others as indices of their national agriculture, they are unwillingly made to feel that even in their own eyes they are made to look simply ridiculous.

Sept. 20th, 1854.

AN AGRICULTURIST.

HORNED CATTLE.

CANCEROUS, OR, RATHER, SCIRRHUS TUMEFIED GLANDS.

SIR,—It is of no unfrequent occurrence to see cattle of all ages affected with these scirrhous enlargements; particularly the parotid glands, which are situate on the upper part of the neck and throat, and near the angle of the lower jaw. In this locality I have had, during the last few years, many cases of such description. Their *origin* I trace to common cold, accompanied with soreness of the throat and inflammation of these glands and their surrounding tissues, which, for the want of proper attention, leaves them in a chronic or slow state of inflammation, in the first stages; that is, when soreness of the throat and tenderness of the glands are observed, they are curable by the stimulating embrocations and blisters, by applying them to the surface of the throat; in the second, or chronic, if in due time applied, the iodates and mercurials will remove them, or stay their progress. Suffered to go on uninterrupted they become of irregular growths, from four ounces to two pounds and upwards in weight, producing according to circumstances various derangements in the animal system; the knife then becomes the only remedy, particularly where the life of the animal is in jeopardy. I have removed them of the sizes named by operation, which takes from ten to fifteen minutes, having the animal properly secured; then dress and heal the wound in the common way. I have a case at this time where the gland was so large that suffocation was threatened, the breathing loud and difficult, and the animal reduced to a state of emaciation. I removed the diseased gland, and my subject is progressing favourably, out at grass at Hellaby Hall pastures. Persons who are acquainted with the structure of those parts may not fear the operation: although the tumour is in connection with the large blood-vessels of the throat, yet two ounces of blood need not be lost.

Tickhill, Sept. 20th, 1854.

C. S., V. S.

CURE FOR DISTEMPER IN CALVES.—The following cure was given to us by Thomas M. Lennon, Esq., of Forney, Ballymahon:—One table-spoonful of Barbadoes tar, one do. of white-wine vinegar, and one do. of salad oil; all mixed together, and to be given every second day. Mr. Lennon has practical proof of the value of the above remedy: he procured it from Thompson, the Hon. L. H. K. Harman's herd, who also speaks highly of it.—*Irish Farmers' Gazette*.

BEEF, MUTTON, AND BREAD.

A council composed of noble and gentle amateurs, a sprinkling of real farmers, a library of books on agriculture which few read, models of implements which few examine, and samples of seeds for which few inquire—these are the components of the Royal Agricultural Society as it exists in a dingy mansion of Hanover-square, London. For eleven months of the year its only sign of life is an occasional discussion, from which reporters for the public press are inflexibly excluded; but on the twelfth there follows, thanks to railroads, a July fortnight of real agricultural work. Then the whole agricultural element of the district chosen for the annual show is set fermenting by the presence of the most agricultural members of the society, and a general invitation to all England to come forward and compete for prizes with their agricultural implements and live stock. This year the great agricultural holiday was held at Lincoln—once the nucleus of Roman roads; now in the centre of one of the finest farming districts in the country, and connected by railways with every county between Plymouth and Aberdeen.

Eighty-four years ago, Arthur Young, one of the most far-seeing and graphic writers on English agriculture, made the journey from Peterborough to Lincoln on horseback, occupying twice as many days as a railway train takes hours; following ancient ways, partly of Roman construction, and passing over causeways through seas of fresh water, which now, thanks to the Cornish steam-engines, have been drained into fat pastures, where on every acre an ox or cow, bred far north, can be fattened for the London market.

As I approached Lincoln to be present at the fourteen days' show, the evidences of the past and present met me on either hand. Of the present, in the shape of solemn but amiable-looking bulls, carefully clothed in slices of Brussels carpet hemmed and edged with tape; heifers of equally pure blood; and Leicester and South Down sheep, all riding comfortably in railway trucks. A real monument of the past rose on Dunston Heath: Dunston Tower, erected in the last century as a lighthouse to guide travellers across the black moor between Spilsby and Lincoln—a waste then, but now the centre of farming as fine as any in Europe; at least so I was told by a tall, rosy, wiry, pleasant-faced farmer, in a full suit of shepherd's plaid. And here I must note that the real John Bull farmer, whom artists of a waning school depict in top-boots, seated before a foaming jug of nut brown ale, and beside the portrait of a prize ox, seems to have been improved out of the country. My closest researches at Lincoln did not discover a single specimen.

There was no mistake about the character of the meeting: it did not require top-boots to indicate that it was not scientific, nor antiquarian, nor literary, nor military, nor commercial; but, that it was simply and solely agricultural. The whole multitude of strangers who crowded the street—studying the Latin motto of "Floreat Lindum," inscribed in red letters upon white calico on the arch of evergreens, or holding conversations round the steps of the hotels—had a breezy cut-of-door, healthy, tattyhoish appearance. Black, bay, and gray horses, of huge proportions, gaily adorned with ribbons (the unmistakable sires of London dray-horses), were led carefully along towards the show-ground by the only top-boots extant. Roan shorthorns, red Devons, and white-faced Hereford bulls, cows with interesting calves, and plump heifers,

paced along with a deliberation and placidity worthy of their high breeding. It is only young Highland kyles and Scotch runts that played wild tricks, and scampered, as Leigh Hunt said of certain pigs, down all manner of streets. Anon came a select pen of ewes, or a ram, conducted with the sort of care we can imagine the sultan's guard to bestow on an importation of plump Circassian beauties.

Guided out of sight of the bovine and ovine procession by the shrill squeal of discontented Yorkshire pigs nearly as large as, and much heavier than, Alderney cows; across the bridge over that Witham stream through which Romans, and Danes, and Saxons, and Normans successively rowed, on their way to Peterborough; along a gay and dusty road, where stood those wonderful works of art dear to my childhood's dreams—Wombwellian wild beasts painted on acres of canvass in the most exciting situations; at length I reached the show-yard. The parallelogram of some four acres contained an epitome of the materials and tools which make modern British agriculture what it is. There were instruments for cultivating all sorts of soils; and live stock which can be sent to the butcher's in one-fourth the time that our ancestors found indispensable for producing fat meat. In natural course the implements come before the stock which they have helped to bring to perfection.

The first operation for bringing our food into a condition fit for the butcher or the baker is to turn over the soil, for which the best implement that has yet been invented is a plough. In the Lincoln yard there were not less than thirty-nine sorts of iron ploughs, for every degree of work, from scratching the turf to turning up the earth twenty inches deep. Those who have seen the rude ploughs still in use in the south of France and Italy (where the team is often composed of a dwarf milch cow, a donkey, and a wife; the husband holding the one stilt) will be surprised to learn that in 1730 a plough was made at Rotherham which was better than those even now in use in the worst-cultivated counties of England and Wales; and that, so far back as 1677, subsoiling or loosening the earth very deep, so as to let water fall through and fibres of roots to penetrate—one of the most valuable improvements of modern agriculture, which we now owe to Smith of Deanston—was practised by a young man of Kent. But in agriculture, above all other useful arts, improvements, and inventions not only travel slowly, but are often despised during the lifetime of the inventor; and, after him, are forgotten.

The frame of the most approved ploughs is made of wrought, the share of cast iron, case hardened; the coulter, or cutting-knife, being of iron and steel. They are provided with wheels. It requires three or four ploughs of different construction to do the work of a single farm thoroughly.

After the ground has been ploughed, it requires to be broken into as fine a condition as possible to receive seed. For this purpose, on the continent and in Australia, a thick bush is often used, such as Gervase Markham, writing in 1688, recommends in his "Farewell to Husbandry." "Get," saith he, "a pretty big whitethorn tree, and make sure it be wonderful thick, bushy, and rough grown." The bushy tree was thrown aside for a harrow of wooden spikes; which has since been superseded by instruments of iron, such as harrows and scufflers or scarifiers, by which the soil is cleaned, stirred, and

broken up to a due degree of fineness. Of these several sorts of earth-torturers, there were thirty-five exhibitors at Lincoln. With such a choice there is no difficulty in selecting implements which, whatever the quality of the soil, will pulverize the clods left by the plough, clear away the weeds and roots, and cover with earth the seeds sown over the surface.

Next in order come a set of machines invented in consequence of the introduction of such portable manures as guano, nitrate of soda, soot, salt, superphosphate, &c., which it may be advisable to distribute broadcast or in a liquid state. A few years ago the farmer was entirely dependent on farm-yard manure; which, still valuable, is bulky, expensive to move, and even when dug in, not sufficiently stimulating for certain crops. It is advantageous, for instance, to force forward turnips with great rapidity, in order to place them beyond the ravages of the fly. To this end chemistry is always at work to find or to compound new manures. Bones were a great discovery in their day; but now, fossil bones of antediluvian beasts are, with sulphuric acid, made useful for growing roots to feed Christmas bullocks. Bones were the earliest portable manure used for turnips—first nearly whole; then crushed; next, on the suggestion of a great chemist, dissolved in sulphuric acid; and now distributed over the land in a water-drill. Portable manures are expensive, and machine distribution is more regular and economical than hand casting. At Lincoln, mechanical invention was found keeping pace with chemical discoveries. Ten sorts of machines were there for distributing portable manures in a dry state, the last and best being the invention of a young Norfolk farmer, and constructed by a village blacksmith.

The ground manured, is ready for seed. In certain cases both are put in at the same time. The ancient sower—whose race is not wholly extinct—fastened the seed round his waist and shoulder with a sheet, and dexterously cast the grain right and left as he traversed the field; but, in seventeen hundred and thirty-three Jethro Tull, who nearly touched without actually grasping, some of the greatest improvements in agriculture, invented a corn and turnip drill and a horse hoe for ridging up and clearing weeds away; an operation only to be done by hand labour after broadcast sowing. But in this he was before his time. Yet his contrivance has since been adopted and improved upon sufficiently to yield samples at Lincoln, from thirty exhibitors. Among them were three liquid manure or water drills, which were invented about ten years ago, and pushed into notice within three. These are now making rapid way among the turnip sowers in light, level, dry districts.

The horse-hoe naturally follows the drill, whether to scuffle up weeds or to embank earth along the sides of roots. Formerly the great obstacle to the use of implements which enable farm work to be done by mechanism, was a state of society and a system of poor laws which gave the farmer no choice between paying poor-rates or wages for labourers he was better without; but farmers in eighteen hundred and fifty-four have no fear of surplus labour or of overwhelming poor-rates; consequently, specimens of twenty horse-hoes of every degree of ingenuity were scrutinized at Lincoln, and largely purchased. The latest invention was a rotatory hoe, invented last year by a Norfolk farmer, which thins out turnips with marvellous swiftness and exactness; thus promising to supersede the degrading hand labour of the Norfolk gangs of boys and girls.

After crops are fairly sown, hoed, and weeded, the next operation is gathering: this brings us to carts and waggons; the wheels of which are made by machinery, at some of the large implement factories, at the rate of thousands per annum.

Twenty one-horse carts were shown; and it is to be hoped that by degrees the lumbering, ill-balanced vehicles seen in too many English and Irish counties will be superseded by the light Scotch cart.

But before carting comes mowing, and reaping, and hay-making. In grass-mowing no machine has yet superseded the scythe. But every year spreads more widely the use of the haymaking machine, a revolving cylinder with prongs, which, driven by a horse, lightly tosses the grass, and saves half the work of the haymaker. Four such machines by different makers were shown: the best were ordered in greater number than the makers could execute. This machine, like the horse-rake (of which a dozen were displayed in the Lincoln yard), is one of the simple implements that every farmer short of his usual supply of Irish labourers (now better employed in tilling the back woods of America) should use; for it can be kept in order without the help of a skilled mechanic.

The history of the reaping machine, from the days of Pliny to the contrivance of the Scotch minister, Bell, is too large and interesting to be dismissed in a paragraph. It must for the present be enough to say that in the field trials at Lincoln there was nothing more exciting or comical than the straggling competition between the machine reapers, when they charged into the standing corn, and cut and laid it down ready for the binders at the rate of at least two acres per hour. But some other time the story of the reaper—a real romance—must be told.

Passing now from the field to the rickyard, the rickstand must not be overlooked. It is a pillar, and mushroom cap of stone or iron, to lift the rick from the ground, and to cheat—as we learned at the late Durham Assizes—rats and mice of no less than forty per cent. of the grain per annum; yet hundreds of farmers will not spend a few shillings on rick-stands.

From the rick, the next step is to the barn machinery; and what a step!—from the clay thrashing floor, and the flail, stupefying the thrasher and wasting the corn, and the rude winnowing machine dependent on a breezy day, to the beautiful steam-driven thrashing machines, by which corn is thrashed, winnowed, stacked, and weighed, while the straw is hoisted to the straw-loft, to be there, if needful, by the same steam power, and by one operation, cut into chaff for cattle. At Lincoln there were upwards of twenty-five thrashing machines exhibited, the greater number of which would thrash corn at about ninepence a quarter, or less than half the cost of hand labour. Yet it is only within the last five years that this machine driven by steam power has invaded some of the best corn-growing counties in England.

Last in the list come steam engines, which steam food, cut chaff, pulp roots, thrash grain, raise loads, pump water, and drive liquid manure through pipes, at an insignificant expense, permitting a farmer to be always ready to send his crops to market at short notice. Without pretending to examine those bewildering conjunctions of cranks and wheels, the mere fact of five-and-twenty steam engines entered for agricultural use, at prices beginning at one hundred pounds, shows the road the British farmer is now marching. Ten years ago, half-a-dozen agricultural steam engines, consuming double the quantity of fuel now required, were gazed upon—in England, though not in Scotland—as curiosities. Now, it pays twenty-five makers to send these weighty specimens as showcards to farmers whenever and wherever the Royal Agricultural Society holds its meetings.

The criticism of the practical men who travelled from all parts of the kingdom to review the implement show at Lincoln, proved that a large number of farmers had fully discovered

the value of coal and iron—that coal and iron are as effectual in producing motive power for agricultural operations, as for driving spinning jennies and propelling steam-vessels. There is still at least one hundred years of darkness and prejudice between the districts where such sentiments are held, and where the wooden wheelless plough, the clumsy harrow, broadcast sowing, hand-hoeing, flail-threshing, undrained land, and ill-housed stock are the rule. Not that any number of implements, or the study of any number of books, will make a farmer. Science, to be useful, must be sown on a practical and fruitful soil. The keenest steel axe must be wielded by a practised hand.

Having raised our crops by a good use of the implements in the Lincoln yard, we must now turn to the live stock.

The shorthorns—arranged in order, bulls, cows with calves, and heifers, in the rich variety of colour peculiar to the aristocracy of the ox tribe—come first in view. Some strawberry roan, some red and white, some milk white; but all so much alike in form and face, that to the uninitiated the roan bulls might be all brothers, and the white cows all sisters. Short legs, vast round carcasses, flat backs; not an angle nor a point, except at the muzzle and the horns—are the characteristics of the descendants of Collings' Durhams. A little farther on, the bulls, quite as large, are the Herefords, red, with white faces, and here and there white bellies; the cows smaller, with less of a dairy look than the shorthorns. Third in order appear the Devons, in colour one deep red, with deer-like heads; plump but delicate, and small in stature. These three breeds, of which a hundred and seventy-one specimens were sent, represent the best beef that England, after about a hundred years of pains and experiment, can raise. All English herds of cattle maintained on first-rate farms are one of these three breeds—shorthorns, Herefords, or Devons. Scotland has breeds of its own. The Argyle ox, in his improved shape, is one of the legacies of Duke Archibald, Jeannie Deans' friend, bred on the hills and vales of the Highlands, and which, fattened in the private yards of Lincoln, Norfolk, and Bedford, produces beef second to none. The Ayrshire cow is unrivalled for dairy use; but, as these are not bred in England, they do not come into competition in a show of English breeding stock.

The sheep shown for prizes are subject to as few divisions as the cattle. There are pure Leicesters (once called the New Leicesters, but the old have all died out); the long-wools, not being Leicesters, of which the prime victors are all Cotswolds; and the short-wools, or South Downs, a class under which rivals from Wiltshire and Norfolk compete with Sussex, the cradle of the improved breed. As for pigs, they are divided into large and small only, although known by many names.

Considering how much of our domestic happiness and public prosperity is dependent on a supply of prime beef in steaks, sirloins, and rounds; on chops, legs, and saddles of mutton; on streaky rashers, and Yorkshire and Cumberland hams—it will not be time wasted to explain how it comes to pass that in every county of the kingdom there are to be found not only wealthy amateurs, but practical farmers, who devote their whole time to producing prime animals of pure blood, not always at a profit; and how the country gains from stock so plump, cubical, and unpicturesque; for it is not to be gainsaid that the wild cattle of the Roman Campagna or the Andalusian pastures are more suited to figure as models for the painter than under the knife of the carver. A Yorkshire farmer remarked, when shown the Toro Farnese, that "there couldn't be many prime cuts sliced out of him."

By the exertions of only a few zealous agriculturists, during the last hundred years, good meat has been placed within the

reach of the people at large. The roast beef of Old England, which some fancy to have been the ordinary fare of our ancestors in the days of Queen Bess, was really and truly the tough and tasteless produce of lean, black, worn-out draught oxen, or leathery old cows, and that only procurable fresh for four months in the year. Those who have travelled in the south of Europe, or on the Rhine, have seen the greyhound-like pigs, the lean gaunt sheep, the angular and active cows, unincumbered with sirloins and almost destitute of lungs, which pick up a miserable existence on the roadsides. A hundred years ago, with a few rare exceptions, the ordinary breeds of live stock in Great Britain were just as lean, ill-shaped, and slow-growing. And to those who inquire what we have gained by the enthusiasm with which noblemen and gentlemen have followed cattle-breeding, it can be answered that the ox, which used to be with difficulty fattened at six years old, is now presentable in superlative condition upon the Christmas board at three years old. The sheep, which formerly fed in summer and starved in winter until five years old, are now fit for the butcher in twenty months, with a better and more even fleece. And the pig, which formerly ran races until two years had passed, is now fit for the knife after eating and sleeping comfortably and cleanly, as a gentleman should, for nine months only.

This change has been brought about partly by the improvement of our agriculture, a closer study of the habits of animals, and an increased supply of food placed within our reach by extended commerce, and a rational system of customs duties; and partly by discoveries in the art of breeding. Formerly our cattle and sheep were entirely dependent on natural herbage for their food. In summer they grew fat; in winter they starved and grew thin, having nothing to depend on but such hay as could be saved. The first great step, therefore, towards the improvement of cattle was the employment of the turnip and other roots which could be stored in winter. An experienced farmer calculates that with roots, oxen improve nearly one-fourth more than those fed on hay alone. The use of turnips enabled sheep to be fed where nothing but gorse or rushes grew before. Neal, the mechanic, stepped in with a chaff-cutter, prepared hay and straw to mix with roots, and, with a turnip-cutter, saved six months in getting sheep ready for the kitchen.

The use of a dry, palatable, nutritious food, called oil-cake, which could be carried into the field to sheep to help out a short crop, followed; and further studies proved the use of peas and beans and foreign pulse in giving lambs bone and muscle. It was found, too, by experiment, that warm feeding yards saved food; that, in short, the best way of getting stock into prime condition was to feed them well, to attend to their health, and never, from their earliest days, to allow them to get thin.

But before these discoveries had been made, the breeds of English live-stock were in regular course of improvement. No kind of food can make an ill-bred, ill-shaped beast fat in time to be profitable. Just as some men are more inclined to get fat than others, so are some animals; and by selecting individuals of proper shape with this tendency, certain breeds have been stereotyped into a never-failing type: that type in an ox and sheep is one which presents the largest extent of prime meat and least amount of offal; or, as a Southdown breeder expressed it, "a perfect sheep should be, as nearly as possible, all legs and loins of mutton."

To make this improvement required a certain talent, enthusiasm, and years of patience. Breeders of pure stock, like mechanical inventors, do not, on an average, make money. On the contrary, for the pleasure of the pursuit and the hope

of success they expend large fortunes; while a few win great prizes. But the country gains enormously in result; for now the same space of ground will feed more than twice the quantity of beef and mutton that it would fifty years ago. The animals not only come to maturity in half the time, but, fed partly in yards or stalls, they spoil less ground with treading, and return to the soil highly concentrated and productive manure.

The first man who made stock-breeding a fashionable pursuit—and that is a great thing in a country where fashion rules too much—was Robert Bakewell, of Dishley, in Leicestershire, the son and grandson of farmers, but, if we mistake not, himself a barrister. With horned cattle, he aimed at the cardinal improvements which are now universally established and admitted in this country where the growth of meat—less than the dairy, as in Holland and Switzerland—is the principal object. He tried to produce a large cylindrical body, small head, small neck, small extremities, and small bone. He said that all was useless that was not beef; and sought, by choosing and pairing the best specimens, to make the shoulders comparatively small and the hind quarters large, which is exactly the reverse of animals allowed to breed freely, and to gallop at liberty over wide pastures. Even the cattle of Australia bred from pure specimens, after running wild for a few generations, begin to lose the fine sirloins of their English ancestors, growing tough and stringy for the spit in proportion as they become active.

In sheep, Mr. Bakewell declared that his object was mutton, not wool; and, disregarding mere size, which is a vulgar test of merit, he chose animals which had that external form which is a sign of producing the most muscle and fat, and the least bone; and, by careful selection and breeding, he stamped a form on the Leicester sheep which it retains to this day.

The Southdowns, doubtless an indigenous breed, feed on the bare pasture of the southern coast, produce a fine quality of meat, and a close short wool. It was the turnip that rendered feeding the Southdown while young possible. The great improvement began with John Ellman of Glynde, near Lewes, in

the year seventeen hundred and eighty. He preserved the form of the original breed, but corrected the too great height of the fore-quarters, widened the chest, made the back broader, the ribs more curved, and the trunk more symmetrical and compact. The ancestors of the present race were rarely killed until the third or fourth year. They are now sent to execution at two years, and sometimes even at fifteen months old. They have since spread far; superseding the breeds of Berkshire, Hampshire, Wiltshire, crossing and altering the Shropshire, extending into Dorsetshire, Surrey, Norfolk, Devonshire, Herefordshire, Wales, and even toward Westmoreland and Cumberland, and have improved all the breeds of blackfaced heath sheep.

The crowning events in the history of beef and mutton bring us back to agricultural shows; which were established by James Duke of Bedford at Woburn, by Mr. Coke, afterwards Earl of Leicester, at Holkham. At these "sheep-shearings" the great houses were thrown open to agriculturists of all countries and counties. Stock were displayed, implements were tried, prizes were distributed, and gentlemen of rank and fortune, of all opinions and politics, threw themselves with enthusiasm into agricultural discussions, and enjoyed the excitement of hospitality, competition, and applause. For instance, in seventeen hundred and ninety-nine, we find in the Gentleman's Magazine, in an account of a Woburn sheep-shearing, held on the twenty-first of June, names since become classical in connection with pure breeds: Coke, of Norfolk; Quartley, from Devonshire; Parsons, from Somersetshire; Ellman, from Sussex; worthy successors in the cattle-breeding art, of Bakewell, the brothers Collings, Tomkins, Lord Somerville, and several others. "From one hundred to a hundred and ninety sat down to dinner for five days successively. Premiums for cattle, sheep, and ploughing were distributed, and his Grace let about seventy Southdown and new Leicester rams for one thousand pounds. The conversation was entirely agricultural, and the question was discussed whether the New Leicester or the Southdown were the better breed of sheep." —Household Words.

THE DROUGHT—A WORD OF CAUTION TO STOCK-MASTERS.

Since the year 1826 we have not had such a dry season, and its trying effects have been severely felt by every grazier in the kingdom. The want of wholesome water has been only exceeded by insufficiency of food. Every expedient has been exhausted to supply the stock with their daily requirements, but in vain; and it has been truly painful to see flock after flock, herd after herd, wending their way to some distant watering, looking like skeletons of what they ought to be, rather than the thriving, prosperous animal. To keep them from shrinking was out of question; the difficulty, in very many cases, was to keep them alive. We have heard of many extraordinary "shifts" to which stock-masters have been compelled to resort, none of which need be detailed here. The fact is certain, that great loss in the condition of almost every animal has been the result of the long drought of the past season; and the word of caution I presume to give is with the

view of preventing a further depreciation in condition, if not actual death. I need not say that the time of transition from "summer" to "winter keeping" is always a time of unusual anxiety with stock-masters. All kinds of stock require more peculiarly careful attention at this period. It is astonishing with what rapidity they will degenerate under improper management; and at this season (the approach of winter) they are irrecoverably gone if once seriously affected with any of the various maladies resulting from an untoward season, "bad keeping," or from the unhealthy, unthrifty condition of the animal from previous deprivations: these have seldom been greater than during the past summer. To face and get through probably a lengthened winter, we have, then, a stock of animals comparatively pined throughout the summer, thus rendering their physical natures more liable to disease, while at the same time they are actually in a very unsatisfactory and low condition as animals

—two very important considerations in animal economy to contend with.

My great fear is, that if prompt and active measures are not immediately resorted to, in order to check the downward course of such animals, and to infuse into their systems new energy and life, the loss or casualties during the ensuing winter will be very great indeed, perhaps unparalleled. To prevent this I would offer one or two suggestions.

I would urge all stock-masters to adopt every means in their power to improve the condition of their stock—not by any violent or extreme change of keeping, but to supply them gradually, according to their condition, with such nutritious food as he can best command; and in this he must for once be regardless of expense. The animal must be *prepared* by good treatment to stand a change of keeping and the winter's vicissitudes, or the consequences are too well known: whole flocks are frequently swept away, owing to their being put upon stronger and more nutritious keeping than they were fitted for, or prepared to sustain. Strong animals will thrive upon strong food, but it will kill the weak ones: they must be *prepared* for whatever food they are to be sustained upon. Young delicate animals, in the autumn, should never be allowed to partake of frosted grass or like food; they ought to be all housed or folded at night upon dry fodder, and turned out awhile after sunrise, if requisite.

As one means of supply, I would suggest that as

we have much coarse barley this season, it might in moderation be given to the stronger animals, and cake, meal, and oats to the weaker ones, in addition to their usual provender. Turnips and similar food should be given very sparingly at first. I would urge great attention to provisional or temporary shelters, and good lairage. These are indispensable to the well-being of every tender and delicate animal, and it surprisingly promotes the improvement of the hardy one. In the fold-yard modern agriculture has prompted such necessary erections, but in the field, shelters are not often seen; they are, however, quite as conducive to promote the healthiness of *sheep* as of *cattle*, and ought to be universally adopted, more particularly under the circumstances which now induce me to write upon this subject—namely, the probability of a long and trying winter before us, and the stock unprepared to withstand it, owing to their low condition, the consequence of the almost unexampled drought of the last spring and summer.

I feel assured that it is altogether unnecessary for me to say more; the good sense of all stock-masters will suggest to themselves individually better modes of proceeding to attain the desired end than I can point out as a general rule. I only desire most earnestly to direct their immediate notice to the subject as one of pressing importance, knowing that a little “timely” attention may prevent great loss and disappointment. P. F.

THE SHEEP.

“Out of the ground the Lord God formed every beast of the field, and every fowl of the air, and brought them unto Adam, to see what he would call them; and whatever Adam called every living creature, that was the name thereof:

“And to every beast of the earth, and to every fowl of the air, and to every thing that creepeth upon the earth wherein there is life, I have given every green herb for meat: and it was so.”

MOSES.

The origin of the sheep, along with that of all other animals, is plainly accounted for by the sacred historian as the work of God at the commencement of the Adamitic era of the world, and from that time it has continued in the possession of man, although a proneness in every age has existed to suppose the contrary—blind philosophy discovering in wild animals the origin of domesticated breeds, as she does in wild plants almost every cultivated member of the vegetable kingdom! The existence of fossil remains of previous epochs is no objection to its soundness; for it was just as easy to call these fossil remains into life again, as to preserve the animal kingdom alive, as was done at the Noahitic, were it impossible otherwise to account for apparent discre-

pancies of this kind by geological data. In short, when the Almighty interferes, human reason must be silent.

The origin of the sheep is not only thus accounted for satisfactorily, and its distribution throughout the world by the scattering of the human race at the dispersion of Babel, but the Divine Artist being a perfect one, it was consequently created perfect—incapable of being improved upon by superior management and breeding afterwards. The inspired writer silences any objection which may be raised to this when he informs us that Divine Wisdom pronounced all His works “good.” In Paradisiacal times, therefore, there was but one happy family, the earth spontaneously yielding a plentiful harvest of bread-corn, fruit, and other esculents, supplying the whole animal kingdom with an abundance of suitable food, the “lion and lamb” feeding together, somewhat similar to what many of us have seen the pet lamb, dog, and kitten doing at the farmer’s or shepherd’s fire-side, with youngsters higher in the scale of life. But such a period was of short duration; for the fall of man, and curse which followed, brought degeneracy and discord into the family, with an universal scramble to procure the daily necessities of life, the

earth no longer yielding her increase as formerly. The different members of the animal kingdom now not only showed a tendency to degenerate or "run wild," but to devour each other—the supremacy of man himself being even called in question, a supremacy only maintained by mechanical means and intelligence of the highest order.

Of all our domesticated animals, the sheep is perhaps the most dependent upon man for protection from the inroads of beasts of prey, and other casualties of no less destructive a nature. Its mode of life, history, and defenceless character bear ample evidence of this; and the manner in which flocks when scattered feeding, hastily, gather themselves together on the slightest disturbance, prove that they themselves are instinctively sensible of it. The gentleness and timidity of this useful creature are proverbially acknowledged; while its confidence in the shepherd who takes care of it, is equally conspicuous. Sacred history teems with interesting accounts of the sheep, itself the type of innocence, and the important place it occupied both in the antediluvian and post-diluvian epochs. "Abel was a keeper of sheep," for instance, and "Jabal the father of such as dwell in tents, and such as have cattle." The flocks of Terah, Abram, Job, and Jesse, again, occupy an equally prominent place as the staple wealth of their times; while the many touching incidents connected with its management during night, as well as day, prove that its natural history was probably then as well understood by shepherds generally as it is now; while its wants, under all the circumstances of the case, were far better cared for.

There is to this day a singular contrast between the management of sheep in this country and that of oriental climes, and many parts of the continent of Europe, which says little for the boasted position which we occupy among the nations of the world, as to civilization; for, on the one hand, there is a vast amount of barbarity connected with the practice of our shepherds, which seriously disgraces its character and reduces its success; while, on the other, even in the midst of barbarity itself, a gentleness of treatment, so to speak, is extended towards sheep, productive of the happiest consequences. A contrast so calamitous as this obviously calls for a little comment, which will occupy the remainder of this article.

Our practice is based on that of barbarous times, our forefathers, Celtic and Saxon, being savages, cultivating a fierce and warlike spirit in their offspring, which never failed to manifest itself throughout the entire routine of life, scarcely less in the management of their flocks and herds than in the chase and battle-field. Domestic broils, inter-clannish and national feuds, and open war, were their common pastime, so that the tending of sheep fell to the aged and disabled, casehardened to cruelty, and boys aspiring to heroic deeds of fame, from whom little could be expected but harsh treatment. Self-interest, and that reciprocation of brute feeling which exists between all savages and the animals they possess, would, no doubt, induce circumspection to a certain extent—a result which history plainly confirms; but the care bestowed upon flocks was, nevertheless, of the rudest kind, in the handling of them during lambing,

shearing, and milking, the conduct of the sheepdog corresponding with it. Now too much of this harshness and barbarity has been allowed to remain in our practice. We have made many advances in the feeding and improvement of breed, both of which had degenerated during pagan times; but we have unfortunately brought along with us much that we ought to have left behind, which stamps upon the practice of the shepherd a rudeness of character entirely at variance with the more helpless and dependent state to which art has now reduced the sheep—its docile and gentle disposition naturally, and that dignified buoyancy of spirit, so to speak, which so signally and prominently characterizes it. In short, our practice, with all its advances, is yet subject to further improvements; for it upbraids us with a degree of cruelty to this harmless and invaluable creature no less unmerited by it than inconsistent with the progress we ourselves have made in the arts and sciences generally, furnishing to every writer a subject of regret.

The practice of the East, on the contrary, is descended from a higher, if not the highest, degree of science the world has ever enjoyed, without an intervening period of barbarism. There can be no doubt as to the intelligence, for instance, which Adam possessed prior to his fall: the naming of the animals proves this: while the difference consequent upon that calamity was, a *knowledge of evil* as well as of good. No doubt, he was not acquainted with the ninety and nine appliances and processes of mechanical and chemical science subsequently called into existence to ameliorate the consequences of the fall, much less the practice of medicine and surgery, neither being required; but a thorough knowledge of first principles, and of the nature of the animal, vegetable, and mineral kingdoms, would soon enable him to reduce them to practice; while the great age to which mankind then lived would facilitate and secure the communication of this knowledge to posterity—a result exemplified, on the very threshold of human affairs, as the sacred historian informs us, by the early subdivision of labour, both in the useful and ornamental arts. The construction of such a stupendous vessel as the ark, again, proves that the science of mechanics was well understood by Noah and his sons; while the Tower of Babel, the early kingdoms of Nineveh, Babylon, Egypt, and others of the east, with the sculptures now being dug up from their ruins, the immense works of irrigation on the Tigris, Euphrates, and Nile, the subdivision of labour into *castes* (as existing to this day after the antediluvian fashion), &c., &c., afford the best evidence that the same was handed down from generation to generation; the science of agriculture being less understood in modern times than in those of the patriarch just mentioned. In other words, farming was much more successfully carried out during the period between the flood and dispersion at Babel, than under the Moham-medan era: a given area of land supporting a much larger population.

The state of religion, again, has probably exercised a greater influence upon the morality of the shepherd, as extended towards his flock, than that of physical science. It is a well-known fact to missionaries, for instance, that

Christianity tames the fiercest savage, making him not only gentler towards his fellow-creature, but the brute creation. Now Britain and the East are also in opposite circumstances here; for Noah, Abram, Job, and the early patriarchs, were more righteous men than their successors, while the immolations of our Druidical forefathers are too horrible to narrate.

Such, therefore, being the differences of the past, it consequently becomes an easier task to reconcile those of the present to each other; for in the east the proper management of sheep being once understood and securely established in a country where it constituted its principal wealth, the practice would naturally descend from generation to generation, without suffering any depreciation beyond what the fertility or barrenness of the soil might necessitate, which last would affect the quality of the breed and mutton rather than the *morale* of management; while in this country practice was so warped with the cruelties and superstition of Druidical times, that the evil communications of the past must always have exercised an unfavourable influence upon the character of the future. Although flocks and herds, for instance, formed a large amount of the wealth of the early Britons, yet hunting was esteemed a more honourable occupation than tending sheep, and always appreciated as the most profitable source from whence to derive the daily necessities of life. This, no doubt, arose from the warlike character of the age, and the difficulty of preserving domesticated animals in it, while a plentiful supply of wild required no caring for, being always at hand when required. Such a spirit was long cultivated, and is to this day, unfortunately, but too conspicuously exemplified and even perpetuated, as it were, in the working of our game-laws, where it may be seen no less deeply rooted in the mind of the poor man than in that of the rich: a spirit which has never failed to exhibit a harshness of conduct to every living creature that comes in the way, from which the hand of the shepherd is far from exempt.

History, sacred and profane, does not leave us without many instructive illustrations of what we have just been saying. The case of Jacob, while serving his father-in-law, is perhaps one of the most interesting examples. The simple facts so graphically narrated by the inspired writer prove that the patriarch was thoroughly master of the duties of a shepherd. The opposite of harshness was obviously experienced by his flock; for he was "a good shepherd," knowing his own sheep by name, and they his voice. The training of sheep to answer to their names and come out of the flock to the shepherd when called upon, with the practice of following behind instead of being driven before, prove not only the attention paid to their welfare, but also the docility and sagacity of the sheep itself, as being nothing inferior to that of the dog. It must also have proved highly favourable to growth, fattening, and quality; for it is a well-authenticated fact that sheep do much better under the care of a shepherd who treats them gently than under that of one who treats them harshly. There are few of our readers, perhaps, who are not sensible of the fact that the difference, on a small flock, far exceeds the wages of the shepherd; so

that the question at issue is one of no mean importance. Moreover, if such is the result between good and bad shepherds in our own practice, what would it be were our flocks treated with the same degree of humanity and care as were those of the patriarch Jacob, making sufficient allowance for the difference in circumstances in our favour arising from modern improvements? The more we improve the breed—forcing the animal, as it were, to a greater weight in a less time—the more necessity is there for kind and gentle treatment; and we may safely go the length of training them to answer to their names, as is practised to this day throughout the East, and many of the continental states of Europe. Those who have bred prize sheep for the shows of the Royal Agricultural Society, as we have done, will readily appreciate the soundness of these observations. So far as our own experience bears upon the problem, we have found it the first practical lesson to success; for, until we got our sheep to come up to us when called, or when we held out the hand to them, we never got a prize. We had the greatest difficulty in dealing with the bad temper of an excellent shepherd otherwise, whom the sheep never had the same confidence in as in ourselves. It is surprising how quickly the keen eye of the pen would discover whether or not he was in a good or bad temper; for, if the former, they would bid him welcome in their own way the moment he entered the hovel, and if the latter, keep as much at their distance as possible. When once you have gained their confidence, it is remarkable how soon they will learn to turn this side or that, as you may wish to handle them, provided always you do so gently and in *good humour*, and even lie down, turning up their belly or feet, like a dog or pig, that you may handle the former or clean or dress the latter if necessary, thus saving a vast amount of hardship they are subjected to when turned up by the rude hands of a churlish shepherd. Nor is this intuitive sagacity of the sheep confined to pens of extra fat stock; for lean sheep—even the blackfaced ones of the north—repose a very different confidence in the churlish shepherd or dog, from what they do in those of an opposite temper; for in the one case they will allow both or either singly to walk about among them when feeding, without showing any signs of disturbance, whereas, in the other, they will flee before either or both in an affrighted manner, not offering to feed until they are out of harm's way, as it were.

The imitative powers of sheep are remarkably strong, so that the training of them, as dogs, horses, and even Irishmen's pigs are trained, is a much more simple task, under good humour, than at first sight may be imagined; for what the ewe will do, the lamb will be forward to do also; and even when not thus connected, there is always a proneness and anxiety in the one to follow the example of the other, even among full-grown sheep. Many interesting anecdotes are told in illustration of this. If the shepherd, for instance, throws down his staff in the gate, so as to make the leading sheep jump over it, all its followers will jump also; but if it merely runs over, so will the others, by the force of this imitative power in each case.

(To be continued.)

ADULTERATION OF GUANO.

There are few victories to be more dearly bought than a good bargain; there are no dangers against which it is more necessary to re-echo so continual a caution. Down even from the days of Troy, when Glaucus changed away his golden suit, to the time when Moses brought home his gross of spectacles, and the countryman tried his dozen of razors, it has been still the same. Despite the oft-solicited interference of "the presiding magistrate," ladies are found yet to essay on the great sacrifices of Oxford-street. Wonderful hacks, sold only because their owners have no further use for them, are still to be ferreted out of curious corners, by clever people only too anxious to get "a bargain." Flash auctions, sham smugglers, and too accommodating bankruptcies, all pander most profitably to this weakness of the English people.

None, as we have often had occasion to tell him, has more need to beware of a bargain than the agriculturist, as none, in the exercise of his vocation, may gain one at a greater cost. It would be difficult to calculate how often, or in how many different ways, has this been impressed upon him. In the purchase of certain articles necessary for the business of the farm, the cheap *must* be the bad. There can be no doubt at all about it. The more and more you examine the real bearings of the case, the more you will become convinced how utterly impossible it is to *honestly* undersell the market. For the benefit, however, of him to whose well-doing our labours are chiefly directed, we may venture to tell the following story, founded, as it will be seen, strictly on facts:—

Situated at the extreme north of the Isle of Anglesey, is a spot known as the Paris Mountain. To the miner and geologist this, it is hardly necessary to add, has long been an object of interest as well as of profit. Rich in copper and other minerals, "streams of yellow ore," says a local authority; "flow down the gullies of the mountain-side to the river port and sea." Some years since, we are further informed, "these streams were dammed up, or impounded by those through whose property they flowed, with the view of extracting the pigment by evaporation or other processes." The experiment was successful enough, for the cream of this skimming, we learn, "formed a valuable article of commerce;" while on the other hand "the residuum was worthless, lying in lumps, an eyesore and a nuisance." The spirit of sanitary improvement, however, has reached even North Wales.

The lesson now so commonly taught us, that something may be got out of everything, was put into very sharp practice even in so remote a district, and an example afforded to many more assuming a locality. The inhabitants of the market-town of Amlwch, lying at the foot of the mountain, and of course the chief sufferers from the nuisance, had of late been agreeably surprised by noticing with what care and uninterrupted diligence this "residuum" was collected and removed. The curious could only further ascertain that it was shipped for Liverpool, where it mysteriously disappeared. To what purpose it was to be applied no one could imagine, although no doubt in some way or other to further illustrate the now very popular theory—"There is something to be got out of everything."

Having at any rate run the drag of this residuum as far as Liverpool, where we came to a long check, let us now return into Wales. We diverge from our route a trifle, and find ourselves at length in the ancient and curious old city of Chester. Here we meet with one Mr. Pickering, an honest Cheshire yeoman, who, like another Moses Primrose, is changing his famous Cheshire cheeses for Peruvian guano, with a certain Mr. Thomas. The great inducement to this is, as a matter of course, "a bargain." Mr. Thomas tells his friend, confidentially, that he purchased the guano a bargain from Messrs. Gibbs and Co. during the winter, that he had made an excellent speculation of it, and that he could sell it, comparatively as he had bought it, *cheap*. This was enough for Mr. Pickering; he buys a ton, and, like poor Moses, directly he has it home he begins to suspect the wisdom of his contract. The symptoms are certainly alarming, and he sends at length for a doctor. This is Mr. Hewson, the analytical chemist of Liverpool. By this gentleman's powers of testing the truth, Mr. Thomas's Peruvian guano is discovered to be only half what it was represented to be. It is adulterated to the extent of fifty per cent., the other half being sand, gypsum, and ochrey clay; in a word, chiefly that "residuum" which in the first place so annoyed, and afterwards so perplexed, the good people of Amlwch.

Mr. Thomas, the defendant, as the dealer in this stuff, was strong enough in his own innocence to enter the witness-box, and submit to all the complimentary interrogatories of a cross-examination. His answer on his defence came very straight to the point. He had not sold this manufacture

as *genuine* guano—he never warranted it as such ; he offered it merely as *Peruvian* guano. Let our readers in their future dealings remember to bear in mind so nice a distinction ; and, once more, let them be cautious over a bargain. The price of a horse is now received in our courts more or less as his warranty. It may come to be the same with the price of guano, and that when people buy at a low figure, they must understand that they buy at a risk. The judge, indeed, in this

very case, summed up chiefly on the question of warranty. There was little defence as to the character of the manure ; but what could be expected at the price ? Mr. Pickering, to be sure, after an immense deal of trouble and anxiety, got his money back again, and lost his crop ! With this moral to the agricultural community, may we leave our history of how the Cheshire farmer followed out the *permutatio Glauci*, and swopped away his good cheese for bad guano.

PROGRESS OF REAPING MACHINES—LINCOLN MEETING.

In reviewing the progress of reaping machines since the Gloucester meeting, or during the past year as illustrated at Lincoln, it will be necessary, owing to the somewhat anomalous character of adjudications since 1850, to take a cursory glance at the subject from the commencement, in order to do it justice. Our readers are aware, for instance, that for nearly 30 years Bell's reaping machine has been at work in one of our northern provinces, though not generally appreciated by the farmers of the neighbourhood, and even almost unknown anywhere else ; that some five or six years ago one of Hussey's, which had been in successful operation in America since 1833, was set to work in the neighbourhood of Liverpool without creating any great interest among implement makers and farmers ; that about the same time J. Tollemache, Esq., M.P., enabled the Messrs. Garrett and Sons to bring it before the Royal Society, and that neither judges nor the public then contemplated how differently it was to be treated at "the world's fair"—Lewes, Gloucester, and Lincoln. No doubt improvements have been made ; but these are so trifling to outward appearance, and even, we are afraid, in reality, as not wholly to account for differences, while many improvements have not yet met with public reception—such as those of the French reaper and Harkness, but which may nevertheless prove successful rivals at Carlisle. Then follows the old proverb, that "a bad hand never gets a good tool," which, we presume, will be found just as applicable to reaping machines as it has been to scythes or hooks, while the cutting of green rye at Lincoln, for some ten or fifteen minutes only, may be queried as affording any physical evidence as to which may be the best machine for ripe corn of any other kind, or even rye itself, for the whole harvest. These and many other considerations induce us to lay a brief summary of the whole before our readers.

In doing so, our task has been greatly shortened by the publications of the Patent Office, where Bennet Woodcroft, Esq., brings before us at one glance, in a tabular form, no fewer than 69 examples of drawings of "the cutters of reaping-machines," illustrative of their modes of action ; and since that date about 30 new patents have been taken out, in many of which alterations have been made in the cutting apparatus ; and besides these, numbers are noticed, of which no drawings

are given. The following table without the drawings will, with the observations which follow, give a general conception as to the progress of ideas, and the different channels in which they have run :—

RECTILINEAR MOTION.		CIRCULAR MOTION.	
Advancing only	4	Continuous and advancing.....	31
Sidelong and advancing	2	Continuous and alternate	2
Reciprocating and advancing.....	25		
Cutters worked by hand.....		5	

Such is the state of things at the date in question ; and our readers will perceive how nearly to be equally balanced, so to speak, are the above two classes under rectilinear and circular motion, there being 31 of the former, and 33 of the latter.

The progress of ideas, however, is still more interesting ; for up to the introduction of the American machines, although reciprocating and rectilinear motion was invented in Bedfordshire by Mr. Salmon, as early as 1807, the general pursuit appears to have been after circular ; for we only find other two examples of the former in this country, viz., Ogle's in 1822, and Bell's in 1826 ; and three in America, viz., Manning, 1831 ; Hussey, 1833 ; and M'Cormick, 1834 ; while we have twenty-one of the latter, viz., Pitt, 1786 ; Boyce, 1799 ; from Walker's Philosophy, inventor unknown, one in 1799 ; Plucknett, 1805 ; Gladstone, 1806 ; Plucknett, 1807 ; Smith, 1811 ; Ken, 1811 ; Cumming, 1811 ; Dobbs, 1814 ; Smith, 1815 (two examples) ; Mann, 1820 ; Bailey (United States), 1822 ; Budding, 1830 ; Chandler (United States), 1835 ; Springer, 1839 ; Duncan (United States), 1840 ; Phillips, 1841 ; Gibson, 1846 ; and Whitworth in 1849 (two examples).

Subsequently the tide of invention has run more strongly in favour of the reciprocating action of the knife, there being seventeen examples on this principle, viz., M'Cormick, 1850 ; Stacey, Dray, Ridley, Randell, M'Cormick, Poole, Crosskill, Dray, Fowler, Newton, Wray and Son, Harkes, Hussey, Johnson (two examples), and Gompertz, all in 1852 ; and eleven on the circular, viz., Fairless, Winder, Beckford, Gosling,

France, Mackay, and Trotter, in 1851; and Mason, Smith, Gompertz (two examples), and Burch, in 1852.

Of American patents the following are noticed:—French and Hawkins, 1803; Adams, 1805; Comfort, 1811; Claiborne, 1811; Gaillard, 1812; Baker, 1814; Bailey, 1822; Wadsworth, 1824; Cope and Hoopes, 1825; Eyck, 1825; Pleasants, 1827; Lane, 1828; Ingersoll, 1830; Manning, 1831; Heath, 1833; Anderson, 1833; Schrebley, 1833; Hussy, 1833; Jackson, 1834; M'Cormick, 1834; Ambler, 1834; Rundell, 1835; Stürdivant and Holmes, 1835; Chandler, 1835; Badlam, 1835; Ashmore and Peck, 1835; Wilson, 1835; Briggs and Carpenter, 1836; Allen, 1836; Moore and Hascall, 1836; Drummond, 1836; Greenleaf, 1836; Lewis, 1838; Wheeler, 1838; Brittain and Silmens, 1838; Trask and Aldrich, 1839; Lamb, 1840; Hinds, 1840; Churchhill, 1841; Church, 1841; Cooch, 1841; Read, 1842; Brown and Crans, 1842; Reeder, 1843; Peck, 1844; Esterly, 1844; Ketchum, 1844; M'Cormick, 1845; West, 1845; Woodward, 1845; Ketchum, 1846; Darling, 1846; Foster, 1846; Owen, 1846; Wilson, 1846; Land, 1846; Cook, 1846; Foster, 1847; Church, Obert, Willoughby and Willoughby, 1847; Danlap, 1847; Ketchum, 1847; Hussy, 1847; Butts and Church, 1847; M'Cormick, 1847; Pease, 1848; Boone, 1848; Goble and Stuart, 1848; Cushing, 1848; Barr, 1849; Haines, 1849; Fountain and Fountain, 1849; Hinton, 1849; Penviance, 1849; Platt, 1849; Mann and Mann, 1849; Manny, 1849; Forbush, 1849; Krauser, 1849; Adkins, 1850; Heath, 1850; Knowles and Benington, 1850; Pierson, 1850; Danford, 1850; Bowerman, 1850; Herndon, 1850; Hunt, 1850; Quincy, 1850; Baily Coates, 1850; Watson, 1850; Neely, 1851; Hurlbut, 1851; Watson, Sabine, and Watson, 1851; Allen, 1851; Stardt, 1851; Palmer and Williams, 1851; Jones, 1851; Seymour, 1851; Miller, 1851; and Manny, 1851.—Total, 99.

No description is given of a number of the first machines; so that the difference between first ideas there and here cannot be known: but Bailey's (1822) and Ingersoll's (1828) have cutters fixed on the periphery of a horizontal wheel, the latter 8 feet in diameter, forming a complete circular knife or scythe, similar to Plucknett's (1805) of this country. Revolving hooks and scythes appear to have been a common idea, even after Mr. Manning produced his reciprocating-knife, which has been so successful. He also proposed fixing lance-shaped cutters or blades on the periphery of a horizontal wheel, sharp only on one edge. Two other ideas are deserving of special notice, viz., to cut and thrash the grain at the same time, and to cut and bind it. As yet both are comparatively failures, but the object at issue is worthy of our transatlantic cousins. Our Australian colonies have produced a successful example, both reaping, thrashing, and dressing at the same time. Many of the inventions, again, are chiefly directed to the gathering of the corn into sheaves after it has been cut.

Of the above 69 illustrated examples on Mr. Woodcroft's table, nine are American, so that we have a grand

total of 160 reaping machines produced by both countries up to 1851 and 1852, or about 200 up to this date; and, looking upon them as a whole, they certainly form an interesting combination of the mechanical powers to obtain a given result—the harvesting of corn.

The work of reaping embraces three things: the cutting of the corn, the gathering or disposal of it after it is cut, and the application of power to perform or overcome the resistance experienced in both these operations.

The cutting-apparatus of the whole is pretty faithfully exemplified by the 69 illustrations already noticed in a tabular form, showing the different modes of action and numbers embracing each; and even among these there are many parallel cases, only distinguishable by some comparatively unimportant alteration in the details, apparently more for the purpose of evading a previous patent than obtaining a really useful mechanical improvement, while many inventors have evidently been reducing the same ideas to practice unknown to each other. For example: Royce and Walker, 1799; Plucknett, 1807; Chandler, U.S.A., 1835; Duncan, U.S.A., 1840; Beekford and Gosling, 1851, and Mason, 1852, differ so little from each other that they may be said to belong to one manufactory; while ditto may be said of Gompertz and Burch, 1852, they being only double, or composed of two horizontal wheels with hooks on their peripheries moving in opposite directions on the same shaft, instead of single or only one wheel; Whitworth, Fairless, France, Mackay, and Springer again may be called bastard examples of the same mechanical family. Of circular cutting-knives, similar to what Mr. Harkes exhibited at Lincoln (No. 7 in the trial report), we have no fewer than six illustrations, viz., Plucknett, 1805; Gladston, 1806; Smith and Kerr, 1811; Bailey, U.S.A., 1822, and Whitworth, 1849, almost identical; while Dobbs, 1814, and Scott, 1815, present similar knives, only with serrated edges; Scott's, 1815, and Gibson's, 1846, present a new feature, the cutting-blade of the knife projecting beyond the periphery of a similar horizontal wheel to the last—the former serrated, the latter smooth; while we find Manning, 1831, and other American examples on the same principle, not illustrated. Mann's, 1820, belongs to the same class. Another class of ideas appears to have had for their object the cutting of corn by means of a series of small smooth cutting edged wheels, advancing horizontally with their peripheries a little past each other, so as to cut like scissors; each pair moving inward, as feeding rollers do. Of the 31 examples of continuous and advancing motion, 4 belong to this class, viz., Cumming, 1811; Phillips, 1811, '43, and '52; Winder, 1851; and Gompertz, 1852. Smith's, 1852, lanceolates the periphery of his small wheels. The remaining 3 examples—Pitt, 1786; Budding, 1830, and Trotter, 1851—present new features each. The first is a drum, composed of a series of circular saws, which strip off the corn. It is, in short, circular motion given to the stripping apparatus of the old Roman machine. The second is a grass-mower, too well known to require further notice; and the third, we fear, displays more

ingenuity than usefulness, being four pair of revolving shears, which clip the corn as they advance. Budding's and Ridley's Australian machines ought properly speaking to have formed an intermediate class between the circular and rectilinear motion, as they embrace both; but of this more when we come to the manufacture of machinery for reaping and thrashing at the same time, for the fine climate of our southern colonies, now attracting so much attention.

Among the 25 reciprocating knives, there is also a great similarity—so much so, that there is little mechanically to distinguish many of them from each other. They may, however, be grouped into four or five sub-classes: First, Salmon, 1807; Bell, 1826; Stacey, Ridley, and Harkes, 1852—five examples where the knife moves on a pin-like shears. Ogle's 1822 and McCormack's two examples of 1854 have a straight reciprocating knife; one of the latter being serrated, which in mechanics is merely a rougher edge; the smoothest edge appearing more serrated than it, under a powerful magnifier. It has, however, advantages in practice, from its remaining longer sharp, or in cutting order, which justly entitle it to a patent and preference over a smoother edge, according to the present progress of things; but at a great expense of power in the working. Next we have the American examples of Manning, 1831, Hussey, 1833, and McCormick, 1850—the latter a serrated edge—with 15 other examples—two of which have double knives—Rundell, U.S.A., 1835, and Wray and Son, 1852, and two with hollow, or skeleton cutters, Randell and Hussey, 1852, similar to those exhibited at Lincoln by Mr. Dray, and one by Johnson, with curved projections. The knife of Forbush, U.S.A., 1849, called a "triangular hollow cutting tooth," appears to have been the first skeleton one used. The remaining example of the 25 is a species of shears, recommended by Gompertz, 1852, and of considerable ingenuity, but not much usefulness it is feared.

The two examples of "sidelong and advancing" motion have knives fixed on an endless chain; the one invented by Lillie in 1847, and the other by Exall 1852. Of the American examples, not illustrated, there are of this kind, Ketchum 1847, Platt 1849, and Pierson 1850.

The four "advancing only" contains the old Roman knife, which cuts on the same principle as a weed-hook; Gladstone's bean-cutter, a skeleton plough, with a serrated wing in place of mould-board, invented in 1826; Esterly, U.S.A., 1844, a straight edge, like a levelling-box, for cutting corn (?); and Blackie 1851, a large triangular knife, worked like a snow-plough.

The five "cutters worked by hand," are the English hook, and scythe; Javanese hook or "*ani*;" Meares' large shears, on two wheels, invented in 1800; and Taylor's horizontal revolving hook, on a vertical shaft, driven by an auger handle, 1851.

Such is the cursory review of the "forms and movements of the cutters of reaping implements" proposed. First, we have the reaping-hook, coëval almost with our race, by which the corn is cut and gathered at the same

operation. Second, the scythe, a very old implement also, by which the operations of cutting and gathering are performed separately. Next, the Roman lance-toothed comb, where the cutting, gathering, and harvesting are rudely performed at once. Then commences a series of improvements. Pitt, in 1786, giving a circular motion to the Roman knife; Boyce, in 1799, fixes hooks on the periphery of a horizontal wheel. In 1800 another old implement is brought to bear upon the harvest-field by Meares, viz., a pair of large shears, moved on two wheels, and having a gathering-bow fixed on the back of each blade. The shears are opened, wheeled forward into the standing corn, when the handles, formed like those of a plough, are brought together, the shears cutting the corn, at the same time the bows on the back holding it fast. The operator then draws the machine back on its wheels, opens the handles, allowing the corn thus to drop in handfuls or small sheaves, as first ideas may have run, when the open shears are again pushed forward. In 1805 Plucknett brings out his circular scythe, by placing scythes on the circumference of a wheel, as Boyce had done hooks six years previously. In 1807 Salmon improves Meares' shears by driving a series of them by means of reciprocating action. Dobbs, in 1814, puts a serrated edge on Plucknett's circular scythe, while Scott in the following year places serrated blades on the horizontal wheel of his predecessors. Ogle, in 1822, invents his reciprocating knife, the motion being communicated by a horizontal working beam, moved alternately by cogs on the two wheels on which the machine is borne. In 1831 Manning (U.S.A.) places upon Ogle's knife Scott's projecting blades, having two smooth cutting edges, producing reciprocating action by means of a crank, as Salmon had done. In 1834 McCormick (U.S.A.) moves Ogle's knife in the same manner, and also serrates its straight edge, as Dobbs had done the circular of Plucknett. In 1850 he produces Scott's projecting blades on Ogle's straight reciprocating knife, now serrated, as Scott himself had done 35 years previously on the periphery of Boyce's horizontal wheel. Then follows a long list of minor alterations of projecting blades on Ogle's reciprocating knife, in order to improve its cutting edge and motion, with which our readers generally must be familiar; and, lastly, Harkes' improvement on Plucknett's circular scythe appear at Lincoln.

In reaping, the next operation after cutting is the gathering of the cut corn into sheaves, binding and stooking it, unless when it is thrashed immediately from the cutters; but this latter practice is as yet the exception, and must ever continue to be so, at least in the majority of our provinces, from our precarious and moist climate; we must therefore treat the former as the general one.

More disappointment has been realized in this department of the work than the other; and perhaps more ingenuity expended to overcome the difficulties with which it is surrounded. This arises not only from the arbitrary character of machinery, and the unequal condition of crops, but from the difficulty experienced in

performing the work successfully under the most favourable state of things; for, although crops may be standing erect, and the day dry and comparatively calm, so that the machine can be wrought in any direction without experiencing unequal conditions, yet the very process of cutting destroys the *status quo*, as it were, while all crops stick less or more together; thus presenting degrees of resistance neither equal nor easily overcome.

The corn as it is cut is either laid into a swathe, and afterwards gathered into sheaves by hand; gathered directly into sheaves from the cutters; or left in an intermediate position of spread-out sheaves, as in the case of Hussey's or M'Cormick's, where a man performs the work with a rake. Each of these three cases was exemplified at Lincoln: the first by Harkness's, Bell's, and Crosskill's; the second by the Automaton; and the third by the American machines just noticed.

Progress in this department is no less interesting than in the other, and deserving of the most careful examination before we can appreciate the past or contemplate the future. Passing over the rude operation of the Romans and Gauls improved by Pitt in 1786, where the process was stripping the ears off the straw into a cart, the next idea was that of the common scythe adopted by Boyce in 1799. Our readers are doubtless aware that corn may be laid into a swathe by a scythe without the cumbersome furniture of bows, rakes, or cruddles "for bringing it round," as it is technically called. The experienced, scientific, and successful mower is familiar with the fact that a proper cutting edge, with a sufficient velocity in a given direction according to the wind and lie or inclination of the crop, will lay it into a swathe better for gathering into sheaves afterwards, without such contrivances than with them, and at a great saving of power. In the one case, the scythe will cut through the crop so easily as scarcely to be felt in the hand; while in the other, rakes and bows drag so heavily as to require not less than probably double or triple strength. This waste of power arises from such appendages coming into contact with the uncut corn, and the manner the cut corn adheres to them when being left in the swathe. It were difficult, indeed, to estimate the increased resistance arising from those two sources which the beginner experiences, who trusts in anything and everything, for the performance of good work, but his own professional skill. The general mistake is, to aim at laying the corn at right-angles to, or right across the direction of the swathe, which is neither more nor less than impossible in nine cases out of ten; whereas the object should be to lay each cut of the scythe separate and distinct from the other, and the corn in it in one direction, whatever that may be—whether at an angle of 90 or 45 degrees, and with the butt-ends of each cut equal, because then each cut can be gathered by the right hand, to the sheaf in the left; and thus the whole placed even in the hand for binding. In attempting to lay the corn right across, the upper portion is sometimes successfully so laid, while the under is lying almost in the direction of the swathe, and hence right

across the former, so that when gathered the straw is broken, and the two rolled together in a disorderly state, with the ears of the lower half as often in the butt-end of the sheaf as otherwise. In laying corn into a swathe with a machine, the same results must be obtained, and objections avoided, which were not accomplished by Boyce's machine, for the velocity of the points of the knives or hooks was greater than the base, while they neither entered nor came out of the standing corn properly. The successful mower advances alternately a step at every cut, keeping the right-hand side of the latter a little in advance of the other; and these are what the machine did not do, consequently it became a failure, but no doubt gave rise to fresh ideas in the way of progress.

The next link in the chain was made by Mr. Gladstone, in 1806, who proposed a horizontal gathering-wheel, with two projecting rakes on its periphery, working at a slower motion over the improved cutting-wheel of his predecessor. Mr. Plucknett's machine gave some hopes of success, so far as the cutting went; but the absence of gathering apparatus brought upon it the speedy condemnation of farmers. To obviate the objections thus raised, gathering rakes were placed on the circumference of a horizontal wheel. These have tails which act on a segment of wood in the circle they describe, bringing the cut corn round until it passes this segment, when the tail, losing its counteracting support, falls back and allows the gathered corn to fall into sheaves at the side. As may well be supposed, it was, like its predecessor, a failure also.

The third idea was suggested by Mr. Salmon in the following year, 1807, who proposed raking the corn off a platform by means of a vertically working rake, so to speak, driven by a large crank in the rear of the machine. The rake consists of three long bars framed—the lower cross bar being at some distance from the bottom, so that the bars below it formed three teeth. It wrought within another frame fixed, and from its top being above it, behind the upper fixed bar and in front of the middle one, over both of which it alternately acted; and from the peculiar slide of the crank attached towards the bottom of the rake, it acquired an automaton motion analogous to that performed by the rake in the hands of the gatherer or the American machines—the only difference being that in this case (Salmon's machine) the rake operated directly across the platform, sweeping the corn off from it into sheaves at the side—making one sheaf at every revolution of the crank. It has several times been suggested to lengthen the platform of Hussey's machine, and to place the man in the rear with his rake, so as to rake off the corn at the side into sheaves, and thus obviate the objection of the cut corn being in the way of the horses when not tied up immediately, in which case the action of the man would be that of Salmon's machine—it being in some respects superior to that of the American Automaton, but in others inferior. There is, however, we presume, the possibility of engrafting the vertical action and entry of Salmon's rake upon the American, and thus greatly improving its effective operation. Independently of the rudeness of

mechanism, the objections to Salmon's are the slowness of the motion across the platform and the irregular mode of dropping the sheaf, both of which should be instantaneous, as it were, so as to avoid the corn which is being cut falling upon the rake, and that which first falls over the outside of the platform being overturned and dragged along when it comes in contact with the ground.

In 1811, Messrs. Kerr, Edinburgh, and Smith, of Deanston, produced another idea—the “conical drum,” re-introduced to notice by Harkes, at Lincoln; the former taking the priority as inventor, although both were claimants. Mr. Harkes's machine very much resembles Kerr's, not only as to the gathering apparatus being an inverted frustrum of a cone, with a circular knife attached to the lower end of it, but also by the driving-wheels working within it. Both machines, Kerr's and Smith's, were tried in the harvest of the same year; and although they fell short of meeting with general approbation, yet nevertheless left a very favourable impression as to future prospects.

In 1815, Mr. Scott placed rakes within a cylindrical gathering drum, the teeth of which project beyond its outer superficies, through holes on the front or side towards the cut corn, but are drawn in on the opposite, thus allowing the corn to fall off at the side of the machine in a swathe. There were also brushes under the rim of the drum, for sweeping forward the root ends of the cut corn, and keeping the cover-plate clean. Altogether, there was much ingenuity elicited in the working details of this machine, but too complicated to prove successful; and besides, the whole was so badly manufactured as not to give the invention a fair trial.

In 1820, Mr. Mann, of Raby, near Wigton, Cumberland, produced the model of a reaping-machine, with six revolving vertical rakes, like the shaker of an old thrashing-machine placed on one end, and with a second rake for stripping the corn from the teeth of the first, when brought round to the side where it was to be left in a swathe. The model was subsequently extended to a working form, under several modifications and improvements; but was also found too complicated in the long run, although the most sanguine expectations were at first entertained of it.

The North of England soon produced a more successful example, for in 1822 Mr. Ogle, of Alnwick, invented the large reel, or rake, for “lashing” the uncut corn towards the knife, as now used in Bell's, M'Cormick's, &c., and the tipping platform and rake as now used by Mr. Dray. The mechanism was comparatively rude, and somewhat different from that of modern times; but these are changes which scarcely fall within our notice, beyond the fact that reaping machines require to be of finer construction, everything being mathematically correct, than probably was anticipated at that time, or is even yet generally acquiesced in. The mode of working the rake was also different; the man raking off the corn at the side in sheaves, so as to be out of the way of the horse next cut. By this plan the corn was also found to be more easily tied up, than when left behind in a spread-out sheaf. A very cursory glance at the

different parts of this machine, however rudely put together, must convince every reader, whose mind is not biased by circumstances extraneous of the question at issue, that “the schoolmaster was in reality now abroad,” making rapid progress, not less in the gathering than cutting apparatus of reaping machines.

In 1826 Mr. Bell brought out his revolving apron, or endless web, for gathering, accompanied with Ogle's reel in front, which has since been used by his brother; and in 1831, 1833, and 1834 we have the American examples of mowing; Hussey and M'Cormick illustrating different modifications of the gathering apparatus of Ogle; while at a later date we have improvements on that of Salmon from the same quarter in the automaton, so justly admired for its mechanical ingenuity.

In 1851, Watson, Renwick, and Watson, of Chicago, Illinois, proposed gathering and binding at one operation, by means of “endless rake-chains,” arms, and levers for alternately raising and depressing the teeth; a moveable platform for changing backwards and forwards the binding apparatus, so as to cut the different lengths of corn, and an “automatically” acting “cord finger” for encircling the sheaf by the band or “binding cord,” with “tying forceps” and other almost inexplicable “devices” for binding the sheaves and throwing them from the machine ready for stooking (!!!) We should also have noticed that long prior to this date, or so far back as 1828, Mr. Samuel Lane, of Hallowell, Maine, patented machinery for cutting, gathering, and threshing at one operation. “The combination of reaping and threshing,” remarks “The Journal of the Franklin Institute,” “appears rather incongruous; but the inventor has contrived, with great ingenuity, to apply a large portion of the machine for reaping to the purpose of threshing, so as to include the whole in one patent. He has also a roller and other appendages, moved by the same power, for the purpose of shelling corn.” Subsequently attempts were made for producing the same result, but with no better success.

In South Australia, Mr. Ridley, in 1845, at Adelaide, was more fortunate than his transatlantic rivals; he having, in that year, produced a machine which “reaps, threshes, and winnows, all at the same time, and this at the rate of nearly an acre an hour; the machine requiring to be attended by two men.” This machine, and the claims of our Australian colonies, at present deserve special notice; and, as formerly promised, we hope to be able to do so on a future occasion.

Such is a very cursory review of the gathering department of reaping machines. Salmon was the first to receive the cut corn upon a platform, from which it was deposited in sheaves at the side, by means of an automaton-rake. Prior to this, Boyce and Meares had each appeared in the field; but no part of their propositions have subsequently been adopted. The gathering apparatus of Gladstone, in 1806, was scarcely more successful. It, however, involved principles which paved the way, no doubt, for the subsequent examples of Scott and Mann, as well as his own

improvements in 1815, and all those who adopted revolving rakes over circular-cutting knives. Early in 1811, Mr. Kerr substituted his conical drum, whose whole machine is so similar in many respects to Mr. Harkes's "tub," as it was termed by many farmers at Lincoln, from its so close resemblance in form to this domestic utensil, as to be mistaken for it. Ogle's improvements of 1822 are among the most important of the whole. Bell's endless web of 1826 adapts itself to the reciprocating straight cut, as the conical drum the circular; and therefore forms an invaluable acquisition also. The progress of the schoolmaster and minister is deserving of special notice, for subsequently we have little to investigate but trivial improvements on what they had done. Dividing the whole into classes, we have thus—1st, automaton rakes; 2nd, handrakes, with platforms and reels; 3rd, revolving rakes; 4th, conical drums; 5th, endless webs or aprons; and 6th, endless rake-chains. The French reaper, shown at Lincoln, belonged to this last class. Such are the channels in which mechanical ideas have moved, relative to the gathering of corn by reaping-machines.

Reaping machines are either drawn behind the horses, somewhat like a boat on a canal, or pushed before them, after the manner of a wheelbarrow; and the two plans have given rise to considerable controversy as to which is the best. Both have their advantages and disadvantages; hence the grounds for differences of opinion, in the absence of experimental evidence of a more lengthened and satisfactory character than has yet been obtained. True it is, that the former has been in constant operation in America since 1833; and the latter, in this country, for a longer period; but, unfortunately, experience here was never called upon to pronounce judgment upon them until last year, at Gloucester, when she gave her verdict in favour of the "cart before the horses"—a sentence which has this year been reversed at Lincoln: hence the position which we are still in. Under such circumstances, the golden maxim of "Science and practice" obviously demands that we scrutinize the merits of both plans, without the expression of opinionative views on either; and this is just what we shall briefly endeavour to do, and, in order the better to accomplish it, shall, in the first place, take a cursory glance at the whole from the commencement, as we have done with the cutting and gathering apparatus.

The Romans and Gauls, as has already been said, yoked the machine before the horses. The reaper, in this case, was a low cart with shafts, between which an ox was yoked in a reversed position. The cutting apparatus was placed on the top of the "tailboard," and was lowered or elevated by shortening or lengthening the backband which supported the shafts. There being but one ox, and only two wheels, the machine was much more easily controlled than the four-wheeled reapers of modern times, pushed before two horses.

Pitt, the example from "Walker's Philosophy," Boyce, and Plucknett followed the Roman plan. The first Scotch example (Gladstone, 1806) is of the opposite kind, the machine being drawn behind the horses, and having two handles, like a plough, for regulating

the cutters; and Plucknett's second example (1807) appears on the same plan. Salmon's (the same year) was, according to some, of this mode also, being pushed forwards. It might, however, have been drawn from the fore-corner, as Mr. Scott's subsequently was; and this appears to us to be the plan for which the machine was really constructed, if ever intended for horse-power, as it obviously was, although the imperfect description given along with every drawing we have yet seen states the contrary, thus: "H, handles by which the machine is wheeled," being all that is said on the subject. Now, upon the drawing there are two handles, marked H H, obviously constructed for guiding the machine, on the principle of a helm steering a boat in a canal—a theory current at the time. The description is, therefore, at fault on one point; and, consequently, we have some grounds to conclude that the word "wheeled" is a *provincialism* meaning "guided" or "steered;" for it would be absurd to suppose that a man could wheel such a machine before him, or that a horse could be placed between two such handles. Moreover, part of the machine, at the fore-corner, is removed, to show the cutting apparatus; and the appendage for attaching a horse may have also been removed, and the description of it omitted, as the descriptive references are, as we have seen, apparently hurriedly written. But whether it was drawn by the right-hand fore-corner or not, it may, with the assistance of the handles for steering, have been so, giving to it an entirely new feature, which otherwise it would not have possessed, involving principles susceptible of being easily improved upon; for, by giving a reverse motion to the crank of the gathering apparatus, and placing a hook or ring for attaching the horses to the opposite corner, in returning, we have an automaton machine capable of cutting in both directions, or from one side of the field, without interval, to the other, like the old Roman.

The first Scotch example having failed, the next, in the north, is Mr. Kerr's (in 1811), pushed before the horses, analogous to Mr. Harkes's, at Lincoln. Contemporaneous with Kerr, we have Smith of Deanston, on the same principle. In 1815, Mr. Scott took the opposite plan, as already referred to; and in the same year, Mr. Gladstone brought out his improvements of his first machine, still adhering to the same mode of yoking his team. In 1820, Mr. Maun followed on the same side, introducing a front wheel behind the horses. Subsequently, he was advised to adopt the Roman plan; but the proposition did not meet with his own approbation, still less the trial, so that he afterwards returned to his original design. In 1822, Mr. Ogle yoked the horses before the machine; and in 1826, Mr. Bell placed them behind it. It is rather singular to see the schoolmaster and clergyman thus opposed to each other, as it were, on the mode of draught, and their descendants—Dray's and Crosskill's machines—contending in the field for the prize at Lincoln! Whether from the comparative success of Bell's, and the influence of Mr. Smith, of Deanston, who advocated putting the machine before the horses, we will not say; but, in the north, opinion was generally in favour of this plan at this

period; and it appears to have extended as far south as Lincolnshire, where Gibson's came out on this plan, in 1846. Indeed, throughout the kingdom, it was generally advocated until the arrival of the Americans, when the old Scotch plan revived, and, judging from Lincoln, bids fair to leave its opponent behind, or at least bring it fairly to the bar of experience.

In America we find a similar state of things, both plans of yoking the horses having been adopted; but there, the tide of invention appears to have been more in favour of the Scotch mode of draught than the Roman. It has been so in this country, as our readers will perceive, but not to the same extent; and this arises from our northern neighbours themselves having thrown aside their own plan, and adopted that of "putting the cart before the horses," as previously attempted by Boyce and Plucknett, in this neighbourhood.

In each of these two modes of yoking there is a considerable diversity of contrivance, independently of that which distinguishes the one from the other, deserving of a passing notice, from the principles they involve, many of them suggesting farther improvement. There is, for instance, a wide difference between the mode in which Crosskill yoked his horses at Lincoln, and that pursued by our forefathers in the days of the Romans, when we were at this season harvesting our corn—either shipping it directly from the field to Rome, or else for being put into Roman granaries, for early export next year. At that time, the object of the British farmer was to secure the earliest and best samples for export, reserving the inferior quality for his own use. Indeed, he was then more dependent upon his flocks and herds, with the produce of hunting, than bread-corn; and hence, the worse work in the harvest-field, the fatter mutton and bacon afterwards, so that his rude reaping machine, and his mode of yoking and working it, harmonized with his interest. A single ox in the shafts was all that was necessary; and he was soon trained to guide the machine and keep pace with his driver, attending to the cutting apparatus. But, rude as such machines and mode of yoking them were, they yet furnish information; for a two-wheeled machine is much more easily driven straight forward in the direction of the corn to be cut than one on three or four wheels, as any one may experience who wheels before him a two-wheeled truck or barrow, and a four-wheeled one; or the same is illustrated in backing a (two-wheeled) cart and a (four-wheeled) waggon: and when we add cutting and gathering apparatus, which act adversely and irregularly to the advancing motion of the machine, as we soon shall see involved in some of our modern improvements, the task becomes more difficult, and still more so when two horses are yoked abreast, each in shafts, as was done when first tried, because then their action was also irregular—hence the next improvement, of a pole and whippetrees. But even these were found insufficient to overcome the above difficulties; so that machines then ran into the standing corn, and otherwise were ungovernable, like Harkes's at Lincoln, until a steering apparatus was attached to the point of the pole,

enabling the driver to counteract the adverse motion or agency in question.

The first of the machines drawn behind the team had also two high wheels, with shafts and framing so elevated as to permit the revolving rakes to bring the corn out below them, thus involving a principle since departed from, and which, if applied to Crosskill's, would permit of its being drawn behind also, instead of pushed before, so as to secure the side delivery, thus avoiding the objection so forcibly and practically brought against Hussey's by Mr. Hume, of Canada West, in the *Mark Lane Express* of last week. Should experience ultimately decide in favour of this mode of draught, Salmon and Scott's machines present another feature already noticed, of permitting their being easily worked both ways, but at a sacrifice of power, the cutting apparatus and driving wheels being out of the line of traction. Mr. Mann, again, added a third wheel immediately behind the horses, to give steadiness to the machine—an improvement engrafted on several of our modern ones. Ogle's approached nearer to the French reaper, with the addition of a reel, than its descendants, the Americans, the driving machinery being between two large wheels, with the cutting apparatus and platform projecting beyond the outside of one of them. The American proposition of one large driving wheel, within framing, behind the team, with the second wheel (a small one) on the opposite side of the platform, is greatly superior to any of its predecessors, although, doubtless, subject to farther improvement in carrying it out.

The objections brought against Salmon and Scott's machines, and which would also exist against Crosskill's, were the draught removed to the front, relative to the driving wheels and machinery being out of the line of traction, have been obviated by the American automaton, the gathering apparatus being placed behind these—an improvement which could easily be effected on them also, but at the sacrifice of cutting both ways; for the moment we fix the cutting apparatus at the side (or driving wheels, &c., which is the same thing), there they remain fixed, until we adopt some such plan as exhibited on the French machine, of turning knives, platforms, reels, and endless webs from one side to the other, which can easily be done by a horizontal motion, instead of vertical, as the French knife.

In theory, there cannot be a doubt that the Roman plan is superior to the Scotch—i. e., that Crosskill's mode of draught is superior to Dray's, if properly applied; for, in the latter case, the horses can never pull fairly in the line in which they walk, but always a little upon one side, the line of traction making an angle with the line of motion. We might easily enter into a mathematical demonstration of this proposition, were it necessary. We know it was long tenaciously argued by our more metaphysically gifted neighbours of the North, that because the driving-wheel and machinery are behind the team, the resistance was mainly, therefore, in the line of traction. But the fallacy of such a conclusion has long since been admitted even by the North itself; for, according to Newton's well-known law of motion,

"action and reaction are equal and contrary." And, moreover, the resistance of the cutting-knife is comparatively little to that of the fingers or gathering apparatus acting against the corn at a great disadvantage of lever power. In practice the facts are observable, the line of traction always making an angle with the line of motion, as any one in the trial field at Lincoln may have perceived; so that the conclusion is obvious to every practical man, even though little versed in mechanics.

On the other hand, if Crosskill's whippletrees are placed at the proper elevation, his wheels of the proper height, the day comparatively calm, the corn standing so as to secure an uniform resistance along the reel and endless web, the lateral action of the web itself fairly counterbalanced, the machine cutting its exact breadth, neither a hair-breadth more nor less, and the horses properly driven, then the lines of motion and traction correspond, and the resistance experienced by the machine is reduced to the minimum in producing a given effect. This machine, doubtless, produces a greater effect than the other, the corn being lashed to the cutting-knife by a reel—instead of the rake, in the other case, worked by a man, and delivered at the side by an endless web, and therefore must experience a greater resistance, and the horses, consequently, a heavier draught. But this has nothing to do with the question at issue—the combination of the above conditions in the harvest field. Now, conceding to the soundness of our proposition, which is susceptible of easy proof, we come to the practical question—Was it realized at Lincoln? And the obvious answer is, Certainly not; for the horses there were neither properly driven, nor the machine equally fed: granting that the other conditions were correct, where farmers must judge the height of their own teams, &c. At times, for instance, it would have cut six inches more, and sometimes even a foot. Consequently the pole was thus far from the centre of resistance; so that the line of traction must have formed an angle with the line of motion, although not very perceptible to casual observers. To counterbalance this, the man at the steerage operated against the horses with a long lever-power, like the driver of an engine with a break on the wheel: hence the consequences which follow, viz., an increase of draught not easily estimated when a herculean rustic is alternately pushing this way and that with all his might. In the bustle of a trial field such as Lincoln, less or more exciting horses, the smallness of the patches into which it is subdivided by openings, affording advantages to the other class of machines which are not to be met with in the harvest field generally, and the many turnings consequently experienced, Crosskill's, and those of this class depending so much upon driving and feeding, must always experience a difficulty in getting fair play on such occasions—at least, until our labourers and all parties involved are more thoroughly masters of their work. But, in the meantime, that is no reason why we should impute to machines the misconduct of their drivers and teams; or, *vice versa*, impute to them the good conduct of those who work them, as in the case of the man and rake on Dray's, on whose management so much depends, and who at Lincoln re-

ceived so little for his trouble at the hands of the public: and Harkes', which was hardly looked at, because an ignorant man did not drive it right.

So much for the cutting and gathering apparatus of reaping machines, and the mode of draught. Many improvements have been made since Pliny wrote his description of the Roman, or rather Gallic machine, used in the extensive plains of Gaul, and no doubt subsequently in Britain, from whence Rome received a large annual import of corn; and, doubtless, if we could see as far before us into the realms of futurity, it would be seen that we are yet a long way from the end of the chapter. But, be that as it may, many improvements were made last year in both classes of machines, although we cannot say that these are sufficient to justify the reversal of the judgment of the Royal Agricultural Society of England. The utmost that can safely be said here is that Carlisle, or the experience and judgment of the future, is left to say whether Gloucester or Lincoln is right; for it cannot be denied that greater improvements have been made on the prize machine of the former than on that of the latter, since last year. It is no doubt possible that the one was better prepared for a short trial among green rye, while the other was worse; but what have exceptions or any conditions of this kind to do with the merits of either machine for general harvest work? We are far from saying that the recommendations of the society last year, so generally and justly approved of, have been complied with on either side, especially by the two rival machines; for the principal objections brought against the prize machine from the commencement still remain in force, while the improvement or simplification of the other, has been effected at an increase of expense, instead of a decrease, as the public obviously had a right to expect, the American machines being cheaper than Bell's. When a merchant mixes a less expensive article with one of greater, the buyer naturally expects the compound at a medium price. In agriculture, farmers can never separate the mechanical value of a thing from its pecuniary—a fact much in favour of the reversal of the judgment of the society; if not the only basis on which it can be founded. The French reaper belonging to the one class of machines, and Mr. Harkes' to the other, have done more perhaps to comply with the recommendations of last year, than any other; the former by suggesting the reversal of the cutting apparatus, and the latter improvements on the old circular-knife and gathering drum of Kerr, though neither was successful for reasons already given. Continuous motion has much in its favour, while draining, grubbing, and clod-crushing machines are fast obviating the early objections brought against the circular-knife. As a side delivery, again, the revolving drum has been found to lay the corn better than the endless web, or revolving rakes in the harvest field, where the machines were in constant operation, and hence had the best opportunity of testing their merits. The master point is to effect successful combinations at little expense, for fortunes cannot yet be made out of imperfect machines.

PROGRESS IN RURAL ARCHITECTURE.

The almost intolerable heat experienced during the last two days of the meeting of the Royal Agricultural Society at Lincoln and since, very naturally forces upon the inquiring mind the query, Was there any contrivance exhibited there to mitigate and avert its consequences? Throughout our provinces nearly every habitation of man and beast consists of only one storey; or where there are two in the former case, the sleeping apartments, especially of our labouring population, are in attics, with little between them and the slates or tiles, with which their houses are generally covered; while these are, for the most part, old, and subject to rapid decomposition; consequently the hard-working man is first broiled during the day in the heat of the sun, and roasted over night in an atmosphere highly prejudicial to health. Old timbers, roofs, walls, and ground-floors invariably imbibe moisture during the winter months or rainy weather, giving rise to fungi and the pernicious atmosphere which always surround them; while during weather like the present, miasmatic vapours arise from the bottom, and not unfrequently the more elevated portion of the domicile is loaded with the effluvia of insects and vermin, which never fail to be present under such circumstances. Such being the facts of the case as regards our labourers, while those involved in the household accommodation of live stock are some degrees worse, the question, we say, naturally arises at a period like this, What are we doing to avoid such a calamitous state of things? Was any thing done at Lincoln?

The cool weather before the cattle-show in some measure accounted for the fine condition of the animals exhibited in every class. Had it been as warm before as it has been since, it is far from likely that appearances would have been so favourable. Indeed the proposition at issue may be safely accepted as beyond doubt; for every breeder of prize stock has experienced the difficulties of contending with heat and an impure atmosphere. Sheep hovels, for instance, have been erected under the shade of trees; roofs and walls have been covered with stuffed burlles, and the interior cleaned out twice a day, or oftener, if required. But, when all this has been done, how often has the farmer met with disappointment from the weather! How often has he or his shepherd, on entering in the morning after a very sultry and close night, found his favourite sheep dead, or in the jaws of death, or so far gone as to render the slaughter-house the only safe alternative left? This is more especially experienced perhaps in the case of beginners, who are liable to force forward their things faster than prudence admits of. In keeping out heat, for example, how often is bad air kept in! So that the temperature and ventilation of buildings are topics second to none, even in the management of prize beasts themselves; and the farther we improve our breeds of cattle, the more important are they likely to become.

At the Lincoln meeting there were two stands spe-

cially connected with our subject, viz., that of Mr. Thorold, of the Hamlet of Thorpe, near Norwich, Norfolk, and that of Mr. Bruce, of 52, Nelson-street, St. James's-street, Liverpool; while the temporary erections of the show-yard for the accommodation of exhibitors, live stock, and implements, furnish one general example on a large scale, each of which we shall briefly notice in the order here given.

The first comprises a series of three examples, illustrated by models of cattle-feeding boxes and apparatus, suitable for different kinds of soils and management, invented by the exhibitor, to whom too much praise cannot be given for the laudable manner in which he has been exercising his talents for some time past.

The only direction into which we shall turn inquiry in this important case at present is to obtain thermometrical and other meteorological results. It would be a most important desideratum to procure the facts of the case in both these respects, stated in comparison with those of the older practice. Were the temperature of such buildings carefully noted down at different periods of the day and year, for instance, and placed in a tabular form in juxtaposition with that of the present class of buildings, and also the natural temperature of the atmosphere where cattle and sheep are still exposed to such with the progress they are gaining or losing in weight in each case—such facts, we say, would be of incalculable value. Questions of this kind are of too much importance to admit of a bare opinion; for facts, and facts alone, are absolutely necessary in order to base any new practice, like that at issue, upon a solid and sure foundation. The purity of the atmosphere, again, is a chemical question, involving the application of chemical tests, in order to ascertain results, and may give rise to greater difficulties in carrying out experiments. But many farmers or their sons are now sufficiently versed with the routine of the laboratory to be qualified for this also, so as to be able to bring out the facts of the case in both examples. There is indeed no longer an excuse for the farmer who is not so qualified.

If Mr. Thorold or any correspondent could furnish the information here suggested, they would be conferring upon their country an incalculable amount of good. There was never a time in the history of British agriculture which called more loudly for the careful registry of facts than the present; and those we have thus with respectful solicitude brought before our readers are not the least important in the statistical catalogue.

The second proposition is the covering of the roofs of houses with white japan varnish, so as to prevent them absorbing moisture during winter, thereby making the interior warmer, and absorbing heat during summer; thus making it (the interior) cooler than now experienced. It is a well-attested fact in physical science—

one which daily experience at present confirms—that any thing of a white colour keeps out heat better than black. White clothes, for instance, are warmer in winter and cooler in summer than black. Hence the reason why many wear white coats and hats in summer, who otherwise would prefer black, which they wear during nine months of the year. Hence the slates and tiles covering houses are occasionally painted white, or merely white-washed. The latter practice is becoming common among amateur farmers, who white-wash the whole of their cattle-houses outside and inside. There are, however, many objections to the practice—such as its non-durability in the case of cattle-houses, and washing off the roof of the labourer's cottage, destroying the rain-water so generally preferred for washing purposes; while painting is too expensive for buildings of every kind in connection with agriculture. If a white japan varnish can be had as cheap as a black, this objection would disappear; for a gallon, which only costs 5s., we are informed will cover 200 feet; “one single coat equalling two coats of the best black paint.” The other specimens exhibited of blue, red, and green-coloured compositions of various shades were finer and more expensive, being 15s. 6d. per gallon, as stated in the catalogue report of the previous week, and therefore would be too high-priced for roofs; but the specimen of black is fine enough; and we do not see why a white colour should not be produced at an equally low rate. If it can be so, the probability is that the almost suffocating atmosphere of many an attic as well as cow-hovel might be very much changed to the better, if not effectually cured; while the durability of the structure would obviously be greatly increased.

Such a conclusion, however, in the absence of experiment, must of course be qualified. Those of our readers who are in the habit of attending the meetings of the Royal Society must be familiar with Mr. Bruce's japan varnishes, while very many have appreciated their value in all those cases where paints are applied; but until we put the question to the exhibitor at Lincoln, the idea of a cheap white japan varnish for the roofs of houses had not occurred to him, and, consequently, he was not, amid the bustling inquiries of the show-yard, able to furnish us with that information which we otherwise would have received; but he promised to turn his attention to the subject immediately on his returning home to Liverpool, and to let us know; and as soon as we hear from him we shall lose no time in laying the results before the public.

Meantime, believing that Mr. Bruce is a reader of the *Mark Lane Express*, we may observe that the information required is of a two-fold character: *first*, as to the price and durability of the article, and, *second*, as to heat and cold, and a pure atmosphere within doors. In short, all these questions, already referred to in the case of Mr. Thorold's moveable feeding-boxes, are involved, and therefore require similar solution, chemically and mechanically. On all these points the public is entitled to the necessary information before its cordial support can be obtained; for farmers must not only have a cheap article, but an effective one, before they will become

purchasers. As to the former, we perceive that transparent varnish can be had at 7s. per gallon; and if any white pigment, or colouring matter (for we are not in this case tied down to white lead, or even to many of the nicer rules of the art of painting) of less value than the varnish itself, the compound may not much exceed the price of the black already noticed.

Hitherto experiments have been confined to painting and white-washing, as formerly stated, and a question therefore may arise as to whether the objections to them may not be obviated so as to render them preferable to the white japan varnish of Liverpool, supposing such to be forthcoming. A coarser sort of paint, for instance, may be manufactured, or some ingredient added to the white-washing, so as to render the former cheaper and the latter more durable. From the progress of things, it appears perfectly possible that any labourer may yet be able to whiten permanently the roof of his own cottage, after his daily task is over, for a few shillings, and that from the advantages gained his employer may see fit to advance this small sum. The more preferable plan, however, would be for the farmer, or rather the landlord, to go over the whole buildings upon his estate at once, as this could be more cheaply done than small contracts; but it would be hopeless to expect any such thing of them until experience has returned a more satisfactory award than she has yet done. For progress in this direction, the Society might, it is presumed, very laudably encourage competition by a £10 and £5 prize.

The third example for notice is the show-yard of the Society. What can be learned from it? Much, in many respects. Live-stock, for instance, were cooler under the temporary covering of canvas than they would have been had the sheds been covered by slate or tiles, and had the roofs been a little higher a still greater difference would have been experienced. It is the height of the palm tree which gives it so cooling a shade. The air beneath them (the sheds) was also purer than in brick and mortar buildings. At Constantinople and Varna our soldiers are experiencing similar benefits from a covering of canvas, and throughout Oriental climes the tents of the wandering Arabs, Tartars, and others have more to recommend them to favour than at first may be imagined. They are, no doubt, unfit for the rigorous weather experienced during winter in either of those places; yet this may arise rather from mechanical defects in the construction, or expenses, and not from the slender character of their materials, or even the principal of their construction, for many Kurdish and Tartar tribes prefer tents during winters as rigorous as those of the Danubian Principalities. Double windows and walls furnish evidence of a similar kind—proving that cold (a negative quality) may be kept out by very simple means; in other words, that heat may be confined within-doors by a medium of atmosphere, more effectually than by more solid materials; and what will keep in heat during winter will also keep it out during summer, so that the same contrivance serves two purposes. With this dwellers in tents have long been familiar.

These observations obviously point to the advantages

of hollow and double walls and roofs over solid ones—provision being made for a free circulation of air in their interior during summer; in other words, for the escape of heated air and ingress of cool. There must not only be an imperceptible circulation or change of air kept up in the interior of the building itself, but also between the two divisions of the walls and roof; for if the heated air were allowed to stagnate during summer, from the laws of heat, it would give out its coloric to the interior; and for a similar reason the heat of the interior would escape outside, were not steps taken to prevent it. It is also more than probable that the outside division ought to be thin; because it would then be capable of absorbing less heat within itself, while any heat which passed through would be carried off by the intermediate body of atmosphere, while such a provision would be equally in favour of keeping in heat during winter. Walls are now being built of hollow bricks; but the air within them is confined, and hence gives off the heat it receives from the outside laterally to the interior. It would be otherwise were the openings or hollows to communicate with the outside at top and bottom; for then the heated

air would ascend, making its escape at the upper orifice, while cool air would rush in at the lower one, thus reducing the temperature of the wall. The ceiling in houses also exhibits the principle of a double roof; but the air between it and the slates or tiles is confined, subjecting the interior to consequences similar to what have just been stated regarding walls, only ten-fold worse from the greater body of confined air, which absorbs a quantity of heat during the day, such as to keep the poor man's cottage in a stove over night. During day the dark-coloured roof, and confined air between it and the ceiling, absorb heat from the rays of the sun, which it gives off during night, increasing the temperature of the interior often to a higher degree at midnight than what is experienced at noon day!

We must postpone further details on this important subject to a future occasion, only pointing at present to the value of thermometrical observations of the atmosphere within different kinds of buildings high and low, having thick walls, hollow walls, &c., &c., and under all sorts of circumstances meteorological.

EPIDEMICS, TOWN DRAINAGE, AND MANURING THE LAND.

No. VI.

SIR,—Until we shall have obtained more positive information on the functions of plants, however strong may be our prepossessions in favour of any particular theory, a renewal of the discussion of the source from which plants derive their nourishment could show but very little light on so interesting a question. Mr. Pusey has, however, prominently brought under notice the fact that manures are stimulating in proportion to their contents of nitrogen, which may appear rather paradoxical on reference to the table you politely afforded in your journal of the 22nd May, wherein it will be seen that whilst wheat contains only 2.30 per cent., carbon prevails to the extent of 46.1; and while we are not informed by vegetable physiologists that vegetables evolve free nitrogen, Mr. Pusey has afforded unquestionable evidence of the value of nitric acid as a manure, which acid contains only 14 of nitrogen to 40 of oxygen.

We are at present cognizant only of the fact that the vegetable kingdom yields free oxygen, which the diffusionists have hitherto led us to suppose combines with the nitrogen set free from the atmosphere by combustion and respiration; but whilst (during certainly seven months of the year) no oxygen is evolved in northern latitudes, it is there that the great bulk of the nitrogen is liberated at the very time that the vegetable kingdom is dormant. Let us suppose, on the contrary, that the atmosphere, instead of being merely a mechanical mixture, is a chemical compound, originally formed and now regenerated by the vegetable kingdom, and all mystery will disappear.

There is constantly generated by combustion, putrefaction, and respiration, a large amount of carbonic acid, which gas, being of greater specific gravity than the atmosphere, and highly soluble, must necessarily reach the earth, and we have of late had incontestable evidence that ammonia is a constituent of rain; there is, therefore, presented to the root of the plant—

Ammonia . . .	{ hydrogen—fixed by the plants. nitrogen } air.
Carbonic acid	{ oxygen } carbon—fixed by the plants.
Water	{ oxygen } partly fixed and evolved as vapour hydrogen } and oxygen.

And as the amount of oxygen of the fixed carbon and hydrogen is much greater than is necessary for the regeneration of the atmosphere by the vegetable kingdom, plants necessarily evolve much free oxygen, which being of greater specific gravity than air, falls to the earth, to the decomposition of all dead vegetable and animal matter. The regeneration of air I have not yet demonstrated by experiment, nor would my doing so be of any avail, so long as the laws of the increase of weight in matter by compression remain in abeyance with the scientific world; but it must be self-evident that here, at least, we have a chain without a wanting link in this stupendous branch of nature's operations; and if, in connection with my principles of snow, treated of in my former papers, I allude to electricity being evolved by the vegetable kingdom, and to the well-established fact that more rain falls on forest land than on land free from wood, it cannot fail in adding to the beauty of the subject.

The *Times*, in the last of four articles under date of the 23rd September, 1853, observes that “no one, however, has been able to show that there is any such parallelism between the electric and choleraic records, from day to day, as would justify the notion of there being any essential relation between them;” and by the same parity of reasoning, there can be no relation between the evaporation of last March and April, and the rain that has since fallen; but if we drop the “day to day” there can be no difficulty in showing, on facts, that cholera is essentially referable to the relative electrical state of the atmosphere and the earth. An apparatus which I have had in operation since 1845 inclusive, affords unquestionable evidence that in 1846, when the potato blight was so severe, the

atmosphere was highly electric, and that from that period to 1848 this condition gradually declined, and the rapidity with which it did so in 1849 caused me to forewarn Mr. Chadwick of the coming cholera, at least a fortnight before it visited our shores. Cholera first made its appearance in India about 1817, and there, where vegetation is luxuriant in the extreme, and affords evidence of a negative atmosphere and positive earth, it ravages villages as well as towns, more especially those in the neighbourhood of swamps, where a high chemical action is always going on, and robbing the air of its electricity; but in this country it attacks only towns, where, by the condensation of the gases generated by combustion, respiration, and more especially putrefaction, the atmosphere is reduced to a very negative state, whilst in villages its influence is counteracted by the constant supply from the vegetable kingdom of a vast amount of electricity. Electricity I have clearly demonstrated to be identified with "cold," instead of with "heat;" it is, in fact, the cause of the former, its abstraction producing the latter; and during a healthy state of the body, our system, in temperature, is always above that of the external air, and we generate compounds of a highly offensive nature; but when attacked with cholera, cold supervens, and our discharges become of a watery kind, almost free from smell; and I need scarcely remark that under the influence of putrefaction, oxygen combines with carbon in preference to hydrogen, whilst with a high electrical state the affinities are reversed.

In 1849 there was no potato blight, whilst this year it has appeared in a mitigated form; there is reason, therefore, to hope that our towns will not suffer so much this year as they did on the last visitation; but is it in my power to refer with certainty to the information afforded by my apparatus, it having, unfortunately, been removed from London without being tested by a similar apparatus in the country, notwithstanding all my endeavours to the contrary? The following extract from my register will, however, show the cause of the amazing fruitfulness of the present season, and that the electrical state of the atmosphere continuing on the decline, forebodes no very agreeable prospects for the inhabitants of towns. How much longer will our deplorable ignorance on a question of such vital interest, to both the agriculturist and townsman, be endured by the executive of society?

EXTRACT FROM JOURNAL.

	Evaporation.	Insulated.	Non-Insulated.
March	9590	555	—
April.....	18550	1265	110
May	8765	320	—
June.....	10260	335	20
July	11310	315	80
August, to the 22nd ...	6975	120	15

For an explanation of the above figures, see my letter in the "Farmer's Magazine" for September, see page 212.

FRANKLIN COWORTHY,
Author of "Electrical Condition."

Maresfield, Sussex, 23rd August, 1854.

HOW TO KNOW THE AGE OF A HORSE.—The colt is born with twelve grinders. When four front teeth have made their appearance, the colt is twelve days old; and when the next four come forth, it is four weeks old. When the corner teeth appear, the colt is eight months, and when the latter have attained to the height of the front teeth, it is one year

old. The two year old colt has the kernel (the dark substance in the middle of the tooth's crown) ground out of all the front teeth. In the third year the middle front teeth are being shifted; and when three years old these are substituted by the horse teeth. The next four teeth are shifted in the fourth year, and the corner teeth in the fifth. At six years the kernel is worn out of the lower middle front teeth, and the bridle teeth have now attained to their full growth. At seven years a hook has been formed on the corner teeth of the upper jaw; the kernel of the teeth next to the middle front is worn out, and the bridle teeth begin to wear off. At eight years of age, the kernel is worn out of all the lower front teeth, and begins to decrease in the middle upper fronts. In the ninth year, the kernel has wholly disappeared from the upper middle front teeth, the hook on the corner teeth has increased in size, and the bridle teeth lose their points. In the tenth year the kernel is worn out of the teeth next to the middle fronts of the upper jaw; and in the eleventh year the kernel has entirely vanished from the corner teeth of the same jaw. At twelve years old, the crown of all the front teeth in the lower jaw has become triangular, and the bridle teeth are much worn down. As the horse advances in age the gums shrink away from the teeth, which, consequently, receive a long, narrow appearance, and their kernels have become metamorphosed into a darkish point, gray hairs increase in the forehead, over the eyes, and the chin assumes the form of an angle.—*Practical Farmer.*

SINGULAR CASE OF INSTINCT IN A HORSE.

We do not remember ever to have heard of a more remarkable exhibition of equine intelligence than was communicated to us a few days since by Mr. Allen, of this place. The circumstances as they were narrated to us are as follows:—Mr. A. had for a considerable time a span of sprightly little horses, that he had never separated. In the stable, in the field, and the harness, they have always been together. This has caused a strong attachment to grow up between them. A few days ago he went out with them to Lake Minnetooka, on a fishing excursion. Taking them out of the carriage, he led them to the lake and tied them several rods apart on a strip of grass that grew upon the shore, and left them to feed. Returning to the shantce, he threw himself upon the floor, to await the return of the party who had repaired to the lake to fish. Not much time had elapsed before the sound of approaching horse's feet attracted his attention, and a moment after one of his horses appeared at the door. The animal put his head in, and giving one neigh, returned at a slow gallop, yet under evident excitement, to the spot where but a few moments before, he and his companion had been seemingly safely fastened. Surprised to find his horse loose, and struck with his singular conduct, Mr. A. immediately followed, and found the other lying in the water, entangled in the rope, and struggling to keep his head from being submerged. While Mr. A. proceeded to disengage the unfortunate horse, his noble benefactor stood by, manifesting the utmost solicitude and sympathy, and when his mate was extricated from his situation, and again upon his feet upon terra firma, the generous creature exhibited the most unquestionable signs of satisfaction and joy. That this intelligent animal should have noticed the unfortunate situation of his mate—that he should know where to apply for rescue, and in his efforts should sunder a three-fourths of an inch rope, and finally that he should exhibit so high an appreciation of the event, are curious circumstances to us, and commend themselves to the thoughtful consideration of those who would limit the power of reasoning to the "genus homo."—*St. Anthony's Eve.*

THE ORIGIN OF WHEAT.

The reputation of the *Journal* of the Royal Agricultural Society is well sustained by the number recently published. It contains several articles to which we wish to direct attention. The first is a very interesting paper, translated from the French of M. Esprit Fabre, on the species of *Ægilops* of the south of France, and on their transformation into cultivated wheat.

To M. Fabre is due the merit of having settled the question of the origin of wheat. It had previously been surmised that this grain was a cultivated form of some species of *Ægilops*; and the experiments and observations of M. Fabre, continued through twelve years, leave no doubt upon this point.

The species of *Ægilops* are common, not only in Babylon and Persia, where it has been said, both in ancient and modern times, that wheat grows wild, but in Sicily, another of its traditional birth-places, and in all the countries bordering the Mediterranean basin. It inhabits flat, hot, and dry plains. Three species are met with in the south of Europe—*Ægilops triuncialis*, *Æ. ovata*, and *Æ. triaristata*. Some botanists enumerate a fourth—*Ægilops triticoides*; but the observations of M. Fabre have proved this to be only a variety, produced indifferently from *Æ. ovata* and *Æ. triaristata*. On this point there can be no mistake; for the ears of *Ægilops* are coriaceous, and remain entire for more than one year; the grains do not fall out of their envelopes, but, when arrived at maturity, the ears break off, and fall on the ground, where they speedily germinate. A number of young plants thus spring up from the unseparated spikelets. Some of these are identical in habit with the parent plant; some are of the form of *Ægilops triticoides*. There is a difference, however, in the form of *Ægilops triticoides* derived from *Æ. ovata*, and that derived from *Æ. triaristata*. The former are glaucous and many-flowered in their spikelets, have more flowers, and are packed closer to each other; the latter are yellow, sometimes blackish brown, are alternate-flowered, and formed of spikelets tolerably distant from one another, and so arranged that the alternation is very distinct. To the two species of *Ægilops* which are transformed into *Æ. triticoides* M. Fabre traces the two series of distinct varieties, each consisting of one of the known groups or races of cultivated wheat.

His experiments were confined to the cultivation of *Ægilops triticoides*, obtained from *Æ. ovata*.

When he made them, he was unacquainted with *Æ. triaristata*, and its triticoid form. They commenced in 1838; and the result was that, by continued resowing, a gradual approach took place in the produce to the characters of true wheat. The floral envelopes gradually lost their width, and some of their awns; the stems, leaves, and ears became more and more developed; and the ears lost their deciduous character. In 1845, the transformation was complete. Hitherto, the experimental cultivation was made in an enclosure surrounded by high walls, in which there was no other gramineous plant, and far from any place where cereals were cultivated. Considering that he had now brought *Ægilops triticoides* to its greatest perfection, and obtained a true *triticum* or wheat, M. Fabre resolved to carry on the cultivation in the open fields, taking the precaution, in order to prevent hybridization from the contact of the pollen of the cultivated varieties, to sow the wheat which he had thus obtained in ground surrounded only by vineyards, and remote from any in which corn was cultivated. This was continued for four years successively, and at each harvest produce was obtained similar to common wheat, the yield being from six to eight times the quantity sown, and varying with the season. During all this time, not a single plant was seen to reassume its primitive form of *Ægilops ovata*.

These changes are illustrated by a series of figures of the *Ægilops* in its wild state, and in the several stages of transformation into bearded and beardless wheat, during successive years of cultivation. They are analogous to the changes induced by cultivation in the *Brassica oleracea* or wild cabbage, a bitter sea-side plant, than which nothing can be more unlike the numerous varieties of our garden cabbages, broccoli, and cauliflower, all of which have been derived from it. The paper on "finger-and-toe" in root crops, by Professor Buckman, is on a kindred subject; but its conclusions are not quite so satisfactory as those obtained by M. Fabre. The writer restricts the term to a branching or growing of the root in a digitate form, excluding the excrescences caused by the bulging of the root around the larvæ of insects, the cracking and splitting of the root, and the rotting of its parts, all of which pass in common parlance as "finger-and-toe." Restricting the term to this forked condition of carrots, parsnips, and turnips, as distinguished from the smooth outline, and unbranched fusiform condition of well-developed

roots, Professor Buckman concludes, that, 1stly, "finger-and-toe" is not a disease, but the reversion, to a greater or less extent, of the cultivated plants to a wild state; 2ndly, that it will always be found more or less in every field of the above roots; 3rdly, that it will always prevail where the crop is derived from seed brought from a rich to a poor soil; 4thly, that it is likely to result where seed has been grown in the district in which it is sown for the crop; 5thly, that this degeneracy must always result where a whole patch or field is indiscriminately saved for seed; 6thly, that it is usually a result in districts where the original species is a wild native. The foundation on which these general conclusions rest, is, that a clean or unbranched tap-root is not a natural condition of the parsnip or carrot; that Professor Buckman carried on for three crops the cultivation of experimental plots, sown with the seeds of the wild carrot (*Daucus carota*) and the wild parsnip (*Pastinaca sativa*), which grow spontaneously in the neighbourhood—that the second crop of parsnips presented some approach in the stems, leaves, and roots to the cultivated plants; while in the third crop there was no advance in any stage upon the

second; but, on the contrary, a disposition to retrograde. In the carrots cultivated in the same manner, the change effected was not nearly so great as in the parsnips. The failure in both cases, he thinks, arose from the plants being placed, under circumstances of soil and situation, too similar to those of their wild state; and he is going to repeat the experiments in places where all the circumstances will be as different as possible from those under which the seed was grown. Having thus satisfied himself by his experiments that the forked condition of our root-crops is a kind of half-way house between wildness and cultivation, Professor Buckman set himself to work to inquire into the circumstances of this mischief, as it affects cultivated crops. From general observation and inquiry, he arrived at the other conclusions which we have enumerated above, and felt his theory to be confirmed. These views may be correct, but further proof is desirable. We must suspend our judgment till the result of the experiments which are to be made shall be before us. At present the modesty of the facts, as was once observed respecting some hasty generalizations in geology, accords but ill with the boldness of the conclusions.

OVER-FATTENING OF CATTLE.

SIR,—I always read with a great interest the judicious remarks you never fail offering to your readers, on the different agricultural meetings which, at this season especially, are taking place in various parts of the land. Having attended several myself, with the peculiar interest of one whose business it is to select the best specimens of animals in the breeds of neat cattle, I have on all occasions earnestly looked for your observations, as published in your valuable journal, in corroboration of my own, and have always felt gratified when I found them to coincide and agree.

I was particularly struck with your remarks on the Ripon Meeting, especially as I saw other papers upholding similar ideas to your own respecting the high condition in which cattle were exhibited.

I am afraid, however, lest you, Mr. Editor, and those who have followed in your wake, have expressed opinions which a little consideration might perhaps have modified; allow me then to lay before your readers a few short remarks on the subject, in order that the question may be fairly discussed, and, if possible, settled; and that hereafter no unjust remarks be made likely to attach a blame or a censure on those who, far from deserving them, are entitled to praise and commendation for their clever and judicious management.

I apprehend that when a premium is offered to the best animal of a class, it is the business of the judges who have to award it, to select that animal which possesses the greatest amount of those qualities which

constitute perfection. Now no one can deny that one of the most important points of merit in a breed of cattle is a ready propensity to fatten—a striking aptitude to assimilate to their system all the nitrogen contained in their food. Why then hold up as a reproach that point of merit which is next to none in breeding cattle—one which it must be the aim of every breeder to attain? For, after all, what is most thought of in our days is undoubtedly the production of food; and therefore that animal which, in addition to form and touch, exhibits a great development of fleshy parts, however fat they may be, provided always the surface be evenly laid, without patches or wrinkles, is, in my opinion, the most commendable; and, with due deference to the opinion of others, I must contend that it is to that animal that the prize is due. Nay, I think that besides the merit of aptitude to fatten, two other points of equal importance should be admitted into the scale, to determine that pre-eminence to which the prize is given; I mean milking and breeding qualities.

It is obvious that the very object of shows, where premiums are offered, is to promote perfection—that is, the reunion of all those qualities which we look for in an animal, viz., symmetry, early development, quality of flesh, aptitude to fatten, good yield of milk, and regular breeding. Some will object, no doubt, that some of these qualities are incompatible; that the one will exclude the other; that over-fattening will promote barrenness, and stop the yield of milk altogether. I

readily grant that this is *often* the case ; but I am ready to prove that it is not *always* so ; and besides even granting that this is an evil difficult to overcome, from the moment it is proved that it is not insuperable, is it not a paramount duty, in agricultural societies, to promote the solution of the problem of fattening without interfering with breeding, and bestow honours and rewards on those who, by their judicious management, have been able to attain that standard of perfection ?

Some object also that judges cannot form a correct opinion of animals when their lines of symmetry are overlaid with fat, and that many defects are hidden by the effects of high feeding. Nothing can be more specious than this objection. Any one, with the least amount of experience, well knows that defects are, on the contrary, made more apparent when magnified by *embonpoint* ; and a close inspection at any Smithfield Show will convince the most unwilling, that symmetry and form are but enhanced with those animals which are naturally well made and proportioned, by luxuriance of flesh and well-filled hides.

As you have singled out the Towneley herd as one in which that tendency to over-fatten is strikingly exhibited, I took advantage of my presence at the Lan-

cashire Show, held at Burnley on the 24th ult., to view that famous herd ; and there I was gratified to see animals with a luxuriant *embonpoint* it is true, but displaying all the symptoms of health and strong constitution ; and in looking over the "Herd-Book" kept at the Hall, found that, with scarcely a single exception, all the cows and heifers, however fat they might be, were regular breeders.

From this fact I conclude that since with good management it is possible to keep animals in a high condition without interfering in the least with their breeding qualities ; and considering that a fat animal is a much more pleasant object to look at than a lean one, and moreover, that *embonpoint*, however skilfully managed, will never make symmetry or disguise imperfections, and that aptitude to fatten is an important object of commendation in cattle—I conclude, I say, that it is not only wrong to censure those who have solved the problem, but that it is incumbent on agricultural societies to reward their judicious efforts and honour their success.

F. R. DE LA TREHONNAIS.

Falmouth, August 30th, 1854.

THE HAGNABY SALE OF SHORTHORNS.

The sale of this valuable stock, the property of John Kirkham, Esq., took place at Hagnaby, on Thursday, the 24th Aug., under the auspices of Mr. Stafford, of London, the able editor, of "Coates's Herd Book."

The interest excited in agricultural circles by the announcement of this sale, was very considerable, Mr. Kirkham being well known throughout the kingdom as one of the most spirited breeders of shorthorns in this part of the country. The herd consisted of upwards of 80 bulls, cows, and heifers, descended from some of the best stock in the country ; and early in the day the yards and fields were crowded by a numerous company, many of them from a great distance, inspecting and handling and criticising the merits of the various animals. There had been no attempt to get the stock up for sale, yet they were in useful condition, and the prices realized by several showed that their merits were duly appreciated ; one beautiful heifer, fifteen months old, after a spirited competition with Mr. Mason Hopper, of Newham Grange, being knocked down to Lord Feversham for 160 guineas, whilst a bull, about a month older, fetched 100 guineas. These two, unfortunately, leave the county ; but a fair portion of the stock remains amongst us, including a nine months' old bull bought by Mr. Wingate, of Hareby, for 72 guineas, a prize with which he appeared highly gratified ; others selling as high as 70, 65, 62, 61, 57, and 50 guineas each. The average price realized for the bulls, cows, heifers, and calves, was upwards of £35. The aggregate of the sale was £2,945 5s.

The company present exceeded in point of position and numbers any similar purely agricultural assemblage of recent date.

At half-past twelve o'clock the company sat down to a splendid luncheon, provided by Mr. Jackson, of the Peacock Inn, Boston. The large marquee, belonging to Mr. Pratt, of Lincoln, capable of holding upwards of 500 persons, had been

erected and decorated for the occasion ; but, there being a very high wind in the morning, it was unfortunately blown down, and luncheon was therefore partaken in the open air. The weather, however, though boisterous, was very fine, and no serious inconvenience resulted from the accident.

After luncheon, at which the Mayor of Boston ably presided, the Chairman gave the usual loyal toasts, and next proposed the health of Mr. Kirkham in very flattering terms, extolling him as a friend, a neighbour, and a master, and expressing his regret at that gentleman's being about to retire from breeding shorthorns, feeling confident that a blank would thus be left which it would be impossible to fill up. The toast was warmly responded to.

Mr. KIRKHAM briefly returned thanks for the support he had received, and for the honour done him by the manner in which his name had been received, and for the numerous attendance at the sale. He had exerted himself to the utmost to introduce into the districts the finest breeds of cattle, and they had liberally supported him. He now thanked them for the last time. Mr. Stafford would shortly introduce the stock to them. They knew what it was, and they knew its character. He would merely add that nothing would be bought in, but each animal would be sold to the best bidder. If there was a flaw in any of the pedigrees it would be for Mr. Stafford to tell them of it, and he would no doubt do so.

Several other toasts followed, and were briefly responded to ; Mr. Torr regretting that Lincolnshire should that day be robbed of one of its best herds, and advocating a friendly rivalry in keeping up the breeding of the stock in the county ; and the Rev. Mr. Coltman expressing his sincere sorrow, on behalf of his brother, that he was about to lose a tenant so highly esteemed and respected as Mr. Kirkham.

The company then adjourned to the sale-ground, when Mr. Stafford briefly prefaced the proceedings by announcing the

conditions of sale, and explaining that, although after the purchase the animals would be at the buyer's own risk, yet every care would be taken of them, and all reasonable accommodation offered. He felt highly honoured in the compliment that had been paid him in requesting him to offer for sale the splendid stock that would be brought before them, and with an inspection of which they must all have been highly gratified. He had had the pleasure of knowing Mr. Kirkham for upwards of twenty years, during which time his name had been familiar to all as a breeder of first-rate stock; any eulogium from him, therefore, was unnecessary, his name being as well known as his judgment was respected. Mr. S. concluded by reverting to the superior breed of some of the animals, which were then put up, and disposed of in the order of catalogue:

Amount of sale of cows and heifers and calves.....	£2,284	16	0
Average price	£32	12	0
Amount of sale of bulls and calves.....	660	9	0
Average price	£44	0	0
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Total amount of sale.....	£2,945	5	0

—Abridged from the Lincoln Times.

SALE OF THE DODFORD FLOCK.—This celebrated flock of new Leicesters was brought to the hammer on Thursday, Sept. 7, Mr. Pott, of Nottingham, being the auctioneer. The day was exceedingly fine—an agreeable contrast to the dripping day of the last sale—and a numerous and influential company assembled; there being, probably, not fewer than from 400 to 500 gentlemen present. The sale was well supported by gentlemen of the neighbourhood, but the company included breeders of note from very wide distances. We understand that, with this sale, Mr. Hewitt terminates his career as a sheep breeder.

Total amount of sale:—

Ewes and theaves	£555	3	9
Tups.....	886	14	6
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	£1,441	18	3

The average of the ewes and theaves was £4 17s. each; and the tups, £14 15s. each. It is seldom that a second year's sale succeeds; but this year's sale has beaten last year's—the ewes and theaves last year averaging only £4 8s. 5d. each, and the tups £14 13s. 2d. The two sales, taken on the whole, are believed to be the best on record of late years, and to have exceeded that of the late Mr. Burgess, of Holme Pierrepont, who, at his death, was considered the head of all Leicester breeders. The total of Mr. Hewitt's two sales is £3,720 7s. 3d.: a pretty round sum for a few sheep, or only one part of the stock of a farm.

SALE OF SUPERIOR STOCK.—On Tuesday, Sept. 5, an important sale of young bulls and some pigs of superior breed, the property of S. E. Bolden, Esq., took place at Springfield Hall, near this town, by the celebrated auctioneer, Mr. Strafford, of London. The bulls, it must be observed, were all by the far-famed bull "Grand Duke" (which animal was sold by Mr. Bolden in 1853 for 1,000 guineas), and were all from cows of first-rate character and breeding. The celebrity which this breed has obtained throughout the country drew

together a large assemblage of the most noted breeders of stock from various parts, and amongst whom we noticed the Hon. Noel Hill; Mr. Sainsbury; Mr. Wetherell; Mr. R. Booth; Mr. Sandy; the agents of Lord Hill; Lord Balcarres; Lord Burlington; Mr. C. Towneley, and Mr. Foljambe, several of whose stock took some of the first prizes at the Royal Agricultural Show at Lincoln; and amongst our local celebrities were Mr. C. Whalley, Mr. Ellison, Mr. John Pritt, and Mr. Carr. The bidding in most instances was very spirited, and the various lots were knocked off as follows:—"Cavendish," roan, calved Sept. 1, 1852, Lord Hill, 50 guineas. "Veteran," red, calved Nov. 1, 1853, Rev. J. D. Jefferson, 40 guineas. "Constantine," red and white, calved Nov. 12, 1853, T. Lamb, Esq., 36 guineas. "Iron Duke," red, calved January 21, 1854, Mr. Foljambe, 40 guineas. "Second Duke of Bolton," red roan, calved March 11, 1854, was the subject of a very spirited competition, and was eventually purchased by Messrs. Sanday and Smith for 90 guineas. "Second Duke of Cambridge," red, calved April 14, 1854, also caused a very severe competition, and was knocked down at 100 guineas to Mr. R. Bell. "Duke of Wellington," roan, calved June 1, 1854, Mr. Carr, 40 guineas. The average being within a few shillings of £60 each. In the sale of Pigs the sows averaged a little more than £10 each, and the young ones a little above £4 each; the principal purchasers being, Miss Dalton, Thurham Hall; Mr. Pollock, Mountainstown, Ireland; Mr. Tanqueray, Hendon, Middlesex; Lord Hill, Lord Balcarres, R. T. Brockholes, Esq., and C. Towneley, Esq. It was with gratifying feelings that we noticed the encomiums bestowed upon Mr. Bolden's cattle generally, and which includes a young bull out of a sister to the "Grand Duke," which Mr. B. is retaining for his own stock, and also two heifers of the "Duchess" breed, and which were especially admired by the gentlemen assembled. We were informed that these young bulls averaged higher prices than any other lot of bulls sold this year. Immediately after Mr. Bolden's sale, Mr. Strafford submitted for competition some choice pure bred short-horned cows and heifers, the property of William Carr, Esq., of Stackhouse, near Settle, which ranged at from 30 to 42 guineas each, the average being a few shillings more than £36 each. A heifer calf by "Horrox" brought 8½ guineas. A shearling ram of Earl Ducie's breed brought £5 10s. A two-shear pure bred Leicester tup, £3 5s. Southdown ewes of Earl Ducie's breed, £2 each; and the ram lambs averaged nearly 28s. each. Mr. John Pritt was the principal purchaser of the sheep.

SALE OF SHORTHORN CATTLE AND SOUTH-DOWN SHEEP.—These sales, by Mr. Strafford (the former the property of W. F. D. Dickinson, Esq., of this town and Swarthmore-hall, the latter belonging to the Earl of Burlington), took place in the show-ground of the North Lonsdale Agricultural Society. As might have been expected from the high reputation acquired by Mr. Dickinson's herd, from his having introduced into Furness some of the finest stock in the kingdom, and from the fact of his having been repeatedly and signally successful at the Royal North Lancashire and other agricultural exhibitions, numerous and spirited purchasers were induced to attend. The thirty-two collectively were sold for about 700 guineas. The sheep, too (coming from the Holker estate, together with the name of Strafford, afforded a sufficient guarantee that "something worth buying" was to be offered for competition) realised high prices—though by no means too high considering the celebrity of the noble earl's flock.

FOOT-ROT IN SHEEP.

A most instructive and interesting discussion on this subject took place on Tuesday, at Mr. Watkins's ram sale, at Woodfield Ombersley, in the county of Worcester.

Mr. WATKINS said: I endeavoured at my last sheep sale to give some opinions I had formed on the subject of foot disease in sheep, as distinguished from the old and well-known disease called foot-rot; and I then stated, and still believe, it was very little known in England till the increased imports of sheep and cattle from the Continent after the reduced tariffs of 1842. I am still anxious to call attention to this particular point, in order that a remedy might be found, for I am thoroughly convinced that the sheep stock of this country has been greatly deteriorated since the time that disease appeared; and not only has the flockmaster been a considerable loser, but the public generally have been sufferers on more points than one. It is unreasonable to suppose that when a flockmaster finds this disease in his fatting stock, he puts them on one side till a cure is effected. The butcher cares not for a defect so little perceptible to his customers, and by which he loses nothing, or probably gains by the infusion of blood in the inflamed limb; even in bad cases, he is enabled to procure a fair price for an unsightly joint, from the manufacturers of soups, sausages, &c. And at any rate it is offensive to suppose we are consuming under any form the meat of an animal slaughtered in a state of inflammatory disease. The foot disease is known to exist in all the richest farming and grazing districts in the country, but the mountain sheep of Wales and Scotland appear to be exempt, and as foreign sheep have not been introduced into those parts, this adds to the probability that it is an imported disease. And I am led to this conclusion from constantly seeing foreign sheep in the districts round London, that have been purchased in Smithfield Market, in a deplorably diseased state. I have often talked to men I have seen dressing them, and I have invariably heard the same remarks from them—that the sheep stock of the country will never be healthy again, as long as diseased sheep are imported and allowed to be driven to our markets; for as soon as one lot is cured or slaughtered, fresh ones are purchased, which infect the whole district again. Surely it must be desirable, if not for the health of the public, yet for the sake of economy, that some extraordinary means should be adopted to remedy so great an evil; for it is useless to suggest measures for its cure so long as the disease is allowed to be imported, and it is most desirable that inspectors of stock should be appointed, under very stringent regulations, at every port, to watch the disembarkation of stock, with power to order all ships containing diseased sheep or cattle from our shores.

Mr. G. WHITTAKER said that, to get anything done by the Legislature, those who complained of the importation of infected animals must make out a good case. They did not doubt that the disease was imported; but how

were they to prove it? No foreign sheep had ever reached the Ombersley district; still the disease had come here to some considerable extent. But they must remember that, during the last eight or ten years, there had been blights and various diseases, such as had never been heard of before.

Mr. WATKINS said he was now residing principally within twenty miles of London, and was riding continually about, in various directions. He had never yet seen a flock of imported sheep but what had been more or less diseased. The merinos, which had been largely imported, were the most subject to the disease; and he had seen them huddled together like pigs, and unwilling to stir until they were threshed up with the sheep hook.

Mr. CURTLER intimated that the Royal Agricultural Society had already taken up the subject, and that, in his opinion, if the council of the society thought they could move the Government to do anything beneficial, they would do so; therefore it struck him that the interference of the local societies would not be attended with much good. He agreed with Mr. Whittaker that the strongest proof would be required before the Government would do anything by which the importation of foreign stock would be prohibited, or put under such restrictions as would amount to a prohibition. Mr. Watkins had shown that the sheep on the mountains of Wales and Scotland had been found to be free from this disease. Last year he (Mr. Curtler) saw thousands and thousands of such sheep on Salisbury Plain, and asked the shepherds there questions upon the subject of this disease, and he did not meet with a single shepherd who had it in his flock. It struck him that it was questionable whether the disease was imported. Where pastures were much elevated, and the herbage short, fine, and dry, there was no disease; and so far as his experience went, there was most disease where the pastures were the richest. It was incontestable they had got disease among the sheep in this district, and without the presence of foreign sheep it still broke out again. He observed that last year in the wet season it was very prevalent, but on the disappearance of the wet the disease in a great measure disappeared. In his own flock of 500 or 600 sheep the disease had entirely disappeared, and for months not a single sheep or lamb had had anything the matter with it in the foot. Last year he had not a single ewe, or indeed a single sheep, that was not diseased several times over. No foreign sheep had been near his flock. His plan to get rid of the disease had been to see his flock dressed every day. He believed he should not have got rid of it without, because every sheep took a long time in dressing; and a great deal of patience and attention were required, as well as much cutting; because, unless every particle of disease, up to the very coronet itself, were removed, and the foot dressed with care, the disease would break out again. He did not think all the efforts of the agricultural societies would induce the

Government to interfere; and his advice was, that every man should use his best endeavours to get rid of the disease in his own flock.

Mr. WATKINS doubted whether Mr. Curtler and he were alluding to the same disorder. There were three distinct diseases of the feet of sheep. One was the old-fashioned foot-rot, now prevalent about this neighbourhood, which everybody knew by the peculiar appearance and smell of the foot. Then there was another disorder, which became prevalent when he was a young man, which people in the neighbourhood of Kidderminster called "wildfire," in order to distinguish it from the foot-rot. It came on with a violent swelling at the ankle and often at the fetlock-joint; matter would form in a large abscess, the sheep very often rubbed its nose or its eye against its foot, and those parts became inoculated, and the sheep was in consequence badly disfigured about the face. Sometimes the sheep would get inoculated on the breast, where there was a little bareness from lying down, and then abscesses would form about the body. But this was not the disease to which he wished to direct their attention. The disease he meant was not known in this country before 1843 or 1844, when it spread rapidly across the country, taking a flock here there, and missing others. The sheep appeared to be palsied when taken with it. He at first fancied his sheep had a complaint in the back or spine, they seemed to have so little power about the legs. It turned out to be a disease in the coronet and round the hoofs. As he said last year, he believed that when the disease appeared the best plan was to puncture the coronet, put a seton in, and drive away the virulent matter before it penetrated between the sensitive part of the foot and the hoof, and caused separation. He still believed the disease was imported, because it was talked of by the old German writers centuries ago, and had not been written of in this country, and, moreover, first made its appearance on the introduction of the new tariff. Where the sheep had been injured by this disease, the old-fashioned foot-rot was sure to follow, but that was very easily cured; if not, it was from the ignorance of the shepherd.

Mr. G. WHITTAKER mentioned, as a remedy, pyroligneous acid, in which as much blue and white vitriol as possible is dissolved, and then mixed with Armenian bole, in order to make it stick to the sheep's foot. Butter of antimony, which was an old-fashioned remedy, was too strong.

A NEW SUBSTITUTE FOR THE POTATO.—In the garden of the Horticultural Society at Chiswick are growing two plants of a Chinese yam, which is expected to prove an excellent substitute for the potato. They have been obtained from the *Jardin des Plantes* at Paris, where they have been made the subject of experiments that leave no doubt that it will become a plant of real importance in cultivation. "If," says M. Decaisne, who has paid much attention to matters of this kind, "a new plant has a chance of becoming useful in rural economy, it must fulfil certain conditions, in the absence of which its cultivation cannot be profitable. In the first place, it must have been domesticated in some measure, and must suit the climate; moreover, it must in a few months go through

all the stages of development, so as not to interfere with the ordinary and regular course of cropping; and, finally, its produce must have a market value in one form or another. If the plant is intended for the food of man, it is also indispensable that it shall not offend the tastes or the culinary habits of the persons among whom it is introduced. To this may be added, that almost all the old perennial plants of the kitchen garden have been abandoned in favour of annuals, wherever the latter could be found with similar properties. Thus, *lathyrus tuberosus*, *sedum telephium*, &c., have given way before potatoes, spinach, and the like. Now, the Chinese yam satisfies every one of these conditions. It has been domesticated from time immemorial, it is perfectly hardy in this climate (Paris), its roots is bulky, rich in nutritive matter, eatable when raw, easily cooked—either by boiling or roasting—and then having no other taste than that of flour (*fecule*). It is as much a ready-made bread as the potato, and it is better than the *batatas* or sweet potato. Horticulturists should, therefore, provide themselves with the new arrival, and try experiments with it in the different climates and soils of France. If they bring to their task, which is of great public importance, the requisite amount of perseverance and intelligence, I have a firm belief that the potato yam (*igname batatas*) will, like its predecessor the potato, make many a fortune, and more especially alleviate the distress of the lower classes of the people." Such is M. Decaisne's account of this new food-plant, which is now in actual cultivation at Chiswick; and judging from the size of the set from which one of the plants had sprung, it is evident that the tubers have all the requisites for profitable cultivation. One has been planted under glass, the other in the open air, and at present both appear to be thriving equally well. The species has been called *dioscorea batatas*, or the potato yam. It is a climbing plant, bearing considerable resemblance to our common black bryony, and, when it is considered how nearly that plant is related to the yams, the probability of our new comer becoming naturalized among us receives support. Whether, however, it realizes all that the French say of it or not, the trial of it in this country cannot prove otherwise than interesting and worthy of the society which has had the honour of introducing it. Let us hope, however, that it may indeed prove what it is professed to be, "a good substitute for the potato," and in all respects equal to that valuable esculent.—*From a Correspondent.*

AGRICULTURAL STATISTICS OF HAMPSHIRE.—

From the report of Sir John Walsham and Mr. Hawley, on the agricultural statistics of Hampshire, printed by order of the House of Commons, we take the following important totals:—

Number of statute acres 895,410 $\frac{3}{4}$

Of these the number of arable is. . 603,219 $\frac{1}{2}$

Number of acres of land under cultivation, distinguishing the different kinds of crops:—Wheat, 96,228 $\frac{1}{4}$; barley, 62,380 $\frac{3}{4}$; oats, 57,075 $\frac{1}{4}$; rye, 1,907 $\frac{1}{2}$; peas and beans, 14,096 $\frac{3}{4}$; tares and vetches, 13,868 $\frac{1}{2}$; potatoes, 2,801 $\frac{1}{4}$; turnip or rape, 83,847; carrots, 388 $\frac{1}{2}$; mangold wurtzel or beet root, 1,515 $\frac{3}{4}$; cabbages, 355; clover, lucerne, &c., 100,114 $\frac{1}{2}$; meadow and pasture, 123,519 $\frac{1}{2}$; chicory, none; hops, 1,711 $\frac{1}{4}$; other crops, 4,260; fallow, 39,076 $\frac{1}{2}$. Number of acres not in crop:—Woods or plantations, 105,839 $\frac{1}{2}$; commons or wastes, 89,630 $\frac{1}{4}$; holdings of less than two acres, 17,382 $\frac{3}{4}$; land not accounted for, 79,338 $\frac{3}{4}$. Amount of stock on the 24th October, 1853:—Horses, 24,076; milch cows, 19,350; other cattle, 13,148; sheep and lambs, 489,227; swine, 61,860.

THE REAPING MACHINE COMPETITION.

This week it is our duty to record the second great trial of reaping machines under the auspices of the Stirlingshire Agricultural Society, which came off with considerable éclat on Friday last. Public advertisement had given notice that no less than eleven machines had been ordered for competition; of that number five appeared to be machines with which the agricultural body were more or less previously acquainted, the remainder being either altogether *new* or only partially brought out; and as regards this last division, it may, of course, be supposed that expectations were excited and curiosity raised on tiptoe. The result of the *turn-out*, therefore, as we observed from the remarks of many individuals, was to a certain extent mixed with disappointment, when it was found that five machines only started in competition. Two others, indeed, were on the field, but withdrawn, and of these we may afterwards take some notice.

The following machines were entered for competition:—

1. Dray's Hussey's Lincoln premium machine.
2. Crosskill's Bell's improved machine.
3. Crosskill's Hussey's improved.
4. M'Cormick's, without web.
5. M'Cormick's, with web.
6. Hussey's, improved by Gardner.
7. Wylie and Garduer's (of Stirling) new machine.
8. Simpson's (of Westmains) new machine.
9. Reid's (of Monkton Mills) new machine.
10. Drummoud's (of Cameron Bank) new machine; and
11. A second Bell, entered by Mr. M'Queen, of Arnhive.

The competing machines were, for the occasion, numbered 1 to 5, and designated as below:—

- No. 1. M'Queen's Bell.
2. Dray's Hussey.
3. M'Cormick's.
4. Burry's M'Cormick.
5. Crosskill's Bell.

By the arrangement of the Committee of Management, each machine was to operate upon the different crops in the following order:—Oats, wheat, barley, and beans; and for each machine a portion of the respective crops was marked off, for which the owners drew lots, and to these lots the respective numbers were affixed. The five lots of each crop were, of course, in the same field, and it fortunately happened that the crop in each was tolerably uniform in quality. The oat-field was a fair stand-up sample; the wheat rather thin on the ground, and consequently upright, with a strong undergrowth of creeping weeds; the barley, without being laid, was considerably distorted and trying for a machine; the beans were, on the whole, a strong crop, but less uniform than any of the others; and, as for the surface state of all the fields, it was that of land under the best system of modern management—ridges level, and no deep furrows; hence, in the most favourable state for machine reaping.

The arrangements made for the convenience of the judges of the trials were, that they should have the whole field to themselves up to 12 o'clock. This was, no doubt, a matter of great convenience to the judges; but, unless it is intended that they shall publish a detailed report of the day's proceedings, with their remarks on the efficiency, the defects, and modes of operation of the different machines, suggestions for im-

provements, &c., we question very much the propriety of such exclusiveness and apparent want of respect for the public. For our own part, although by courtesy admitted to the trial fields, the vigilance with which the police adhered to their instructions, debarred us from any close inspection of the working of the machines until after the appointed hour for the general public. From these circumstances we are unable, from ocular observation, to offer such minute remarks on the action of the machines as we would be inclined to do had we had the opportunity of leisurely studying their action and effects.

In the latter part of the day we did obtain crowded opportunities of observation on different machines on wheat, barley, and beans. From these observations it became very apparent, long before the opinion of the judges became known, that Crosskill's improved Bell's machine, No. 5, was to carry the day. It had performed on all the three white crops with its usual precision and effect, which we need not again describe here; and on beans, where all the others fell more or less short, it went through without stoppage.

Of the two machines, No. 3 and 4, on M'Cormick's principle, it soon became evident that No. 3 was the best of the two. This machine is M'Cormick's original with some improvements, both in the construction of its frame-work and in the arrangement of its machinery. It worked in every case most satisfactorily, and, though from its mode of delivery, held inferior to No. 5, yet from its great simplicity of parts, it seemed to be generally admitted to hold the second position of the day. We know also that it possesses certain qualities that enables it to achieve what even Bell's cannot perform—one of these is its aptitude for crossing deep furrows. Its cutter, as is now well known, has been engrafted on Bell's machine; but owing to the peculiarities necessary in the frame-work of the latter, its adopted cutter is worked at a disadvantage as compared with that of its parent. In the original the cutter is worked directly by a connecting rod from the crank, while in the new one that office is performed by the intervention of a lever between the connecting rod and the cutter. That lever we would presume to advise Mr. Crosskill to dispense with if possible.

The M'Cormick machine, No. 4, differs but little from the original, excepting that it has adopted Bell's delivery web, and this, as in the case of appropriation above alluded to, seems to be applied in some measure at a disadvantage. The peculiarities of construction of the original again come in the way of the combination, and the application of the web is accompanied with an obstacle that prevents a free delivery in any heavy crops. In ordinary cases the machine performs well; but this defect caused its complete failure in beans. But the object Lord Kinnaird has here been in pursuit of is too important to be lightly dropped. We therefore hope that, instead of being discouraged, his Lordship will yet persevere in the combination till a successful consummation is achieved.

The machine No. 2, Hussey's by Dray, is almost a curiosity from its apparent simplicity and lightness, while its general principles are very similar to M'Cormick's, excepting in the serrature of its cutter, there being two plain edges meeting at a much more acute angle than in M'Cormick's, and its having no reel. The only new feature we observe in this machine is, that its platform is converted into a tilting

board, operated upon by the foot of the raker. When the quantity intended for a sheaf has been collected, the fore edge of the platform is tilted up, and this lessens the labour of delivery, the foot and hands keeping exact time. We cannot help expressing doubts of the utility of this improvement; for, although the person who performed this combined action of foot and hands effected it with great dexterity, it was observable that on the tilt being raised, however quickly done, there is a tendency for the first of the succeeding collection to get under the edge of the platform, instead of getting upon it. A novice at the rake on such a machine would make sad work of it.

THE TEST OF DRAUGHT.

The amount of muscular exertion of the horse expended in impelling such machines, is a matter of the first importance, and much has been said for and against machine-reaping on this score. To determine therefore such amount ought to form a prominent feature in all such trials as the present.

A dynamometer having been procured, the machines were in succession tested by it. The subjoined average result of these trials of draught is to be taken as the absolute of each machine as it worked; but to obtain the true relative in proportion to the reaped area, we must take into account the breadth that each machine actually cuts. It must be remarked also that in noting the observations of the instrument, considerable discrepancies were observed to arise from irregularities in the individual crops, as they stood thicker or thinner on the ground, &c., and what appeared more difficult to account for was, that the heavy crop of beans required not more draught than the lighter, though distorted, crop of barley. In one case, indeed, M'Cormick's, No. 3, appeared to work heavier in the latter. We give the average in the annexed table, without specifying crop, in cwt. :—

DRAUGHT OF MACHINES.

No.		cwts.
1.	M'Queen's Bell	4 $\frac{3}{4}$
2.	Dray's Hussey,	2 $\frac{1}{2}$
3.	M'Cormick's	3 $\frac{1}{2}$
4.	Burry's M'Cormick,	4 $\frac{3}{4}$
5.	Crosskill's Bell,	4 $\frac{1}{2}$

In valuing these draughts let it be kept in mind that Crosskill's machines have a breadth of cutter equal to 6 ft. 11 in., M'Cormick's 6 feet, and Dray's 5 feet; and further, that as a general average, the breadth usually cut by any of them falls 6 inches short of the absolute breadth of cutters; hence Crosskill's loses 1-13th, M'Cormick's 1-12th, and Dray's 1-10th of their ostensible breadth of cut. From the averages given above, and further qualified by the reductions due to breadth, it will be readily perceived that the resistance to those machines approximates very closely to that of a two-horse plough when taking a furrow on ordinary land of 7 or 8 inches in depth, discrepancies in the one being not greater than in the other. The complaint, therefore, of reaping machines being so oppressive on the horses, would seem to be due more to the accelerated speed at which the horses are driven, than to the actual resistance the machine reaper has to meet.

This view, then, leads to the question—Would it not be advisable for reaping-machine makers to reconstruct their calculations so as to reduce the speed of the first mover, the horse, preserving the present speed of the cutter if necessary.

The judges, after a careful examination, awarded the first premium, being for the best machine, to Crosskill's Bell; and the second of equal value, for the best machine not exceeding 25 guineas, to Dray's Hussey.

Of the new machines, little of a satisfactory nature can be said. Referring to the list of entered machines, No. 7 was tried, we believe, the day previous to the exhibition, but the result was not such as to justify its being brought forward. The cutter is, we understand, on the principle of Bell's original, but both of the parts of the shears move, instead of one, as in Bell's. No. 9 was not fully completed. Mr. Reid, we understand, still retains a favourable view of the principle he has adopted, and we hope in an early number to give the details of it. But, of course, in the absence of these, and still more of practical results, we cannot speak. No. 10 was tried; but we were informed by a party who witnessed it, the failure was complete, the machine passing over the grain and leaving it uncut. No. 8, however, was tested and partially succeeded, and a further notice is therefore necessary.

The cutter, though ingenious, is extremely complicated, and without an engraving could not be explained intelligibly. Though the operation of cutting was performed we might almost say satisfactorily, the nature of the cutter is such as to make its continuous working without frequent breakings all but impracticable. Indeed, we have no hesitation in describing the cutter as not adapted for practical purposes. The peculiarity of the machine, however, is that the operation of binding the sheaves is performed on the machine in addition to the cutting. For this purpose it carries three men, one of whom lifts the cut grain from the cutter in bunches, each sufficient for a sheaf, to a raised platform, at which the other two men are stationed, and who alternately receive the bunches, lay them on a band previously prepared, and, having tightened and secured the band, they respectively toss overboard their finished sheaf. Our readers may remember that an article appeared in the *Journal of Agriculture* recommending this addition to the reaping machine, the writer considering that it would not till then be perfect. At the time we showed the erroneousness of this view, which was directing the attention of agricultural mechanics to the supplying of what was not needed, and which in the most ingenious form could scarcely fail in increasing the complexity, and interfering with the effectiveness of any reaping machine. The machine under notice supplies an illustration of the soundness of this view. The weight upon the horses from carrying three men upon the machine, and the diminution of the physical power of the men from operating upon a moved body, were very clearly shown, and the whole performance contrasted so unfavourably with that of the other machines, and particularly of Bell's, as we trust will dispel the illusion that this is the *beau ideal* of the perfect reaper.

In the present case there is no mechanical contrivance to modify the effects of concentrating the operating force on the platform, and it is possible that some such contrivance might render the principle less palpably erroneous, or, rather, practically less unsuccessful. But in any circumstances, the addition of complexity in any form of the reaper is the rock to be dreaded rather than the point to be aimed at.

This may lead to the remark, that if a greater amount of that property so important in all agricultural machinery, simplicity, could be secured in the prize reaper, the advantage would be immense. The complexity of Bell's is its great, its only fault; and with improvements in this respect, and in the general manufacture of the implement, for which the experience of this season will give facilities, an implement will be added to the farm, of interest and value, perhaps second to none in the present state of our mechanical knowledge.—

North British Agriculturist.

AUTUMNAL MEETINGS OF AGRICULTURAL SOCIETIES.

The autumnal festivals of our district agricultural societies, as now being held in different parts of the kingdom, offer nearly all alike the same good cause for mutual congratulation. What they have lost in mere excitement they make ample amends for in more profitable matter. There is scarcely a gathering but at which you see landlord and tenant equally anxious to come to the point. The high-flown invective, the loudly given challenge, or the deep bass of more effective despair, are as happily found wanting as the empty brag or self-sufficient mob oratory to which they were opposed. Our themes and our attractions at present are in terrible declination—touching only on such matter-of-fact and practical measures as may best advance the business we are engaged in.

In accordance with a custom to which this journal has long been habituated, we shall proceed to select some evidence from that great variety already brought under our notice. In doing this, we must especially commend the spirit in which the landlords appear desirous of meeting the exertions of their tenantry. They are approaching more rapidly than ever to that union we have so long advised; and this by a means to which the *Mark Lane Express* is, if possible, yet more committed. The foundation of all agricultural improvement *must* trace back, sooner or later, to that good understanding by which alone either of the parties to a contract will be encouraged, as insured, to do his best.

It is this feeling, more or less directly expressed, that characterises the majority of the meetings to which we refer. It is this that comes either as the prologue or “the clincher” to the argument. Landlord, agent, and occupier incite, advise, or promise to perform, with this as the great connecting link between them. Let our first testimony be that of a gentleman uniting in his own person two of these pursuits. It is Mr. John Kerr, one of the speakers at the Whitley Agricultural Society, who by his own showing “was somewhat in a peculiar position—being a tenant-farmer and the manager of a large estate in the immediate neighbourhood. He should consider himself unworthy of the latter trust if he was not fearlessly to state his opinions. He was not of those who thought it wise, prudent, or even just to take advantage of the first dawn of agricultural prosperity to advance the rent of land. He agreed that the landlords came nobly forward to the rescue of their tenants in the year of difficulty and depression, returning them in some in-

stances 10, 12, or 15 per cent. But he would also have them to remember that in those years of depression the tenants’ capital was diminished to the same extent. It was a mutual sacrifice between the landlord and the tenant. They were pulling together to save the agricultural ship when she was in troubled waters. Most assuredly the interests of landlord and tenant were identical. There were three conditions he should assume: these he considered ought to exist between landlord and tenant, and were essential to good and successful farming. In the first place, *a person engaging a farm ought to have sufficient capital*; in the second, *the landlord letting it ought to hold out perfect security for the investment of that capital in his soil*. Perhaps that could be done by proper clauses in the leases or agreements, that whilst they protected the property of the landlord and secured his rents, they also protected the interests of the tenant. Thirdly, the tenant ought to be possessed of a certain amount of knowledge and skill for the prompt and judicious application of his capital to the soil. With these conditions he believed they would find mother earth as good an investment as almost any other.” It is, we trust, an established maxim by this time, that sufficient capital will never come without sufficient security; and we need not say how heartily we agree with Mr. Kerr when, in defining the duties of landlord and tenant, he places these as first and second in the fundamental principles of good farming.

Lord Lonsdale at the Cumberland and Westmoreland meeting came much to the same conclusion. “The first things,” his Lordship thinks, “necessary for promoting the success of agriculture, are vigilant improving landlords and agents, and active and enterprising tenants.” We all know where the key to this improvement and enterprise is to be found. From the lord, the tenant, and the steward, let us go one step further, and avail ourselves of a word from the thorough man of business. It is our old acquaintance, Mr. Mechi, great, as usual, the other day in Cheshire, and on some points, it is satisfactory to note, far more worthy of attention. Here is one of them:—“He was sorry, that when his friend Mr. Wilmot left his farm, there was not a law of valuation in this county, as there was in Lincolnshire; that, if the land had benefited by the course taken by the tenant, some portion of this should not be enjoyed by the tenant, was almost a crime. He feared that no improvement in an estate could go on without

the concurrence of the landlord and tenant. If the landlord was to have all the advantage of improvements, how could they expect tenants to make them, when they were injuring their families by doing so?" Mr. Mechi's chief object in visiting Cheshire was, by his own account, "to see a very fine instance of progress, in the shape of their friend Mr. Wilmot's farm." It appears he was in no way disappointed, being, in fact, only "sorry there was no law of valuation, as in Lincolnshire."

We may well leave this to speak for itself, while in place of further multiplying such modern instances, we may cull a few more extracts on different topics connected with the advance of agriculture, that it would be impossible to find space for in a more detailed form. At this same meeting, Mr. Tollemache, one of the members, entered into some interesting particulars respecting one of the chief and most famous products of the county. We must still, however, allow the honourable gentleman the customary prologue:—"The landlords should strive to do their parts, and the tenants to do theirs; both should join together in carrying out all arrangements, and leases should be given which would allow satisfactory compensation to the tenant for unexhausted improvements on the expiration of his term of occupancy. (Cheers.) With regard to cheese, its importation during the last six years had been, in 1848, 441,000 cwts.; in 1849, 390,000 cwts.; in 1850, 347,000 cwts.; in 1851, 338,000 cwts.; in 1852, 289,000 cwts.; and in 1853, 396,000 cwts., showing an increase in 1853 over the preceding year of 107,000 cwts., which was the largest importation ever made to this country, with the exception of 1848. Unless they improved their cheese, the whole competition of Leicestershire, Lancashire, Derbyshire, Gloucestershire, and Somersetshire would become more formidable than the foreign competition. He was aware that the question of improving their cheese was rather a delicate and unpopular subject; but still, to make their meetings really useful, they ought to speak their minds. The finest cheese in the world was a first-rate Cheshire cheese. But there was not a cheesemonger in the kingdom who would not tell them that for one first-rate Cheshire cheese there were about 200 of an inferior description, and that since the introduction of gold-dust those of inferior quality had been on the increase and those of the superior class on the decrease. He had always advocated boning and draining; old Mr. Baxter had told him that the finest Cheshire cheese was made on cold clay land. He rode some years ago to a farm on the borders of Leicestershire, the tenant of which told him she had two kinds of pasture, good and bad land. She could make good

cheese on her poor land; but on the rich land, to make good cheese, it was absolutely necessary to deprive the milk of a portion of its richness by taking from it some of its cream. That plan had been partially tried with much success, but not on the farms near him. He had, however, made arrangements for experiments on the farms near his residence, in the making of cheese, and the results should be communicated to their friend the secretary of the society, for the information of the members."

This is as it should be—the landlord "striving to do his part," and engaging in experiments for the benefit of his tenantry. It was only last week we ourselves touched on this question of the Cheshire cheese, when, as it will be remembered, we found it disposed of to no great advantage. Sir James Graham, at the Cumberland Show, gives us hopes that in any future barter of this description the farmer may be treated with on fairer terms. He says, on authority of course—"Of modern discoveries I hold that guano is the most important. I deeply regret the rise in the price of that most essential article. The Government, for many years past, without reference to party or political distinctions, have been most anxious to promote its supply. I cannot speak with confidence, but I have hopes, strong hopes, that this supply is about to be enlarged. This I can tell you, a ship of war has sailed into the Eastern seas within the last six months, to visit certain islands, from which I have received a favourable report, and under the belief that guano may be obtained there. And if these hopes be realized, I am certain that guano will be materially reduced in price; nor can I think a more important and legitimate service can be rendered to the state than in aiding to increase the supply of so valuable an article."

We may add another "good look-out-a-head" to this, and here for the present stay our evidence. At a meeting of Lord Londesborough's tenantry during the past week, at Grimston, his Lordship stated that "he had impressed upon his agents his wish that, provided the tenants are willing to pay a fair and reasonable rent, they shall not be tormented by an unreasonable quantity of ground game; and, further, that this wish is to be carried out in the ensuing season."

We are assured that Lord Londesborough's promise was received with "the greatest satisfaction." We can assure him that in thus, perhaps, sacrificing his own pleasures he is affording a most commendable example; and with this we think we are justified in repeating that the agricultural gatherings of this autumn offer some good cause for mutual congratulation.

THE REPEAL OF THE MALT-TAX THE ONLY PERMANENT SETTLEMENT OF THE NEW BEER ACT QUESTION.

"The night drave on wi sangs an clatter,
And aye the ale was growing better;
The landlady and Tam grew gracious
Wi' favours—secret, sweet, and precious."

TAM O'SHANTER.

Our publicans have just discovered that their "craft is in danger" by the operation of the New Beer Act. Prior to the statute coming in force, a vast amount of beer, it would appear, had been drunk on Sunday afternoons, and after ten o'clock at night. Parliament has put a stop to this, the policeman just popping in as "the landlady and Tam are beginning to grow gracious;" hence the consequences. From "Cremorne Gardens" to "Jack Straw's Castle," the British capital is in a greater uproar than was Ephesus when Paul preached, "They be no gods which are made with men's hands." Protection societies are to be formed, the daily press thrown overboard, and new beer-shop oracles established. In short, no stone is to be left unturned, until tap-room devotees are allowed to worship at the shrine of Bacchus unmolested.

We have not taken up the pen to justify the provisions of the New Beer Act, much less palliate its shortcomings; but to point out the fact, that the working of the measure adds another to the many reasons which already exist for the immediate repeal of the malt tax, as the only permanent and effectual means which the legislature can adopt for meeting the present progress of science and social order, securing the tranquillity of the sabbath in our rural and suburban districts, and satisfying all classes of her Majesty's intelligent subjects. We shall have no difficulty in establishing the soundness of this proposition in very few words; pointing out at the same time the anomalous and even dangerous policy of the opponents of the New Beer Act, and the manner in which the retirement of country residences and watering places is likely to be assailed, should they succeed in getting a forced construction upon the statute to suit their own ends, or even its ultimate repeal and return to the old system.

FREE TRADE IN MALT would give rise to a very different and better state of things than now exists, for every family capable of managing its affairs economically (and why should not every family be so?) would then have its own bottle-bin or beer-barrel, and a glass of good wholesome ale at home when required. The poorest man in the land who now drinks beer could then afford to have it at home, and would soon appreciate its value, social, moral, and dietary, and shun the intoxicating stuff of the beer-shop, with all its concomitant evils. Even beer-shops themselves would be obliged to supply a wholesome article, while public breweries would be deprived of their present indirect monopoly, and therefore have to enter into honest competition with private families—no easy task, they would find, were thrifty wives

once more fairly into the way of making what best suited themselves. At present, nine-tenths of their number know nothing about it, or even a glass of good wholesome family ale, were they to receive it; so that under such circumstances—circumstances occasioned by the evil working of the malt-tax—it is an easy matter for those who have never brewed their own ale to fabricate a thousand objections, and even impossibilities, as to private families entering into competition with beer-shops and public-breweries; but such objectors may just as well inform us, that we had better get our tea and coffee in half-pints and pennyworths as required from some coffee-shop, as we can get them cheaper and better from such a source than we can make them ourselves! We are not insensible to the miserable state of our domestic economy at present, independently of the influence of the malt tax, more especially in the lower ranks of life. A visit to the homes of the frequenters of beer-shops would satisfy the most sceptical on this point, and the necessity of a speedy reformation here at whatever cost it may be obtained, and whatever amount of grumbling it may give rise to among publicans and anti-sabbatarians. Instead of parliament legislating and establishing means for estranging the labouring man from all that is elevating in connexion with his own fireside, the more rational policy is obviously to adopt the opposite course of cultivating what is calculated to enrich the tone of domestic society, rendering its associations hallowed in the bosoms of those who are virtually the bones and sinews of the nation. Much of late has been said and written on cottage cookery, and the propriety—nay, necessity of doing something to educate young girls in this branch of economy, in order that they may realize domestic happiness at their own fire-sides, and elevate their offspring above the ignominious state of ignorance, idleness, wretchedness, and even aversion to everything ennobling, in which they themselves have now the misfortune to be brought up in by their parents! The object is good in the highest degree, and when the cottager's wife attains to that level in the art of cookery which she unquestionably ought to occupy, she may as well be entrusted with a bushel of malt as a pound of tea, being qualified to infuse the one as economically as the other, and to serve it with as much success, giving her husband's glass of ale a relish which it does not now possess, besides making herself a "queen at her own fireside," which she never can be, so long as he (her husband) is in the beer-shop.

The manner in which beer-shop customers, generally speaking, bring up their families at present, as to beer, is humiliating in the extreme, for from the cradle they are taught both by precept and example to look up to it as the most dignified item, so to speak, in the daily bill of fare, and the beer-shop as the only source from whence it is to be obtained. It even becomes an honour

to be allowed to go for the "dinner beer;" consequently squalid children in rags may be seen casting out by the way as to who should carry it; and we have often seen more than two hands at the task. And more than children in rags may be seen carrying home the dinner beer; for last Sunday, when returning from worship, we met a little girl with a pot of porter in one hand, and a *fine parasol in the other*, the sun being very bright at the time. Then comes the potman's hour, when the quietude of every dwelling—Sunday as on Saturday—is aroused from its slumbers by his unearthly yell; when taking the stated allowance must supersede every other culinary manipulation. Half-fed babes may shed tears, and stifle the cravings of hunger as they best can; but until "Pots" passes, there is no bread-and-butter, and the lesson is daily taught them experimentally.

And beer is not only thus taught them to be the most honourable, as to rank, of all the elements of their daily bread, but the most essential as to quality, for everything else must give way to it. Father must have his beer-shop allowance, for instance, if groceries of every kind should be wanting. Even the loaf itself is frequently reduced in size—mothers and their hapless babes submitting to privations which tongue dare not tell, or ear hear, the unfortunate recipients being even grateful for the niggardly morsel daily doled out to them.

Then follow beer and tobacco enjoyments, with the instruction which they afford. If a friend arrives, how cheerfully does mother or some member of the family run to the beer-shop for a glass of ale, if it should take the last pence in the house! Next come the traveller and wayfaring man, who require a glass to help them on their journey, at every beer-shop they pass; and lastly, the evening pipe, taproom gossip, news of the day, singing, dancing, and midnight revelry—all affording a sad lesson to infant and youthful minds, with no alternative choice.

The Christian mind can hardly review the juvenile course of education we have thus briefly glanced at, without manifesting emotions of the deepest anxiety for a different state of things. "Train up a child in the way he should go," said the wise man; but what is the line of instruction which the children of beer-drinkers receive, under the present system? what the humiliating precept and contaminating example received by the easily impressed mind of the innocent child of many an honest, hard-working, and upright man, plodding onward in the beaten track of malt-tax times, apparently unconscious of consequences, or the possibility of following any other course? How differently would the character of tuition be, and its influence upon the morals of the rising generation, were mothers to make their own beer for dinner and supper, as they now do their tea or coffee for breakfast, and to use it with the same prayerful regard for the domestic happiness and welfare of the family! We might here add much did our limits permit, but shall leave our readers to contrast the two pictures we have thus placed before them, only observing that at the present moment the social, educational, and moral circumstances of our juvenile classes are questions second to none in our political economy.

With regard to the New Beer Act and its opponents, the increasing growth of our large manufacturing towns is such, the facilities for travelling so many, and the tide of Sunday excursions becoming so strong, that the religious welfare of our rural villages, watering-places, and the like, is in jeopardy, and obviously therefore demands of Parliament legislative protection. *Now, in estimating and consulting the religious welfare of such places, our senators are doubtless not to be guided by the maxims of beer-shops, or those who frequent them;* but by the institutes of the Christian religion itself, and to infidels who abjure religion (?) we may add social order. When strangers visit us, etiquette obviously demands that their comportment harmonize with our good behaviour—exceeding it rather than falling short; in other words, rather showing us a good example than a bad. Were Parliament to adopt the opposite policy, we should soon have the hallowed retirement of the country—the retreat of old age, infirmity, sickness, &c., converted into a very pandemonium by the "beer and tobacco seum" of our large manufacturing and commercial towns—increasing at a more rapid rate, we fear, than the general population. In the days of the Romans, the whole population of the kingdom was one-fourth less than that of the British capital at the present time; so that without making any allowance for the influence of depraved habits on a condensed population, we have more than the wickedness of the whole kingdom in the days of the Romans let loose every Lord's Day on our metropolitan villages and provinces! Or under another view the offscourings of our large towns (exclusive of Christian excursionists, of whom we believe there are many) exceed at a very low estimate, the whole population of the Roman period! So that it takes no great stretch of vision to perceive that, unless the legislature interferes, the religious welfare of our provinces must eventually be sacrificed. In point of fact it is already suffering seriously in many instances. For:—

At present our provinces have more than enough to do with the Sunday profanation and beer-shop immorality of their own villages, without an increase from our large towns. Many landlords, tenants, and country clergymen, with the hearty co-operation of local newspapers, are now labouring assiduously to effect a salutary reformation here. Sunday and other schools are already beginning to manifest a perceptible improvement—cottages, with gardens, for agricultural labourers, to arise adjoining their work, and the whole to bid fair for a successful termination; but if while we are thus successfully pulling down those dens of iniquity which have so long polluted the moral atmosphere of our provinces, *malt-tax monopolists*, with their beer-shop satellites, are allowed to legislate on the subject, and to introduce and establish greater evils, and more contaminating than those removed, the consequences require no comment, especially if they are allowed their own definition of the New Beer Act—that a traveller is one who goes a mile or two into the country, or from the centre to the suburbs of this great metropolis, to "smoke a pipe" with his friend in a beer-shop on a Sunday! Our provinces are unfortunately proverbially slow of action; but

on the present occasion we hope they will at once perceive that the exigencies of the case call upon them to be up and doing immediately; and the suburban villages and residences of our metropolitan towns are doubtless not the last which should bestir themselves.

It is rarely indeed that medical men prescribe beer and tobacco, with their kindred associations, for those in delicate health from confinement in the polluted atmosphere of our large manufacturing and commercial towns who may seek the pure air of the country on a Sunday; and more seldom still, after having recommended them to take an excursion into the country, do they advise them to plunge into the atmosphere of the tap-room immediately on their return to town; for such, we fear, would in too many instances be "the sow that is washed returning to her wallowing in the mire." And even in those exceptional cases where beer is allowed, *the genuine family home-brewed* is obviously the doctor's prescription; for the unfortunate patient who cannot walk or "bus home from any of the termini of the metropolis unquestionably requires stronger medicine. Logic in such a case is unnecessary to convince a thinking public that *shutting the door*, as prescribed by parliament, is the only effectual cure.

It is high time that those who visit the country by excursion trains or otherwise, were taught to elevate their enjoyments far above that amount of lewd talk, immodest gesticulations, beer drinking, and smoking tobacco, so conspicuously exemplified at the different stations where trains stop or places to which they themselves resort. In making this remark, we are perfectly aware that a large proportion of them already do so, and would scorn to enter a beer-shop during public worship or after 10 p.m. on Sunday; but unfortunately it is not for these the legislature has to provide, but for the dissipated and disorderly—those who would convert the neighbourhood of every suburban inn and beer-shop into a noisy fair of dog-carts and other vehicles of excursion, &c., &c., every Sunday evening, anything but agreeable to the sick, the sorrowful, and dying, to say nothing of Christians, and those who have to get out of bed before cockcrow on Monday morning. But for the stringent regulations of railway companies, how often would their excursion carriages be converted into something worse than the lowest tap-

room! and if such regulations are justifiable, then acts of Parliament as stringent are also justifiable and necessary, to control the same disorderly parties after they leave the carriages, both when they arrive at the end of their journey outwards and when they return home. The religious welfare, not more than the progress of social order, of our rural and suburban villages and the neighbourhood of railway termini, demand this, whatever the landlords of public houses and their anti-sabbatarian customers may hastily and prematurely think to the contrary.

The anti-sabbatarian objection, "Do as you would be done by"—*i. e.*, "Let us alone, and we will not find fault with or trouble you"—scarcely merits refutation, not being applicable; for the noisy tongue of the drunkard and disorderly reaches the ear of the Christian, in the same manner as the "cat-o'-nine-tails" the back of its victim, and often more painfully to the physical system, when sick—let alone the mind. If Parliament would incase beer-shops and their pot-men within a vacuum, or hermetically seal the tongues of their customers, the objection of anti-sabbatarians might then come into operation; but until such is accomplished, it is about the most absurd and childish one that can well be imagined.

In conclusion, we are not saying that the new Beer Act is such a statutory measure as the religious welfare, progress of science, and social order of our rural and suburban villages at present require. On the contrary, we have said that nothing short of a repeal of the malt-tax, and an entire revival of our domestic economy of that most important product of the farmer's toil, *malt*, will secure a permanent settlement of the question at issue. Malt-tax monopolies and tap-room systems, with their associations, are out of date, being wholly inconsistent with the advancement of science and the general progress of things. Slow as farmers are in the march of improvement, there is not one-fourth of the amount of beer-shop drinking among them that there used to be, while their labourers are fast following their example; so that it would be unreasonable to suppose that Parliament would not co-operate with them in so laudable a work of reformation, securing for the country—for the cottage as well as the castle—that religious retirement and quietude so dear to Englishmen of every rank.

AGRICULTURAL STATISTICS.

The British farmer, according to those who profess to know him best, is proverbial for never doing anything in a hurry. Small, indeed, to him, are the attractions of a *coup de main*. He prefers rather to feel his way, step by step, and to understand fully what it is you want with him, before he commits himself to your proposals. Like a coy mistress, it requires some time and argument to win him over. There must be many a well-dropped

word, with some good showing that you really do care for him, and are not going to harm him, ere he suffers you even to take his hand. *Festina lente* is the motto of the family; and he has had too many wild offers already from adventurers, not to ponder well over the pretensions of those who still seek his favour and alliance.

The Government, we must allow, evince every inclination to meet his humour. However anxious

to have his favour and co-operation, there is no unseemly haste in bringing him to their wishes. It is step by step that our rulers are now demonstrating what they do want of him, as it is by the same satisfactory process they come to guarantee that they do not mean to injure him. They may be asking, to be sure, for an inch when they mean to take far more; though by the time they have made up their minds to do so, we anticipate that he will be quite as ready to grant as they to seek. It is this gradual habituation that is, after all, the great conqueror. With this we lead people to volunteer their support to what is good, by proving to them that it is so. We now but little appreciate the logic of the barbarian who cut through the knot that he could not otherwise unravel.

And what is it the country is here once more asking of the farmer? what is it we now require him to give up? The answer is but a type of the times, and what every man is asking of his neighbour—*information*. We are all aware, moreover, how delicately this has been impressed upon his attention. Despite oft-repeated assurances from the agriculturist himself that he wanted to know how he was going on, there has been nothing like ill-conditioned haste in taking him at his word. It has been thought, certainly, that it would be for the good of the whole family of us to arrive at these particulars; but in doing this, let no one be inconvenienced or put out of temper. Our own opinion was, unquestionably, that the Government might have entered upon so important a business as the collection of our agricultural statistics with a little more courage and determination. We ourselves were by no means prepared to find that opposition of which, it appears, our rulers were so carefully warned, and so much was made. We further ventured to say at the time this hostility was so loudly proclaimed, that it was in reality too trifling to be regarded; as there was, moreover, scarcely one of the malcontents but had committed himself by demanding in some other way that he refused to give.

The experience of the Government has brought them very much to the same conclusion. A circular just issued by the Poor-law Board, and addressed to the Unions of certain English counties, has this opening:—"You are doubtless aware that (at the request of the Lords of the Committee of Council for trade, and with the express sanction of Parliament) the Poor-law Board undertook to collect the agricultural statistics of Norfolk and Hampshire for the year 1853, through the agency, wherever practicable, of the Boards of Guardians of those two counties and their officers. The large measure of success which attended that experiment to obtain reliable information on a most important subject, considered in conjunction with

the complete success of somewhat similar operations in three Scotch counties, has led to a renewal of these undertakings on a more extended scale in the present year."

"The extended scale" begins with a well-merited compliment to the Highland Agricultural Society and its active officer, Mr. Hall Maxwell—"The experiment for 1854 will embrace the whole of Scotland." This, in fact, has been well known for some time past, and Mr. Maxwell continually engaged in further insuring, and, in reality, completing that success which has so far attended him. In considering how much the Scotch society's influence must have done in introducing this endeavour, and how fully by the same means it has been carried out, we can hardly help lamenting that we had not some similar assistance and direction in England. It must have been a very nice observance of etiquette which stayed the Royal Agricultural Society of England from any share in so becoming a duty. Left here, however, entirely to work its own way, the experiment has only ensured a *large* in place of that *complete* success our northern friends can boast of. We have not, consequently, yet arrived at whole measures. In addition to Norfolk and Hampshire, we have now selected for further trial the counties of Wilts, Suffolk, Leicester, Berks, Worcester, Salop, the West-Riding of York, Brecon, and Denbigh. These would seem to have been determined on, not so much for any assumed advantages they may possess in themselves towards the thorough realization of the scheme, but rather with the view of making other neighbouring districts familiar with the nature of the information required, and the machinery employed. The latter, we learn, will be much the same as that of last year. In Scotland the collection will be under the control of the Highland Society, while in England and Wales we are to rely again on "the machinery which worked, upon the whole, so satisfactorily in Norfolk and Hampshire."

We will not stop to again canvass the policy of altogether relying on any agency of so entirely an independent character. The best, however, may undoubtedly be expected from it; and we refer our readers to some further details in another part of our paper, by which it is hoped the aid of all from whom it is sought may be cheerfully afforded. Let it be a point of honour with us to make our collection of the returns as thoroughly complete as they have been sent in from Scotland. We believe any prejudice as to furnishing the *data* required has already died away. We are quite as confident, too, that there never was any good cause for the expression of any such ill feeling towards the measure. If any class will gain more than another by the effi-

cient collection and subsequent distribution of the statistics of agricultural produce, it is, we honestly believe, the producer himself. It will put him on fairer terms with many who now possess that information he does not, and assist him in every way to make the best of his market.

The following circular has been addressed by the Poor Law Board to the officials of the Unions in the several counties where the collection of facts relating to agricultural statistics is proposed to be made for the present year:—

"Poor Law Board, Whitehall, Sept., 1854.

"You are doubtless aware that (at the request of the Lords of the Committee of Council for Trade and with the express sanction of Parliament) the Poor Law Board undertook to collect the agricultural statistics of Norfolk and Hampshire for the year 1853, through the agency, wherever practicable, of the boards of guardians of those two counties and their officers.

"The large measure of success which attended that experiment to obtain reliable information on a most important subject, considered in conjunction with the complete success of somewhat similar operations in three Scotch counties, has led to a renewal of these undertakings on a more extended scale in the present year.

"The experiment for 1854 will embrace the whole of Scotland and the following counties of England and Wales—viz., Norfolk, Suffolk, Southampton, Wilts, Leicester, Berks, Worcester, Salop, West Riding of York, Brecon, and Denbigh.

"In Scotland the proceedings will be conducted, as in 1853, under the auspices of the Highland Society. In England and Wales it is intended to put in motion the machinery which worked, upon the whole, so satisfactorily in Norfolk and Hampshire.

"I am therefore instructed by the Poor Law Board to request you to have the goodness to move the board of guardians over which you preside to aid in the accomplishment of an object admitted to be of great national importance.

"In Norfolk and Hampshire it was found that this object was best promoted by the formation and co-operation, in every union, of a joint committee of owners and occupiers, called 'the Statistical Committee,' with the chairman of the union for its chairman, and by employing, with the concurrence of the guardians, the clerk of the union as classifier and the relieving officers as enumerators.

"The countenance and support which a committee so constituted affords, by the mere fact of its existence, as well as by the employment of the union officers under its directions, go far to insure success, and I trust you will find no difficulty in organizing such a committee among the leading agriculturists of your union. It is not, however, essential, although certainly most convenient, that the committee should consist exclusively of members of the board of guardians, or that the persons whom it may employ to enumerate and classify the required statistics should be selected exclusively from the officers of the union.

"The duties of the committee are not of a nature to subject its members to much personal trouble. All, or nearly all, they have to do may be summed up under the two following heads:

"To induce, by their example and influence, their neighbours to fill up their schedules before the 30th of September.

"To superintend the labours of the officers engaged in the inquiry, and to examine and verify the results.

"Annexed, for your own and your board's information, are

copies of the various documents which it has been deemed desirable to prepare for this inquiry. These documents are substantially the same as the documents used in the statistical inquiry of 1853, though certain modifications, of which practical experience has suggested the propriety, have been introduced into them.

"I have to add that the clerks of unions, if employed as classifiers, will be remunerated by a payment at the rate of 10s. per 100 completed schedules A and B, together with the further gratuity of 2 guineas for the preparation of schedule C; and that the relieving officers, if employed as enumerators, will be remunerated by a payment at the rate of 40s. per 100 completed schedules A and B, together with a bounty, on the present occasion, of 5s. per 100 schedules, whenever the difficulties surmounted or the special merit of the work performed shall, in the opinion of the Poor Law Board, appear to call for some extra compensation.

"The Poor Law Board are, however, particularly anxious that, in selecting the enumerators, the relieving officer should not be employed if any fear can reasonably be entertained that such employment would be prejudicial to the interests of the union.

"The results of the experimental proceedings in Norfolk and Hampshire, which were unavoidably prolonged through a severe winter, seem to prove that the relieving officers may, without detriment to the administration of relief, properly be intrusted with this employment. Still, the Poor Law Board are very far from wishing to restrict boards of guardians to the employment of their officers, whenever they see occasion to apprehend that it will be productive of inconvenience or mischief.

"It is desirable that the board of guardians should proceed as soon as may be, to nominate the Statistical Committee, and appoint their clerk to be classifier, and the relieving officers to be enumerators, or (if deemed more advisable) recommend for those offices other persons in their stead, communicating to me the result of their determination.

"I remain very faithfully yours,

"
"Poor Law Inspector.

"Chairman of the Board of Guardians."

"LIST OF THE DOCUMENTS ANNEXED.

"1. Copies of Sir John Walsham's and Mr. Hawley's reports on the agricultural statistics of Norfolk and Hampshire, and of Sir John Walsham's supplementary report.

"2. Instructions to the classifiers and enumerators.

"3. Schedules A, B, and C, with the enumerator's auxiliary sheet and exemplifications.

"4. Letter from the Poor Law Inspector to the parish officers."

AGRICULTURAL STATISTICS.—At the meeting of the Royal Cornwall Polytechnic Society, held at Falmouth last week, a very interesting communication was made to the meeting by Mr. Charles Fox, who stated that among the school productions there was one by a pupil teacher. It was an agricultural survey of the parish of Constantine, as far as related to a statistical statement of the corn and green crops. In a parish of between 6,000 and 7,000 acres this lad had given a very accurate statement of the breadth of land sown with wheat, barley, oats, turnips, mangel wurtzel, and carrots. He showed that in this large parish there were 305 acres of wheat, 625 of barley and 351 acres of green crops. Mr. Fox mentioned this to show that it was not so difficult to get an accurate statistical account of agricultural produce throughout the county as some people imagined.

SUGGESTIONS

FOR A MORE PERFECT AND A MORE ECONOMICAL AGRICULTURE THAN HITHERTO PRACTISED, AS THE ONLY MEANS OF MAINTAINING THE VALUE AND IMPORTANCE OF LANDED AND AGRICULTURAL PROPERTY IN THE BRITISH ISLANDS UNDER AN UNRESTRICTED SALE OF FOREIGN AGRICULTURAL PRODUCE IN THE BRITISH MARKETS.

BY JOHN EWART,

Land Surveyor, and Agricultural Architect and Engineer, Newcastle-upon-Tyne.

“Verè scire est per causas scire.”—BACON.

Before entering on the discussion of the thesis proposed above, it will be not altogether out of place to urge the importance of the subject in a few preliminary remarks on the relation which subsists between the different industrial pursuits of man; on the organization and physiology of vegetables; and on the productions of the soil, being, either directly or indirectly, the only sources of wealth.

The object of the cultivation of the soil is the production of vegetables in greater abundance and in greater perfection than they are spontaneously provided by Nature, for the use of man, either directly for his aliment, or for the nourishment of herbivorous animals reclaimed to his control in a domesticated state. This, to obviate the precarious resources of savage life in the spontaneous gifts of the forest for the preservation of existence, would necessarily be the first industrial pursuit of man in the earliest stages of his civilization; and, from furnishing the first necessities of life, the cultivation of the soil would, in all ages and countries, precede manufactures, in the progress of man from a state of nature to improvement in his social condition.

To trace the progress of the cultivation of the soil in the different quarters of the earth in which the beneficial influences of civilization has been extended to the human race is perhaps unnecessary to the present discussion; but it should be remarked, that the cultivation of the soil has not only been the subject of the earliest efforts of industry in man, but it has continued to be, of all others that to the present day engage his attention, the most important in which his energy can be exerted.

On affording the subject the slightest consideration, the foremost reflection arising in the mind is, that how much soever commerce and manufactures may aggrandize a nation, or contribute to the enjoyment of human existence, still such pursuits must ever be of secondary import to the cultivation of the soil, in every country in which the fruits of the earth are capable of being produced. The cultivation of the soil, is not only the most important of all the industrial pursuits of man, but it is the only real source of wealth. For a conviction of the truth of the last adverted to position, it is only necessary to glance at the natures of the industrial pursuits other than the cultivation of the soil, and compare them with that of the latter-mentioned subject of man's industry.

First, as to commerce: by it no matter is produced; its office is merely the barter of commodities. And, whether the subject of this branch of industry be between one country and another, or between individuals in the same country, it is but an exchange of equivalents, or a transaction in which a profit or gain to one individual is compensated by a loss of equivalent amount to another. Hence the office of commerce will be correctly considered as being the distribution or circulation of wealth of one country in another, or amongst individuals of the same nation, and not as in any way contributing to its existence or production. *Next*, as to manufactures: there is no matter produced, by the exercise of this branch of the industry of man, which did not previously exist; and its office will, when duly considered, be found to be merely a conversion of material previously existing into a form of greater permanence or more definite utility. In the conversion of cotton, lint, or wool, first into a textile form, and then into shirts, coats, or other garments, can the spinner, weaver, sempstress, or tailor be said to have produced any matter that had not previous existence? or that the result of the industry of these artisans has been other than the conversion of the material upon which their art has been exercised to a form of more definite utility? So the result of all other kinds of manufactures may be pointed to, as being a mere conversion of form, and no production of matter. *Then* as to mining, which although *primâ facie* has a greater claim to the production of wealth than either commerce or manufactures, yet, when duly considered, will be found in nowise productive of matter not previously existing; since every pound of coal, iron, lead, or stone, and every ounce of gold or silver raised from the bowels of the earth, previously existed there, and is, by the abstraction, so much the less to come. *Whilst*, on the other hand, and in distinction to the different other pursuits of industry above-named, labour bestowed in the cultivation of the soil, either directly in tillage or more indirectly in pastoral attention, affords an increase of matter in the form of reproductive vegetable and animal existence, varying according to climate, fertility of soil, and amount of labour bestowed, or science brought to bear on the operation; and the surplus over the cost of the production of such matter alone constitutes an increase of real capital or wealth, exchangeable through

the medium of commerce into commodities of a more permanent nature, and convertible into more useful form by the industry and skill of the manufacturer.

These observations apply to all civilized nations; and however true it may be, in an abstract sense, that the cultivation of the soil is the only source of *real wealth* in being the only source of *matter*, and therefore the most important of industrial interests, yet both commerce and manufactures, the one by the exchange and distribution of wealth, and the other by giving matter produced by the cultivation of the soil a more permanent or useful form, and also the mining interest, by affording a vast amount for labour and capital, are, all of them, practically and greatly conducive to the aggrandizement of nations, and to the convenience and comfort of their population. Although the raising of minerals from the bowels of the earth is evidently to the impoverishment of posterity, inasmuch as these treasures are nonproductive, yet past and present generations have realized from such enterprizes large amounts of capital to be employed in other industrial pursuits; and the pre-eminence in the commerce and manufactures of Britain is scarcely less indebted to the realization of her mineral treasure, than to the accumulation of capital derived from the cultivation of the soil.

It is not from any exclusive or peculiar advantages possessed by the British Isles, that the unrivalled national wealth, and the pre-eminence in commerce and manufactures, have been attained, and in which Britain continues prodigiously to increase; but, on the contrary, many conditions inimical to such results exist, amongst which may be enumerated the soil being less naturally fertile than in many, or perhaps in most parts of the world, the climate being suddenly variable throughout the greatest part of the year, together with acquired artificial habits rendering a much more expensive diet and clothing necessary to support the health and strength of the labouring population, than in most other countries, with which the unparalleled amount of a general and local taxation with which every branch of industry is burdened combines to render the cost of labour in Britain far beyond that in any other country, except such as have been so recently planted that the population is yet far below the demand for labour. On the other hand, the only advantages in favour of the unrivalled prosperity and accumulated wealth of Britain is the seaboard position, and excellent quality of her mineral fuel, and the convenience for transport of her metallic treasures. These last-mentioned circumstances, combined with the indomitable spirit of enterprize and industry, and the intelligence and skill in the useful arts of her people, have enabled her to surmount the obstacles to prosperity, and overcome the difficulties of circumstances above-mentioned, which have rendered Britain the most wealthy and powerful nation that has ever appeared on earth. But how far an unrestricted import of foreign productions of the soil may be conducive to the future prosperity of Britain, is a question which it may be deemed unnecessary to discuss here; yet, when it is considered that the short and extensively injured crop of the harvest of 1853 rendered

an importation from abroad of nearly half the estimated consumption of breadstuffs of the population necessary—during a period, too, in which this country has been in actual warfare with a nation from which it has hitherto derived a large portion of the deficiency in the production of wheat of home-growth—and these immense supplies having been, as it were, *spontaneous*, it cannot be doubted that, under normal conditions of seasons, the price of wheat will not reach a figure to remunerate the grower in this country, unless under a very great reduction in the cost of its production. It is, then, the object of the present paper to suggest a more perfect and a more economical cultivation of the soil, to be adopted generally throughout the United Kingdom, than has hitherto been practised, if it be hoped that such pursuit will continue to be a profitable employment of native industry and capital, rather than that the purchase of the productions of the soil from abroad should furnish other nations with the capital necessary, and which they only want, to become the rivals of Britain in her commerce and manufactures.

The cultivation of the soil may be classed under two heads, namely, *Agriculture*, or the cultivation of the field; and *Horticulture*, or the cultivation of the garden. In these the distinction consists of the greater care and perfection of the latter to that of the former.

In the ordinary mode of field cultivation, in order to maintain the fertility of the soil, it is necessary to observe a rotation of crops of different habits of growth. Thus, in all rotations, the growth of a plant deriving its nutriment from the soil near to the surface, is alternated with that of one seeking its nourishment at a greater depth. This the gardener seldom attends to, his only care being to crop his ground, irrespective of any habit of growth, with such plants as will be most profitable, or with such as may be most proper to the season when the ground becomes vacant.

Before proceeding to discuss the necessity of a rotation of crop in field culture, it will be well to review for a moment the organization and physiology of plants, and reflect for a while on the nature of the food by which this branch of Nature's productions is nourished. Plants, as in animals, have organs necessary to their existence, performing like functions. All have *roots*, *stems*, *foliage*, &c.; and however these may be modified in their forms in different tribes or families, all perform precisely similar functions in the maintenance of vitality.

The soil in which terrestrial plants grow is not only the medium of attachment or fixture to the earth, but it also performs the same office for the plant that the stomach does for the existence of an animal. It is in the soil that the food of the plant is digested, and rendered in a condition to become a part of its substance.

Some of the rootlets of a plant bear a close analogy in their functions, in absorbing the digested matter from the soil, to the valves in the *mesentery*, in absorbing the digested matter of food from the stomach into the venous circulation of an animal. Others of the rootlets perform another and distinct function, presently to be herein noticed.

The stem and branches are the substance of the plant, answering to the trunk and limbs of an animal.

The sap or digested food is taken up from the soil by certain of the rootlets, which, it should be remarked, can only be received in a state of perfect solution in water. This sap or digested food then ascends through the substance of the stem and branches in minute vessels, and then through the leaves, which last-named organs of a plant perform similar functions to the lungs of an animal in purifying, by contact with oxygen, the sap in its passage through their minute and porous vessels. The sap having become purified in the leaf, returns and descends through the branches and stem, but by a different system of vessels from which it ascended; and these being placed nearer the surface, the fluid becomes assimilated to and forms an addition to the substance of the plant. And lastly, any portion of the food supplied by the soil, and not having become assimilated to the plant, is expelled from the plant by certain rootlets into the soil in the form of excrement or *feces*. In order to comprehend a theory to be advanced hereinafter, of no trifling importance in the economy of vegetable vitality, the fact of plants discharging *feces* should be borne in mind.

The foregoing is a general description of the functions of the organs of plants; which, however, will be found considerably modified in plants of different habits, but which it is unnecessary to particularize, as the leading principles of the general physiology already glanced at are all that are necessary for the purposes of the present paper.

So far as the knowledge of the food of plants extends, it is considered to consist of carbon, nitrogen, and certain earthy or saline substances; all of which must be rendered in a complete state of chemical solution in water, by the action of the atmosphere and the agency of electricity. The carbonaceous and nitrogenous matters, which form the food of plants in the soil, are in a great measure supplied by the application of extraneous vegetable and animal matter in a state of decomposition, partly by rain-water and air, and partly by the decomposition of the substance of vegetables and insects produced on or in the soil. The earthy and saline matters of the food of plants are supplied wholly or in part by a slow and gradual solution of the constituents of the soil, or they are added from extraneous sources in the form of salts of lime, potash, soda, ammonia. The measure of the natural fertility is the quantity of the above-described substances completely soluble in water, which a soil can furnish to the plants growing in it; therefore the power to absorb air and water is a condition which soils must possess to supply nourishment to vegetation.

It has previously herein been stated, that plants discharge *feces*; it must now be remarked that the presence of these are highly deleterious, particularly to plants of the same species; hence one of the important purposes of under-draining is to remove such a condition of the soil as the presence of the *feces* of plants. Besides the cause just assigned for unhealthiness in plants, great numbers of insects prey upon their juices.

Almost every species of plant has a peculiar insect infesting it, and injuring or destroying some organ essential to its vitality. Most of the parasites referred to do not require food for a year after their propagation; hence by not growing the same species of plant on the same ground in succession, the insect, not finding its proper food when it is required, perishes. Another source of sterility is the presence of slightly soluble salts of iron or other metalline substance in the soil inimical to vegetation; which by being rendered soluble by the application of an acid or alkali, and the soil being made permeable to air and water, if such substance be not rendered altogether innocuous by the treatment suggested, they may be removed from the reach of the roots of plants by underdraining.

It has also been before remarked, that gardeners seldom, in their operations, attend to the alternation of crops; this is because the cultivation of their ground is more exact and perfect than in field culture. This might also, in a great measure, if not wholly, be dispensed with by the farmer, were he more closely to imitate in his operations the cultivation of the garden. The necessity for an alternation of crops in agriculture arises from an imperfect cultivation of the soil; in the first place, by not providing a sufficiently deep and comminuted tillage, by which the soil may, in addition to a supply as manure of such matter as will afford carbon and nitrogen, absorb to its greatest extent water and air to render it capable of affording a rapidly formed and plentiful supply of food to plants; and in the next place, by draining, to remove in redundant water the *feces*, and other matter noxious to the health of plants. By redundant water must be understood such as is not held by capillary attraction in the soil—such attraction being a constant condition of natural fertility. These conditions of the soil being attained, insects may be destroyed by the application of a saline top-dressing, which may also be serviceable as a fertilizer.

Another important advantage of deep field tillage is, that green crops, such as potatoes, turnips, beet, carrot, &c., may be grown on the flat surface instead of on ridges. The latter-mentioned mode of cultivation, on some kinds of soils, exposes the crops referred to, to a destructive drought, and also occasions an unequal distribution of manure. It may also be remarked that broad-leaved red clover is a field crop that frequently fails, as is generally supposed from being grown without a sufficient interval of time elapsing between one crop and another. It may to a great extent be true that most soils are unable to supply sufficient food at short intervals for so gross feeding a plant as red clover; but the failure as frequently arises from the absence of a sufficiently deep tillage for the habit of the growth of the plant, the root of which strikes to a very great depth into the soil—frequently to a foot and a-half. From the repeated action of the plough in pressing and consolidating the soil at a few inches only from the surface, the roots of clover cannot descend in search of the food of the plant, and must therefore, under such circumstances, be likely to perish. Wherever the subsoil has been stirred, subsequently to its having been thoroughly drained, red

clover has always been of luxuriant growth, and more permanent than on shallow tilled soils.

After the foregoing introductory remarks, the suggestions announced as the subject of this paper may now be treated of more succinctly, and yet with greater perspicuity, than without such preface.

The effect adverted to in a former part of this paper, of an unrestricted trade in foreign corn in the British markets, is one of deep interest to the community at large—in the approach of a much greater dependence on foreign supplies of food for the population than is consistent with the general prosperity and independent power of the nation; and of yet more immediate import to the proprietors of landed estates in Britain, to whom nothing, under the circumstances, but a much larger produce raised at less cost than at present practised in field-cultivation, can maintain the value of their property.

As the basis of all other improvement in cultivation, "*thorough draining*," in the fullest acceptance of the term, must be resorted to. This operation must not be merely a relief of the surface from water, but the induction of every drop of rain from the clouds and moisture from the atmosphere, and then the complete and effectual removal of redundant moisture from the subsoil not held by capillary attraction in the surface soil. This being accomplished, deep tillage, by breaking up the subsoil, must follow, to gain in time a deeper staple of surface, thereby to increase the pasture of plants, and render an alternating rotation of cropping dispensable; so that the soil may be occupied in the production of such crops as may be most valuable and profitable to the husbandman. Seeing that rotation of cropping is not required in the accurate and efficient cultivation of the garden, such can only be considered a succedaneum for the imperfect cultivation of the field. This imperfection in tillage arises from the use of imperfect implements; and which renders the expedient referred to necessary, to recruit exhausted fertility in the soil.

In examining the construction of the implements in general use for field cultivation, even in the present times of improvement, the mind accustomed to reflect on mechanical adaptation of machines for their intended purposes cannot but discover extraordinary defects in most, and in many an action directly opposite to that best adapted to effect their intended purposes. In the latter-noticed respect, we have an instance in the plough, even in its best form, being as ill adapted an implement for producing a perfect tillage as can well be conceived—compressing the substance and closing the pores of the surface of the soil in its action, and requiring the use of other implements almost equally inefficient to undo the effect of its operation. The whole of the latter referred to implements—whether they be harrows, cultivators, grubbers, or under any other name they may be known—are much more expensive to work, and less efficient in their operation than the price and quantity of produce is likely to meet in the circumstances in which Britain is placed. Expensive to work and inefficient in its operation as the plough is, in the present state towards perfection of implements and machines for field

cultivation, its use cannot be entirely dispensed with; but it may, in a great measure, be superseded by a machine for tillage introduced within the last twelve months. The implement referred to is known as the "*revolving cultivator, or forking, or digging machine*;" by which all the tillage for ordinary field crops may be performed by horse-power with the perfection of horticultural operations, except one deep and thorough ploughing during winter, previous to a green or root crop, the raising of which for producing a supply of farm-yard manure must ever be the main dependence of the husbandman to maintain the fertility of the soil. The single ploughing above mentioned having been given, one, two, or three applications of the digging machine, followed each time by a light horse-rake to gather the root weeds brought to the surface by the machine, will effectually clean and thoroughly prepare the soil for any green or root crop. Perhaps under some circumstances, as in the case of the land having through previous bad cultivation become matted with couch grass, or strong land, after having been saturated with wet, become baked by hot sunshine, an application of a clod-crusher may be necessary previous to the use of the machine in question; but under ordinary circumstances such additional labour—trifling as it is—will not be needed, as the implement itself reduces coarseness in land, as well as cleans and aerates it. One application of the implement is sufficient to prepare land, after potatoes, for being drilled with wheat; or, after turnips, either fed off with sheep or drawn, being drilled with barley or wheat: and in both cases there will be experienced a considerable saving of seed, from the superior tilth of the soil by the action of the machine over that of every other description of implement. A further recommendation to the use of the machine referred to, is, that it is not liable to expose the soil to the impoverishing effects of dry spring winds, as is frequently the case when land is worked by the alternate use of the plough, harrow, and roll; but, whilst it effectually cleans the land and produces a light and fine tilth, a due amount of sap or moisture is retained in the soil.

Of implements of the description referred to above, that manufactured by Matthew Gibson and Son, of Newcastle-upon-Tyne, is as well adapted for its intended purposes as can well be desired; as it not only brings all root weeds to the surface, without tearing them, to be removed by a light horse-rake, but, by its action, it also produces a peculiarly light and fine tilth; and it may be worked to any depth not exceeding twelve inches by only four horses. The working-part of the implement consists of eight strong cast-iron discs or naves revolving independently of each other upon an iron bolt or axle; in each nave are ten strong iron teeth, pointed with steel, and of a curved or cat-claw form; and between the naves and teeth are strong flat iron scrapers, with their edges downwards, to remove soil, weeds, or stones that might impede the action of the implement. The implement is regulated as to its depth of working by a pair of toothed quadrants and pinions, and by a tangent screw and wheel moved by a winch handle. It is mounted on an iron frame having three travelling wheels,

one of which is a swivel-wheel in front for facility in turning. It works over four feet six inches in breadth at once; and the price, at the present high prices of iron and workmanship, is twenty-two pounds.

Having described the mode of operation, and the construction of this most efficient implement of field-tillage, it will now be proper to institute a comparison of the cost of its working, with that of the implements that have hitherto been most commonly in use in field cultivation.

Of several different modes in which the above-named comparison may be made, *first*, let it be supposed that the breadth of a plough furrow is nine inches, and the breadth of ground worked at once by the digging machine is four feet six inches, or six times the quantity worked by the plough. To work each plough requires two horses and a man; whilst to work the digging machine, in doing six times the extent, requires only four horses, a man, and a boy; the services of the last named part of the force may, in most cases, be dispensed with. On the supposition of both implements working to the same depth, the digging machine does the work of six ploughs; but the digging machine being as easily worked to the depth of nine inches as at six, the efficient work of the machine will thereby be increased to that of nine ploughs. Besides the comparison thus far entered into, tillage by the ploughs will require the operation of harrows and rollers, the force to work which cannot be taken at less than two additional pairs of horses and two additional men; against which may be set one horse and one man working a horse-rake in tillage with the digging machine.

Then in working an equal extent of land, a comparison of the cost will be as follows, namely:—

By Ploughs, Harrows, and Rolls.		£	s.	d.
The day's work of twenty-two horses at 3s.		3	6	0
The day's work of eleven men at 3s.		1	13	0
		£4	19	0
By Digging Machine and Horse Rake.				
The day's work of five horses at 3s.		0	15	0
The day's work of two men at 3s.		0	6	0
The day's work of one boy		0	1	0
		£1	2	0
Difference in favour of tillage by the digging machine		3	17	0

Another mode of comparing the economy of tillage by the digging machine may be stated as follows, namely:

Omitting the cost of a thorough winter ploughing, as being necessary in both, the subsequent dressings of the land, for a green or root crop, by the plough, harrows, and roll, under the most favourable circumstances, will be two, and will cost at least twenty shillings per acre.

Two bouts of the digging machine, worked with four horses, a man, and a boy, at the rate of six acres a day for each bout, including a raking with a horse-rake covering six feet in breadth, worked by a man and single

horse, and destroying the weeds after each bout, will not cost more than six shillings per acre.

So that the advantages for each dressing in favour of the digging machine may be stated at seven shillings per acre; or more generally expressed, in a proportion of ten to three.

It is not in the money cost alone in which the advantage of tillage by the digging machine over that by the ordinary implement is to be estimated; but also in the still more important particulars of despatch, less amount of capital, implements, cattle, and wages, and increase of produce from superiority of tilth.

The improvement of soils can only be considered as being commenced by even the most perfect draining, as the effect of the operation is seldom developed until the subsoil has been broken; and this being done, in the first instance, without its being brought to the surface. The object of this last-mentioned operation is to obtain an extended pasture for plants; and the rationale of which may be thus described: The subsoil by being broken up is rendered permeant to water and air; and when it consists of, or has clay in its composition, it arrests nitrogenous and carbonaceous matter which probably has become, wholly or partially, indigestible in the surface soil, but which, now being acted upon by the great elements of vitality—air and water—in a new earthy medium, becomes soluble, and the subsoil, which had previously been barren, becomes at first sparingly and afterwards abundantly tilled to supply nutriment to vegetation. It is the deep and perfect tillage of horticulture, and the shallow and imperfect operations in agriculture, that produces the striking difference of the necessity of the alternate growth of plants of different habits by the farmer, and such a trammel to skill and industry being dispensed with by the gardener.

Whoever has observed a gardener in the act of what is known in garden operations as "*bastard trenching*" has witnessed exactly what is required to be done in properly subsoiling a field. The implements best suited for performing the operation in question is a fork; and the process in the use of the implement is to dig or break up the bottom of a trench of the depth of the surface soil. Such an implement, wielded by manual exertion, would, however, be much too tardy in its operation for field culture. An implement worked by horses, on precisely the same principle of action as the fork, has been in partial use for subsoiling fields in the North of England for some years past. The implement in question was originally invented by a shoe-maker, at Prudhoe, in Northumberland, of the name of Robert Hall, some time about 1822; it was afterwards improved by Mr. Joseph Laycock, of Lintz Hall, near Tanfield, in the county of Durham; and has lately been brought to a most convenient form by Matthew Gibson and Son, of Newcastle-upon-Tyne.

The implement in question, as improved by Gibson, consists of a cast-iron hollow cylinder of two feet three inches external diameter, nine inches long, and two inches of substance or thickness, with a heavy nave or boss, and six spokes or arms. On the side or face of the cylinder are fixed twelve pairs of very strong and

slightly curved iron teeth pointed with steel, placed four and a-half inches apart in the pairs, between which is fixed a bar or scraper to dislodge any soil or other matter which may become wedged between the teeth or prongs. This working part revolves on an iron axle, and is mounted on an iron frame, with a pair of travelling wheels and a swivel wheel in front. The cylinder and leading wheel roll in the bottom of a furrow or trench opened by a common plough; and by means of an apparatus similar to that described for the digging machine, the working cylinder is raised and lowered at pleasure, and the gudgeons being fixed on cranks, the side travelling wheels are raised clear of the ground when the cylinder is working in the bottom of the trench. The effect of the operation of the machine is to break the hardest or toughest subsoil to a depth of twelve inches below the bottom of the trench; and in so doing a trench of from six to seven inches deep is nearly filled to the level of the unploughed surface, by the increased volume or bulk of the subsoil broken by the operation; the common plough then comes round, and in opening another trench for being subsoiled, covers the subsoil broken up by the previous bout of the machine, and so the work proceeds over the whole field at the rate of one acre per day with one plough and one machine, worked with a force of five horses, two men, and a lad, which may be estimated at a cost of one pound two shillings per acre. Previous to attempting the foregoing improvement, the land should be previously thorough-drained, otherwise the operation would only form a basin for holding under-water, to the greatest detriment to vegetation. The operation is best performed in spring, across the direction of the leading drains; and it will only need being done once in eight or ten years: the action of the digging machine being worked occasionally an inch or so deeper than ordinary will keep the top of the subsoil open in the mean time.

The advantages of the implements recommended for field cultivation in the foregoing pages consist partly in their revolving motion and partly in their non-compressing or lightening action on the soil. In respect to the economy of the force required to work them, in comparison to implements acting by traction, the analogy of a wheel carriage to a sledge is forcibly suggested.

A better construction of implements, and thereby a deeper and more perfect tillage being adopted, it would only then require the feeding of stock being carried to the utmost point to increase the produce of soil at a lessened expense; and to render so important a branch of rural economy as the last mentioned most available, it will be necessary not only to provide shelter for stock, but also for collecting and preparing manure. The following very interesting communication on the last noticed subject by Lord Kinnaird appeared in a late number of the "*Journal of the Royal Agricultural Society of England*," entitled "*Influence of Shelter on the Quality of Manure*," shows the great importance of well-contrived offices to the economy of agriculture.

The noble reporter in the article referred to states, that in "October, 1850, the yards were filled with 14 feeding bullocks, getting the same quality of food as

another of 18 tied up in the byre, and whose manure was put out into an open court. In the open court were 12 young animals getting a full allowance of turnips. The feeding beasts were all of the same age, viz., two off rising three years old; fed twice a-day on turnips, of which each got about 1 cwt., and once a-day steamed swedes mixed with cut-chaff and 2lbs. of barley-meal with a little linseed, or 3 to 4lbs. of oil-cake—of this mess each got 22 lbs. Both layers and courts were littered twice a-day, and, as near as we could judge, each got the same allowance of straw, and all had a constant supply of oat straw in their racks. From the foregoing particulars it will be seen that the manure thus made should have been equal. During the winter 1850-51 the manure in the open yard was carted to the field selected for the experiment, and put in one large heap of 200 loads well pressed down by the carts driving over it when emptying, and then covered, top and sides, with earth and road scrapings. It lay thus for a week before using, when it got a turn over in the usual way. The dung in the covered yard had been allowed to collect all winter, was carried direct to the field, and put into drills, without any turnips, being quite well enough made for the crops intended. A field of 20 acres, of very equal quality, being a rich loam lying on the trap, naturally dry, and in good heart, exposed to the south, at an elevation of from 80 to 100 feet above the sea, was selected for the experiment, and divided into two equal portions: the manure applied was at the rate of 20 cart-loads per acre. The whole field was planted with potatoes; the seed all of one kind, from one field (Regent's); planted first and part of second week in April. All kinds braided well, and showed no difference till the first week of July, when a decided superiority began to manifest itself in the half of the field manured out of the covered yards. The Shaws on the portion of the field manured by the dung from the open courts began to decay by the latter end of July, and by the second week in August were nearly all gone, whilst the other portion of the field still retained its strong dark-green. The crops were taken up on the 1st to 4th of October, after two separate portions in each half had been carefully measured and weighed, the result being as follows: I may mention that disease showed itself more especially in the heavy crop—

UNCOVERED DUNG.

	Tons. cwt. lbs.		
First measured 1 acre produced	7	6	8 of potatoes.
Second ditto ditto ..	7	18	99 ditto.

COVERED DUNG.

	Tons. cwt. lbs.		
First measured 1 acre produced	11	17	56 of potatoes.
Second ditto ditto ..	11	12	26 ditto.

As soon as possible after the potatoes were lifted, the field was cleaned, ploughed, and (on the 22nd to 25th of October) Fenton wheat was drilled in, at the rate of 3 bushels per acre. The same portions of each half measured in the potato experiment were marked off for trial with wheat. As soon as the weather suited in the spring, the whole field got a dressing of 3 cwt. of Peruvian guano. During the winter very little difference was

apparent; but shortly after the application of the guano the crop on that portion manured by the covered dung took a decided lead, which it retained all the summer. The whole field was cut 26th of August, 1852; the portion manured by the uncovered dung being at least four days earlier than the other; as before, the two separate portions in each half of the field measured, cut, and stooked separately. On the 4th of September each portion was thrashed, the grain carefully measured, and the straw weighed. The weather having been rather wet, the grain soft, and not in good order, this will account for the light weight per bushel. The light crop beat the heavy crop in quality half a pound per bushel.

WHEAT ON UNCOVERED DUNG.

Acre.	Produce in Grain.		Weight per Bush.	Produce in Straw.
	Bushs.	Lbs.	Lbs.	Stones (of 22lbs.)
First	41	19	61½	152
Second	42	38	61½	160

WHEAT ON COVERED DUNG.

Acre.	Produce in Grain.		Weight per Bush.	Produce in Straw.
	Bushs.	Lbs.	Lbs.	Stones (of 22lbs.)
First	55	5	61	220
Second	53	47	61	210

In the foregoing statement it is not mentioned whether the acre was statute or the Scottish customary acre, equal to 1·27 statute; from the quantity of the crops, however, the latter may be inferred: but this is immaterial, as the proportion in either case is the same. It shows most distinctly the advantage of dung being collected under cover; and the additional produce from the use of dung made in boxes or covered yards over that collected in open courts would soon defray the cost

of boxes or covered yards in which to keep cattle. Of the fact of fattening-cattle thriving more rapidly in boxes than in any other mode of confinement the writer of this article can offer the strongest testimony, from having watched the effect for several years past; and he does not hesitate to proclaim his conviction that, tenants having leases would find it to their decided advantage to put up boxes at their own expense in cases where landlords might be so blind to their own interests as to refuse to provide so important an accommodation to the occupier of the land, and so fruitful a source of improvement of the value of their property. Boxes for a temporary purpose may be built at a trifling expense, the principal cost being lining the pits with brick. It should be remarked that, in making cattle boxes, the pits should be rendered water-tight, to retain the whole of the urine; also protected from rain-water from above, and land-springs from beneath. It is from not attending to these particulars that boxes have been in some instances condemned.

With a deeper and more perfect cultivation of the soil, with implements of improved construction, and a better economy of farm-yard manure, collected and prepared under cover, owners of landed property may still hope to maintain the value of their estates, tenants to reap the reward due to industry and the application of capital to the cultivation of the soil, and the community at large to enjoy the advantages of abundant produce of our native fields, notwithstanding the competition in our markets of untaxed America, and of the low-priced labour of the continent of Europe.

Newcastle-upon-Tyne,
August 14th, 1854.

A NEW SUBSTITUTE FOR THE POTATO.

The potatoe's nose is out of joint. The "lazy root" has so often turned out badly, and so overcome all the efforts of cultivators to produce a good crop, that year after year only adds to its disreputable character. Even in Ireland, where all the peasantry had their faith (and their existence) pinned to the potato, it is sadly losing caste. This season again we hear that the crop is failing in various parts of Britain; friends both from the north and the south bring us doleful tidings.

Ever since the first failures of the potato from disease, agriculturists of the higher class, who consider the general advancement of their art as a part of their business, have been looking about for some crop suitable as a substitute for the potato. Many have been brought into notice from time to time. A species of *Oxalis*, with tuberous roots, at one time excited great attention, and had its portrait ostentatiously given in agricultural books as the production from which the farmer was destined to reap a richer than a

golden harvest. That dog had its day. Then came the *Arracacha*, a South American umbelliferous plant, which was taken in hand by the French agriculturists, especially by M. Boussingault of Beechelbronne, from whom we had the honour to receive some interesting communications on the subject. But the *Arracacha* was found unsuitable to the climate of Britain; and, although still cultivated with some measure of success in France and in the French possessions of South America, where it has long been known, it casts no ray of hope on the prospects of the Scotch, the English, or the Irish farmer.

The tuberous-rooted crowfoot (*Ranunculus Ficaria*) was likewise brought into notice, as an economical plant suited, in some measure, for farm culture, its roots being rich in fecula. In addition to which, and many others that need not be here detailed, the extended cultivation of crops already known to British farming was very judiciously recommended.

Still, however, we are without the true philosopher's stone, *a substitute for the potato*.

One of the most valuable suggestions that have been made in connection with this subject, is one that has just emanated from M. Decaisne and Dr. Lindley. It is for journals specially devoted to such investigations to work out the details; and to journals like our own, addressed to the general public, to announce the ultimate results. We think that in the present instance some satisfactory results have been arrived at, and therefore, without entering upon a detailed discussion, we lay them before our readers.

The plant recommended by M. Decaisne is a Chinese yam, very different from the East and West Indian yams hitherto known in this country. Like them, it belongs to the genus *Dioscorea*, but has been introduced, it appears, under an erroneous specific title. M. Decaisne's experiments lead to the conclusion that it will speedily become a plant of real agricultural importance in France, and Professor Lindley sees no reason (judging from its geographical distribution, and its affinity to our hedge-bryony, which it much resembles) why it should not suit our climate.

The yam in question has been introduced from Shanghai, under the erroneous name of *Dioscorea japonica*. "If," says M. Decaisne, "a new plant is to have a chance of becoming useful in rural economy, it must fulfil certain conditions, in the absence of which its cultivation cannot be profitable. In the first place, it must have been domesticated in some measure, and must suit the climate; moreover, it must in a few months, go through all the stages of development, so as not to interfere with the ordinary and regular course of cropping; and finally, its produce must have a market value in one form or another. If the plant is intended for the food of man, it is also indispensable that it shall not offend the taste or the culinary habits of the persons among whom it is introduced. To this may be added, that almost all the old perennial plants of the kitchen garden have been abandoned in favour of annuals, wherever the latter could be found with similar properties: thus, *Lathyrus tuberosus*, *Sedum Telephium*, and *Cirsium oleraceum*, have given way before potatoes, spinage, and the like. Now, the Chinese yam satisfies every one of these conditions. It has been domesticated from time immemorial; it is perfectly hardy in the climate of France; its root is bulky, rich in nutritive matter, eatable when raw, easily cooked either by boiling or roasting, and then having no other taste than that of flour (feculé). It is as much a ready-made bread as the potato: it is better than the batatas, or sweet potato. Gardeners should therefore provide themselves with the new arrival, and try experi-

ments with it in the different climates and soils of France. If they bring to their task, which is of great public importance, the requisite amount of perseverance and intelligence, I have a firm belief that the potato yam (*Igname Batatas*), will, like its predecessor, the potato, make many a fortune, and more especially alleviate the distress of the lower classes of the people."

The plant is described as having large perennial rhizomes or roots, the top end of which is as thick as the fist, but tapering downwards to the thickness of the finger, descending perpendicularly to the depth of a yard, if the soil is loose enough to allow them. The haulm is annual, as thick as a goose-quill, cylindrical, turning from right to left, two yards long, violet with small whitish specks. Leaves opposite, heart-shaped, and triangular upon purple stalks. When not artificially supported, the stems trail on the ground and take root freely at the joints. The root is of the colour of coffee, as that beverage is usually used with milk. Under the skin is a white opaline, very friable, slightly milky, cellular mass, filled with flour, which softens and dries in cooking till it acquires the taste and quality of a potato, "for which it might be mistaken." There are in general two or three rhizomes (roots) at a plant.

In China this yam is extensively cultivated. M. Montigny, who sent it to Paris from Shanghai, under the name of *Sain-In*, reports it to be highly productive, the Chinese consuming it as largely as the potato in Europe.

The following is the mode of culture, as described by Dr. Lindley:—For propagation the smallest roots are set apart, and pitted to keep them from frost. In the spring they are taken out, and planted in furrows, pretty near each other, in well-prepared ground. They soon sprout and form prostrate stems, which are made into cuttings as soon as they are six feet long. As soon as the cuttings are ready, a field is worked into ridges, along each of which is formed a small furrow, in which the pieces of the stem are laid down and covered with a little earth, the leaves being left bare. If rainy weather follows, the cuttings strike immediately; if dry, they must be watered till they do strike. In 15 or 20 days the roots begin to form, and at the same time lateral branches appear, which are carefully removed from time to time, to facilitate the swelling of the roots.

Now that our freedom of intercourse with the Chinese is daily increasing, we may anticipate the introduction from their country of some useful agricultural crops unknown to our farmers, as well as novelties in the other arts and processes in which the Chinese are employed; this will be a substantial return for the beneficial influences which European civilization and enlightenment will spread amongst them.—The Commonwealth.

EXPERIMENTS ON THE USE OF COD-LIVER OIL IN FATTENING ANIMALS.

Dr. Pollock communicates the following article to the "*Lancet*:"—

"In a course of a careful observation of the effects of cod-liver oil, it occurred to me that experiments might with great advantage be performed, both on the healthy human subject and on cattle, with a view to ascertaining its positive powers of fattening, when the assimilating functions are in a normal condition. With the use of this agent in arresting the progress of chronic disease we are becoming daily more familiar, and have already run into an extreme which might have been anticipated, in expecting extravagant results and an universality of application, which we have not as yet discovered to be the property of any remedy which we possess. It were likely to prove a corrective to these extremes, were we to study, with minute care and observation, the physiological effects of our favourite drug, and rather to permit our theories explanatory of its action to take their rise from experiments, than to develop themselves from the chemical composition of the oil, which contains ingredients sufficiently numerous to puzzle the most ingenious chemist in his attempts to apportion to each its effects on the animal economy.

"The points to be ascertained with precision seem to be—first, whether the deposition of fat in healthy animals can be increased by the administration of cod-liver oil; and, secondly, the limits within which its action is manifested, a consideration which includes defining the quantity which when taken is assimilated into healthy fat, and in excess of which disease is generated.

"Leaving the more general and highly-interesting questions regarding the bearing of these points on disease for future observations, I will shortly state what little practical information I can offer towards an elucidation of these questions.

"About two years ago, when on a visit to an intelligent friend residing on his farm in Essex, and whose attention has been actively directed to the practical application of science to agriculture, it occurred to me to suggest to him the use of cod-liver oil in fattening cattle, stating my belief that it might be possible to obtain, by its administration, a decided saving in the cost of feeding. I proposed that he should separate off such of his stock as were to be the subjects of experiment, and that the weight of the animals, the price obtained, and the outlay for food, should be carefully noted, in comparison with others fed in the ordinary manner. The variety of my friend's occupations prevented

his giving to my plan the minute attention which could have been desired, and the results of which I had hoped before this to publish; but the following letter from him contains matter of much interest, and, if I mistake not, foundation for future experiment and investigation:—

"You asked me to write you some particulars of my experiments upon fattening animals with cod-oil. I will not attempt to give you any very minute details, but will endeavour to place before you a general view of what we have done; and as last winter I carried my plans out more fully than the preceding one, I will particularly speak of my operations at that time. And first, of pigs. I kept, upon an average, three hundred, and killed from twenty to thirty per week, mostly porkers, from five to fifteen stone weight. The experiments were made by dividing off twenty pigs, and weighing each lot, keeping the meal separate, giving one lot two ounces of oil per diem, and both as much meal as they liked. I found the pigs taking the oil, ate less meal, weighed the heaviest, and made the most money per stone in the London market, the fat being firm and white. Subsequently I have found that for small pigs one ounce of oil will do better. To larger pigs I have given a quarter of a pint per diem, and to small pigs also; but I always found I lost money and credit for good pork when the larger quantity was given; and when killed, the fat was yellow, and the flesh tasted fishy. From the weekly examination of so many pigs, I have concluded that the oil in no case cured a pig troubled with lung disease; but that, when given in small quantities, it was profitable, as the animal fattened upon a less amount of food, the oil tending to produce fat quickly: My experiments have led me to conclude, that if given in a quantity which cannot be digested, it is then passed over the system in the shape of bile, so as to cause the yellow appearance in the fat. The farmer in such a case would lose money, as my man did for me, believing that if so small a quantity were good, more would be better.

"The result with sheep has been more satisfactory; with one ounce per day the fat has been beautifully white, and the flesh has been compared to short-cake, being light and easy of digestion. The lot of eighty gave general satisfaction to the consumers; but the butchers complained of lighter weight than the healthy well-to-do appearance of the sheep led them to expect.

"As regards bullocks. Last year ten short-horns took each from a quarter of a pint to three

quarters of a pint daily, and paid better than any other bullocks: these were sold for London. The opinion of all who saw them was, that it was impossible for any beasts to go so well as they did in the usual way with so little food. They commenced with the quarter pint, and ended with three quarters. I fancied, on the whole, that they did better on half a pint each per diem. I purchased for an experiment this year, eight Herefords, even or regular beasts. They are divided into two lots, one of which has a quarter of a pint of oil daily, and all live alike.

“The bullocks have the oil mixed up with meal and chaff; the pigs with dry meal; the sheep have split beans soaked in oil. The commonest cod-oil costs from 2s. 8d. to 3s. per gallon. I have tried sperm-oil against the cod-oil, and prefer the latter. I should add, that this year I only use an ounce for sheep and pigs, and four ounces per day for each bullock. The relief to a broken-winded horse from the administration of cod-oil is very soon perceptible. I shall be most happy at any time to write to you further upon this subject.

Yours, &c.,

A. W.’

“1. It will be observed that in the above exper-

iments on pigs, bullocks, and sheep, a greater degree of fattening was obtained from a less amount of food when cod-oil was used.

“2. That in all the animals there seemed to be a decided limit to the quantity which could be digested; that for pigs being two ounces, the smaller thriving best on one ounce, and the larger hogs being over-fed on four ounces per diem. Sheep took an ounce, and bullocks a quarter to three-quarters of a pint, and ‘paid better than any other bullocks;’ but in all these cases, a much larger quantity was tried experimentally; and it invariably disagreed, producing derangement of digestion, and ‘causing a yellow appearance of the fat, and a fishy taste.’ This was remarked by the butcher who purchased the animals, and who, at my request, was not informed of the peculiar mode of fattening which was adopted. Whether the above experiments may induce farmers to adopt cod-oil as a judicious article of food, more efficacious and cheaper for fattening their stock than those ordinarily used, I will not presume to decide; but I offer the foregoing results to the profession, persuaded of their importance and interest in studying the application and physiological action of oils on the animal system.”

ATMOSPHERIC CONDITION.

Under this title I introduce the subject of an article which appeared in the *Daily News* of Sept. 4th inst., “On Cholera: its Cause and Cure,” by A. Mayhew. The leading principle of this article I mean now impartially to investigate; and in order to do the writer and his object justice, it will be necessary to borrow from several of his paragraphs, avoiding prolixity, while observing the utmost fidelity. The remarks appended to each quotation will bear upon the chemical hypothesis of the writer, without alluding to the disease itself, its cause, or general medical treatment:—

Extracts 1 and 2.—“In the year 1849, several scientific gentlemen, anxious to clear up the mystery enveloping the cause of cholera, commenced a philosophical inquiry into the circumstances attendant upon this epidemic. Amongst these was my brother, Mr. Henry Mayhew, who, although by profession an author, is also an able chemist. The letters on the subject of cholera, which appeared in the *Morning Chronicle*, under the signature of ‘Anti-Zymosis,’ were written by him.”

“Whenever this pestilence has raged among us, it has been found that the air is strongly charged with a vast quantity of what chemists call ‘ozone.’ With respect to the nature of this body, Professor Schönbein asserts that it is a compound of oxygen analogous to the peroxide of hydrogen (hydrogen 1, plus 2 oxygen).”

REMARKS.—How long this term, ozone, has been in vogue, or by whom among modern chemists it was originated, I am not prepared to say. However, I find it not in Brande’s *Manual*, 1839, or in that of the late Dr. George Fowles, 1844. At page 110 of the latter, peroxide of hydrogen is described as an “exceedingly interesting substance, of very difficult preparation.” The solution may be concentrated under the air-pump receiver, until it acquires the specific gravity of 1.45. In this state it presents the aspect of a colourless, transparent, inodorous liquid, possessing remarkable bleaching powers. It is very prone to decomposition; the least elevation of temperature causes effervescence, due to the escape of oxygen gas. Near 212° it is decomposed with explosive violence. Peroxide of hydrogen contains exactly twice as much oxygen as water”—i. e., 16 parts (in lieu of 8) to 1 part of hydrogen.

Ozone is now an accredited term—not used, however, as applicable to the liquid peroxide, but as an elastic gas; and in that condition, I was assured, a few days since had been detected in the atmosphere, even during the then splendid and very dry weather. Watery vapour is always present in the atmosphere; and as electricity performs an important *role* therein, it is probable that a portion of the binoxide of hydrogen may have been evolved, and become electrically united with that vapour.

Extract 3.—“Cholera has always been preceded and

succeeded by influenza and catarrhal complaints. This would seem to agree with Faraday's statement, that an atmosphere strongly charged with ozone renders respiration difficult, causes unpleasant sensations, and produces catarrhal effects, for it acts powerfully on the mucous membranes." I cannot follow the writer in his long dissertations on the subject of those membranes, and therefore pass on to the observation that "it is a curious fact that the disease in the potato invariably makes its appearance contemporaneously with the cholera. We are told by Faraday that ozone produces oxidizing effects upon most organic compounds. It is fair to presume that the starch in the potato is attacked by the ozone of the atmosphere."

These extracts comprise some bold assertions, the correctness of which we may be allowed to question. Is it true that cholera has always been preceded by influenza? Was the last heavy visitation of that febrile affection, in the winter of 1847-8, in any degree coincident with cholera? On the other hand, conversely, did any catarrhal affection worthy the name of influenza precede or follow the cholera of 1849, or the epidemic now prevailing? Is it not a known and admitted fact that, with a few severe exceptions (as colds and coughs), town and country had been greatly exempt from catarrhal affections?

In reference to the potato disease as connected with cholera, where was that epidemic in 1845-6-7-8-50-51-52 and '53? in all which years the potato plant and tubers were more or less affected? In the present season, wherein cholera prevails, the potato remains in comparative immunity.

Extract 4.—"Ozone is destroyed by heat. The cholera disappeared suddenly from Berlin after a fire, which was consuming many hours. Within the few last weeks, at Varna, where hundreds of our soldiers were daily dying, the cholera had been overcome by heat. Scarcely have we read of the incendiary fires in that town, than we are informed that the epidemic is rapidly disappearing, and the deaths daily decreasing."

If heat destroys ozone, and moisture, as asserted, be a most powerful oxidizer, "showery weather being invariably the precursor of the most numerous and violent attacks of this disease," how does it happen that during the great solar heats and scorched aridity of the three weeks ending on the 13th of September inst., the cholera has prevailed with great virulence in the infected metropolitan districts and elsewhere?

Extract 5.—"To destroy this body (ozone) the easiest method is to burn sulphur. When sulphur is burned in the open air, sulphurous acid gas is the sole product. This gas has a strong attraction for oxygen; it unites with it whenever moisture is present, and forms sulphuric acid. Therefore, the sulphurous acid generated by the burning of sulphur in choleraic districts would destroy the ozone in the atmosphere by depriving it of its oxygen. 'Ozone,' says Faraday, 'instantly transforms sulphurous and nitrous acids into sulphuric and nitric acid.'"

Cases in proof cited.—"A lady who was seized with cramps and vomiting was placed in a room where an at-

mosphere of sulphurous acid was judiciously maintained; in ten minutes all pain had left her, the sickness had ceased, and she felt in perfect health."

"A lad was seized with purging, cramps, and vomiting. I made him go to bed, and burned sulphur in the room till the air was strongly impregnated with the gas. In half an hour the lad had fallen asleep, and the next morning awoke perfectly restored."

I do not desire to impugn the theory—the great desideratum is to find the curative power of sulphurous acid established by unquestionable fact. Chemically viewed, ozone can be deprived of its one plus equivalent of oxygen by sulphurous acid, which is 1 minus. Sulphurous acid can be obtained with great facility, not only by the simple combustion of sulphur on matches, or in a garden saucer, but also by moistening powdered charcoal (in a clean and dry Florence flask, or small retort) with oil of vitriol (sulphuric acid), applying the heat of a common mortar light or spirit lamp. Water absorbs a great volume of this invisible gas; and thus, with a little careful manipulation with retort and receiver, the latter containing a portion of water, a very pungent liquid can be obtained in a short space of time. Great caution in any case is indicated to the operator, as otherwise his own respiratory organs might be most seriously inconvenienced.

Croydon, Sept. 14, 1854.

J. TOWERS.

GAS TAR IN HORTICULTURE.—A discovery, which is likely to be of great advantage to agriculture, has just been reported to the Agricultural Society at Clermont (Oise). A gardener, whose frames and hothouse required painting, decided on making them black, as likely to attract the heat better, and from a principle of economy he made use of gas tar instead of black paint. The work was performed during the winter, and on the approach of spring the gardener was surprised to find that all the spiders and insects which usually infested his hothouse had disappeared, and also that a vine, which for the last two years had so fallen off that he had intended to replace it by another, had acquired fresh force and vigour, and gave every sign of producing a large crop of grapes. He afterwards used the same substance to the posts and trellis-works which supported the trees in the open air, and met with the same result, all the caterpillars and other insects completely disappearing. It is said that similar experiments have been made in some of the vineyards of the Gironde with similar results.—Galignani's Messenger.

NEW WEATHER-GLASS.—For some years I have been in the habit of watching the condition of the gum in my wife's camphor bottle, which stands in our bed-room; and when not disturbed, it makes a capital weather-glass. It answers my purpose as well as a barometer that would cost me twenty-five or fifty dollars. When there is to be a change of weather, from fair to windy or wet, the thin flakes of the gum will rise up; and sometimes, when there was to be a great storm, I have seen them at the top. When they settle down clearly at the bottom, then we are sure of grand weather. Any farmer who will watch his wife's camphor bottle for a season, will never have occasion to watch the birds, or locusts, or ants, for indications of a change in the weather.—Literary Journal,

THE CHARACTERISTICS OF WHEAT.

BY AN OLD NORFOLK FARMER.

Amongst the various productions of the earth which constitute the food of man, there is, in every part of the world, one staple article pre-eminently adapted, from the conditions of soil, climate, and geographical position by which it is bound, to universal use, and declared by common consent to be the "staff of life." Thus, in tropical regions, we find rice and maize assuming this character; whilst in the colder portions of the temperate zone, the more hardy cereal productions form the sustenance of the great bulk of the people: amongst these, the grain which is to be the subject of this paper stands foremost in importance and in beneficial influence upon the moral and physical condition of man.

In treating on this subject, we propose to consider the cereal wheat, in respect to its physiological, agricultural, commercial, and social characteristics. These general heads we shall take in course; and beginning with the first, we propose describing the physical characteristics of wheat, in regard to its origin, constitution, chemical composition, and the effects of soil, climate, and cultivation in the modification of its component parts.

The *Triticum* family of plants, to which wheat belongs, is an exceedingly numerous one, and we may add ancient, too; for we learn from history, that it has engaged the attention of mankind for at least four thousand years. Under this generic name is included a great variety of grasses, as well as of grain, properly so called. It is with this latter only we have now to do; and we find that Boussingault mentions four distinct species, as representing all the other varieties, namely, 1st, *Triticum Hyburnum*; 2nd, *Triticum Aesturnum*; 3rd, *Triticum Spelter*; 4th, *Triticum Monocon*. These four patriarchs of the *Triticum* races—if such, indeed, they be—have produced as great a variety of tribes as the four sons of Noah, and, like them, have spread themselves over nearly the whole surface of the earth. The extraordinary transformations, however, which take place in this plant, from local or accidental causes, have induced the belief that the four species named above, have proceeded from one original stock, preserved by our great progenitor, Noah, from the devastation of the flood. These transformations are produced by changes, either of soil or climate, as well as by intermixtures of stock, and they require but little time to effect them: thus, for instance, the white Cosh wheat of Kent, which was introduced into Norfolk about the year 1780, was found to change its character entirely in a very few years, so that both the cosh and grain became red, like the old Norfolk red wheat. This appears to have been effected, by bringing the seed from off a strong clay, to a light mixed, or a gravelly soil. We shall have occasion to refer more particularly to such changes in a future portion of this paper.

A good deal has been written at different periods, respecting the origin of wheat; and it has been the opinion of many scientific men, that the grain we now cultivate

is an improved type of the *Triticoides*, a species of grass which, under the names of *Ægilops Ovata* and *Triaristata*, is found in abundance in Sicily and the South of France. M. Fabre, a celebrated French naturalist, has recently made a series of experiments upon the seeds of this plant; these seeds, although small, have all the outward form and appearance of wheat; and by carefully cultivating them for *twelve consecutive years*, the perseverance of M. Fabre was rewarded by the production of perfect wheat, not much different in character, from that which is grown in the South of France.

Tradition assigns to the valley of Enna, in Sicily, the honour of having been the birthplace of Ceres, the goddess of harvest, and the native country of wheat. The success of the experiments of M. Fabre renders it probable that, in ancient times, some spirited cultivator may have improved, by similar means, the natural grasses of the country to the production of wheat, which, according to the custom of heathen nations, has been personified and canonised, in the mythology of the national creed.

The result of M. Fabre's experiments corresponds with that of a similar, though less protracted, one by the late Sir Joseph Banks, at the beginning of the present century, which is recorded in the Philosophical Transactions of the time. It appears, that Sir Joseph had received a paper of grass seeds, labelled "hill wheat," which, as it was accompanied with no account of the precise spot from whence it was brought, he concluded came from the high grounds at the back of the plains of Bengal, or from the mountains of the Indian peninsula. These seeds he directed to be sown in his garden, and, to his surprise, the product of the very first year was spring wheat, as near as possible in character, to what is commonly grown in England. In referring to this case, M. Humboldt states that the seeds were brought from the mountains of Boutan, and that it was probable, it would prove to be the primitive type of the *Solanum*, and cultivated cereal. Certainly, both these experiments go far to prove the identity of these grasses with some types of the cultivated grain, although we much question, whether it be right to assign to the entire family, such an origin; nor is it possible now to determine, whether the "hill wheat" and the "*Ægilops ovata*" are not rather degenerated types of the original, produced by inadaptation of soil and climate, than the original itself. Certain it is, that the most ancient history extant speaks of a species of wheat of a bulk and character, that renders it fit for the food of man. We have reason to believe that the *Triticum Compositum*, or Egyptian wheat, now cultivated in that country and other parts of the east, is precisely the same as that grown in the time of Joseph, three thousand five hundred years ago; nor is the "seven-eared" plant unknown in this country, and it is both a standing testimony of

the truth of the sacred history, and of the antiquity of the cereal wheat.

It is true, that the corn mentioned in the history of Joseph, is not there stated to be wheat; but there is a previous incidental mention made of *wheat harvest*, in an earlier period of Jacob's life, about six hundred years after the flood, which proves that that grain was then cultivated; and the analogy between the seven-eared corn of that period and the seven-eared (or "logger-head") Egyptian wheat of the present day, is too striking to be rejected as evidence in this case. We might also refer to the wheat said to have been found in mummy cases, which is identical with the modern Egyptian wheat, and which, if the account be authentic of its origin, proves still further our position; but as doubts are now thrown upon it, we shall lay no stress on the evidence it affords, only remarking that it is quite possible for the vegetating principle to have been preserved an indefinite period, enveloped, as the grain was, in cerecloth, which hermetically excluded the atmospheric air, and so prevented decomposition.

The experiments, however, of M. Fabre and Sir Joseph Banks, are of far more interest to the naturalist, than of direct importance or utility to the agriculturist. Sir Joseph does not state the amount of produce he obtained from the "hill wheat; but M. Fabre, after twelve years of perseverance in careful cultivation, and with every advantage for the production of a large return, was rewarded at last, with not more than *six or eight fold*—a result which certainly would not induce a *practical farmer* to adopt his experiments, or employ the product for seed. We may, however, derive from them a valuable principle, by the adoption of which we may improve those species of grain we now possess. If by careful and persevering culture, we can raise the character of grass seeds of the *Triticum* species, to that of actual wheat, what would not be effected, were the same attention paid to the wheat itself? An experiment of this kind is recorded by Rees, which is so instructive that we beg leave to relate it.

It appears, that a farmer living at Bradfield in Suffolk, in passing through a wheat field when the corn was in full bloom, was struck with the different hues presented by the flowers. At first, he supposed that it might arise from the different stages of forwardness of the plant; but, on a closer inspection and consideration, he concluded that they were indications of specific differences in the quality of the wheat. Under this conviction, he selected some ears of different colours, and particularly marked eleven distinct numbers, the characteristic qualities of which, he minutely noted down, as well as their appearance in the field. These he gathered when ripe, and kept separate, and at the proper season, planted them in his garden two consecutive years. Under this treatment, they preserved the same characteristic difference as was observed in the field. It is unnecessary to go through all the details of the experiment; but the result was, that *three* of the eleven numbers were preserved, their produce being *in excess* of the others, to the extent of from six to eight bushels per acre, and the grain was three pounds per bushel heavier.

This case shows the importance of noticing those "*sports*," as they are called by gardeners, in order to improve the quality and increase the quantity of the produce of the field, by which a real and immediate benefit may be secured, far more certainly, than by endeavouring to discover affinities and descents, which, after all, can be of no practical avail to us. We beg, however, to observe that our remarks apply to the practical farmer, and not to the naturalist and man of science. It is strictly in the province of the latter to investigate these things, for the purpose of classification; and the scientific world are much indebted to M. Fabre, for the elaborate and protracted experiment he has instituted. But with regard to the source from whence our own cereals—and especially wheat—were derived, we have reason to believe, that the latter was introduced by the Romans, at the time of the Conquest. History records, that soon after that event, large quantities of wheat were exported from Britain to the continent of Europe, although previously, the land was cultivated in the rudest manner, and without any idea of extending it beyond the wants of the community. It is not at all improbable, that our old Lammas wheat (the *Triticum Hyburnum*) is the present type of the original grain, cultivated from the earliest period of British husbandry, being so well adapted to a large portion of the soil of this country, as well as of continental Europe.

We shall next speak of the physical constitution of the wheat plant; and would remark, by the way, the evident proof of design in the arrangement by which a plant or grain, so extensively conducive to the welfare of man, should be so capable of adapting itself, not only to the extremes of latitude, from the equator to the verge of the Arctic circle in our hemisphere, but also to every vicissitude of temperature. Thus, the wheat of Spain was introduced into her transatlantic possessions on both sides of the line, soon after the conquest of America, where it at once accommodated itself to the climate of the high table land of the Cordilleras, and was cultivated with a success known only to tropical regions. With very slovenly tillage, the farmers of Mexico and Venezuela reap from thirty to fifty-fold. It must, however, be stated, that cereals are not cultivated for a crop of grain, in Mexico, at a lower elevation than from 2,630 to 2,950 feet above the level of the sea; although, in the Caraccas, in the latitude of 10° 13' north, fine crops are obtained at an elevation of 1,640 feet. It is remarkable, that the wheat grown on the sea-board round the city of Xalapa in Mexico, although upwards of four thousand feet above the level of the sea, produces abundance of straw and foliage, but *not a single ear of corn*. It is cultivated solely as forage for cattle.*

The mean temperature of 64° or 66° Fahr. is considered the most favourable for the production of wheat. In the Cordilleras, it is found that above this mean, the grain becomes smaller, and the bran thicker; whilst below

* Wheat was introduced into Mexico in 1530, by a slave of Cortez, who found a few grains in some rice. It was taken to Lima in Peru by Maria d'Escobar, a Spanish lady, about the year 1540. At Quito, the first grains were sown by the monks of the Convent of St. Francis.—*Humboldt*.

it, the contrary is the case, and the grain abounds more in gluten. Apart, however, altogether from geographical influences, there is perhaps no plant—certainly, no cereal that we are acquainted with,—that will bear so well, in the earlier stages of its growth, the vicissitudes of heat and cold, wet and drought, without injury, as wheat. We have seen excellent crops reaped, both after a winter of thirteen weeks' unintermitted frost, and after one so mild as not once to produce ice that would bear a duck. Excessive rains will not destroy it, provided the land is properly drained; nor will drought, such as occurred in 1822, when scarcely a shower fell from the month of April to harvest, (which commenced that year early in July) prevent success. That harvest was one of the most abundant ever known, and the quality of the grain was equally good. The greatest atmospheric enemies to wheat are, late frosts, when the ear is shooting, and permanent surface-water. We have seen a promising field of wheat so completely cut off by two frosty nights on the 2nd and 3rd of June, that the produce was not two bushels per acre—the only grain saved being in those parts of the ear that were still covered. And, with respect to surface-water, the remedy lies in the farmers' own power by draining, which is the Alpha and Omega of good husbandry.

Those who are acquainted only with the mild winters and florid vegetation of the southern part of the kingdom, can form no idea of the effect of frost in more severe climates, upon the wheat plant. Take a Devonshire farmer, for instance, into a late-sown field of wheat, in the northern or eastern counties, in the month of April, after a severe winter, succeeded by those cutting "north-easters" fresh from the German Ocean, which sweep for weeks over the land, with a severity piercing to the very marrow of both man and beast, and we are certain he would hardly guess what was lying under the surface. Not a particle of vegetation is to be seen, to indicate the existence of a plant, that is to reward the farmer for a year's toil. This state of things sometimes continues even later, according to the old doggerel rhymes of the country :

"The farmer went to his wheat in May,
And came right sorrowful away :
He went to his wheat again in June,
And came away singing a merry tune."

Under the influence even of this severity of climate, the wheat is unceasingly "gathering" * as it is termed, and acquiring that hardihood and strength at the root, which, as soon as the warm spring weather sets in, sends up its branched foliage as if by magic. We recollect an instance of a field of wheat belonging to a neighbour of ours, which continued so long in this dormant state, that, despairing of its recovery, the owner determined to plough it up, and sow the land with barley. He accordingly put in the ploughs; but when he had turned up half the field, he thought he perceived indications of life in the roots, that induced him to let the other half remain, hoping at least, or perhaps at *most*, to reap

half a crop. To his great astonishment, however, it proved the best crop on his farm; for the land being "in good heart," the plants tillered abundantly, and at harvest yielded upwards of four quarters per acre.

Provided, therefore, that the conditions necessary to success, are complied with in its cultivation, the wheat plant is one that is less affected by atmospheric contingencies, up to a certain period of its growth, than any other cereal the farmer has to do with. What those conditions are, must be considered in the following sections of this essay.

NO. II.

The next branch of this subject for consideration is the chemical composition of wheat, which is perhaps the most important, though hitherto least understood part of it. Such is the intimate connection between the component parts of plants and those of the soil in which they grow, that agriculture can never be a perfectly rational pursuit until chemistry is made the basis of its operations. There was a time when the farmer might go blind-folded to his work, committing his seed to the soil, abundantly dressed with manure, without knowing or inquiring whether the relative conditions of these three elements were so adapted to each other, as to ensure a successful result; and when harvest came round, wondering how it was, that after so much care and expense, a very moderate return was the issue. We remember one of this class, who, being reasoned with, on the advantages of attending to such adaptation, replied bluntly—"You may talk of your chemistry and stuff as long as you please, but *muck's the man*, after all!"

The day has gone by when a knowledge of the principles of vegetable life may be confined to men of science, to botanists and chemists, to be experimented upon—not for practical ends, but as a source of scientific amusement for their leisure hours. Henceforth the practical farmer must learn to analyze his grain, his soil, and his manure, if he wishes to make the most of his business, and meet the vigorous competition to which he is liable.

This is neither so Utopian, nor so difficult a matter as a plain farmer would be apt to imagine; and, by way of illustration, we will state a case which came under our own notice a few years ago. An eminent tradesman, living in Loudon, married the daughter of a farmer, who had held a farm of about 300 acres in a county adjoining Middlesex for many years, and had acquired considerable property. This farmer died, and left the farm to his widow, who, finding, after two or three years, that she was losing money, consulted her son-in-law, as to the propriety of relinquishing the concern. The latter, on looking over the accounts, found, that up to the time of the husband's death, the farm had paid well; and he saw no good reason why it should not still do so, under proper management. He therefore agreed to take it himself, had the stock and everything valued over to him, and, from being an eminent gun-maker, commenced agriculturist.

* Tillering.

Knowing literally *nothing* of farming, he began reading all the books on the subject that fell in his way. He had not read far, before he found *that a knowledge of chemistry* lay at the foundation of good husbandry. He therefore procured the services of an intelligent working-chemist, whom he took into his house for some months, and from whom he learned the processes of analyzing, the names of chemical substances, &c., and, in fact, made himself a good practical chemist for agricultural purposes. He then applied this knowledge in the cultivation of every field on his farm, adapting his manures to the quality of the soil, and the nature of the grain he intended to put into it. The result was, that his neighbours, who began by ridiculing the "Cockney farmer," and who allowed him three years at the utmost, "to make his fortune and retire," were glad, at the end of that period, to go to him for advice about their crops. His own crops of corn, hay, and roots, were the admiration of the whole country, and he sold the whole of his wheat for seed-corn at several shillings above the market price of the day. And at the end of the fourth year, on making up his account, he found a balance in favour of the farm of twelve hundred pounds, as the profit of that year. Such were the results of science applied to agriculture; and by its means, without any previous knowledge of the subject, this gentleman stood as eminent amongst his neighbours, in that profession, as he previously had been as a tradesman.

The peculiar property of wheat, which distinguishes it from all other cereals, is the large proportion of gluten it contains; the predominance of which renders it so much better adapted to the human constitution, as food, than any other vegetable production. The late Sir H. Davy speaks of gluten as one of the most nutritious of vegetable substances; and, in fact, wheaten flour is more or less valuable to the baker, housekeeper, and consumer, just in proportion to the quantity of gluten it contains, which varies materially in different kinds and qualities of wheat. This difference is produced by the varied conditions of soil, climate, and manure; and it becomes a question of great importance to the farmer, what modifications of these elements are most favourable to the production of this substance in the largest proportion. A practical farmer, some years ago, analyzed the soils of two fields, on which he grew wheat from the same seed, the one producing a perfectly clean, and the other a smutty, sample. The only difference he discovered, consisted in the first containing a large proportion of *phosphate of lime*, in which the latter was deficient. He therefore inferred, that this deficiency was the sole cause of the smut. "For when the grain has arrived at the stage of its growth, at which it would require the starch and animal gluten to be added, in order to perfect its formation, if it should not find the proper materials for producing them in the soil, or the roots of the plants are defective in those parts which would select those materials and convey them to the plant, a decline in the crop will instantly ensue."

This reasoning corresponds with the results of an experiment mentioned by Boussingault, in which different manures were applied to the same soil and the same

seed-wheat, and in which the proportion of gluten obtained ranged from 12 to 35.1 per cent., as shown in the following table:—

Manure.	Gluten.	Starch.	Bran and Soluble matter.
1 Human urine	35.1	39.3	25.6
2 Buttock's blood....	34.2	41.3	25.5
3 Night soil.....	33.1	41.4	25.5
4 Sheep's dung.....	32.9	42.8	24.3
5 Goat's ditto.....	32.9	42.4	24.7
6 Horse's ditto.....	13.7	61.6	24.7
7 Pigeon's ditto	12.2	63.2	24.6
8 Cow's ditto.....	12.0	62.3	25.7
9 No manure.....	9.2	66.7	24.1

Note.—These experiments were made by M. Hermstadt, and reported by Boussingault.

Here we find that urine and night soil, which abound in phosphates, produced respectively 36.1 and 33.1; whilst horse, pigeon, and cow's dung yielded only 13.7, 12.2, and 12 per cent. of gluten; and where no manure was applied, only 9.2 per cent. It should also be observed, that the battle was between the gluten and starch, there being little more than one per cent. difference in the other components. For, whilst the first produced nearly equal quantities of starch and gluten—say, 35.1 gluten to 39.3 starch, in the ninth, the proportion of starch is more than *seven times* that of gluten, or 9.2 gluten to 66.7 starch.

The influence of climate, in producing specific modifications in the character of wheat, is, perhaps, still greater than that of soil and manure. We have stated that the range of latitude under which that grain is cultivated in the northern hemisphere, extends from the equator to the verge of the arctic circle—Archangel being the most northern part from whence wheat is obtained. Within this range, the zone lying between the 30th and 60th degrees of latitude produces the most mellow and easily-manufactured wheat. Southward of this belt, the grain becomes large, ricey, thin-skinned, and dry; whilst northward, the berry gradually grows smaller, and the bran or skin thicker, rendering it of very inferior value in commerce; yet the flour is of a fair colour, if properly ground and dressed, and contains a large proportion of gluten, and is consequently useful in mixing with weaker flour. Thus, whilst the English Lammis wheat contains only 18.7 of gluten, the coarse Russian yields 22.1. On the other hand, the hard wheats grown in Spain, Egypt, and other countries bordering on the Mediterranean, yield a large quantity of flour, containing an abundance of gluten; but the colour is too yellow, to admit of its being used by the London bakers, except in very small proportions, or in the place of cones. It requires to be wetted also, before grinding, by which the bran is more effectually separated, and the flour itself is improved. The annexed table of analyses will illustrate the comparative excellencies of different kinds of wheat, in the proportion of gluten they contain. The azote, though specified separately, is again included in the gluten.

TABLE SHOWING THE COMPARATIVE QUALITIES OF WHEAT GROWN IN DIFFERENT COUNTRIES.

Country where Grown.	Specific Character.	In 100 Parts of Wheat.		In 100 Parts of Flour.		Starch, Sugar, Gum, and Water.	Colour and Quality of the Flour.
		Bran.	Flour.	Azote.	Gluten.		
Cape of Good Hope.....	Yellow, large ..	19.0	81.0	2.92	18.2	81.8	White, very soft.
Bengal.....	White, hard....	21.5	71.5	2.97	18.6	81.4	Ditto ditto.
English Lammas.....	Yellow, fine....	14.0	86.0	3.00	18.7	81.3	Very white, very soft.
Pyrenees.....	Well formed ..	20.5	79.5	3.04	19.0	81.0	White, very soft.
Smyrna.....	White, hard....	19.0	81.0	3.18	19.9	80.1	Ditto, coarse.
Middlesex.....	—	—	—	—	20.0	80.0	—
St. Helena, Giant.....	Hard, large....	25.0	75.0	3.35	20.9	79.1	Yellow, coarse.
Polish.....	—	—	—	—	21.0	79.0	—
Egyptian, red.....	Small, hard....	15.0	85.0	3.45	21.6	78.4	Yellow, strong.
Russian.....	Coarse.....	18.0	82.0	3.53	22.1	77.9	Ditto, soft.
Dantzic.....	Tender.....	24.0	76.0	3.63	22.7	77.3	White, soft.
Meccan, bearded.....	Long-awned ..	13.2	86.8	3.63	22.7	77.3	—
Sicilian, No. 1.....	—	—	—	—	24.0	76.0	—
United States, America ..	—	—	—	—	23.5	76.5	—
Taganrog.....	Small, hard....	23.5	76.5	3.84	24.1	75.9	White, soft.
Sicilian, No. 2.....	Small, red.....	19.5	80.5	3.89	24.3	75.7	Yellow, coarse.
English, spring.....	—	—	—	—	25.5	74.5	—
African.....	Grey, hard	24.5	75.5	4.25	26.5	73.5	Yellow, coarse.
Scotch.....	—	—	—	—	5.5	57.30	These were analyzed by Professor Davy, of the Royal Dublin Society, and exhibit only the starch and gluten.
Irish, No. 1.....	—	—	—	—	7.0	56.75	
Irish, No. 2.....	—	—	—	—	7.0	56.75	
Mummy, Irish.....	—	—	—	—	7.5	56.25	
Mildewed, English.....	—	—	—	—	15.3	84.7	
Blighted, ditto.....	—	—	—	—	20.0	80.0	—
Barbary.....	—	—	—	—	23.0	74.0	—
Irish Flour.....	—	—	—	—	9.0	72.5	Analyzed by Dr. Davy.
Meccan.....	Small, brown ..	32.0	68.0	3.71	23.8	76.2	
Norfolk Barley.....	—	—	—	—	6.0	94.0	—

It will be seen by this table that the Scotch and Irish wheats contain less of gluten, and more of starch, than any other kind, and are consequently of more value than any other to the starch makers; and this has been confirmed to us by persons in that trade, who state that they invariably obtain a greater quantity of starch from Irish wheat than from any other. This will also account for the low estimation in which Irish flour is held by the London bakers. Formerly a large quantity of it was imported into England; but, although the colour was excellent, its want of strength prevented it from being in favour on the London market.

There is one species of wheat the flour from which is certainly the most valuable of any to the baker, as the following statement will show: Some years ago a flour factor in London received a small consignment of flour from a Norfolk miller. In the letter of consignment it was stated that the Talavera wheat, from which it was made, had caught the rain, and had a little sprouted in the sheaf, and therefore that the consignee must be careful in disposing of it. He accordingly sent a small quantity to a baker, who used it alone, when, to the astonishment of both baker and factor, it produced *one hundred and one Alb. loaves to the sack*; and precisely the same result was obtained by other bakers to whom the flour was sent. The Talavera wheat was first introduced into England during the Peninsular War, and was for some years a good deal cultivated in the eastern counties; but its extreme liability to sprout

in harvesting excited a prejudice against it, and it is in a great measure, we believe, gone out of cultivation. Yet it is peculiarly adapted to the dry, gravelly soil of Norfolk, and part of Suffolk; and is certainly invaluable to the miller and baker.

The inferences we may draw from the foregoing observations are—first, that the origin of wheat is of too high antiquity to be traced, and that it is doubtful whether any of our present species of that grain are an improved type of the *Triticum* grasses, or whether the latter are not rather a degenerated type of the former; secondly, that the constitution of wheat adapts itself to all latitudes below the arctic circle, but that it cannot be profitably cultivated *for grain* under a higher mean temperature than 66 degs. Fahr., and that the zone lying between the 30th and 60th degs. of latitude is the most favourable portion of the globe for its cultivation; thirdly, that whilst the chemical components of all kinds of wheat are the same, the proportions in which they exist vary with the variations of soil, climate, manure, and cultivation; whilst its value to the consumer as an article of food, is greater or less, in proportion to the quantity of gluten contained in the flour.

No. III.

Before entering upon the subject of this paper, it may be proper to remark, that it is not here intended to lay down any system of agriculture, in regard either to the

cultivation of this grain in particular, or of the general practice. Such a mode of treating the subject would be entirely out of place, and would open too wide a field of discussion and inquiry for a newspaper essay of this kind. At the same time, there are certain fixed principles, the observance of which, in this, as well as in every other branch of practical knowledge, is essential to success; and it is with these alone we have now to do, or, in the words of an excellent writer on the same subject, "to point out a few requisites, without which a grain of wheat cannot be brought to maturity in any soil, climate, or situation."

The question, then, for consideration is, the agricultural characteristics or peculiarities of wheat, and those conditions, the observance of which, is necessary to its successful cultivation. These may all be comprised under the several heads of soil, manure, and seed.

Speaking of the relative connexion between soil and plants, Sir Robert Kane, in his justly-celebrated work on the "Industrial Resources of Ireland," after stating that the number of elements subsisting in plants and animals is sixteen, goes on to say: "Of these, the atmosphere and water may be considered as capable of supplying four—namely, carbon, hydrogen, nitrogen, and oxygen; and these are they which constitute by far the greatest portion of all organic substances. The remaining elements, though usually present in much smaller quantities, are not less essential to the healthy existence of the plant, and must be obtained from the soil on which the plant is cultivated. The soil must, therefore, be highly complex in constitution, in order that it may yield those elements. If it do not naturally contain them, they must be artificially supplied, in order that the plant may grow. Each crop, removing from the soil quantities of those materials, diminishes its power of producing future crops; and hence, to sustain the fertility of any soil, the exhausting tendencies of its vegetation must be compensated for, by suitable additions. In these few simple propositions is contained the clue to the most refined and successful systems of agriculture; and the objects of the philosophical agriculturist, as well as the most effective means of practically advancing husbandry, consist, first, in studying the composition of the soil; and second, in studying the action of plants upon it."

These observations contain an invaluable principle, which, if acted upon, would, so far at least as human agency is concerned, prevent failure and ensure good crops.

Experience has shown that the soil best suited to most, if not all, kinds of wheat, is a sandy clay, or a clayey loam, such as constitutes a considerable portion of the land in Kent, Essex, and Suffolk, and some of the midland counties. I have specified the three first, because they furnish Mark Lane with the best and strongest qualities of wheat. Portions of land of a similar soil, are undoubtedly to be met with in most of the counties throughout the kingdom. Thus, in the Flegg and Blofield hundreds, in Norfolk, north and west of Yarmouth, "the raging fertility of the soil" (as Marshall expresses it) is such, that it requires checking by

repeated cropping with beans and wheat alternately, rather than continual renewing by artificial means. Lincolnshire also possesses land of a similar fertility; and in Ireland there are large tracts which, previous to the famine, produced commonly, from eighteen to twenty barrels of twenty stones each (or eleven quarters) per Irish acre. Such soils may be compared with the virgin soils in the valleys of the Ohio and Mississippi, in the United States, where wheat has been grown for twenty-five consecutive years on the same land, without either failure or exhaustion.

We recollect one remarkable instance of this kind of soil, with which we accidentally became acquainted, and the particulars of which were as follows. In the parish of Dagnalls, in Essex, there is a tract of land which was formerly an extensive bend of the river Thames, but had been gradually filled up (beyond the memory of man) with the rich deposit of the stream; probably the outpourings of the London sewers. About the year 1812, the tithes of this parish were valued by a surveyor, we believe, for a new rector; and the gentleman who made the valuation, favoured us with the following account. The tract in question, had never been known to be under any other crop than wheat, with which it was sown every year without intermission. In riding along the furrows, the surveyor could see nothing but the sky above him, and the wheat standing like tall reeds on each side; and he valued the tithes at 39s. 6d. per acre, which he assured us was below their real value, it being just at the hottest period of the war, and both corn and straw being at war-prices. This account is not uninteresting at the present time, when the question of liquid manure, and more especially that from the London sewerage, is engaging the attention of the agriculturist and the political economist.

It is evident that, in such cases as the foregoing, and especially the last, the elements required for the successful cultivation of wheat must be inherent in the soil, to afford such splendid results. But it is equally palpable, that such instances are rare in this country, and that soils are not often found so well adapted for wheat. It is notorious that a very large proportion of that grain grown in England, is the produce of land which without artificial aid would yield but little wheat, and that of a very inferior description. As example is the best illustration of theory, we will here give an instance, on a large scale, of what may be done with an ungenial soil.

There is a district in Norfolk, forty miles in extent, reaching from the town of Holt to that of Lynn, and embracing in its sweep, the far-famed Holkham estate, belonging to the Earl of Leicester. A large proportion of this tract consists of a light gravelly soil, with some wet clay, and a strip, here and there, of better land. Up to the period when the late Earl (then Thomas W. Coke, Esq.,) succeeded to the Holkham property, which may now be between 80 and 90 years ago, this whole district, with very trifling exception, was considered incapable of growing wheat; and rye, barley, and oats, were the usual and most valuable produce. Holkham itself possessed a very indifferent soil. When the lady who was afterwards the first Mrs. Coke, was once on a visit at the

Marquis Townshend's, at Rainham, one of the Lady Townshends was rallying her on her want of taste, in going to reside in such a barren wilderness. "I once spent a few days there myself," said the satirical lady; "and I declare, I saw only one blade of grass the whole time, and there were two half-starved rabbits fighting for it."

Such was Holkham at that period. Every agriculturist, not only in England, but throughout the world, knows or has heard what it has since become; and under the influence and example of the "father of agriculture," as Mr. Coke has justly been called, both Holkham and the whole of that once ungenial district, have been rendered capable of growing as good average crops of wheat, as any land in the kingdom, and certainly export as much wheat and flour to London and other ports as any district. The means by which this change has been effected, are precisely those recommended by Sir R. Kane in the passage above quoted. The natural want of clay in the gravelly soil, to give it consistency, and furnish the plant with mechanical support, and a calcareous mixture to furnish the phosphates and carbonates, were supplied from the subsoil, which in most cases contained them in abundance. And thus, soils which separately, were useless, have served, when brought together, to produce splendid results.

We shall now refer to a case of an opposite kind, in which land of the best description has, by the neglect of the principle laid down by Sir R. Kane, become almost barren, certainly not yielding produce enough to pay for the cultivation. We have mentioned tracts of land in Ireland, which, up to the appearance of the potato disease, produced 20 barrels of wheat per Irish acre. Such, for instance, were a large portion of the lands in Tipperary and Westmeath, where, previous to the period referred to, the farmers invariably dressed their land with lime for the wheat crop. So much, however, had the loss of the potato crop and its fatal consequences, impoverished them, that they were no longer able to purchase lime for that purpose. The result was, that in four years, the land became so exhausted, that not more than from five to eight barrels per acre, instead of twenty, could be obtained, and that of very inferior quality. Coupling with this disuse of lime-dressing, the exportation of nearly all the cattle-bones, both of the living and the slaughtered animals, grown in Ireland, by which an immense amount of phosphates taken from the land are irretrievably lost, instead of being returned as manure, and we have a satisfactory reason for the decrease of the produce of wheat in Ireland.

It is not a little remarkable, that Sir R. Kane, in his work before referred to, which was written in 1844, pointed out the probability of this failure of the wheat crop, in consequence of this large exportation of cattle-bones from Ireland. "It is to be feared," says he, "that before very long, considerable loss will accrue to the corn and other food crops of this country, from the deprivation of the soil, of this essential ingredient (bones). The cattle exported from Ireland carry out in their bones, a vast quantity of phosphoric acid derived from the soil. Of the cattle whose flesh is eaten in the

country, the bones form a considerable article of export; as the attention of our agriculturists has not yet been awakened generally to the importance of restoring them to the soil. Let it be considered, that in one pound of bones there is the phosphoric acid belonging to 28 pounds of wheat, or of 250 pounds of potatoes; that this phosphoric acid is indispensable to the healthy growth of the plants, and of the animals by which they are consumed; and hence will appear the vital importance to agriculture, of preserving, as far as possible, these valuable materials, and returning them to the soil" (Ind. Res., p. 271).

There is the more need of the application of lime or some other substance containing the phosphates, as a dressing for wheat in Ireland, from the fact, that a very large proportion of the surface soil of that country is wholly destitute of a calcareous mixture. This is the case even with the great limestone plain, which extends over several of the counties, the upper soil of which, having been analyzed by several eminent chemists, not a particle of lime or calcareous matter could be discovered in it, the whole being composed of the *debris* of other rocks, brought thither by some convulsion of nature, and now overlying the immense limestone-beds below, without mixing therewith. It will be doubly incumbent on those English and Scotch farmers who take land in Ireland, to have the surface soil tested by a chemist, in order to know what is wanted; for without a calcareous mixture in the soil, a good crop of wheat cannot be obtained.

The value of marl and clay—the former to all soils, and the latter to light and mixed soils—is well understood in this country. But it is not so well considered that they have both a chemical and a mechanical effect upon the plant. Marl acts chemically by imparting the phosphates and carbonates which are required to perfect the grain by the addition of the gluten, and mechanically by ameliorating the soil, and presenting to the roots a softer and more agreeable medium to strike into, being of a peculiarly mellow nature. Clay acts chemically, by yielding the silica and alumina required for the perfect formation of the straw, and mechanically by giving strength and solidity to the soil, upon which the root has a firmer hold, and consequently the plant a better support. We shall have occasion to explain and illustrate this principle more at large by-and-by.

Wheat, as is well known, requires a firm soil and a close surface; on which account, it has been thought, that the cultivation of the potato is not favourable to it, because it opens the soil too much, and renders the wheat plant more liable to the root-fall. The *rationale* of this disease, so destructive to the late-sown wheat, is very simple. If the soil be loose and friable, the late autumnal rains cause it to swell, which raises the roots of the young plant. Then comes the frost, which fixes the soil and the roots in the position the rain left them in, and at the same time, evaporates the moisture. When the thaw takes place, the particles of soil being no longer held in suspension by the frost, separate and fall, leaving the roots bare and exposed to the atmospheric and other casualties to which obstructed vegetation is liable. This

is the theory of the root-falling disease, the best preventive of which is claying and early sowing; and the most effectual cure, the heavy roller immediately the frost is out of the ground; or, better still, a flock of sheep driven repeatedly over the field. This latter is a very common practice, and is, under any circumstances, beneficial to the wheat crop.

NO. IV.

In our last paper on this subject we endeavoured to show the importance of attending to the connexion between soil and plants, and the necessity of being acquainted with the component parts of each, in order to be able to adapt the former to the nature and requirements of the latter. Our present section of it will treat of manures, to which the same principles are applicable, and between which and plants the same relative connexion subsists. And it will be seen that all arguments on this subject lead directly to one conclusion—that, without a chemical knowledge of the three elements of production, soil, manure, and seed, the agriculturist is working in a great measure in the dark, with a probability of being right and a possibility of being wrong. Experience, it is true, may do much for him; but it cannot provide against those occult contingencies which are continually occurring to affect the success of his operations, and of which he is in perfect ignorance without a knowledge of chemistry; in which case, a failure, whether in whole or in part, is ascribed to anything rather than the real cause.

We have in some measure already anticipated this branch of the subject; but it is of so much vital importance to success in agriculture to know how to adapt the three elements of soil, manure, and seed to each other, in the most efficient manner, that we do not hesitate to enlarge upon it.

According to Boussingault, wheat consists of gluten, starch, sugar, gum, water, and bran. The two first of these constitute a very large proportion—say from 65 to 75 per cent.—of the whole, and are themselves compound substances. According to Gay Lussac, they are respectively composed of the following ingredients:

	Gluten.	Starch.
Carbon.....	52.883	43.55
Hydrogen.....	23.872	49.68
Oxygen.....	7.540	6.77
Azote	15.705	00.0
	100.000	100.00

Now, although, as Sir R. Kane has stated in the quotation given from his work in our last paper, these four ingredients are supplied to plants direct from the atmosphere, experience and reason show that those manures which either in themselves contain the largest portion of them, or which most stimulate the plant to imbibe them from the atmosphere, must be the most proper for any crop or plant the perfection of which depends upon the proportion of gluten or starch, or both. Whilst, therefore, in manuring for wheat, due regard must be paid to furnishing a supply of *all* the constituents,

however small the proportions, it is evident that those which contribute most largely to the supply and production of gluten and starch ought greatly to preponderate, and that on this excess of them in the soil depend the largeness of the product and the perfection of the grain.

It is to the preponderance of these materials, and as supplying in abundance both carbonates and phosphates, that limestone (whether burnt or *merely reduced to powder mechanically*), chalk, and marl, in any or all their forms of application, and animal substances, owe their value as dressings or manures for wheat. Cattle-bones may be said to contain the most essential ingredients in a highly-condensed form, both for promoting the health of the wheat-plant and for the formation of that substance (gluten) which constitutes the value of the grain as an article of food.

We have spoken already of the action of clay and marl as adjuncts and restoratives of the soil. It remains for us to point out more minutely the part they perform, both as direct manures and as stimulants. The following analyses, the two first of which are of Irish marl and clay, analyzed by Sir R. Kane, and the third, of Norwich marl, analyzed by Professor Davy expressly for the writer, will serve to show the value and the use of these materials:

TAKEN FROM TIMAHOE BOG.*

	Marl.	Clay.
Carbonate of lime	64	6
Silica	24	22
Alumina	12	72
	100	100

TAKEN FROM WESTMEATH BOGS.

	Blue Clay.	Marl.	Limestone Clay.
Carbonate of lime	53	87.3	44.4
Carbonate of magnesia ...	0	0.0	1.4
Alumina	36	1.1	27.2
Silica	11	0.9	27.0
Bog stuff.....	0	10.7	0.0
	100	100.0	100.0

TAKEN FROM MOUSHOLD HEATH, NEAR NORWICH.

	Marl.
Carbonate of lime and magnesia	80
Other substances not specified	20
	100

In these specimens we see the large proportion of carbonates in the marl—so requisite for perfecting the grain; and of silica and alumina in the clay—equally essential in the formation of the straw. In either case, these earths not only perform important functions in the renovation and solidification of the soil when worn out or naturally defective, but by their stimulating qualities strengthen the plants and assist them in the attraction and absorption of inorganic substances from the atmo-

* Nearly all (if not quite all) the bogs in Ireland are underlaid with strata of clay or marl, or both; but they are very little used.

sphere; and thus they form, whilst they last, a constant magazine, from whence the plants are supplied with fresh nutriment.

Marl, however, according to Boussingault, contains an additional fertilizing principle. From several analyses made by M. Payen, azoteous matters were detected in it; which he ascribes to the circumstance of marl being composed of debris of the organic remains of animals and plants. "It is possible," he observes, "that this azotic matter contributes to the very extraordinary fertilizing action produced by the marls of certain localities. In the department of Isère in France, for instance, the application of a sandy marl, containing from 30 to 60 per cent. only of carbonate of lime, has doubled the produce of an arid soil. Previously it had only produced three for one of the seed sown of rye; but afterwards the farmer obtained *eight for one of wheat*, and the dressing lasted twenty years."

Similar beneficial effects have constantly been derived from the application of many of the marls in England. The Norwich marl, for instance, is well known for its fertilizing effects on the light lands around that city; and it is even fetched at a great expense—fifty miles by water, with a short land carriage at each end. Some of this marl is found to contain as much as 90 per cent. of carbon; whilst its peculiarly unctuous quality greatly softens the acrid asperities of a gravelly soil.

With respect to other native manures, we have already (in our second paper) given the results of their application for wheat, in the production of gluten and starch. There are, however, one or two observations relative to them remaining to be made, which we will now refer to. In the first place the analyses given *do not determine the comparative quantity of produce obtained per acre from those different manures*, but the proportions of animal gluten and starch. It is very probable that the horse, pigeon, and cow dung may in some cases produce as large a return as urine, bullock's blood, and night-soil; but the *value* of the produce of the latter to the miller, and especially the baker and consumer, is greatly superior to that of the former, on account of the large proportion of gluten. We have given a striking illustration of this in the account of the quantity of bread produced from Talavera flour, namely, 101 loaves per sack. These loaves were weighed into the oven at 4 lbs. 8 oz. each, giving an excess of seven or eight loaves per sack over the usual quantity obtained.

We have still to speak of the properties and effects of guano, which has been introduced into the United Kingdom about fifteen or sixteen years. The history of this manure is rather interesting: When Peru was first discovered by the Spaniards, the natives were found to cultivate their valleys with great care and industry. Acosta, who was one of the first Spaniards who visited that country, and who wrote a "natural and moral history" of it, bears witness to the excellent management of the land by the Peruvians, and says that they manured it with the dung of a sea-bird called "*the guano*," which frequented certain islands on the coast of Peru, where they deposited their dung, which had accumulated to the depth of many ells. And he further speaks

of the wonderful effects of this manure upon the crops, which were doubled in produce by its use.

This guano, however, was not brought to Europe until very recently, for the sufficient reason that its exportation has always been strictly prohibited whilst the Spaniards held possession of the country; and this prohibition was only relaxed after the revolution, which separated the South American and Mexican colonies of Spain from the mother country.

Upon the first introduction of guano into England, the price it bore was twenty guineas per ton; and such were its extraordinary powers as a manure, that it was found to pay even at that enormous rate. It has, however, become more abundant since, by the discovery of other deposits of sea-fowl dung, which has lowered the price to about £13 10s. or £14, at which the pure guano finds a ready sale. The experience of the British farmer has confirmed the almost miraculous reports of the early writers on America, of the prodigious effect of guano on the crops of maize and other cereals. Its introduction forms a memorable era in British husbandry, and has given rise to a series of experiments in artificial manuring, which, although still in its infancy, has tended greatly to the increase of production.

With regard to the effect of guano upon the wheat crop, it is only necessary to exhibit the analysis of pure guano to prove its admirable adaptation to that grain. We shall present the reader with two analyses, the first by Messrs. Nesbit, made at their laboratory at Kennington, and the second by Professor Way, as stated by him in his lecture before the Royal Agricultural Society of England on the 4th of March, 1850.

Analysis of pure Peruvian guano by Messrs. Nesbit :

	lbs.
Moisture	208.8
Organic matter	892.2
Nitrogen	295.0
Inorganic matter.....	784.0
	<hr/>
	2240.0

The ammonia contained in the organic matter amounted to 358.4 lbs., or 16 per cent.; the phosphoric acid in the inorganic to 224 lbs., or 10 per cent.; and the potash to 67.2 lbs., or nearly 3 per cent. Thus nearly 30 per cent. of the guano consists of those very substances which are so essential to the proper development of the grain in the wheat crop, and for imparting that large proportion of gluten which constitutes the strength of the flour when manufactured.

The second analysis, by Professor Way, affords the following result:—

Water	13.09
Organic matter and salts of ammonia	52.61
Sand	1.54
Earthy phosphates.....	24.12
Inorganic matters not specified.....	8.64
	<hr/>
	100.00

In this result also the proportion of ammonia, as stated by Mr. Way, was 17.41 per cent.

Independent of the *direct* benefit derived from this substance, the effect of such a stimulant applied to the wheat crop, for which its components are so admirably

adapted, are striking, and are well known to the English farmer. It is not saying too much to affirm, that since its introduction, it has, by its immediate and direct operation, as well as by the stimulus it has given to the manufacture of other valuable artificial manures, increased the average produce of wheat in the United Kingdom, at least from 8 to 12 bushels per acre; and, moreover, the problem has been satisfactorily solved, of the comparative cheapness of condensed manures over the common farm-yard dung, when the farmer is compelled to purchase a supply for his crops.

Our space will not admit of an extension of these remarks, nor is it necessary. So much has been written and spoken on the subject of late years, and the agriculturists generally are so well informed upon it, that it would be presumption on our part to profess to throw any fresh light on the subject, as well as going beyond the design of this essay.

With respect to seed, little needs to be said. Every English farmer understands the importance of changing his seed wheat, and of adapting the species to the soil of his farm; and the *miller* will be sure to let him know whether it possesses strength enough, when manufactured. Perhaps the change of seed may not be so much attended to as it ought to be; and where this is neglected, it will operate in the same way with breeding cattle "in-and-in," as it is termed: the quality is sure to become deteriorated. In the Highlands of Ethiopia, the cultivators *never* sow the seed produced on their own land, but change it every year, *as well as procure new stocks or varieties, by hybridizing*; consequently, their wheat is always of a fine quality.* It is a question, too, which we have never seen solved, whether the farmer ought not to procure his new seed-wheat from off a *poorer*, rather than a *richer*, soil than his own. The contrary practice appears like taking a bullock or sheep from a rich pasture, and putting him upon a poor one for improvement, the result of which would very soon be obvious.

We have thus, briefly and imperfectly, gone over the agricultural characteristics of wheat; but we cannot close without bearing our testimony to the comprehensive and important nature of the general subject. The cultivation of the earth is, indeed, a noble and interesting employment, and when conducted on the principles of an enlightened philosophy, calls into vigorous and beneficial exercise, all the moral and intellectual faculties of man. Although, simply considered, it may not be, strictly speaking, a science in itself, it becomes eminently such, by its intimate connection with most of the physical sciences. These are the handmaids and caterers of agriculture, being, by an involuntary agency, made subservient to its purposes. It summons to its aid all the elements of nature, and, by the instrumentality of science, compels them to yield up the secrets of their various and occult combinations, which with a nice discrimination, assisted by the same agency, it adapts to its purposes. Such is the position which agriculture ought, and which we firmly believe it is still destined, to hold

in connection with the highest exercises of the human mind.

One thing, however, is still wanting to give to this branch of industry its proper status in society. *We have no college of agriculture, nor even a professor's chair in any of our educational institutions.* No wonder then, that agriculture should be looked upon with scorn by the more intellectual portion of society, when the study of it is confined to a few years' attendance to the more vulgar routine of business, under the teaching of a man, himself, in all probability, totally ignorant of the simplest principles of animal and vegetable life, and of the nature of the soil upon which he is working; when an education, which might, both reasonably and profitably, embrace in its course the whole range of physical science, is confined generally to the study of "*the three R's*," some knowledge of land surveying, and perhaps, a smattering of Latin and French, which, after leaving school, are forgotten with much greater celerity than they were learned. Such were the farmers of the last generation; and although the present race are, thanks to a few of our great men, emancipated from this gross state of unenlightenment, something more is wanted to raise agriculture to the dignity of a study, and place the British farmer side by side with the man of science.

This has not been lost sight of in Ireland, where a chair of agriculture is attached to each of the New or Queen's Colleges, and the effect has been very beneficial already. In addition to which, agents are employed by the Government, to instruct the people in the various districts, in agricultural operations. This latter system is not intended to be strictly scientific, but rather, by imparting instruction in the ruder branches of the profession, thus to prepare them, hereafter to receive more elaborate instruction. This, of course, would be totally unnecessary here; but a college or a professor's chair of agriculture, would at once raise that branch of industry to a science, and give it its proper standing in the public estimation.

ERRATUM.—In Mr. Nesbit's analysis of guano, in the preceding page—Moisture 208.8, should have been printed 268.8.

IMPORTANT TO SHEEP-OWNERS.—A case involving the question, whether an owner of sheep can destroy a dog committing havoc among his flock, came before the Small Debt Court of Perth on Tuesday last:—A dog belonging to James Culbert, shepherd to Mr. Hart of Damside, did "wickedly and feloniously" attack and destroy two sheep belonging to Mr. Thomson of Drumtogle; and Mr. Thomson, finding the dog on his unlawful mission, caused the intruder to be shot, and was willing that the matter should end there. Culbert, the shepherd, however, immediately brought an action against Mr. Thomson, contending for damages for the loss of the dog, upon which the defender insisted in defence for the value of his sheep. When the case came on for hearing, the sheriff found Mr. Thomson at fault in destroying the dog, and amerced him in damages to the amount of £3; but at the same time found him entitled to the value of the sheep destroyed, for which Culbert had to pay £2, thereby leaving a balance of £1 in favour of the pursuer. Each party had to bear his own expenses.

* Harris, on the Highlands of Ethiopia.

AN ESSAY ON EARTHS AND SOILS,

THEIR DERIVATION AND COMPOSITION, PARTICULARLY WITH REFERENCE TO THE CLAYS AND SANDY SOILS OF SUFFOLK, AND THEIR ECONOMICAL MANAGEMENT, UNDER PRESENT CIRCUMSTANCES.

BY CORNELIUS WELTON (OF WICKHAM MARKET),

Author of "Landlord and Tenant," "Dairy Husbandry," &c., &c.

(Which obtained the Premium offered by Sir Fitzroy Kelly, to the Members of the East Suffolk Agricultural Association, for the best Essay on "The Improvement of Poor Light Soil and Poor Thin-skinned Soil, in the County of Suffolk.")

"The Earth—her riches were to all men given—
The first best boon of an indulgent Heaven;
And he who tills her bosom ought to share
Her bounties freely, equal to his care."—BIRD.

To a cursory observer, the earths appear to be infinitely diversified; so much so that he would probably think the different kinds are innumerable. However, notwithstanding the varied appearance of the soil upon which we tread and labour, and the mountainous parts of the world, whose manifold strata present to our view substances of every texture and of every shade, the whole is composed of but nine primitive earths; and, as six of these occur but seldom, and are possessed of little or no agricultural value, the effects produced by the other three are the more remarkable. They are known as follows:—

- | | |
|--------------|----------------|
| 1. SILICA. | 6. ZIRCONIA. |
| 2. ALUMINA. | 7. GLUCINA. |
| 3. LIME. | 8. YTRIA. |
| 4. MAGNESIA. | 9. STRONTITES. |
| 5. BARYTES. | |

1. **SILICA** is found in almost all mineral substances, particularly in gravel, sand, quartz, and flint, of which it forms nearly the whole substance. It is also the chief ingredient of those rocks which constitute the most bulky material of the solid parts of our globe.

2. **ALUMINA**, or pure clay, is soft to the touch, adhesive to the tongue, gives out a peculiar odour when moistened, forms a paste with water, has great affinity for colouring matter, unites with most acids, acquires great hardness, and contracts in the fire. Alumina is distributed over the face of the earth in the form of clay, and, from this circumstance, acquired the name of "argil;" it is united to the oxides of iron in the ochres. It obtained the name of alumina from its being the basis of the salt called alum. Common clay is a mixture of alumina and silica; it frequently contains metallic oxides, chalk, and other earths. Fuller's-earth or pipe-clay is alumina combined with very fine silica.

3. **LIME** is never found pure; it is always in a

state of combination, generally with an acid, and more frequently with carbonic acid, as in chalk, marble, limestone, oyster-shells, corals, &c., and is the basis of animal bones; it occurs likewise in the waters of springs and rivers. It is produced from the carbonates by exposure to strong heat, by which means the carbonic acid and water are driven off, and tolerably pure lime is the product. It may be remarked that while testaceous shells—the shells of such fish or animals as do not cast them annually—are formed of carbonate of lime, the shells of crustaceous animals, or, as Haulch calls them, "spiders of the sea"—shell-fish which annually cast their shells—and the shells of birds' eggs, contain a portion of phosphate of lime. Its use in the former is not known, but the design of Nature in furnishing the shells of eggs with phosphoric acid is very apparent. The body of the egg contains neither phosphoric acid nor lime; it was necessary, therefore, that Nature should provide means for furnishing both these substances in the shell, which becomes thinner and thinner during the whole time of incubation, till the living embryo has appropriated a sufficient quantity for the formation of its bones. Part of the albumen combines with the shell for this purpose, and another portion forms feathers. It is well known that fowls kept in a state of confinement, where they cannot get at chalk or calcareous earth, lay their eggs without shells.

It has been ascertained, from numberless experiments, that, upon an average, a ton of chalk or limestone yields, when burnt, about 11½ cwt. of quick lime (if weighed before it is cold)—that when exposed to the air it increases in weight daily at the rate of 1 cwt. per ton for the first four or five days after being drawn from the kiln. This fact may be worth the notice of parties using lime in large quantities.

Marl is a mixture of carbonate of lime and clay,

and is useful chiefly in proportion to the quantity of calcareous earth which it contains. Of all the modes of trial, the one best suited to the farmer is to observe how much fixed air the marl gives out; and this will be ascertained by dissolving a small portion of it in diluted muriatic acid, and observing what portion of weight it loses by the escape of this air. Thus, if an ounce loses only from 40 to 44 grains, he may conclude that the ounce of marl contained only 100 grains of calcareous earth, and that it would be his interest to pay seven times as much for a load of lime as he must pay for a load of marl at the same distance.

4. In some parts of England the limestone is strongly impregnated with magnesia, which renders it injurious to the growth of vegetables;* it is generally of a yellow or fawn colour, and may be known by its being much longer in dissolving in acid than common chalk. The limestone of Breedon, Leicestershire, contains half its weight in magnesia; that of Humbleton, near Sunderland, 45 per cent. of carbonate of magnesia. I saw in the towns of Nottingham and Northampton this kind of lime being made up into mortar for building purposes, without any addition of sand.

5. BARYTES, from the Greek word *Barus* (translated heavy). This earth possesses no agricultural value, being invariably found in combination with lead, and is poisonous; it is, notwithstanding, largely used in the arts, for dyeing, &c.

6. ZIRCONIA.—This earth is found principally in Ceylon, and is little known or used.

7. GLUCINA, from the Greek word (translated sweet). It is a component part of some precious stones, particularly the emerald and beryl.

8. YTTRIA.—An earth found in a black mineral, called gadolinite, from Ytterby, in Sweden, possessing no agricultural value.

9. STRONTIA, or STRONTITES, is an earth first found in a lead mine at Strontian, in Argyllshire; it gives a purple colour to flame, but possesses no agricultural value.

After this somewhat tedious enumeration of the various earths, it will require but little to convince the most sceptical of the importance of the first three, and of the insignificance and little attention which need be paid agriculturally to the other six. 1, silica or sand; 2, chalk or lime; 3, alumin or

* It has been long known that a particular species of limestone found in different parts of the north of England, when applied in its burnt and slacked state to land in considerable quantities, occasioned sterility or materially injured the crops for many years. Mr. Tennant, by a chemical examination of this species of limestone, ascertained that it contained a considerable proportion of magnesian earth, and by several experiments proved that this earth was prejudicial to vegetation.

clay, with decayed vegetable matter, or manure artificially combined, comprise a soil, a good or bad soil, sandy or clayey, according in exact proportion to the combination of those earths with vegetable remains or manure: there is no mistake about this. For instance, a good or bad pudding is known, and only known, by its component parts; precisely in the same manner is a soil.

THE FORMATION OF SOILS.—The change of temperature to which the earth's surface is constantly subject is one great cause of the slow destruction of its most solid and durable constituents; and when to this is added the gigantic power with which water, in becoming ice, opposes the obstacles to its expansion, we have an agent almost resistless. The fissures which occur between the blocks and masses of the granites, porphyries, and similar rocks, become filled with water, which, in the act of freezing expands so as slowly to remove them from each other; their edges and angles become thus open to the attacks of the weather, and by a slow dislodgment they fall into the valleys or rivers, or are at once cast into the ocean. Where the materials are of a yielding and frangible texture, this destruction is proportionately rapid; the influence of the weather, on the slate mountains particularly, is often such as to produce hills of fragments at their feet. Masses of rock thus loosened from their original beds become new and powerful instruments of destruction. They roll down the precipices, wearing themselves and the surface that bears them; and if near the sea, or carried thither by rivers, they become part of the mighty artillery with which the ocean assails the bulwarks of the land. They are impelled against the coasts, from which they break off other fragments; and the whole thus ground against each other, whatever be their hardness, are reduced to gravel or shingle, the smooth surface and rounded masses of which are convincing proofs of the manner in which it was formed. It is by operations of this kind (not performed in a day, but in ages) that Nature has indented and carved out the earth's surface, that the rivers seem to have cut out their own beds, and that the land is undergoing gradual demolition. Rocks containing alkali often decompose rapidly, in consequence of the loss of that ingredient. The quick disintegration of much of the Cornish granite is well known, and furnishes a valuable material for the manufacture of pottery. Thus the decomposition of the pyrites (sulphuret of iron) in chalk produces sulphate of lime. In aluminous slate it gives rise to the production of alum; and in the cliffs at Newhaven, on the Sussex coast, a very curious series of changes is going on. A stratum (chalk and clay) containing decomposing pyrites,

lies upon the chalk, which gives rise to the formation of sulphate of alumina. *This is decomposed by the chalk ; and aluminous earth, selenite—i. e., sulphate of lime and oxide of iron—are the results.* Thus by mechanical operations and chemical changes, sometimes separate, sometimes united, rugged peaks and abrupt precipices are gradually wearing and softening down, and giving rise to rounded summits, gentle slopes, and habitable surfaces. The detritus so produced is carried by brooks and rivers towards the low lands, where it is deposited, or is transported towards the sea, where it forms bars and islands at the mouths of rivers ; for instance, Holland, and the islands at the mouths of the Maas, Mersea, Sheppey, and others on the Thames, to which acres are annually added by the sediment deposited by the currents and tides flowing down from our great metropolis ; or it is employed in levelling uneven surfaces and filling cavities and basins, or where rivers are broken in their course by the intervention of lakes, all of which are filling up, as may be learned even by hasty inspection. This is nowhere more conspicuous than in the waters which adorn the scenery of Westmoreland and Cumberland, especially Derwentwater, at the Borrowdale extremity of which the meadow is annually increasing and adding to the circumjacent fields ; and the examination of the beach between Derwent and Bassenthwaite shows that the two lakes were once united, and that the present separation is alluvial matter or a bar thrown up by the concurrent streams of Newland's water on the west, and the Greta on the east.

Sir Humphrey Davy long ago arrived at the conclusion that all soils are composed of metallic oxides, and that the earths have all a metallic base. I have already shown the agencies which Providence has ordained for breaking down those rocky and otherwise unmanageable masses, and putting them under the control of man ; viz., atmospheric air, and the immense mechanical power of ice, of which we have a ready explanation in our fallow lands, especially upon the strong clays, if compared previously and after hard frosts. We there see the hardest chalk stones shivered to atoms upon the first appearance of a thaw.

No subjects are of more importance to the farmer than the nature and improvement of soils, and no part of the study of agriculture is more capable of being illustrated by chemical inquiries and experiments. Soils (as previously stated) are extremely diversified in appearance and quality ; they consist of different proportions of the same elements in various states of chemical combination or mechanical mixture. The substances which constitute soils have been already mentioned, and are certain compounds of the earth—viz., silica, lime,

alumina, magnesia, and the oxide or rust of iron, animal or vegetable matter in a decomposed state, and saline or alkaline combinations. Almost all soils, particularly good corn soils, contain oxide of iron, of which there are two kinds, the black and the brown. The black is the substance which flies off when red-hot iron is hammered. The brown oxide may be formed by keeping the black oxide red hot for a long time in contact with the air ; or by exposing iron to the action of the atmosphere, when it becomes covered with the red oxide or *rust*, and in process of time its whole substance becomes changed. They are easily distinguished from other substances ; when dissolved in acids, they give a black colour to a solution of galls. All brown or yellow soils contain carbonate of iron, or iron in combination with chalk. The saline compounds formed in soils are common salt, sulphate of magnesia, sulphate of iron, nitrate of lime and magnesia, sulphate of potash, and carbonate of potash, and soda, and the phosphates.

The silica in soils is usually mixed or combined with alumina and oxide of iron, or with alumina, lime, magnesia, and oxide of iron, forming gravel and sand of different degrees of fineness. The carbonate of lime is usually in an impalpable form, but sometimes in the state of calcareous sand. The impalpable part of the soil, which is called clay loam, &c., consists of silica, alumina, lime, and magnesia, and is nearly of the same composition as the hard sand, but more finely divided. The vegetable or animal matter (and the first is by far the most common in soils) exists in different states of decomposition ; they are sometimes fibrous, sometimes entirely broken down and mixed with the soil. Sir Humphrey Davy gives the following result of his analysis of sundry specimens :—

A good turnip soil from Holkham, Norfolk, afforded eight parts out of nine silicious sand ; and one part, or one-ninth, of finely-divided matter consisted of—

Carbonate of lime	63
Silica	15
Alumina	11
Oxide of iron	3
Vegetable and saline matter	5
Moisture	3

100

A soil remarkable for producing fine oak timber he found to consist of six parts of sand and one part of clay and finely-divided matter. 100 parts of the entire soil submitted to analysis produced—

Silica	54
Alumina	28
Carbonate of lime	6
Oxide of iron	5
Decomposing vegetable matter	4
Moisture and loss	3

100

An excellent wheat soil gave three parts in five of silicious sand, and the finely divided matter consisted of—

Carbonate of lime	28
Silica	32
Alumina	29
Animal and vegetable matter and moisture	11

100

Of these soils, the last was by far the *most*, and the first the *least*, coherent in texture. In all cases, the constituent parts of the soil which give tenacity and coherence are the *finely-divided* matters; and they possess the power of giving those qualities in the highest degree when they contain much alumina.

A small quantity of finely-divided matter is sufficient to fit a soil for the production of turnips and barley; and I have seen a tolerable crop of turnips on a soil containing 11 parts out of 12 of sand. A much greater proportion of sand, however, *always* produces absolute sterility. Vegetable or animal matters, when finely divided, not only give coherence, but likewise softness and a degree of openness; but neither they nor any other part of the soil must be in *too great proportion*; and a soil is unproductive, if it consists entirely of impalpable matters.

Pure alumina or silica, pure carbonate of lime or carbonate of magnesia, are incapable of supporting healthy vegetation; and no soil is fertile that contains as much as nineteen parts out of twenty of any of the constituents that have been mentioned.

The power of the soil to absorb water and the gases it holds in solution depends in some measure upon the state of division of its parts: the more divided they are, the greater is their absorbent power. The different constituent parts of a soil likewise appear to act with different degrees of energy. Thus, vegetable substances are more absorbent than animal substances, animal substances more so than compounds of alumina and silica, and compounds of alumina and silica more absorbent than carbonate of lime and magnesia. The power of soils to absorb water from air is much connected with fertility. When this power is great, the plant is supplied with moisture in dry seasons, and the effect of evaporation in the day is counteracted by the absorption of aqueous vapour from the atmosphere during the night. The soils best adapted for supplying the plants with water by atmospheric absorption are those in which there is a *due mixture of sand*, finely-divided clay, and carbonate of lime, with some animal and vegetable matter, and which are sufficiently light to be freely permeable by the atmosphere. With respect to this quality, carbonate of lime and animal and vegetable matter

are of great use in soils: they give absorbent power to the soil, without giving it tenacity. *Sand*, which also *destroys* tenacity, consequently *gives little absorbent power*. Water and the decomposing animal and vegetable matter existing in the soil constitute the true nourishment of plants, in addition to certain earthy or inorganic matter supplied by the soil; and as the earthy parts of the soil are useful in retaining water, so as to supply it in the proper proportions to the roots, so they are likewise efficacious in producing the proper distribution of the animal and vegetable matter. When equally mixed with it, they prevent it from decomposing too rapidly; and by these means the soluble parts are supplied in proper proportions. Besides this agency, which may be considered as mechanical, there is another agency between soils and organizable matter, which may be regarded as chemical in its nature. The earth, and even the earthy carbonates, have a certain degree of chemical attraction for many of the principles of vegetable and animal substances. This is easily shown in the instance of alumina and oil. If an acid solution of alumina be mixed with a solution of soap, which consists of oily matter and potash, the oil and the alumina will unite and form a white powder, which sinks to the bottom. The extract from decomposing vegetable matter, when boiled with pipeclay or chalk, forms a combination by which the vegetable matter is rendered more difficult of decomposition and of solution. Pure silica and silicious sands have little action of this kind; and the soils which contain the most alumina and carbonate of lime are those which act with the greatest chemical agency in preserving manures: such soils merit the appellation which is commonly given them of "*rich soils*," for the vegetable nourishment is long preserved in them, unless taken up by the organs of plants. Silicious sands, on the contrary, deserve the term "*hungry*," for the vegetable and animal matters they contain, not being attracted by the earthy constituent parts of the soil, are more liable to be decomposed by the action of the atmosphere, or carried off from them by water.

A clay of loamy subsoil is of material advantage to a sandy soil, as it retains moisture in such a manner as to be capable of supplying that lost by the earth above, in consequence of evaporation or the consumption of it by plants. In concluding this part of the subject, it is manifest that soils were originally produced by the decomposition of rocks and strata. It often happens that soils are found in an unaltered state upon the rocks from which they were derived; and it is easy to form an idea of the manner in which rocks are converted into soils, by referring to the instance of soft granite or porcelain granite. This substance consists

of three ingredients—viz., quartz, felspar, mica. The quartz is almost pure silicious earth. The felspar and mica are very compounded substances. Both contain silica, alumina, and oxide of iron. In the felspar there is usually lime and potash; in the mica, lime and magnesia. As soon as the smallest layer is formed on the surface of a rock, the spores of lichens, mosses, and other imperfect vegetables, floating in the atmosphere, and which have made it their resting-place, begin to vegetate: their death, decomposition, and decay afford a certain quantity of organizable matter, which mixes with the earthy materials of the rock: in this improved soil more perfect plants are capable of subsisting: these, in their turn, absorb nourishment from water and the atmosphere, and, after perishing, afford new materials to those already provided. *The decomposition of the rock still continues*; and at length, by slow and gradual processes, a soil is formed, in which even forest-trees can fix their roots, and which in time becomes fitted to reward the labour of the cultivator.

In instances where successive generations of vegetables have grown upon a soil, unless part of their produce has been carried off by man or consumed by animals, the vegetable matter increases in such a proportion, that the soil approaches to a peat in its nature; and if in a situation where it can receive water from a higher district, it becomes spongy, and is rendered incapable of supporting the nobler classes of vegetables.

It is evident, from what has been said concerning the production of soils from rocks, that there must be at least as many varieties of soils as there are species of rock exposed at the surface of the earth; in fact, there are many more. Independent of the changes produced by cultivation and the exertions of human labour, the materials of strata have been mixed together and transported from place to place by various great alterations that have taken place in the system of our globe, and by the constant operation of water. To attempt to class soils with scientific accuracy would be a vain labour: the distinctions adopted by farmers are sufficient for the purposes of agriculture, particularly if some degree of precision be adopted in the application of terms. The term "sandy," for instance, should never be applied to any soil that does not contain at least seven-eighths of sand. Sandy soils that effervesce with acids should be distinguished by the name of "calcareous sandy soil," or "mild loam," to distinguish them from those that are silicious.

The term "clayey soil" should not be applied to any land which contains less than one-sixth of impalpable earthy matter not considerably effervescing in acids.

The word "loam" should be limited to soils containing at least one-third of impalpable earthy matter, copiously effervescing with acids. A soil, to be considered as "peaty," ought to contain at least one-half of vegetable matter.

In general, the soils the materials of which are the most various and heterogeneous are those called "alluvial," or those which have been formed from the mud or the depositions of rivers, many of which are extremely fertile.

A specimen taken from a soil near one of our rivers afforded eight parts of finely-divided earthy matter, and *one part* silicious sand: the finely-divided matter gave the following result, on analysis—viz.:

Carbonate of lime.....	36
Alumina.....	25
Silica.....	20
Oxide of iron.....	8
Vegetable, animal, and saline matter....	19

In all instances the fertility seems to depend upon the state of division and mixture of earthy materials and vegetable and animal matter.

In ascertaining the composition of sterile soils, with a view to their improvement, any particular ingredient which is the cause of their unproductiveness, should be particularly attended to; if possible they should be compared with fertile soils in the same neighbourhood and in similar situations, as *difference in the composition* may in many cases *indicate* the most proper methods of improvement.

If on washing a sterile soil it is found to contain the salts of iron, or any acid matter, it may be ameliorated by the application of *quick lime*; if there be any excess of calcareous matter in the soil, it may be improved by the application of *sand, vegetable matter, or clay*. Soils too abundant in sand are benefited by the use of clay, loam, or vegetable matter; a deficiency of vegetable or animal matter must be supplied by manure, or peat or bog earth. An excess of vegetable matter must be removed by burning, or remedied by the application of calcareous or other earthy materials; the improvement of peats or bogs or marsh lands must be preceded by draining (stagnant water being injurious to all nutritive classes of plants), and followed by the liberal use of clay or chalk.

The best natural soils are those of which the materials have been derived from different strata, which have been minutely divided by air and water, and are intimately blended together; and in improving soils artificially, the farmer cannot do better than imitate the process of nature.

The materials necessary for the purpose are sel-

dom far distant. Coarse sand is often found immediately on chalk; beds of sand and gravel are common below clay; and the contiguity of clay and loam to the largest breadths of our poor sandy soils is marvellously true, and a well-known fact. The labour of improving the texture or constitution of soil by transposition tends to great permanent advantage, and of all the improvements of agriculture is the most substantial; less manure is required from its improved and conservative character, capital expended in this way secures additional productiveness, and consequently the value of such land in perpetuity is proportionably enhanced.

THE POOR CLAYS.—Take a farm, for instance, of average extent—say 150 acres, 50 acres of rich deep staple, 50 of medium quality, and the residue 50 acres of poor thin worn-out arable, as is not unfrequently the case, and at the furthest extremity of the homestead. I have recently been employed to fix the rent of such a farm, when the enquiry naturally arose as to the proper distinction (if such a thing is possible) between the three classes of soil, and which to me, I confess, is a perfect puzzle. One-third I found of meadow, pasture, and fine arable, the latter capable, with fair treatment, of producing upon an average of years, 32 to 40 bushels of wheat per acre, 40 to 48 bushels of barley, and full average crops of clover, peas, beans, and roots. The next one-third, by means of close draining, and similar treatment, will produce from 28 to 32 bushels wheat, 32 to 40 bushels barley, occasionally a root crop, with clover, peas, beans, &c. The remaining one-third, strong restive clay, accessible only through other fields, which may yield from 16 to 20 bushels per acre of wheat, beans, and peas in the same meagre proportion, and every fourth year a naked fallow of 5 or 6 strong ploughings, with additional tillages. Rent and parish charges are sunk for that year, and then follows barley or what is commonly called summer-land barley, of 24 to 32 bushels per acre, generally three to four shillings per quarter less in value than the produce of the turnip or mixed soils.

I respectfully ask, who can make the proper distinction between such soils? or is it possible to fix a rent which shall make the poor land the cheapest of the three classes? This being an impossibility, I know of no other means of treating such an occupation other than as a whole; the superabundance of one portion must be applied to the wants or requirements of the other. Still, the fact is, and it is known to the occupier, that the profit made upon the best soil is annually lost upon the worst. Here, then, is the patient and the disease. The question naturally arises—What is the remedy? and by whom should it be applied?

There appear to be but two courses open worthy of attention—either the soil must be enriched by manures, or a return to pasture. It is well known that the ostensible or paying crop upon this description of land has been *wheat*; and it was primarily for this grain, and the war prices, that it was converted into arable at all. But, with wheat at 40s. per quarter I very much question the present system—be that as it may, if it would not answer to employ linseed cakes, or other rich food or manures for forcing the wheat crops on such lands when prices averaged above 56s., I fear no tenant at the present day, with capital at command—scarcely an owner—would dare to venture upon so uncertain a speculation as purchasing high-priced manures for such a purpose. It would be impolitic and unreasonable to calculate upon a beneficial result from such a proceeding. The fact is, that certain descriptions of arable land, in their present state, are worse than useless; they are an annual source of loss and vexation to the occupier.

Of this latter description of soil, I say advisedly to both owner and occupier and without hesitation—*lay them down to permanent pasture*, and in carrying out this suggestion, two material points require consideration, viz.:—

The best means of getting them into pasture, and the after management. Upon the first—as to the best mode of laying down the worn-out clays—no time so proper as with the first crop of barley or oats after a clean fallow. The land having been previously underdrained and made tolerably level, the seeds should be procured from some respectable seedsmen known as collectors and dealers in grass seeds; those in London generally keep the best selection, and by furnishing a description of the soil will supply those and those only that are best suited. If done in this way, the cost will vary between 21s. and 25s. per acre. This expense, I am of opinion, should be borne by the landlord, as a set-off against the tenant's outlay, occasioned by the land having been clean-fallowed in the previous year, and the further condition that the scythe should *not* be used upon the new-laid grass until the *expiration* of the third year. During this period it is of the utmost importance that the young layer be kept as free from weeds as practicable; afterwards it may be mown every third year if desired, but the more liberal the treatment in this respect the better.

I have laid down a considerable breadth of arable land to pasture within the last 10 or 12 years, the seeds mostly supplied by Messrs. Jacob Wrench and Sons, seedsmen, near London Bridge.

Subjoined is a copy of two of their bills; one for seed sown upon 7 acres of poor clay within the present year.

Seven Acres of Clay Soil.

		s.	d.	£	s.	d.
3½	Bushels Pacey's Rye Grass at.....	5	6	...	0	19 3
3½	" Meadow Fescue	6	6	...	1	2 9
1½	" Cocksfoot	5	0	...	0	8 9
1½	" Meadow Foxtail	7	0	...	0	12 3
21 lbs.	Poa Trivialis	70	0	...	0	13 2
23 lbs.	Crested Dogtail	0	10	...	1	3 4
42 lbs.	White Clover	72	0	...	1	7 0
14 lbs.	Cow Grass	75	0	...	0	9 5
28 lbs.	Trefoil.....	34	0	...	0	8 6
				£7	4	5

—cost rather less than 21s. per acre. And the following for

Seven Acres of Dry Sandy Soil.

3½ Bushels	Pacey's Rye Grass.
3½ "	Hard Fescue.
3½ "	Meadow Foxtail.
7 "	Peck's Sheep's Fescue.
21 lbs.	Poa Pratensis.
7 lbs.	Sweet Vernal.
7 lbs.	Avena Flavensis.
42 lbs.	White Clover.
18 lbs.	Cow Grass.

—cost 25s. 6d. per acre.

These have produced a beautiful sward, perfectly free from those noxious weeds which we too commonly find in newly-laid pastures.

PARING AND BURNING OLD PASTURES, OR BURNING SIMPLY THE POOR CLAYS.—Upon this vexed subject much has been said, written, and in practice carried out to an immense extent. It may be now termed an interesting, fascinating, and even a fashionable part of management in the clay districts; but I am persuaded it has, like many other agricultural operations, been carried on without that due and careful enquiry which so beneficial or destructive a process demands. Little of a scientific character has been written upon the subject since Sir Humphrey Davy and Arthur Young's time; and before venturing upon any remarks of my own, I purpose giving a few extracts from these writers. Arthur Young, in his report of Suffolk, written in 1813, says, page 182, "This husbandry, if properly managed, is most admirable of all improvements, and improperly is the most mischievous. It is scarcely possible, profitably, to bring peat or moory soils from a state of nature into cultivation without the assistance of fire. There are in Suffolk many thousands of acres of poor, wet, cold, hungry pastures and neglected meadows, overrun and filled with all sorts of rubbish, and abounding with too few good plants to render their improvement easy without breaking up; all such should be pared and burnt; *not to keep under the plough to be exhausted and ruined*, which is infallible, and the land left in a worse state beyond all comparison than it was before, but to be laid down immediately to permanent grass after the first or

second crop. The tenant would thus be greatly benefited and the landlord's estate improved."

Sir Humphrey Davy, page 344, says, "The improvement of sterile lands by burning was known to the Romans. It is mentioned by Virgil in the first book of the Georgics, '*Sæpe etiam steriles incendere profuit agros.*' It is a practice still much in use in many parts of these Islands; the theory of its operations has occasioned much discussion both amongst scientific men and farmers. It rests entirely upon chymical doctrines."

"The bases of all common soils are mixtures of the primitive earths and oxide of iron, and these earths have a certain degree of attraction for each other; to regard this attraction in its proper point of view, it is only necessary to consider the composition of any common silicious stone. Felspar, for instance, contains silicious, aluminous, calcareous earths, fixed alkali, and oxide of iron, which exist in one compound, in consequence of their chemical attractions for each other. Let this stone be ground into impalpable powder, it then becomes a substance like clay; if the powder be heated very strongly it fuses, and on cooling forms a coherent mass similar to the original stone—the parts separated by mechanical division adhere again, in consequence of chemical attraction. If the powder is heated less strongly, the particles only superficially combine with each other, and form a gritty mass, which when broke into pieces has the character of sand. If the power of the powdered felspar to absorb water from the atmosphere before and after the application of heat be compared, it is found much less in the last case; the same effect takes place when the powder of other silicious or aluminous stones is made the subject of experiment."

"I found two equal portions of basalt ground into impalpable powder, of which one had been *strongly ignited* and the other exposed only to a *temperature equal to that of boiling water*, gained very different weights in the same time when exposed to air; in four cases one had gained only two grains, whilst the other had gained seven grains."

"In the manufacture of bricks the general principle is well illustrated; if a piece of dry brick earth be applied to the tongue it will adhere to it very strongly, in consequence of its power to absorb water: but after it has been burnt there will be scarcely a sensible adhesion. The process of burning renders the soil less compact, less tenacious and retentive of moisture; and when properly applied, may convert a matter that was stiff, damp, and in consequence cold, into one powdery, dry and warm, and much more proper as a bed for vegetable life. The great objection made by speculative chemists to paring and burning is that it destroys *animal and vegetable matter*, or the manure

in the soil; but in cases in which the texture of its earthy ingredients is permanently improved, there is more than a compensation for this temporary disadvantage, and in some soils, where there is an excess of inert vegetable matter, the destruction of it must be beneficial, and the carbonaceous matter remaining in the ashes may be more useful to the crop than the vegetable fibre from which it was produced. Many obscure causes have been referred to, for the purpose of explaining the effects of paring and burning, but I believe they may be referred entirely to the diminution of the coherence and tenacity of clay, to the destruction of inert and useless vegetable matter, and its conversion into manure. All soils which contain too much dead vegetable fibre, and which consequently lose from one-third to one-half of their weight by incineration, and all such as contain their earthy constituents in an impalpable state of division (*i.e.* the stiff clays and marls) are improved by burning; but in *coarse sands* or *rich soils*, containing a *just mixture of the earths*, and in all cases in which the *texture is already sufficiently loose*, or the *organizable matter sufficiently soluble*, the process of burning *cannot be useful*; all *poor silicious sand* must be injured by it. An intelligent farmer in Mounts Bay told me that he had pared and burnt a small field several years ago, which he had not been able to bring again into good cultivation. I examined the spot, the grass was poor and scanty, and the land an arid silicious sand."

Here are the opinions of two of the most scientific and celebrated men of the present century, and what do they amount to? First, that burning the soil was practised by the Romans, that it changes the texture of clay soils, and that in certain cases it is the best, and in others the most destructive of all operations in practical husbandry. All this, without doubt, is perfectly true, and excellent advice.

Arthur Young says, for improving old pastures overrun with land-whin and other kinds of rubbish, which choke the natural grasses, the best plan is to pare and burn, and then take one or two crops, *viz.*, turnips or cole-worts, and the other barley or oats, with which it must be sown down again with the permanent grass seeds. These two crops will repay the occupier for his labour, and give him in return a good pasture instead of a bad one; but he adds, *emphatically*, *I by no means recommend these lands to be pared and burnt and ruined by continual cropping*. This, he says, and says most correctly, is destruction to the soil.

I would ask the owners and occupiers what are old arable and clay soils worth yearly to *rent* now, compared with what they were during the first fifteen or twenty years of their being brought into

cultivation, or before their virtues were exhausted by continual cropping. With all deference to opinions of practical men who have given any attention to the subject, I respectfully put this question. Arthur Young does not say go and burn those soils, *i. e.*, the poor clays, and restore them to their original productiveness. Davy goes further. His principal reason for advocating fire is, that it changes the texture of the strong clays from being tough, cold, and adhesive, to a state warm, dry, and powdery, and illustrates his arguments by comparing brick-earth and bricks. The operation of burning, we know, does produce mechanical division, or different arrangements of the substances of which the earth is composed; the alumina loses its tenacity without regaining it in its altered condition. May I ask, Has any gentleman been in the habit of using much of this brick dirt or earth in its burnt state (of which there is always a considerable quantity at brick kilns) as manure? I had a brick kiln several years, and at first was led to believe it was not only useful, but for cold lands a valuable application; I therefore used it five or six successive years without any visible advantage, and upon examination I found as many loads of sand would be just about the same value, and therefore it was afterwards used in repairing the roads, &c. The system of burning borders, banks, and headlands round fields is still practised to a considerable extent, principally under the plea that it effectually destroys the grass and rubbish. So far the practice is desirable, if the expense is not an objection. But even in this case, the system of burning clay in large heaps or mounds is clearly unscientific, expensive, and wasteful: the first by subjecting vegetable matter to a long-continued extreme heat the alkalies are destroyed, the carbon all dissipated, and but little remains beyond the brick red earth transformed from its original state to clay or sand. There is, however, one consideration of more importance, in my opinion, than all the others connected with the practice, and that is, where the clay contains chalk or calcareous matter it loses during the process its carbonic acid, and lime is the result: this, I believe, would be a useful application upon many of our moory or deep soil lands, where the corn crops are sometimes lodged. Some advantage to the succeeding crop lies also in the power of the alkalies, liberated during the process of burning and forming combinations with the silica in the soil, forming soluble silicates; which not only tend to increase the bulk of straw, but gives it a reed-like appearance, of a bright yellow colour, and glassy on the outside. These are soluble silicates, which will oftentimes turn the edge of the sharpened knife. The power which many plants possess of taking up

the earthy constituents of the soil is well exemplified in the strong reed growing by salt-water rivers. I am not aware that the alkalies possess any grain-producing powers; but they certainly increase the quantity and strength of the straw, and which upon soils naturally poor or poor from exhaustion, if sufficiently moistened during the summer months, are beneficial.

ECONOMICAL MANAGEMENT.—In order fully to develop the capabilities of a clay farm, it should be held in connection with a similar extent of turnip or sandy soil. Such an arrangement enables the occupier to keep himself well supplied with stock, particularly sheep, the year through, by shifting them during the wet season from the clays to the sand, and in dry seasons (*vice versa*) from the sand to the clay.

The advantage of holding the clays in connection with the lighter description of soil does not by any means rest here. Cultivation is another most important desideratum, in most, it may be said in all seasons the removal of the horse-labour alone to the clays at those particular times when they are in good condition for working cannot be overvalued; it moreover gives the occupier a command over his business totally unknown to those whose operations are confined *solely* to either light or heavy soil.

No description of stock is so desirable as sheep, and upon no soil is the use so advantageously seen as upon strong soils, where the ground is sufficiently dry. Persons may say—But the distance, frequently twelve or fifteen miles from clay to sandy soils. Suppose it to be twenty. I should consider that no bar or any great objection, in comparison with the advantages which are known to result from such an arrangement.

An impression also has prevailed amongst many practical men, which at one time I had reason to suppose might be advantageously applied to the clays of Suffolk, viz., the Scotch practice of allowing the clover-layers to remain under grass two years instead of one. I have since seen Scotch husbandry, and were the soil (of which we have been ostensibly treating) the quality of the land under cultivation there, then I might readily fall in with the suggestion; but it must be borne in mind that much of the soil under cultivation in Scotland is alluvial compared with ours, new land having a tendency to produce the natural grasses, which may be in some measure accounted for from their northerly direction and the moisture of the climate. Very little if any of the soil under cultivation in Scotland will be found to answer the description of the Suffolk clays, so far as I have seen and been able to form an opinion—their cultivation is pretty well limited to dry turnip and rich alluvial; or, as

they call it, “carse land”—their very poor soils are, as they ought to be elsewhere, in pasture.

There is also the well known and insuperable difficulty, upon the poor clays, of producing clover or other artificial grasses with any degree of certainty, even at the usual interval of seven years; in those instances, with a moderate crop of clover, and consequently a short crop for mowing in the first year, what would be the condition of such land at the end of two years? Undoubtedly unfit for any crop, until after a summer fallow. I am not adverting to particular instances, but the average of clay farms. I believe the introduction of such a practice would be attended with increased expense, less certainty of a fair return, and therefore dangerous to those who may embark upon a speculation. The cultivation of light or sandy soils will always differ from those of which we have been previously treating; but even the cultivation of these lands may be carried too far. Roots, we know, must be grown extensively for winter or spring food, and the barley or spring crop depends mainly upon them. Turnip culture, it is well known, has been for more than half a century the basis of the Norfolk husbandry, for which the annual expenditure in artificial manures has been, and is still immense; and so accustomed are those lands to their quaternal dose, that without it exhaustion to the soil and ruin to the occupier would inevitably follow.

In the choice of manures, popular favour seems to have accorded the palm to guano; but recently some flock-masters—principally those known as large purchasers of this article—have not been quite so fortunate with their ewes and lambs as formerly, or as their lagging neighbours. It seems hard to believe that so harmless a manure, its ingredients so well known, should have anything to do with ewes warping their lambs; and whether such is really the case, or that the richness, rankness, or inordinate strength of growth of the turnip, taken in too large quantity, may not have a tendency to lay on flesh and enrich the blood beyond the requirements of the animal far advanced in pregnancy, is a question. I have heard more than one flockmaster declare that he will not use guano again for the same purpose. Would not this be a fair subject for investigation at a future opportunity?

The question has been asked, if upon such a soil, and for such a purpose, whether the same amount applied per acre in guano or other artificial manure for the turnips were given in linseed cake to sheep whilst feeding a crop of turnips, raised *without* manure, would not, to the barley and succeeding crops, up to the wheat, be safer, more permanent, and better laid out, than in artificial manure for the

turnip, calculating the increased risk and loss in feeding to which the latter is liable?

For sandy, and many of the hilly sides of gravelly lands, where cultivation is expensive as well as difficult, and the produce in corn almost entirely dependent upon a moist summer, I am convinced that sainfoin or lucerne might be grown alternately every four years with advantage, viz., four years under cultivation, and then laid again; the soil by such means gains freshness during the interval, and enables it to yield its four years' course

of crops and fallow without or with little assistance from the muck yard.

But whether for light soil or clay, it is necessary now-a-days for a man to be up and doing. The "morning and no standing still" must be the motto, and all weeds and rubbish expelled, in order that our valuable crops may have the full benefit of the expensive fertilizers which we either manufacture upon the farm, or purchase from others.

"Labor omnia vincit."

AGRICULTURE AND COMMERCE.—IRELAND.

The following information is condensed from a commercial letter, dated Belfast, Wednesday, and published in the *Derry Standard*:—

"Though the progress of harvest operations has been nearly all that could be wished, both as to the quantity of grain saved and the favourable condition in which it has been gathered in, no visible effect is yet perceptible in the trade of the country. Somehow we do not find any advance in mercantile confidence. Consumers seem afraid to purchase large stocks, and thus a sort of impolitic caution keeps business down to the lowest point. True it is, the Asiatic plague sweeps on its way, bringing down hundreds of useful lives, and creating distress in the homes of numberless families. That one cause, no doubt, produces much of the inaction which presses so heavily on trade, not only in the north of Ireland, but throughout all the commercial relations of the united kingdom. That destroyer tells, in language not to be mistaken, that the moral as well as the mercantile, the physical as well as the political, require the hand of reform.

"The agricultural produce of this season in Ireland will fully realize £10,000,000 sterling above that of last year. Let a portion of that vast sum be expended in making more comfortable the homesteads of labourers. Farmers and manufacturers, landowners and capitalists, are one and all far more interested in the health of the people around them than many appear to understand.

"Ireland's flax crop, though occupying a much smaller space of ground than that of last season, is turning out so large in point of yield, that the total produce will likely exceed that of the former year; and the quality of the fibre is very superior. The yarn trade has been so dull for some weeks that it may be feared in a short time it will become general. During the last six months millowners must have suffered very severely from

the high prices of flax, of coal, and of wages, as compared with the high prices current of linen yarns. Amid all the dullness prevalent in nearly every description of business, we find the public securities of the nation—Consols, Bank stock, and railway shares—in a very healthy condition; and yet trade, in general, is not at all equal to what it was six weeks ago. At that time the linen manufactures looked brighter, there was more spirit in the cotton trade, and, altogether, the commerce of the country exhibited every prospect of improvement.

"It is possible, however, that the lateness of the harvest may have much to do with the present depression; and, as the great mass of the cereals is now almost gathered in, hopes are entertained that the October trade will, in some degree, make up for present dullness. Coal has risen in price, and, to all appearance, will be high during the winter. Grain is about 1s. per 112lbs. above the rates of last week; still markets are cheaper in Belfast than in Philadelphia. This day fortnight prime brands of flour sold at 38s. 4d. per bbl. and wheat was 8s. 4d. per bush. Demand is more than equal to supply, both in that city and in New York.

"Potatoes are very high in the Belfast markets, and by retail prices range from 8d. to 10d. per st. Last week a vessel from the north of England brought a cargo of potatoes to our quay, and at the same time another ship was being laden with the variety called 'M'Mullens,' for our friends on the other side of the channel.

"The local railways work satisfactorily. Shares in Irish railways, as a whole, sell at higher rates, in proportion to the paid-up capital, than those of the Scottish lines. Dublin and Kingstown, probably the most successful railway in the world, pays a very large percentage, and the shares are current at £70 premium. Ulster Railway shares sell at £60, on £49 paid."

TAMWORTH AGRICULTURAL CHEMISTRY ASSOCIATION.

The following table contains the result of experiments made by members of the above society, during the months of February and March, 1854, as to the expediency of feeding sheep with or without artificial food, and the proper quantity of cake to be given to each sheep per day.

The different lots belonging to each person were

kept upon the same kind of food for one month previously to their being put upon trial; and during the experiment were all kept in open pens upon the same field, and equal in regard to shelter. Each lot contained five sheep.

Mr. Bourne's and Mr. May's sheep were bred by themselves; those of Mr. Dormer were purchased.

Mr. Bourne's and Mr. Dormer's were two-year-old | faced. The turnips were cut, and given in
wethers, Mr. May's one year old, and ali black- | troughs.

MR. BOURNE'S	Lots.	Total weight when put on trial.	Total weight at the end of two months.	Total weight gained.	Weight of turnips to each sheep per day.	Weight of cake each per day.	Observations.		
	No. 1	lbs. 793	lbs. 957	lbs. 164	lbs. 18½	1 lb.	Sold at Tamworth Fair, on the 27th March, at 68s. per head.	Cost in turnips 0 18 0 ,, cake 0 16 8	£1 14 8
	No. 2	794	950	156	18½	¾ lb.	Sold same day, at 67s. 6d. per head	Cost in turnips 0 18 0 ,, cake 0 12 6	£1 10 6
	No. 3	796	939	143	18½	½ lb.	Sold same day, at 68s. per head	Cost in turnips 0 18 0 ,, cake 0 8 4	£1 6 4
	No. 4	791	933	142	18½	¼ lb.	Offered 64s. per head, and sold a week later at 64s. 6d. *	Cost in turnips 0 18 0 ,, cake 0 4 2	£1 2 2

MR. DORMER'S	No. 1	602	660	58	17	None.	In this experiment it will be observed that the lot No 1, fed on turnips only, were much smaller sheep than the other lots, and consequently could not be expected to make as much progress, even if they had been fed the same.
	No. 2	625	719	94	17	¼ lb.	
	No. 3	661	789	128	17½	½ lb.	
	No. 4	730	852	122	17½	¾ lb.	

MR. MAY'S	No. 1	551	660	109	21½	None.	In this case the lot No. 3 did not feed regularly; and one of them was unwell. In his subsequent calculations, therefore, Mr. May has not compared them, as he did not consider them a fair proof.
	No. 2	563	687	124	17	½ lb.	
	No. 3	555	656	101	17½	¾ lb.	

* This lot, though only 6 lbs. lighter than No. 3, were not considered to be of so good a quality, and consequently were sold at considerably less money.

Mr. May calculates that (taking 4-7ths of the gross increase as nett) his first lot gained 62 lbs. of mutton, which, at 7d. per lb., would amount to £1 16s. 2d. or 10½d. per head per week. The second lot, 71 lbs., £2 1s. 5d. or 12½d. per head per week. And the third lot, 58 lbs., to £1 13s. 10d. or 10d. per head per week. Mr. Bourne's and Mr. Dormer's show a greater increase, which might naturally be expected from their being a year older. Reckoning, therefore, that Mr. May's lot No 2

gained 9lbs. more mutton than No. 1, and eat $11\frac{1}{2}$ cwt. of turnips less, and $1\frac{1}{4}$ cwt. of cake more, the balance will be as under, supposing 1-3rd of the artificial food to be valued *as manure*.

No. 2. Cr. 9 lbs. of mutton at 7d...	0	5	3
$11\frac{1}{2}$ cwt. of turnips at 7s. per ton	0	3	$11\frac{1}{2}$
	<hr/>		
	0	9	$2\frac{1}{2}$
Dr. $1\frac{1}{4}$ cwt. of cake at 10s., deducting 1-3rd as manure	0	8	4
	<hr/>		
Balance in favour of cake	0	0	$10\frac{1}{2}$

Again, if No. 1 without cake eat $4\frac{1}{2}$ lbs. of turnips daily more than No. 2, a crop of turnips weighing 20 tons would keep only 15 sheep per acre, *without cake*, for twenty weeks, but would keep 19 sheep, with $\frac{1}{2}$ lb. cake each daily, for the same period. It will be seen, however, that this calculation does not apply to Mr. Dormer's sheep, those which had cake eating more turnips than those which had none.

The general result of the experiment goes to show that $\frac{1}{2}$ lb. of cake daily is the best quantity for each sheep, or say 1 lb. of cake to about 36 lbs. of turnips. Mr. Haywood recommended 1 lb. of cake to 40 lbs. of turnips.

In calculating the value of cake, the superior quality of the wool, and the generally improved condition and healthfulness of the sheep should also be considered.

Tamworth, 1854.

ON OVERFEEDING.

SIR,—It seems to me that one of the rules of some of the local societies in the north might be successfully applied by our Royal Agricultural Society, to check the overfeeding of breeding-stock for the purpose of exhibition. Amongst the local societies in Scotland with which I am personally acquainted, the following regulation is very common—That no prize can be claimed by an exhibitor for any breeding cow, unless he prove to the satisfaction of the committee that the said cow has had a calf that year. And with other societies it is, that the cow shall be proved to have a calf during the spring following the summer of exhibition. This prevents cows being exhibited year after year, which, from their excessive fatness, are useless for breeding purposes. One of your correspondents, writing in defence of full feeding, says that it does not prevent the cows being useful: but I have seen many valuable cows consigned to the butcher on account of their being overfat for bearing or rearing stock. And all the practical farmers of my acquaintance, who keep shorthorns, agree that nothing destroys the usefulness of their herds so much as over-condition. There was an instance mentioned, I think, in your columns, of an English breeder, who for some time had only two calves from seven cows. It is

certainly my opinion, founded upon considerable experience, that fat frequently does hide faults. It is a constant expression with farmers, speaking of a lean beast, "He is a little rough; but when once in good condition, he won't be a bad-looking beast." By enforcing the above regulation, those breeders who choose to keep their cattle in a useless state of fatness would be prevented taking prizes, and they would soon discover how to keep their beasts in breeding condition. I know a short-horned breeder whose cows are very regular with their calving, and they are quite fat enough to please the eye of any fastidious judge of shorthorn beauty. Why, if one person can do it, should not another? that is, so keep their cows that they do not offend the eye by their excessive fatness, but be in such condition as to show the points to advantage without losing their usefulness? Hoping that it may prove practicable to apply this regulation in a useful manner in England, I remain, yours,

Bath, Sept. 22nd.

G. B. BLANC.

POINTS OF AN AYRSHIRE COW.

Would you know how to judge a good Ayrshire cow, Attend to the lesson you'll hear from me now:—
Her head should be short, and her muzzle good size;
Her nose should be fine between muzzle and eyes;
Her eyes full and lively; forehead ample and wide;
Horns wide, looking up, and curved inwards beside;
Her neck should be a fine, tapering wedge,
And free from loose skin on the undermost edge:
Should be fine where 'tis joined with the seat of the brain;
Long and straight overhead, without hollow or mane;
Shoulder-blades should be thin, where they meet at the top;
Let her brisket be light, nor resemble a crop;
Her fore-part recede like the lash of a whip,
And strongly resemble the bow of a ship;
Her back short and straight, with the spine well defined,
Especially where the back, neck, and shoulders are joined;
Her ribs short and arched, like the ribs of a barge;
Body deep at the flanks; and milk veins full and large;
Pelvis long, broad, and straight, and, in some measure, flat;
Hook-bones wide apart, and not bearing much fat;
Her thighs deep and broad, neither rounded nor flat;
Her tail long and fine, and joined square with her back;
Milk-vessels capacious, and forward extending;
The hinder part broad, and to body fast pending;
The sole of her udder should form a plane,
And all the four teats equal thickness attain,
Their length not exceeding two inches or three;
They should hang to the earth perpendicularly;
Their distance apart, when they're viewed from behind,
Will include about half of the udder you'll find;
And, when viewed from the side, they will have at each end
As much of the udder as 'tween them is penned;
Her legs should be short, and the bones fine and clean,
The points of the latter being firm and keen;
Skin soft and elastic as a cushion of air,
And covered all o'er with short close woolly hair;
The colours preferred are confined to a few—
Either brown and white chequered, or all brown, will do;
The weight of the animal, leaving the stall,
Should be about 5 cwt. sinking offal.

—*Celt in Irish Farmer's Gazette.*

REPORT OF EXPERIMENTS MADE WITH VARIOUS MANURES FOR THE TURNIP CROP, ON A LIGHT GREY SANDY SOIL WITH A YELLOW SANDY SUBSOIL, BY MR. KEMP BOURNE, OF FISHERICK NEAR LICHFIELD, AND PUBLISHED AT THE REQUEST OF THE TAMWORTH AGRICULTURAL CHEMISTRY ASSOCIATION.

No.	Manure used.	Price per ton.		Quantity per acre		Cost per acre.		Ammonia free per acre.	Ammonia fixed, per acre.	Phosphoric acid soluble, per acre.	Phosphoric acid insoluble, per acre.	Weight of turnips 23rd Nov., 1853.	When sown.	Observations.
		£	s. d.	cwt. qr. lb.	£	s. d.	lbs.	lbs.	lbs.	lbs.	lbs.	tonscwt. qr.		
1	Flesh manure.....	6	15 0	8 1 0	2	15 8	—	—	65½	—	126	18 17 3		August 6th, growing slowly. Much injured by chickweed.
2	Procter and Ryland's turnip manure	8	0 0	7 2 0	3	0 0	21½	28	8½	51½	80½	24 10 1		August 6th, growing very fast. Sept. 16, the best plot, but injured by chickweed.
3	Shoddy 30s., carriage 20s. Guano, Peruvian	2	10 0	11 0 0	1 7 6	7½	—	—	96	5½	37½	23 6 3		Aug. 6, growing fast. Sept. 16, good, and growing fast. Second best plot.
	Salt	9	15 0	2 2 14	1 5 7½	—	—	—	—	—	—	—		
4	Guano, Peruvian	9	15 0	5 1 0	2 11 2	6	56	43	7½	11½	74½	22 12 1		Aug. 6, growing very slowly. Sept. 16, good, and growing very fast. Fourth best plot.
	Salt	0	13 6	5 1 0	0 3 6	—	19	7½	—	45½	72	24 9 2		Aug. 6, growing fast. Sept. 16, equal to plot No. 7. Third best plot.
5	Procter and Ryland's turnip manure	8	0 0	6 3 14	2 15 0	—	—	—	111	40	22	21 15 3		Aug. 6, growing fast. Sept. 16, middling. Worst, except No. 1.
6	Shoddy and carriage..... Dissolved bone, containing 18 per cent. of phosphoric acid	2	10 0	16 0 0	2 0 0	—	—	—	—	—	—	—		
		7	0 0	2 0 0	0 15 0	—	—	—	—	—	—	—		
7	Flesh manure..... Guano, Peruvian	6	15 0	4 0 14	1 7 10	7½	28	96	54½	5½	100½	23 7 2		Aug. 6, growing fast. Sept. 16, equal to plot 5. Third best.
	Salt	9	15 0	2 2 14	1 5 7½	—	—	—	—	—	—	—		
8	Shoddy and carriage..... Guano, Peruvian	2	10 0	11 0 0	1 7 6	7½	28	96	54½	5½	37½	24 18 1		Aug. 6, growing fast. Sept. 16, growing slowly; the least weight of turnips, but better quality than plots 9 and 10.
	Salt	9	15 0	2 2 14	1 5 7½	—	—	—	—	—	—	—		
9	Flesh manure	6	15 0	4 0 14	1 7 10	7½	28	96	54½	5½	100½	25 16 1		Aug. 6, growing very fast. Sept. 16, second best, but a great many rotten turnips.
	Guano, Peruvian	9	15 0	2 2 14	1 5 7½	—	—	—	—	—	—	—		
	Salt	0	13 6	2 2 14	0 1 9	—	—	—	—	—	—	—		
10	Guano, Peruvian	9	15 0	5 1 0	2 11 2	6	56	43	7½	11½	74½	26 5 1		Aug. 6, growing slowly. Sept. 16, the best plot, but many rotten.
	Salt	0	13 6	5 1 0	0 3 6	—	19	7½	—	45½	72	24 9 2		

The sort of turnips—Green rounds, drilled in rows, near two feet distant, and well hoed. The land clean, and in a high state of cultivation.

NOTE.—The result of these experiments goes to prove that on turnip land of this character neither *insoluble phosphates* nor *unformed ammoniacal salts* will answer so well for the turnip plant as *soluble phosphates* and *ready-formed salts of ammonia*; though there is a discrepancy between Nos. 3, 4, 8, and 10, which cannot be explained, except that there was more chicken weed on Nos. 3 and 4.

It was intended that the materials of No. 6 should have been mixed for some weeks before being used, in order to have given time for the formation of ammonia, as directed at page 220 in Haywood's Letters to Farmers; but the time would not allow of this being done.

51 lbs. of soluble phosphoric acid can be obtained by mixing 245 lbs. of ordinary bones with 100 lbs. of common sulphuric acid, and 21 lbs. of free ammonia by adding to it 95 lbs. of sulphate of ammonia.

The turnips were inspected, weighed, and reported on by Mr. Edward Farmer, and Mr. Farmer Cheate.

The quantities of ammonia and phosphates, and the general result of the experiments, as stated above, were given by Mr. James Haywood, of Sheffield, the late lamented lecturer and analyst to the society. THOMAS ARGYLE, Secretary.

REVIEW.

AN ESSAY ON THE CAUSE AND CURE OF THE POTATO ROT. By E. C. Roberts. Detroit: Michigan. Free Democrat Print.

While we of the Old World have been attributing the potato rot to fungi, insects, malaria, &c., &c., a farmer of the New World, E. C. Roberts, discovered so early as 1816 that it arose from "a violation of Nature's laws;" and in order to certify his discovery, he had recourse to a series of experiments during that and the following six years—1847, '48, '49, '50, '51, and '52—which fully bore out, we are informed, its soundness. The pamphlet gives an account of each of those seven experiments separately, and concludes by summing up the whole with a few seasonable observations.

Mr. Roberts concludes that by removing potatoes from the ground during winter less or more injury is sustained, so that a continuation of the practice results in disease or rot; consequently his cure is to allow that portion of the crop required for seed to remain in the ground during winter, or rather he plants beds purposely for seed on dry ground, which is just Nature's own plan in South America—a plan which he himself has adopted and found effectual, all traces of the disease having disappeared by the third year.

The laborious manner in which the Michigan experiments were carried out by the author is deserving of special commendation; for during the progress of the crop, he examined daily the seed roots and shoots arising from them, by carefully digging up so many on each occasion, and dissecting them

with all the zeal of a morbid anatomist. During these pathological investigations, he found the old tuber always the first affected, the disease rising upwards; thus, as he observes, corroborating the soundness of his theory. We are not certain if we can subscribe to all the deductions of the writer, on this head, without a more detailed account of facts than the pamphlet contains; but his labours are highly deserving of praise, and we shall be happy to hear further from him on the subject.

There is nothing new in allowing potatoes to lie in the ground during winter, for it is upwards of thirty years since we saw the practice tried, in order to improve the quality of the root for spring use, those remaining in the ground being much better than those stored in the usual way. This fact, it will be perceived, is in favour of Mr. Roberts's theory; so that it is possible that the maturity of potatoes, especially seed, is a more difficult and important task than is yet generally imagined. Also since 1846 the theory has often been promulgated in this country; but we believe that Mr. Roberts will have no difficulty in establishing the priority of his discovery, should its value recommend it to general practice.

CUTTING CORN WITH THE SCYTHE.—On account of the scarcity of agricultural labourers, the farmers in various districts are turning their attention to the advisability of mowing instead of reaping wheat. The Newcastle Farmers' Club has not been slow, says the *Gateshead Observer*, to join in the movement. Sir M. W. Ridley, Bart., its president, gave £5 to be distributed in premiums for reaping wheat by the scythe; and £1 was added by another member, Mr. William Mather. Mr. William Stephenson, of Throkley House, offered a field of wheat for the experiment, and it was arranged that the competitors should each cut three-quarters of an acre, with the long or short scythe; the premiums to be awarded with due consideration to the quality and rapidity of the work. Wednesday, the 6th inst., was appointed as the day of trial; 19 competitors were entered, and 16 presented themselves in the lists. One, a conservative rustic, came armed with the ancient grass scythe; two had adopted the improved implement; the remainder bore the old Scotch. Mr. William Stephenson marked out the field into allotments; at nine the rival reapers got to work. The first finished at 12.25; the second (a lad of 18, named Wm. Robson, in the service of Mr. Stephenson) at 12.33; three others at 12.36; two at 12.37; the rest from that time to 12.48. The general feeling among the spectators was one of confidence in the scythe, as an instrument more expeditious and economical in its operation than the sickle. Mr. Stephenson, of Driffield, has written to the same journal, giving his opinion upon the comparative merits of scythe and sickle cutting. He is decidedly in favour of the former, which, he says, with all its imperfections, is far superior to reaping with the sickle, whether as regards expense or expedition, and much less time needed to fit the crop for stacking, the cleaning the land of all the stubble, the less waste and the comparative security from sprouting in wet weather. The disadvantages of mowing are, that it takes more carrying home, more stacking, thatching, &c.; but, perhaps, more than all, the difficulty with you would be of getting it well threshed, and this would require alteration in the threshing machines. One of the evils of reaping by the sickle is packing the ears in the sheaf too closely, and tying it too tightly. This, with the scythe, is in a great measure avoided. In a wet harvest of the year 1816, before Mr. Stephenson was a convert to the scythe, he says:—"I well remember the immense difference in the damage to the grain

between that reaped and that mown, and that the mown wheat was ready to carry some days before the reaped, and when taken to market was several shillings a quarter more valuable." He adds:—"On three or four occasions I have sent twenty-four people into a wheat field of as many acres, growing on an average from sixteen to twenty bolls an acre, and the whole was finished (with the exception of a very few acres' raking) before they ever left the field, and in three days the whole was in stack, scarcely an ear being left behind."

SITTONTON ANNUAL SALE OF SHORTHORNS.—

The thirteenth annual sale of Mr. Cruickshank's shorthorned bull calves (from three to seven months old) came off on Thursday, the 14th instant, and, as usual, was well attended. The day was extremely fine, and the extensive herd of shorthorns on the farm presented a beautiful appearance. Mr. Elrick officiated as auctioneer, in his usual impartial manner. The following are the prices obtained for each lot, and the purchasers:—

Lot 1	Red.....	26	ga.	Mr. Brown, Bankhead
2	Red.....	27		Mr. Brown, Atholhill
3	Roan	36		Mr. Robertson, Ireland
4	White....	17		Mr. Black, Linhead
5	White....	26		Mr. Heriot, Fifehire
6	Roan	29		Mr. Walker, Balmoor
7	Roan	27		Mr. Cumming, Corthiemuir
8	Roan	50		Mr. Bruce, Ardiffery
9	White....	18		Mr. Anderson, Auchnivee
10	Red.....	26		Mr. Ironside, Breeme
11	Roan	34		Mr. Maitland, Muirton
12	Red.....	57		Mr. Campbell, Kinnellar
13	Roan	30		Mr. Johnstone, Drumwindle
14	White....	19		Mr. Lumsden, Pithee
15	Roan	15		Mr. Argo, Braeside
16	Red.....	34		Mr. Mitchell, Haddo
17	Roan	29		Mr. Maitland, Inch
18	Red.....	24		Mr. Donald, Conliehare
19	Roan	27		Mr. Walker, Tillymaud
20	Roan	20		Mr. Mitchell, Kirkton of Slains
21	Red.....	37		Mr. Reith, Chapelton
22	Red.....	20		Mr. Harvey, Pitgersie
23	Roan	19		Mr. Lumsden, Pithee
24	Roan	27		Mrs. Benton, Auchincrive
25	Roan	22		Mr. Moir, Knockhall
26	Red.....	19		Mr. Anderson, Kirkton of Logie
27	Roan	27		Mr. Davidson, Cairnboogie
28	Roan	19		Mr. Turnbull, Lochend
29	White....	15		Mr. Thompson, Mameulah
30	White....	20		Mr. Thompson, Broombrae
33	Red & wh.	25		Mr. Henderson, Pitcrae
34	Roan	19		Mr. Allan, Bodachra.

—Aberdeen Journal.

ELLINGTON.—STOCK SALE.—The sale of shorthorns, the property of Wm. Ladds, Esq., took place here on Wednesday, and attracted a numerous and highly respectable company from various parts of the kingdom, amongst whom we observed his Grace the Duke of Manchester; Lord Viscount Mandeville, M.P.; Edward Fellowes, Esq., M.P.; James Rust, J. B. Rooper, J. M. Heathcote, P. Tillard, J. T. Baumgartner, M.D., W. Gatty, J. Welstead, A. Welstead, S. Hill, C. Veasey, jun., P. Purves, J. Mann, J. Warsop, T. George, Esqs., of the county; J. S. Tanqueray, W. Sweetlands, Esqs., of Hendon; J. S. Crawley, Esq., of Stockwood Park, Beds.; F. F. Hallet, and J. Dyson, Esqs., of Brighton; W. B. Stopford, Drayton; R. Stopford; 3 Yorkes (Thrapston), Ward, Northamptonshire; Townshend, Sapcote Field; W. Driver, Desborough, Leicestershire; W. Billiat, J. Burgess, W. Sanday, Holme Pierrepont, Notts.; C. Barnett, Stratton Park;

Martin, Littleport; Fowler, Henlow, Richardson (Chatteris) Esqs.; Revs. F. Thursby, Abingdon; J. Duncombe Shafto, B. Puckle, J. Potter, F. Johnson, Hemington; and Messrs. Porter, Jepson (Agent to Abel Smith, Esq.), Fyson, W. Gray (Agent to Sir C. Wake), Bland, Henson, Judkins, Holloway, Abbey, (Wellingborough), R. Crawley, C. Lewin, Fairy, and most of the leading agriculturists of the neighbourhood. Shortly after twelve o'clock the company, which numbered, it is supposed, between 300 and 400, were invited to luncheon in a spacious barn fitted up for the occasion, and after doing ample justice to the good things provided by Mr. Ladds, the sale commenced, Mr. Stafford, of London, who conducted it, prefacing the conditions with some remarks as to Mr. Ladds having paid great attention to the improvement of the breed for upwards of 30 years, nearly twenty of which he had had the pleasure of knowing Mr. Ladds, and could bear testimony to the great care bestowed in the selection of first-class bulls, as well as to the general qualities of the animals, namely, size, substance, and quality, not forgetting the miking properties of the cows; and Mr. Ladds was only induced to disperse the herd in consequence of having quitted one of his grass farms. There were 52 lots of cows and heifers, and these realized £1,266 6s., some of them selling as high as 60 and 65 guineas. Of the bulls there were 12 in the catalogue, but we believe ten only were sold, which realized £404 5s., Lord Chancellor leading off at 100 guineas, Autocrat at 50 guineas, and Puritan at 52 guineas, making the total amount of the whole herd £1,711 10s.—*Cambridge Chronicle*.

SUSTAINING QUALITIES OF DIFFERENT KINDS OF FOOD.—

The cereal grains contain the largest proportion of flesh-and-blood-producing material, and among those grains wheat is predominant. But the actual quantity of nutriment even in wheat is much less than is generally supposed; that portion of the grain which is converted into muscular fibre not exceeding fourteen per cent. of the whole. When, however, we compare the nutritious qualities of wheat with those of potatoes, the former stands very high in the scale, and the latter sinks so low as seemingly to justify the anathemas of Cobbett. In the first place, seventy-six per cent. of the weight of potatoes consists of water, from which no nourishment whatever is derived; and of the remaining twenty-four parts, only two per cent. consist of nutriment. The result of the examination of the comparative values of potatoes and wheat as articles of food, proves that the latter not only contains a larger proportion of nutriment, but a proportion so great as to exceed the difference in their price, and that it is cheaper to feed men on good wheaten bread than on potatoes, if both be used exclusively of other articles of diet.—*Professor Bentley*.

PROGNOSTICATIONS OF THE WEATHER.—

Mr. Thomas Best, of the Ordnance Survey, has published a prognostication of the weather till January next, dated at Darlington, the 14th September current, in the following terms:—October—A fine month for the season; some rain between the 9th and 16th, then gradually fine till the 22nd, then wet and windy till the 25th or 26th, then fine till the end. November—Fine at the beginning, then rain from about the 7th, stormy weather commences about the 17th, and is likely to continue till the 24th; then moderate till the end. December—Changeable weather till about the 7th, then rain but calm weather till about the 16th; then very changeable with cold wind, and some fall about the 21st, probably snow; then frost from about the 24th till the end.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR SEPTEMBER.

The accounts which have reached us from nearly all parts of the United Kingdom, in reference to the produce of the wheat crop, fully bear out the observations on this head contained in our last month's report. The quantity of wheat as yet thrashed out is small, arising from the growers almost generally being now much engaged in ploughing and sowing, and the scarcity of labour; yet sufficient has transpired to enable us to verify all the leading points of the report in question. Even on the light and most badly-cultivated lands, as much as five quarters per acre have been grown this year; and we consider that we are under the mark in estimating the increase in the total growth, compared with 1853, at seven million quarters. This, certainly, is an enormous quantity, but *it will all be required for consumption*, and all calculations approaching a very low range of value will not, in our opinion, be realized. It follows, therefore, that a most valuable crop has been produced, and one which the farmers will not needlessly hurry to market. The state of the trade abroad indicates that we are likely to have very moderate importations for a considerable period. The yield of barley is large, but its general colour is by no means good; yet, from the abundance of the crop, no doubt malting samples will be sufficiently plentiful during the season. Oats are turning out well, but both beans and peas are a short crop. There are, we find, a few stacks of old wheat yet to be met with, in some counties; but the actual quantity must be trifling, when compared with some corresponding seasons. However, the fine condition in which the new wheats have been harvested, renders it unnecessary for the millers to purchase either old English or foreign wheats largely; hence, new samples are now worth nearly, or quite, as much as old ones.

In many parts of the country, moisture is much required for agricultural purposes; and the progress of sowing has not been so rapid as we have witnessed in some former periods. However, the season must be considered a remarkably fine one, and a few wet days would now be productive of a great amount of benefit to the root crops. As regards turnips, we may intimate that they have grown well, allowing for the comparative dryness of the weather; but we are apprehensive that the weight of the entire crop will fall short of last year. Carrots stand in need of wet, especially on light soils. We have now to

consider potatoes. On this head, reports of a most contradictory character have reached us. Some of our correspondents state that the disease has made sad havoc amongst both the early and latter crop; others, that very few instances of rot are to be met with. Having ourselves caused the most extensive inquiries to be made on the subject, we candidly confess that we see no reason whatever to alter the opinion we have already expressed, viz., that the growth will prove considerably larger than last year, and that the root will keep well during the winter. A close examination of the immense supplies which have been forwarded for metropolitan consumption from Yorkshire, Essex, Kent, and various other counties, has proved to our minds that we have grown one of the best crops on record. Instances may, of course, be met with, in which losses have been sustained; but our decided impression is that the supply grown will be found fully equal to our wants until the spring. The same observations may, we consider, be applied to Ireland and Scotland; hence, it follows that a very large surplus will be shipped to England in the course of the winter. In the former country, large speculative purchases are about to be made for the London market, and we should not be surprised to find the trade become of great magnitude in after years. On the continent, the supplies grown appear to be very abundant, especially in France and Holland, whilst we have good authority for stating that their quality is excellent.

The second cut of hay has turned out light, and the quantity of grass at this time in the pastures is small. We apprehend, therefore, that breeders of stock will be compelled to make large inroads upon their stock of hay some time before the usual period. Both beasts and sheep, however, have continued free from disease; but we regret to find that such vast numbers of them have been forced for sale in little better than a half-fat state, and at a time, too, when prices are very high. It really ought to become a serious question with both breeders and feeders—more particularly with the latter—whether they would not better consult their future interests by holding back a portion of their supplies until they shall have become more fitted for butchers' purposes. The small supplies of dry food on hand may act as an inducement to immediate sales; but we feel convinced that the present system is a wrong one, because it is next to an impossibility that meat will become cheaper than it is at present. A very

moderate calculation will show the relative cost of making an animal fat, or, at least moderately so, in a given time, and the difference between its present and future value. Some parties may contend that we shall be overwhelmed with importations from abroad. That can scarcely be the case, as the Dutch graziers are not in a position to increase their shipments; and even if we were, from the fact that lean English stock comes into competition with foreign stock of a similar character, it must be clear that the lower kinds of meat must, in the event of the present state of things continuing, be sold at a much relatively lower figure than the best qualities—in other words, the graziers are absolutely losing large sums of money, when they might otherwise realize much larger profits.

There has been rather more business doing in nearly all kinds of English wool, and prices have had an upward tendency. The imports of foreign and colonial have been on a liberal scale, whilst the sale for them has been very inactive at last month's currency.

The growth of hops has turned out a complete failure. Picking has been commenced; but the duty has been done as low as £50,000. New hops have, therefore, commanded high rates, viz., from £18 to £23 per cwt., and a considerable rise has taken place in the value of yearlings. The import of foreign hops has been very large, about 7,000 bales having come in during the month, to be followed, we understand, by about a similar quantity in October.

The crop of seeds has turned out most abundant, and the fine weather has enabled the growers to secure it in the best possible condition. Winter tares have sold briskly at 10s. per bushel. Other seeds have been dull. The war with Russia led to several large contracts being entered into for the shipment of linseed from the sea of Azoff and from India. These supplies are now coming to hand; but the fall in prices, contrary to expectation, is calculated to leave rather a heavy loss to the importers. There has been a good business doing in linseed and rape-cakes, yet the quotations have had a downward tendency. In Ireland and Scotland farm labours have progressed steadily; but the season is looked upon as somewhat backward. The growth of all grain is proving large, and of very fine quality.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Compared with several previous months, the supplies of beasts and sheep on offer in our leading cattle markets have been large; but their general quality has proved very inferior—especially the beasts. This circumstance, whilst it has tended to

decrease the quality of food, has had the effect of keeping good meat scarce and dear. When, however, we consider the small quantity of hay produced in most parts of the country in 1853, and the inferior quality of the growth in most grazing districts, together with the falling off in the root crops, these features in the trade have failed to excite any surprise; indeed, we ourselves have previously referred to them as indicative of rather a high range in the value of stock during the whole of the present year. Dissatisfaction has been expressed, by the consumers, at present prices, and many of them contend that the free importation of foreign stock ought to reduce them to a much lower point. But here, again, we have the same difficulty to contend with as regards home-supplies, viz., the miserably low condition in which the animals have come to hand. Large numbers, unless with a corresponding amount of meat, will never reduce the prices of prime stock; and the difference between the value of the most inferior and the best breeds in Smithfield is now not less than *threepence* per stone. This wide range in the quotations, however, is far from satisfactory to consumers in poor localities, because it has been found that even the lowest priced meat, from the great proportion of bone, is relatively dearer than the best qualities. The state of Smithfield, in respect to the weight of meat shown in it this month, may be thus exemplified: On the 18th inst. there was shown one of the largest supplies of beasts and sheep almost ever known at any corresponding period; yet, from a fair calculation made by us, the beasts did not average more than £16 10s. each. This supply, be it observed, was referred to by some daily contemporaries as being a most wonderful show, and as being equal to a Christmas market. The absurdity of such observations must be obvious when we state that a more inferior market has seldom been seen, and that we have known the beasts sold on a Great Day to have averaged £25 and, frequently, £26 each! We deem it necessary to make these observations, because consumers do not appear to be aware of the causes which have led to the present enhanced value of meat, and because they are strong in their expressions in reference to the so-called forestalling of the market. Doubtless, the system of buying up large numbers of stock in the provinces in very little more than a half-fat state acts prejudicially to the supplies at future periods. The presence of large speculators in many localities is frequently an inducement to the glaziers to part with stock which otherwise would have been kept back for several months, and, if healthy, gained a considerable quantity of meat in the time; but ready-money, and the getting rid of all expenses immediately the

stock leaves the farms, act as a great inducement for the breeders and feeders to sell. It likewise saves the expense of a journey to the metropolis; as numerous graziers themselves, when they have from 20 to 30 beasts to dispose of, have made it a point to sell in Smithfield, under the impression that they have obtained better prices than experienced salesmen.

On the whole, the cattle trade has been in a healthy state since we last wrote, although at one time the quotations showed a tendency to decline. In the value of calves numerous fluctuations have taken place, and prices have ruled extremely low, owing to the prevalence of cholera in the metropolis: at least three-fourths of the calves have sold for country consumption.

The imports of foreign stock into the metropolis have been as follow:—

	Head.
Beasts	7,805
Sheep	26,230
Lambs	748
Calves	1,894
Pigs	2,281

IMPORTS AT CORRESPONDING PERIODS.

Sept.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
1853	8,372..	28,845..	273..	2,535..	1,498
1852	6,619..	34,759..	1,132..	2,388..	1,847
1851	6,177..	28,566..	2,075..	2,518..	1,994
1850	5,556..	19,802..	1,939..	1,819..	752
1849	4,214..	17,649..	734..	734..	428
1848	4,301..	18,000..	3,681..	1,625..	55
1847	4,000..	14,000..	683..	1,362..	270

The total supplies exhibited in Smithfield have been as under:—

	Head.
Beasts	24,896
Cows	542
Sheep and lambs	174,171
Calves	2,760
Pigs	3,465

COMPARISON OF SUPPLIES.

	Beasts.	Cows.	Sheep and Lambs.	Calves.	Pigs.
1849	19,868..	447..	168,350..	2,080..	1,957
1850	22,212..	475..	173,450..	2,491..	2,639
1851	23,007..	600..	169,390..	2,220..	3,447
1852	24,911..	490..	148,680..	2,924..	2,980
1853	27,063..	518..	157,750..	3,037..	3,170

From the northern grazing districts about 10,000 short-horns have come to hand. The arrivals from other parts of England have been 2,300 of various breeds. From Scotland only 153 head have reached us. Beef has sold at from 3s. to 5s.; mutton, 3s. to 5s.; lamb, 4s. to 5s. 4d.; veal, 2s. 10d. to 4s. 4d.; pork, 3s. 4d. to 4s. 8d. per 8lbs., to sink the offals.

COMPARISON OF PRICES.

	Sept., 1850.				Sept., 1851.			
	s.	d.	s.	d.	s.	d.	s.	d.
Beef ..from	2	4	to	3	8	....	2	2
Mutton	3	2	4	0	....	2	8	4
Veal	2	10	3	8	....	2	8	3
Pork	3	2	4	0	....	2	4	3

	Sept., 1852.				Sept., 1853.			
	s.	d.	s.	d.	s.	d.	s.	d.
Beef ..from	2	0	4	0	....	2	10	4
Mutton	3	0	4	6	....	3	2	5
Veal	2	10	4	2	....	3	6	4
Pork	2	10	3	10	....	3	4	5

In Newgate and Leadenhall the trade has ruled heavy, on the following terms:—Beef, from 3s. to 4s. 6d.; mutton, 3s. to 4s. 8d.; veal, 2s. 10d. to 4s. 2d.; and pork, 3s. 4d. to 4s. 8d. per 8lbs. by the carcase.

MID KENT.

The very fine weather which followed after the second week in August enabled us to cut and carry every handful of corn in excellent order, and to do many other jobs which the somewhat showery character of the early part of summer prevented being done; for instance, our hop gardens and fruit plantations, which were getting weedy, have been thoroughly cleaned: and it is not too much to say, that the beneficial effects of the last few weeks of dry weather will be felt hereafter, as well as at present; for many of our hardy fruit trees were so injured by the late-cold weather of spring, as well as frosts then, that they threatened to be no longer useful; but the late weather has improved them much, and no doubt but healthier trees have equally benefited by it, and have set their embryo buds in such strength as forms more than half the work to next year's success: for I hold that more than one-half the failures we have that way, arises from the fact of the bloom being either deficient in vital energy, or probably defective in some other of its parts; for I have known tolerably good crops of fruit from blossom that had undergone some severe weather in spring, but its robustness carried it through. However, as my purpose is more to describe things as they are now than chronicle the past, I may say that many of our orchards turn out better than they were expected to do, the fruit being tolerably good, what there is, and what has been gathered comes down well; but one serious drawback is in the extraordinary number of wasps with which we have been troubled, as well as black flies, and, what is almost worse than either, the little pests called in common parlance the "fly golding," a small red-backed insect very common where hops are cultivated, and looked upon here as a great boon in destroying the fly and other insects which are so destructive to the hop in the early summer months. These pests united have occasioned us much loss, and that too of the best fruit. This, and the drawback which attends certain fruits, as plums, in a season like this, when people are afraid to partake of them, operate sadly against us fruit growers, who have our living to get mostly by that means; and as plums have especially been pointed at as forbidden fruit, the loss has been severe on those who depended on them as an important part of their income, the crop being good and all. I may add that the filberts are far from good, and apples anything but plentiful; and our hops, which are now in course of being picked, are not so good as they promised to be before picking time, and there are many acres from which not a single pound will be gathered: those which seem to the eye to be good, are, on closer inspection, not so well as they look to be; consequently the quantity of really good will be very small indeed. Picking is now general, but will not last long, the most fortunate growers having but few, while some have none at all. It is consolatory, however, to know that most things else in the farming way are prosperous. Turnips look well where they were sown early in the season; but there are few stubble tur-

nips, which are usually much depended on in this country; the late harvest and dry weather operated against them, but we have some very promising on land that potatoes were taken up from. I am sorry to say the potatoes have become very much diseased since they were taken up and stowed away, but on the whole they are not worse than last year, and I hear of some parcels escaping the disease altogether. Cattle carrots, mangel wurzel, and other roots, are tolerably good; and the same may be said of drumhead cabbages, while the second crop of clover has not been so heavy as I have seen sometimes; but grass has been tolerably abundant, and sheep and cattle have done better on it than when there has been more, as was witnessed last year, when the continuous rain so charged it with watery juices, that its feeding properties were much impaired, while in the present season it has been good. However, the wet weather in the middle of July spoiled much hay in hand then; but with the exception of our hops (which, by-the-bye, is our right hand in preparing to meet our landlords) we must not grumble at anything else.—A. N. G.—Sept. 20.

SOMERSETSHIRE.

We have now been able to test our produce, which by no means realizes the high expectations formed by some parties—for instance, 20 acres, estimated at 40 bushels per acre, yielded on thrashing about 530, or little over 26 bushels per acre; this may be hoped to be rather an extreme case; it was in an early fine wheat district. From many instances of less produce than was expected, and very few of coming up to it, an impression is evidently gaining ground that the total quantity produced is considerably less than was anticipated. The quality is much more likely to come up to the mark, as 64 and 64½ lbs. have been already ascertained in fine nursery samples, and 63 to 64 lbs. are often realized. Our red wheat is the best in quality, and best harvested; we never knew the quality much better. Barley is better in quality, and some fine first-rate samples, weighing 52 to 56 lbs. per bushel, have been shown. Beans are very prime and heavy. We have heard no complaint of yield; they are well harvested, particularly the winter-sown; very few spring-sown cut. Oats very fair, and quality good. Vetches were not much sown, and they are, as yet, very scarce; they began at 8s., and are now worth 9s., with a short supply. New white wheat has been bought as low as 6s. 6d.: this week 7s. 6d. would have been freely given, but there were no sellers: our supply will very soon increase, if the price keeps up. Flour went down as low as 38s. to 40s.: it sold this week as high as 46s.: stock, from shortness of water, very low; indeed, both in millers' and bakers' hands the stock of wheat and flour has not been lower than last week for years. We think the present price safe. It may get up higher; then it will stand through the next month; but it is likely, if wet and damp before the end of November, that old and dry new samples will be higher. Barley 3s. 9d. to 4s., without much demand. New beans 5s. to 5s. 3d. extra. Our stock market has been declining on sheep 5s. to 6s. per head, and poor stock 30s. to 40s. Beef dull sale, and only the best maintained its price: for want of grass, the supply has been large; but now rather fallen off—9s. to 10s. 6d. per score. Mutton 6d. to 6½d. per lb.

BURNHAM OVERY (NORFOLK).

SIR,—We beg to hand you our report upon the harvest, which has been completed in this district about a fortnight. Wheat has for the last two or three years been substituted for barley, to some extent, upon the turnip lands, and the same has been the case this year; but we do not consider our acre-

age of wheat larger than last year. The yield per acre has so gradually increased during the last few years, mainly through the use of artificial manures, used as top-dressings, that until we have more perfect statistical accounts it would be difficult to define what is an *average* crop; but the yield this year will probably be found to exceed that of the previous one by from 12 to 15 per cent. Against this increase it must be borne in mind that our farmers, who last year held a large portion of old Wheat, are now quite cleared out; and we are inclined to estimate the stocks in the hands of the growers and millers in this district rather below than above what they held immediately after the harvest of 1853, whilst few of our merchants hold a bushel of old. About one-sixth of the crop was hurried up in indifferent order, which, however, will no doubt not be thrashed out until the spring; the remainder has been secured in splendid condition. The new wheats are good in quality, the berry being well filled and colour good. They are ranging from 62 to 64 lbs. per bushel, but whenever a change of weather causes them to lose their present beautiful condition, we do not expect we shall be able to effect shipments to exceed 62 to 62½ lbs. per bushel. Barley has scarcely been thrashed in sufficient quantity to enable us to speak with accuracy of the yield. The early sown are unquestionably a large crop, but we suspect the later ones will in many instances prove deceptive and deficient; and we fear from one-fourth to one-third of the crop will prove unfit for malting purposes. We have scarcely any of really handsome malting quality, the kernel being generally of an unkind appearance, the skin coarse, and colour bad; although in point of weight they are not deficient, ranging from 53 to 56 lbs. per bushel, and we expect even the grinding qualities will weigh fairly. Oats are not grown to any extent in this neighbourhood; the crop is well spoken of, both as regards yield, quality, and weight.—RICHARD DEWING & Co., Sept. 20.

TO FARMERS.—The *Hereford Times* mentions a farmer who took up a fence after it had been standing fourteen years, and found some of the posts nearly sound, and others rotted off at the bottom. Looking for the cause, he discovered that the posts which had been inverted from the way they grew were solid, and those which had been set as they grew were rotted off. This is certainly an incident worthy of being noted by our farmers.

FARMERS, NOTE THIS.—In a cloudy morning, it is a matter of importance to the farmer to know whether it will be sunshiny or showery in the afternoon. If the ants have cleared their hole nicely, and piled the dirt up high, it seldom fails to bring a clear day to the farmer, though it may be cloudy till ten or eleven o'clock in the forenoon. Spider-webs will be very numerous about the tops of the grass and grain some cloudy mornings; and fifty years' observation has shown the writer of this that these little weather-guessers seldom fail in their predictions of a fair day.

NEW ACT ON THE INCLOSURE OF LAND.—An act of parliament has just been issued (17 and 18 Vic., c. 97) to amend and extend the acts for the inclosure, exchange, and improvement of land. By this act, which extend to 21 clauses, lands about to be enclosed may be exchanged. Common rights are to be ascertained, and until decided the money to be paid into the bank. The Inclosure Commissioners are to ascertain the interests of the several parties.

METEOROLOGICAL DIARY.

BAROMETER.			THERMOMETER.			WIND AND STATE.		ATMOSPHERE.			WEAT'R.
1854.	8 a.m. in. cts.	10 p.m. in. cts.	Min.	Max.	10 p.m.	Direction.	Force.	8 a.m.	2 p.m.	10 p.m.	
Aug. 22	29.87	30.03	53	70	58	W. N. W.	lively	fine	sun	fine	dry
23	30.11	30.04	51	66	57	S. West	brisk	fine	cloudy	cloudy	showery
24	29.99	29.98	57	74	59	S. West	lively	cloudy	fine	clear	dry
25	30.17	30.32	53	69	53	S. West	gentle	fine	sun	fine	dry
26	30.33	30.35	45	72	68	N. West	gentle	fine	sun	cloudy	dry
27	30.40	30.40	60	73	68	N. W. N.	calm	fine	cloudy	cloudy	dry
28	30.45	30.45	64	75	69	N. by W.	calm	fine	sun	fine	dry
29	30.46	30.37	60	80	69	Easterly	gentle	fine	sun	fine	dry
30	30.32	30.20	61	82	71	S. Westerly	airy	fine	sun	clear	dry
31	30.20	30.25	60	71	69	N. East	airy	fine	sun	clear	dry
Sept. 1	30.30	30.30	52	67	60	E. by N.	brisk	fine	sun	fine	dry
2	30.32	30.35	52½	71	60	E. by N.	lively	fine	sun	clear	dry
3	30.39	30.35	53	73	63	East	lively	haze	sun	clear	dry
4	30.35	30.34	45	75	62	E. by South	lively	haze	sun	clear	dry
5	30.40	30.41	49	68	56	E. by North	gentle	haze	sun	clear	dry
6	30.40	30.27	46	70	56	N. and S. E.	gentle	haze	sun	clear	dry
7	30.27	30.22	49	73	61	N. East	lively	haze	sun	cloudy	dry
8	30.25	30.20	52	65	54	N. East	lively	fine	sun	fine	dry
9	30.20	30.18	52	66	52	N. East	gentle	fine	sun	clear	dry
10	30.19	30.19	45	66	58	E. N. E.	var.	haze	sun	clear	dry
11	30.19	30.14	47	69	59	Southly. by W.	var.	fog	sun	clear	dry
12	30.08	29.96	53	75	64	Southly. by W.	lively	fine	sun	cloudy	dry
13	29.95	29.85	63	72	65	Southly. by W.	lively	cloudy	cloudy	cloudy	rain
14	29.74	29.82	60	65	60	S. W. and W.	brisk	cloudy	cloudy	cloudy	rain
15	29.99	29.90	56	69	64	S. West	gentle	cloudy	sun	cloudy	dry
16	29.90	29.83	63	71	68	S. West	brisk	cloudy	cloudy	fine	showery
17	29.83	29.93	64	71	58	S. West	fresh	fine	sun	fine	showery
18	30.10	30.08	53	66	61	S. West	strong	fine	cloudy	cloudy	dry
19	30.02	30.05	60	68	63	S. West	var.	cloudy	cloudy	cloudy	—
20	29.99	30.01	*	63	55	S. W. and W.	var.	fine	cloudy	fine	showery

ESTIMATED AVERAGES OF SEPTEMBER.

Barometer.		Thermometer.		
Highest	Lowest.	High.	Low.	Mean.
30.41	29.410	76	36	57.8

REAL AVERAGE TEMPERATURE OF THE PERIOD.

Highest.	Lowest.	Mean.
71.83	54.4	63.14

WEATHER AND PHENOMENA.

August 22. Fine throughout; beautiful cumuli. 23. Very brisk shower; the final close of changeable weather. 24. This day set in the unprecedentedly fine harvest weather of the summer.

LUNATIONS.—New Moon, 23rd day, 6 h. afternoon. First quarter, 31st day, 6 h. 7 m. morning.

September 1 to 6 include six brilliant harvest days. 7 to 11. Haze or fog every morning; with the last day 9 came a total change of wind and of temperature. 12. Close of the splendid period: heat in the sun 110 degs. ! 13. Moist, first gentle

rain. 14. Fine in general; shower. 15. Clouds and gleams. 16. Close heat; some drizzle. 17. Heavy shower, and a rainbow. 18. Fine forenoon, then changeable. 19. Closely damp. 20. Fine forenoon; a heavy shower.

LUNATIONS.—Full Moon, 6th day, 9 h. 18 m. afternoon. Last quarter, 14th day, 6 h. 30 m. morning.

REMARKS CONNECTED WITH AGRICULTURE.—The table will speak for itself, and the whole kingdom bears consentient evidence to the great fact of "an enormous," as well as fine ingathering. Food is abundant, and common gratitude requires that prices should be very moderate. The gentle showers that have fallen, in very limited quantities, have still been of great use to the turnips, swedes, mangel wurzel, and the grasses. The whole season since 1st March has been marked by strong contrasts, but the good has predominated.

Croydon, Sept. 21.

J. TOWERS.

CALENDAR OF AGRICULTURE.

This is a very busy month with the clay-land farmer in sowing wheat. Seed-furrow the land as fast as can be performed; sow quickly; have the seed ready dressed and measured, steep it in stale urine or salt water, and dry it with quicklime for the drill machine, or sowing by hand; cover by harrowing, and draw the water-furrows in every day's work.

Dig the potato crop with plough or forks, and secure the roots in long ridges thatched with straw, turf, or earth. Secure beet, parsnips, and carrots in a similar way. Remove Swedish turnips from lands to be sown with wheat, and plough these lands, and sow quickly. The sowing of these lands, and of clay land fallows, renders this month a busy season with the wheat farmer.

Put rams to the ewes, 1 to 50, assorted by their respective qualities; mark each ram and the ewes he serves, in order that the produce may be distinguished; mark all ewes that are impregnated each fortnight, which serves the purpose of a regular lambing in the spring. Keep the ewes on good pasture; if it is bare, assist it by giving turnip-tops. Allow the rams to remain six weeks with the ewes.

Put live stock of all kinds to winter food, unless the season be very favourable for remaining out all night in the fields; the feeding animals in twos and fours together in yards provided with sheds, and the store beasts in lots of six or eight together. Give them fresh turnips daily, and litter amply. Let the calves of this year have a comfortable yard, a supply

of fresh water, and a regular feeding with small turnips and tops, and abundance of fresh straw daily. Feed milch cows with cabbages and beet-root, and with hay and chaff alternately.

On dry lands, as sand and chalks, fold the sheep on the turnips, giving a fresh breadth daily; or cut the turnips, and give them in troughs, folding the sheep regularly on the ground behind. If the land be damp and poachy, cart the turnips to a stubble or grass field, and spread thinly and regularly over the field; in many cases this is the preferable way of consuming the turnip crop. Give the lambs and the feeding flock full and ample keep; the ewes and store flock one half less, to keep them in fresh condition.

Put swine to fatten, two in a sty together, and use steamed food, potatoes, and meals; give the store pigs raw potatoes and light grains, and steamed food occasionally. Have the steaming apparatus in proper going order; use steamed food for all stock—horses, cows, and swine.

Anoint sheep during this month, to kill lice and vermin; use a bath of tobacco liquor, with extract of tar, and apply one bottle of the mixture to a sheep. Sheep are now dipped in Biggs's composition—a chemical preparation, of which the patentee furnishes the materials and necessary directions. It is a valuable substitute.

Sow winter vetches for a late cutting in the spring; but early-sown spring vetches will often come as soon; but no farmer can have too many acres of such a valuable succulent plant.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

BALLOCH HORSE FAIR was the best fair for the seller that has been witnessed for many years. In young beasts the seller had at least 5 per cent. of advantage, and in working beasts nothing under 10 per cent. Messrs. M'Kinlay, Climie, Giffen, Warwick, &c., were the principal dealers in the market. Mr. M'Kinlay, who carried the top price, got £60 each for two mares, one four and the other five years old. He also received for three two-year-old draught fillies £110; and for three two-year-old mares from £46 to £48. Mr. Climie sold several two-year-old colts at £35 each, and several work lots at £15. Mr. M'Kinlay's good two-year-old colts carried from £38 and upwards. Mr. Finlay, Butterick, sold a two-year-old colt at £58, the highest price ever known to have been given at Balloch fair for a similar animal. Useful work horses sold at £30 to £40, being fully 5 per cent. under last year's prices.

BANBURY FAIR.—The supply of beef and mutton was larger than usual. There were also some prime porkers, which fetched good prices. Much of the beef was of very inferior quality. The average prices were—Beef 4s. to 4s. 6d., mutton 4s. to 4s. 8d. per stone. The horse fair was not so well sup-

plied as usual, and the animals for sale were mostly of a very inferior description. Two ram sales took place in the sheep fair. Messrs. Lyne and Cother disposed of 26 from the celebrated flock of Mr. Bull, of Drayton, the average of which was nearly nine guineas. Mr. W. Bull, of Shipston-on-Stour, sold twelve for Mr. Herrieff, of North Newington, the average of which was 5½ guineas.

BARNSTABLE FAIR.—The supply of both bullocks and sheep was large—far exceeding that of any previous fair, but notwithstanding the large influx by the early train of agriculturists and dealers, very few changed hands until late in the day, and then at a decline of fully £1 a head on bullocks from the prices recently obtainable at the fairs in the neighbourhood; a fact accounted for by the want of grass in the upper districts, arising out of the long continuance of dry weather. Some heavy showers fell in the morning, which seemed to revive both the prices and spirit of the dealers. The horse fair was well supplied, and among the number were some first-rate animals. Fat bullocks sold for less than 10s. per score, the average being from 10s. to 10s. 6d. Of cows and calves

there were but few on offer, and on them there was little or no change from late values. Barreners from 6s. to 7s. per score. Yearlings from £5 to £7: two very fine ones were sold early at £7 or £8 10s. each; steers, from two and a half to three years old, from £10 to £13 each. There were few above three years old sold in the fair. £16 was asked for a fine North Devon cow, but she remained unsold. There were several bulls for sale; those with no breed in them were offered at from £13 to £14 each; the higher breeds from £20 to £25. There was a lot of French or Guernsey cows, which remained unsold at a late period of the fair. There were many rams scattered through the fair, of very diverse quantities. A lot of twenty passed under the hammer, by Mr. Manning, and made from two guineas to £6; superior animals from £6 to £8. Fat sheep were sold for a shade less than 6d. about 3s. a head lower than at Bratton fair. Horns from 20s. to 25s. each; Notts, from 26s. to 35s., according to quality. For the best in the fair, fat, from 40s. to 45s. was asked, and even higher, but it did not transpire that these prices were realized. The show of lambs merely nominal.

BEDALE FORTNIGHT FAIR.—We had a remarkably small supply of stock, in consequence of Masham Fair being held the same day. The great proportion of stock shown was fat, which sold readily at late prices. Beef, 6s. 6d. to 7s. per stone; mutton, 6d. to 6½d. per lb.

DRIFFIELD FAIR.—It is many years since we witnessed such a great number of sheep as on Tuesday last. There were a few grazing beasts, but scarcely any fat ones offered. Prices generally were lower than at last fair, and a great number were turned out unsold. Lambs averaged from 28s. to 32s., and ewes from 40s. to 46s. per head.

DUNDEE LATTER FAIR.—The market was well stocked with horses and cattle. A great many people, farmers, cattle-dealers, and others were on the ground, but few transactions took place, especially with regard to horses. Such a stiff, dull market has seldom been seen. The fat cattle sold brought about 10s. per stone; lean cattle sold at from £10 to £15. There were very few sheep; some ewes were sold at prices varying from 20s. to 65s. each.

DURHAM FAIR.—A pretty good show of beasts. All fresh animals fit for turnips were very readily sold at high prices. Half-fat brought about 6s. 6d. per stone, and those in better condition nearly 7s. per stone. Fresh geld cows were also in great demand. Lean stock did not meet with a ready sale, but still the prices asked were high. A number of lean Irish kyles were shown, for which about £6 per head was asked. There was a pretty numerous show of cows, but most of them were of inferior quality: between £15 and £16 per head were the prices asked for good animals. There was a large show of lambs, and the prices were not so high as at this fair last year by 2s. 6d. or 3s. per head. One lot of particularly good Cheviots, 115 in number, were sold at 11s. 3d. per head; another lot of about 300 was parcelled out and sold at 10s. 6d.; inferior lots were to be had at from 9s. to 10s. per head. One lot of 60 half-bred brought 13s., and a large lot brought 13s. 6d. In the horse fair there was a very small show of good animals; anything at all useful was sold at high prices.

AT GLASTONBURY TOR FAIR there was, as usual, a very large attendance and a good deal of stock. The best beef was mostly sold at about former prices; but inferior qualities, of which the supply was large, hung on hand even at lower prices than of late. There were not very many fat sheep, but a good many poor: some prime Downs, two-teeth, sold for 34s. and lambs 22s.—best Down ewes 30s. to 31s.: a good many changed hands, but the price was considered lower than at late fairs. This is the largest sucking-colt fair in the county, and they sold quite as high as last year; but in two-year-old colts and other horses there was a fall in prices. The railroad being open, there was a large attendance.

KELSO TUP MARKET.—There were from 1,700 to 1,800 sheep on the sale stance, principally composed of Leicesters, a few lots of Cheviots, and a sprinkling of South-downs, &c. The whole of this stock was in the hands of Messrs. Fairbairn, Embleton, Donkin, and Oliver. The buyers were very numerous from all parts of the country. Never was such an exhibition seen at Kelso, both in point of quality and numbers. There would have been even a larger number of buyers here to-day, but unfortunately Moffat, another important market, happened to fall on this day also; but with

all, from the anxiety in bidding, and the stock never having been seen in better condition, they sold well. The Edinburgh salesmen bought very extensively. There were also several extensive purchases, on the part of various individuals, for Ireland. There were also a few lots of sheep, which were sold by private bargain, composed of Leicesters, Cheviots, half-breds, and a small lot of Southdown shearing rams, which, we understand, supported the prices of last year. Bred sheep ran from 2l. to 25l. The following are a very few of the lots that were disposed of: Mr. Donkin sold Mr. Crisp's (of Hawkhill) lot, numbering 50, for 223l. 9s., the highest 10l., and the lowest 3 guineas (these were Leicesters). Mr. Dickison, Magdalen-hall, got for 60 of his Leicester rams the sum of 298l. 13s. 6d.—the highest being 15l. 10s., and the lowest 3l. 3s. Mr. Graham's (of Kelverton, Darlington) lot of 14 brought 39l. 19s. 6d. Mr. Thomson's (of Haymount) stock, amounting to 56, averaged 7l. 5s.; Mr. Lynn's (of Mindrum Mill) 35 ran from 6l. to 2l. 10s. Mr. Pinkerton's lot of 28 sold at 156l. 18s.—a portion of them averaging 3l. 13s. 5d., and the other part 4l. 16s. 6d. Mr. Thomson, Mindrum, got, upon an average, for a lot of 70, 4l. a-head.

LEWES SHEEP FAIR was one of the largest we have had for some years, from 35,000 to 40,000 sheep and lambs being penned. It was naturally expected that the shortness of feed would operate against the prices; and it is probable that, although there was a difference in prices from last year of from 6s. to 9s., this would have been even much greater had it not been for the recent rains. At the opening of the fair there was a very great disparity between the buyers and sellers, and it was not until after dinner that any great amount of business was transacted, and this was only then done at a depreciation of nearly 2s. from the prices which might have been obtained in many cases earlier in the day. Altogether the fair might be considered heavy, although a very great clearance was made before the evening. The prices may be quoted as follows:—For ewes 20s. to 40s., wethers 28s. to 33s., ewe lambs 14s. to 22s., wether lambs 14s. to 27s. Among the sales effected the following came under our notice: Ewes—Mr. Hart, Beddingham, 40s.; Messrs. Hampton, 39s., 46s., 50s. and 55s.; Mr. Emary, 40s.; Mr. Penfold, Wigenholt, 38s. 6d.; Mr. Hugh Penfold, Hunnington, 38s. 6d.; Mr. Hare, Findon, 32s.; Col. Paine, 30s.; Mr. John Saxby, 34s.; Mr. Tompsett, Hoddern, 29s.; the Earl of Chichester, 39s.; Mr. Tompsett, Deans, 27s. 6d.; Mr. Denman (culls), 33s.; Mr. John Kent, 34s.; Mr. Saxby, Westdean, 34s. to 27s.; Mr. Breton, Westham, 28s.; Mr. Barber, Falmer, 28s.; Mr. Filder, 27s.; Mr. Tompsett, Falmer, 27s.; Mr. Turner, Clayton, 27s. Wethers—Mr. R. Ellman, 38s. Ewe lambs—Mr. J. Saxby, 24s.; Mr. Denman (culls), 18s. Wether lambs—Mr. Gorringe, Kingston, 27s.; Mr. W. Tanner, 24s. There was an unusual quantity of rams in the fair. Among others which we noticed were those belonging to Mr. Hart (Beddingham), Messrs. Hampton, Mr. R. Ellman, Mr. T. Ellman, Mr. J. Saxby, Mr. Hayward (Folkington), Mr. Harris (Berkshire). The sale was remarkably dull. Messrs. Hampton, however, sold several ranging from £9 9s. to £21, and ram lambs from £3 10s. to £4, and others were equally fortunate at prices from £6 to £10. There were a few horses, and some lean stock, but none deserving of special notice.

LINCOLN FAT STOCK MARKET.—There was a very short supply of both beasts and sheep; consequently, with a scarcity of buyers, the business was very dull. Beef realized 7s. to 7s. 6d. per stone, and mutton 6½d. to 7d. per lb.

At MIDDLESMOOR FAIR for the sale of half-breds, or what are usually called Masham lambs, bullocks, and other kinds of stock, the show far exceeded those of previous years, nearly 4,000 lambs, and some sheep being shown. The lamb buyers being scarce caused only about 500 to exchange hands at remunerating prices, but about 3s. per head lower than last year. The show of steers was great, and being of first-rate quality, nearly all were sold at good prices, ranging from 8l. to 9l. each. The attention of dealers, graziers, and others ought to be called to this fair, as the locality is famed for the breeding of those kinds of stock; and the farmers in the neighbourhood are very anxious to promote it by all means in their power.

MOFFAT TUP FAIR.—There was a large show of tups, the numbers exceeding those of last year, especially in Leicesters, which were more than double in number. There were

of Cheviot rams of all ages 920, Leicester 198, black-faced 34—in all 1,152 head. In consequence of these large numbers, intending buyers were offering lower prices, and for some time sales proceeded slowly; a sale of stock in the forenoon, by auction, in a meadow adjoining, also drew off a large number of those present, and was found to be rather inconvenient. After this sale was concluded, sales for good stock proceeded more briskly, though for secondary descriptions the demand was not active at any time during the day, and a considerable number of this class were left unsold. For a fine three-year-old Cheviot ram, from Twiglees, £25 was offered and refused; a two-year-old, from the same farm, made £10 10s.; and a number of others from £9 down to £3 10s. Mr. Moffatt, Garrel, sold two three-year-olds for £35 the pair. Mr. McCall, Burrance, sold two year-olds at £18 the pair; a lot of four made £7 7s. each. Good rams rated from £4 to £10, secondary from £2 to £3 10s. The show of Leicesters was large, for which there was a good demand, but from the large supply, all did not find purchasers. The best were bringing from £4 to £4 10s., though in some instances the latter figure may have been exceeded; ordinary were selling from £2 10s. to £3 10s. A lot of eighteen Cheviot tup lambs were disposed of at 30s. each, prices generally from that sum down to 15s. The show of black-faced tups was limited, but those shown were good specimens of this hardy breed. Prices may be quoted from £2 to £3. In the afternoon a good deal of business was done in the sale of draft ewes, to be delivered in October. The highest price reported was for Moodlaw, which brought about 24s. each. Mr. Kennedy, Greskine, bought one lot at 21s. 6d., and the draft ewes from two farms both at 21s. Mr. Edgar bought a lot at 19s., and another at 17s. 6d. Various sales were made from the latter figure up to 21s. A good number of sales were effected before the fair, the prices given being from 2s. 6d. to 4s. below those obtained by the same parties last year. A few lots of lambs and two or three scores of small Highland cattle were offered for sale, but among the latter little business was done. A lot of Cheviot ewe lambs were sold for 7s.; a lot of seventy-two small lambs were offered for 5s. 6d., but had not found a purchaser up to the afternoon. There was several lots of good Galloway cattle. Mr. Johnstone, Archbank, sold a prime lot of sixteen three-year-olds at £12 5s., and six two-year-old queys at £10 10s. Mr. Johnstone, Alstone, refused £18 for a lot of nine three-year-olds, very fine animals, fit for the butcher.

MORETON-IN-THE-MARSH FAIR.—The supply of cattle was good, and the number of sheep penned about 1,300. Mutton and beef averaged from 6d. to 7d. per lb. Trade was good, the attendance of farmers and dealers being numerous.

OSWESTRY FAIR was supplied with a full amount of stock, which met with a ready sale, fattened animals being in much request. Store pigs were in much demand. Beef and mutton maintained much the same prices as last fair. In the butter and cheese mart there was a very good supply, which was bought up very rapidly, butter making 10½d. to 11d.; cheese (skims) 25s. to 35s.; middle, 40s. to 55s.; best dairies, 60s. to 65s. per cwt.

SHREWSBURY FAIR.—There was a large show of stock of all kinds, and plenty of buyers at good prices. Beef ruled from 6d. to 6½d., and a few prime lots made fully 6½d.; fat calves, 6d. to 6½d.; wether mutton, 6d. to 6½d.; lambs, 6½d. Store cattle and good cows and calves sold well. Fat pigs from 5½d. to 6d.; stores unaltered.

TADCASTER FORTNIGHT MARKET.—We had an average supply of stock. Beef, 6s. 9d. to 7s. 6d. per stone; mutton, 6d. to 7d.; lamb, 7d. per lb.

WREXHAM FAIR was well attended. The show of cattle in the morning was good, and many changed hands at good prices. A large number of fat and other pigs were exposed for sale; the former realized from 5½d. to 5½d. per lb.; good strong stores from 30s. to 40s.; small, from 10s. to 12s. Sheep, of which there was a large number, nearly all sold off at good prices. The horse fair was well attended, and the show better than usual; good useful cart horses were in great demand, and fetched high prices. A large quantity of honey was exposed; the price ranged from 2s. 6d. to 3s. 6d. per quart, and in some instances 4s. was obtained.

YORK FORTNIGHT MARKET.—We had a fair supply of fat beasts, which met with tolerable demand at from 6s. 6d. to 7s.; very prime heifer beef, 7s. 3d. per stone. A moderate number of lean beasts, of middling quality, had slow de-

mand at downward rates. Some Scotch and Welsh were in demand; but Irish were refused, owing to the high prices asked. A fair show of calving cows sold at high rates. A moderate quantity of mutton sheep had very heavy demand, at from 5d. to 6½d. per lb.; grazing sheep were in fair supply, with slow sale, at downward prices. Topping ewes were in good supply, but they had dull sale at lowering rates. Lambs were plentiful, but little business done, and figures tending downwards.

IRISH FAIRS.—BANAGHER: The entire number of sheep was nearly 14,000, out of which there were sold about 5,000, leaving upwards of 8,500 unsold. These numbers correspond closely with last year. For some few years the Marquis of Clanricarde has obtained the top price of the fair. His herd last year, having sold the largest lot of ewes, got a prize of £2; and his lordship has not only had the same good fortune this, but exceeded by 3s. the price of last or any former year. The noble marquis was in the fair, and appeared in excellent health and spirits. The following is the list of the prices for several lots sold:—Marquis of Clanricarde, top lot, 50s. 6d. wethers; 46s. and 42s. for others, and 38s. for ewes. Captain Bernard 45s. 6d. and 43s. for wethers, and 38s. for ewes. James F. Armstrong, Esq., 38s. for wethers; Wm. B. Armstrong, Esq., 42s. for do.; Thomas Hackett, Esq., 42s. for do.; Thomas Seymour, Esq., 45s. for do., and 43s. 6d. for a prime lot of well-bred ewes; Joseph H. Cowan, Esq. sold 450 ewes at 30s.; Henry Flanagan, Esq., refused 47s. for a top lot of wethers; Mr. John Kenny sold 250 ewes at 35s. 6d., and 150 at 33s., and 100 hoggets at 30s.; Mr. Henry Kenny, of Lismore Castle, 200 ewes, 35s. 6d. There was a large show of tups, and Thomas Manifold, Esq., of Heath Lodge, sold four at £10 each. This day was devoted for the exhibition and sale of horses. There was a very short supply of anything like first-class animals, and few buyers for any description except for military purposes, the number of which fell short of the demand. Few at high figures appeared for sale, and many more disposed of at prices varying from £40 to £90; colts and fillies of height and shape were in good demand for the army. The principal purchasers were Messrs. Dawson, McGrane, and Farrell, of Dublin; Mr. Hartigan, of Limerick; and Mr. Glass, for Mr. Potter, of Leicestershire. Mr. Hackett, of Moorpark, Parsonstown, sold a four-year-old colt for £70 guineas, and another for 55 guineas. Hunters were much sought for; but there were but few buyers who would not give the high prices asked. Mr. George Smith, of Gurteen, refused £120 for a four-year-old by Warlike. For horses suited for farm purposes there were not many inquiries, and but few changed owners. The supply of top cattle was much under last year, and every well-fed beast was cleared off at an early hour, and at prices more than was ever supposed or expected. The following is a list of the prices obtained for some lots up to three o'clock this afternoon:—Captain Bernard, top lot three-year-old bullocks, £15; ditto, for heifers, £14 5s.; George Atkinson, Esq., top lot of heifers, £15 15s.; ditto, second lot, £12 13s. 9d.; W. B. Armstrong, Esq., top lot of heifers, £12 10s.; ditto, second lot, £10 7s. 6d.; Thomas Hackett, Esq., Moorpark, Parsonstown, top lot of heifers, £12; Walter McDonagh, ditto, £12; Mr. John Fallon, top lot of heifers, £11 10s.; Mr. John Kenny, ditto, £13 10s.; Thomas Manifold, Esq., ditto, £13 10s.; Thomas Seymour, Esq., top lot of two-year-old heifers, £9 5s.; Mr. John Clarke, two-year-old bullocks, £11 10s. The fair for every description of black cattle was "a sweeping one," and, as might be expected, has tended to cheer up the breeders and graziers. Milch cows were not numerous, and prices ranged from £7 10s. to £12 12s. Yearling heifers ran from £4 to £6; ditto, bullocks, from £5 to £4 10s.; calves, from 30s. to 50s. DUNDALK was better supplied than usual with stock of all kinds. The demand was good; but prices, generally speaking, were high. In the black cattle fair several fine lots of stores were exhibited, as also some springers of a superior class, yearlings, and weaning calves, all of which sold at most remunerative prices to the breeder. Beef was scarce, and may be quoted at 6d. per lb., sinking offal. The sheep fair was tolerably well supplied with hoggets, store lambs, and mutton, which brought on the average the following prices:—Hoggets, 30s. to 36s. each; lambs, 18s. to 24s.; and mutton, 6½d. per lb. The demand was excellent in this department (particularly for lambs), nearly everything exchanging hands. There was a

small supply of horses, principally of an inferior class; a few long tails were shown, but little or no demand being for them, they remained unsold. Store pigs and bonhams were in good request at late prices. CALVERSTOWN (COUNTY KILDARE) was tolerably well attended by both buyers and sellers of stock in general. Horned cattle sold at the following prices:—Good springers, £11 to £14; stores, £8 to £12; yearling calves, £4 to £6; weanlings, £2 to £3. There were very few fat beasts, and consequently a small business done at, on the average, 60s. per cwt. Sheep were rather plenty, but the description was inferior. Store lambs were worth about £1 each on the average, and “mountain” mutton a fraction under 6d. per lb. Hoggets and wethers were scarce, and not much inquired after. The show of horses was extremely limited, but still

numbered a few that displayed breeding. The prices given ranged so very widely that it is needless to give a quotation; suffice it to say, that some fetched as high as £70, while others went off as low as £20. CAHER: The attendance of sellers and purchasers was not so large as usual, still the demand for beef and mutton was brisk. Fat cows fetched from £9 to £13; milch cows, £8 to £12; two-year-olds, £5 to £7; yearlings, £3 to £5; sheep, 30s. to 40s.; lambs, 15s. to 22s. The supply of horses was small and equal to the demand.—*Tipperary Free Press*. RATHKEALE: There was a good supply of stock, but business was dull, owing to the high prices asked for fat cattle. Beef was up to £3 per cwt., but the demand for sheep was limited, and for top lots from 38s. to 39s. each was the average. Pigs, 57s. to 58s. per cwt.

REVIEW OF THE CORN TRADE DURING THE MONTH OF SEPTEMBER.

Though the harvest was, in consequence of the cold and backward spring, and the want of genial heat in the early part of the summer, commenced at least a fortnight later than in ordinary seasons, the extraordinarily fine weather experienced during August and September has more than compensated for the drawbacks which preceded, and the crops have been brought to perfection and secured in a highly satisfactory manner. With the exception of small quantities of corn which may still remain abroad in Scotland and the North of Ireland, harvest is now concluded, and that which remains in the fields is not of sufficient importance to make any material difference in the general result; we may, therefore, congratulate our friends and the public on the termination of as plentiful a harvest as has been gathered in these islands for some years past.

A small portion of the wheat carried early in August was secured too hurriedly; but with this exception, nearly the whole has been got together in excellent condition. The blight so much talked of in July, appears to have done comparatively little harm; and the only defect which we have been able to discover in the quality, is that caused by the lodgment of some of the heavy pieces before they had arrived at maturity. Where this was the case, the berry is somewhat meagre and shrivelled; but, as a whole, there is very little fault to be found with the quality of the new wheat. As regards quantity, the reports are almost without exception favourable: in many cases the produce is very large; and making allowance for the large breadth cultivated, we have no hesitation in stating that the yield will be found to exceed that of good average years by one-fifth. It must, however, be borne in mind, that in consequence of the extreme deficiency of the harvest of 1853, there are no stocks of old wheat of home-growth remaining, and the excess of new will therefore hardly suffice to

place the country in a much better position as regards stocks than she held at this period last year. The general estimate is, that farmers ought at harvest time to have sufficient old wheat on hand to provide for the consumption of the kingdom for two or three months; whereas it is an admitted fact that not only the farmers, but the millers and dealers as well, are literally cleared out. An excess in the produce of a fifth, or even a fourth, does not, therefore, insure us against the probability of requiring considerable importations from abroad during the next twelve months.

This view of the matter has begun to exercise its influence on prices, and the panic under which the trade laboured for a few weeks when the first supplies of new began to make their appearance, only lasted a week or two. Since then, a smart reaction has taken place; and since our last monthly notice, rather an important rally has occurred in prices of wheat at all the principal markets.

Attention has been so exclusively directed to wheat, that it has become a matter of considerable difficulty to obtain accurate information in respect to the result of the crops of other articles.

Barley has thus far been much less extensively thrashed than usual, which may be attributed in some measure to the very high range of temperature; this has caused the demand for malting qualities to set in later than usual, and farmers have therefore been unwilling to supply the markets freely. We are inclined to think that the original impression formed by the appearance of the crop on the ground before cutting was commenced, viz., that the yield would be large, will prove correct. The quality is not particularly fine, many of the samples which have come under our observation having proved coarse; but there will, we have no doubt, be a fair proportion of good malting quality; and as regards quantity, there is reason to believe that the yield to the acre exceeds that of good

average years. The opening price for average runs of malting barley was about 30s. per qr., and thus far it has remained steady, at that figure. When supplies increase—which they may be expected to do next month—prices will probably be somewhat lower; but the idea of a very great decline is much less generally entertained than it was a month ago.

Oats are allowed to be a good crop; but as to quantity and quality, they have been harvested so dry as to be fit for use with a smaller mixture of old corn than usual. The deliveries from the growers have not been large, though a fair portion has been thrashed out; but farmers having no old oats left, have required the greater part of what they have thrashed for their own use.

Beans, though short in quantity, prove of fine quality. The demand for this article has scarcely commenced as yet, still prices have rather tended upwards in most parts of the kingdom.

Peas have given a very good return, but the complete exhaustion of old stocks has caused prices to rule high, more especially for fine boilers, it being the prevailing impression that these will be extensively used during the winter as a substitute for potatoes, which may then probably have become scarce, owing to the manner in which they have thus far been forced on the markets.

On the whole, we are disposed to think that the extent of the potato disease has been somewhat exaggerated; the quality is certainly better than of late years, and we hear fewer complaints of decay in the pits. The reports from Ireland with regard to the potato crop are very conflicting, and are of a nature to defy anything like a definite conclusion being arrived at: this is, however, certain, that the accounts have become much less alarming within the last month, which induces us to hope that the long interval of dry warm weather had a beneficial effect in checking the ravages of the disease.

In regard to the future, we are happy to be enabled to say that we consider the prospect for the British farmer to be more promising than it has been for years. We have been blessed with extraordinarily fine weather, and the fruits of the earth have given an ample return. The harvest just concluded is (taking one article with the other) more satisfactory than any gathered for some years past, and the probabilities are that the range of prices, without being so high as seriously to inconvenience the consumer, will be sufficiently high to remunerate the producer—a state of things which cannot prove otherwise than advantageous to the community at large.

That our farmers will have to compete with the foreign grower, there can be no doubt; but the competition will not be of the same ruinous cha-

racter as was the case during the first years of free trade. The stocks abroad have—the same as has been the case here—been used up very closely, and farmers in many of the continental corn-growing countries having become rich by the exports to England, will not be very willing sellers at low prices. Merchants and millers are out of stock in almost all parts of the world, and the future course of the trade is more in the hands of the producers than in ordinary years.

We stated in our last that we expected the average price of wheat would for some months probably rule between 50s. and 60s. per qr.: since then, we have been below and above this range; but we still think that when matters become a little more steady, that will be about the point.

The weather is now, and has for some time been, highly propitious for preparing the land for autumn-sowing, of which farmers have taken advantage, and they have been too busily engaged in the fields to allow much time for thrashing. When the sowing of wheat and other out-door occupations shall have been completed, we shall, in all probability, have increased deliveries, and though prices may in the interval go higher, we think they will afterwards return to the present level, or, perhaps, somewhat lower. A fine seed-time is a great point gained, and we are by no means certain that we are not in some measure indebted to the propitious character of the autumn of 1853 (which enabled a large breadth of land to be sown in a highly satisfactory manner) for the bountiful harvest just secured. The seed having been well got in, and the plant fully established, the cold spring did comparatively little harm; and though the weather in May and June was far from promising, the plant never went back materially in appearance. The present seed-time promises to be equally favourable with that of last year; the land works like a garden, and a considerable breadth has already been sown.

The importations into the United Kingdom have lately been small, and the probabilities are that no large arrivals will take place till next spring. In Prussia, Poland, Holland, and Belgium, there are no old stocks worth naming, and farmers do not usually bring forward large supplies of new till after sowing is completed. In France, wheat and flour are so scarce that purchases are being made weekly in the English markets on French account, and in the United States of America prices of breadstuffs have, in consequence of reduced stocks and the unfavourable result of the Indian corn harvest, risen considerably above the rates current in the British markets.

The importations into the United Kingdom during the month ending 5th inst. were as follow:—

Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.	Maize.	Flour.
qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	cwts.
198,057	96,759	125,069	441	34,490	5,079	62947	228,213

against

Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.	Maize.	Flour.
qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	cwts.
281,950	101,679	110,017	—	29,181	6255	106,677	250,103

received in the corresponding month.

Shipments from the Baltic have now nearly ceased, and there is, we believe, very little corn on passage, either from ports east of Gibraltar or from the other side of the Atlantic. The tone of the trade at Mark Lane having in a great measure regulated the other markets, a retrospect of what has taken place there during the month will suffice to give a tolerably clear idea of the fluctuations elsewhere. Up to the close of the last and during the first week in the present month, prices of wheat continued to recede, and buyers looking for a further reduction could not make up their minds to purchase. Scarcely any old wheat of home-growth has come forward, and the supplies of new have for some weeks past fallen off. There was already a decided decrease in quantity the first Monday in the month; but as the millers refused to buy except at reduced terms, they succeeded in depressing the market—the sales made being at prices 6s. per qr. below those current on that day se'nnight. This was the lowest day, good red Kent wheat weighing 63 lbs. per bush. having on that occasion been sold at 49s. to 50s. and fine white at 55s. to 56s. per qr. On the following Monday there was so great a falling off in the show on the Essex, Kent, and Suffolk stands, that buyers experienced considerable difficulty in securing sufficient to provide for immediate wants. Besides the local demand, there were buyers from other quarters and some demand for shipment to France; factors consequently raised their pretensions, and a clearance was made at an advance of fully 4s. per qr. on the terms accepted the week before. Since then the upward movement has continued, and the millers are so distressed for wheat as to be almost at the mercy of sellers: the rise from the 11th to the 18th inst. amounted to at least 4s., and on Monday last the improvement named was well supported. Good runs of Essex and Kent red wheat are now worth 60s., picked samples 1s. to 2s. per qr. more: white 65s. to 66s. per qr., the average weight of the same ranging from 62½ to 63½ lbs. per bush. In addition to what has been taken by the millers, we have lately had rather an active inquiry for seed-wheat for the continent, and a considerable portion of last Monday's supply was taken for shipment, which certainly assisted to support prices; and we are inclined to think that, if this had not been the case, some slight reaction might have taken place, as local purchasers conduct

their operations with greater caution than earlier in the month. The arrivals of wheat from abroad have been very small—the total quantity reported during the three weeks ending 23rd instant having fallen considerably short of 10,000 qrs. In the beginning of the month some forced sales were made at very low prices: the best day for buying was on the 4th inst., when very good qualities of Lower Baltic red wheat were sold at 68s. per qr., and other sorts at corresponding rates. The rise since then has been quite as great as on English; and fine Rostock has lately commanded 68s., whilst for choice Danzig 72s. was, we believe, paid on Monday last. The very dry condition in which the greater part of the English wheat has come to market led millers in the first instance to believe that it would make good flour with a comparatively small mixture of old; but it was soon discovered that this would not answer, and latterly about the usual proportions have been used; there has consequently been an improved demand for foreign, and the granaried stocks have been largely drawn upon. Besides what has been taken by our local millers, there has been a good country demand, and some quantity has also been bought for shipment to France and Belgium; indeed, the exports have for several weeks past exceeded the imports. The business in floating cargoes has been principally confined to Egyptian, for which 38s. up to 40s. per qr., cost, freight, and insurance, has been paid.

The top price of flour, which was 55s. per sack at the close of last month, was, in consequence of some misunderstanding among the millers, reduced to 50s. on the 11th inst. though wheat rose 5s. per qr. on that day. It did not, however, remain long at that figure, and is now the same as it was when we last addressed our readers. This certainly appears a somewhat anomalous position of affairs—the raw material being about 10s. per qr. dearer than it was at that period. Household flour has not fluctuated so much, never having been below 45s., and being now worth about 50s. per sack. Norfolk household was at one time sold at 40s. per sack, but the demand at that price was greater than the supply: by the 18th the price had risen to 44s., and now there are few sellers willing to take below 45s. per sack for good marks.

The scarcity of water, in consequence of the long-continued drought, has brought many of the water-mills to a stand, and the receipts of flour coastwise and by rail have been less liberal than they would otherwise (in all probability) have been. Considerable purchases of American and Spanish flour have been made for shipment to the continent, where the want of water has caused a great scarcity of the article. Good barrels have risen 3s. to 4s., and for Spanish flour as much as 50s. per sack has

been paid for export. The arrivals from America have been quite trifling, and the stocks in warehouse, which at one time were very heavy, are now insignificant, and of what remains only a small proportion is perfectly fresh and sound.

During the early part of the month the average range of temperature was much higher than is usually the case in September, which prevented the maltsters commencing work, and though the supplies of new barley were small, no improvement took place in prices: the nominal value of good runs of malting barley remained stationary at about 30s. per qr. Within the last eight days the weather has become much colder, and the demand has therefore improved, the effect of which has been a rise of 1s. to 2s. per qr. in the price of the finer descriptions of barley—the best runs bringing 31s. to 32s. per qr. on Monday last. The advance which has taken place in the value of most articles used for feeding has had some influence on that of grinding barley. Danish and similar sorts are at present worth 1s. per qr. more than they were in the commencement of the month, and Egyptian, which was then offering at very low rates, has risen 1s. to 2s. per qr.

Quotations of malt have undergone little or no change, but the inquiry for the article has within the last week or two improved, and prices were paid on Monday which it would have been very difficult to obtain earlier in the month.

The deliveries of new oats from the farmers have, as we have already remarked in the foregoing part of the present article, scarcely sufficed for the local wants of buyers in the agricultural districts; and the supplies of this grain into London have been exceedingly small. Thus far, the receipts from Ireland have also been trifling; and the arrivals from abroad have, since the bulk of the Archangel oats came to hand in the commencement of the month, been very moderate. About 80,000 qrs. arrived from Archangel in the course of about three weeks: this was a larger quantity than had been calculated on; indeed the general impression earlier in the season was, that the White Sea would have been effectually blockaded, and that no shipments would be made from any part of Russia. Under this belief, merchants, seeing the probability of the stocks in this country running very short, paid high prices for oats wherever they were to be obtained; and we fear that the losses on some of these purchases will be heavy. The downward movement in prices which had commenced previous to our last monthly notice continued up to the 4th inst., when good Archangel oats were sold at 21s. per qr. From this point rather a sharp reaction has taken place, and similar qualities are now worth 24s. 6d. to 25s. per qr. Other sorts, which were not so much depressed as

Russian, have advanced from the lowest point about 2s. 6d. per qr., heavy Danish and Swedish feed being now worth 27s., Dutch brews about the same price, and other descriptions in proportion.

The market has been very nearly cleared of old corn; and so long as the supplies of new of home growth do not increase, present rates must, we think, be supported.

The value of beans has been influenced by the rise in oats, and quotations are 2s. to 3s. per qr. higher than they were at the close of last month. The new beans which have come to hand have proved of very good quality, and have arrived in excellent condition; ticks have brought 40s. to 44s., and harrow 42s. to 46s. per qr. Egyptian beans, which were at one time forced off at 30s. to 31s., are now bringing 33s. to 34s.—indeed some holders refuse to take below 35s. per qr. ex granary. For floating cargoes to arrive 31s. to 32s. per qr., cost, freight, and insurance, is asked.

Though the crop of peas is admitted to have given a very good yield, the supplies have thus far been trifling. Prices have not varied materially since our last; during the first two or three weeks hardly any change took place: since then the tendency has been rather upwards.

In Indian corn on the spot very little change has taken place, but a large business has been done in floating cargoes: for Galatz 40s., and for Egyptian 31s. per qr., cost, freight, and insurance, has lately been paid.

According to the most recent advices from the northern countries of Europe, it would appear that the harvest there had not given so satisfactory a result as had been anticipated; but we are inclined to look upon these reports with some doubt. That partial injury may have been done in some localities by storms and floods is probable enough; but as a whole we are inclined to think that the produce will hereafter be found quite equal to that of average years, in most of the countries bordered by the Baltic. The recent rise here, the fact that old corn has been everywhere reduced into a narrow compass, and the moderate character of the supplies of new, owing to farmers having been busily engaged in the fields, have combined to cause holders at all the principal continental markets to raise their pretensions, and at present it would not pay to import either from the Baltic, from Holland, Belgium, or France. From the two countries last named, there is not much prospect of receiving supplies at any period during the next twelve months; but from Germany we shall, no doubt, after a time, obtain a fair quantity of wheat, barley, and oats. The future course of business with the Black Sea will depend on the turn the war may take, but according to present appearances there is not much chance of

peace being restored; hence we must not reckon on any arrivals of consequence from that quarter.

In the Italian States the wheat and Indian corn crops have hardly given so good a return as was, when harvest was commenced, believed would have proved the case, and the prohibition of exports from thence remained in force at the date of our latest advices.

From the United States the reports are of much the same character this as last month. The wheat crops appear to have been well harvested; and though in some parts injury had been done by the fly, the total yield would, it was estimated, be fully equal to that of good average seasons. In regard to Indian corn the accounts are not nearly so favourable; a long period of hot dry weather had, it was feared, done irreparable injury to this crop, and this would, it was feared, tell severely later in the year. Stocks of all kinds of breadstuffs were lighter at harvest time in America than they have been for years, and, at several of the large consuming towns, fears were at one time entertained that the supplies might not prove sufficient for the consumption. Anxiety on this head had, however, subsequently subsided, and by the most recent advices (12th inst.), from New York we learn that prices after having been very high had begun to recede. Quotations were, however, still considerably above those current in our markets, and there was consequently little or nothing being shipped to Great Britain.

It will be observed that the general tenor of the foreign advices is calculated to confirm what we have already stated, namely, that for some time to come the English farmers are likely to have command of the markets; indeed, we are inclined to think that they will not have any foreign supplies of importance to compete with, until the spring of next year.

CURRENCY PER IMPERIAL MEASURE.

	Shillings per Quarter	
WHEAT, Essex and Kent, white.. old	60 to 62	extra 65 70
Ditto new	57 61	„ 63 65
Ditto red, old	56 61	„ 62 63
Ditto new	52 58	„ 59 60
Norfolk, Lincoln. & Yorksh., red..	52 54	„ 58
BARLEY, malt, new.. 30 31	Chevalier..	32 33
Distilling ..	Grinding..	—
MALT, Essex, Norfolk, and Suffolk, new	64 65	extra 67
Ditto ditto old	62 63	„ 66
Kingston, Ware, and town made, new	68 69	„ 70
Ditto ditto old	66 68	„ 69
RYE	—	38 40
OATS, English feed .. 23 27	Potato..	26 29
Scotch feed, new 28 29, old 30 31 ..	Potato 31	33
Irish feed, white	25 26	fine 28
Ditto, black	18 24	fine 26
BEANS, Mazagan	41 43	45 49
Ticks	43 45	„ 47 51
Harrow	45 47	„ 49 53
Pigeon	45 51	„ 53 59
PEAS, white boilers 42 47.. Maple 38 40	Grey 35	37
FLOUR, town made, per sack of 280 lbs. —	—	50 55
Households, Town 48s. 49s. Country	—	„ 44 48
Norfolk and Suffolk, ex-ship	—	„ 43 45

FOREIGN GRAIN.

		Shillings per Quarter	
WHEAT, Dantzic, mixed..	64 to 66	high mixed —	68 extra 72
Konigsberg	60 66	” —	66 ” 68
Rostock, new	64 65	fine	66 ” 68
American, white	62 66	red	61 64
Pomera, Meckbg., and Uckermk., red	60 64	extra ..	66
Silesian	” 56	62 white 64	66
Danish and Holstein	” 54	62 ”	none
Rhine and Belgium	” —	old —	—
Odessa, St. Petersburg and Riga..	46 50	fine —	56
BARLEY, grinding 21 27	Distilling.. 27 28		
OATS, Dutch, brew, and Polands 26s., 28s. ..	Feed .. 22 24		
Danish & Swedish feed 26s. to 27s.	Stralsund 27 28		
Russian	23 28	French..	none
BEANS, Friesland and Holstein	38 42		
Konigsberg ..	40 44	Egyptian ..	32 33
PEAS, feeding	40 42	fine boilers	43 44
INDIAN CORN, white	35 38	yellow	35 38
FLOUR, French, per sack (none) —	— none —		
American. sour per barrel	28 30	sweet	31 35

IMPERIAL AVERAGES.

FOR THE LAST SIX WEEKS.

WEEK ENDING:	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Aug. 12, 1854..	62 3	34 8	28 11	40 11	45 0	43 6
Aug. 19, 1854..	64 0	34 6	27 9	43 1	49 10	44 8
Aug. 26, 1854..	63 7	32 5	28 7	40 5	47 4	43 8
Sept. 2, 1854..	62 3	32 5	27 8	38 4	48 2	37 7
Sept. 9, 1854..	59 4	30 9	27 6	36 9	46 0	36 0
Sept. 16, 1854..	52 5	29 2	25 11	36 11	45 10	36 10
Aggregate average of last six weeks	60 8	32 4	27 9	39 5	47 0	39 9
Comparative average, same time last year	52 5	30 11	21 8	34 1	41 3	37 1
DUTIES	1 0	1 0	1 0	1 0	1 0	1 0

COMPARATIVE PRICES AND QUANTITIES OF CORN.

Averages from last Friday's Gazette.			Averages from the corresponding Gazette in 1853.		
	Qrs.	s. d.		Qrs.	s. d.
Wheat....	70,127 ..	52 5	Wheat....	93,539 ..	56 7
Barley....	3,928 ..	29 2	Barley....	3,706 ..	34 9
Oats	7,438 ..	25 11	Oats	11,086 ..	20 6
Rye	637 ..	36 11	Rye	512 ..	35 7
Beans....	643 ..	45 10	Beans	1,448 ..	41 9
Peas	676 ..	36 10	Peas	490 ..	39 8

DIAGRAM SHOWING THE FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT DURING THE SIX WEEKS ENDING SEPT. 16, 1854.

PRICE.	Aug. 12.	Aug. 19.	Aug. 26.	Sept. 2.	Sept. 9.	Sept. 16.
64s. (d.
63s. 7d.
62s. 3d.
59s. 4d.
52s. 5d.

PRICES OF SEEDS.

BRITISH SEEDS.

Linseed (per qr.).. sowing —s. to 64s.; crushing 56s. to 60s.	
Linseed Cakes (per ton).....	£10 0s. to £11 10s.
Rapeseed (per qr.).....	new 56s. to 60s.
Ditto Cake (per ton).....	£6 15s. to £7 5s.
Cloverseed (per cwt.).....	(nominal) 00s. to 00s.
Mustard (per bush.) white 8s. to 9s., ..	brown old 10s. to 13s.
Coriander (per cwt.).....	new —s. to —s., old 18s. to 20s.
Canary (per qr.)	42s. to 48s.
Carraway (per cwt.).....	new —s. to —s., old 44s. to 48s.
Turnip, white (per bush.) —s. to —s., ..	Swede 00s. to 00s.
Trefoil (per cwt.)	new 16s. to 20s.
Cow Grass (per cwt.)	00s. to 00s.

FOREIGN SEEDS, &c.

Linseed (per qr.)... Baltic, 50s. to 60s.; Odessa, 60s. to 65s.	
Linseed Cake (per ton).....	£10 0s. to £11 10s.
Rape Cake (per ton).....	£4 15s. to £5 5s.
Hempseed, small, (per qr.).. —s.,	Ditto Dutch, 44s.

HOP MARKET.

BOROUGH, MONDAY, SEPT. 25.

About 1,000 pockets of the new growth have arrived at market, and, considering the vicissitudes the crop has had to encounter, the colour and quality are much better than was anticipated. Prices can scarcely yet be quoted as settled, but sales have been made at the annexed rates, viz., choice East and Mid-Kents and Farnhams, from 20l. to 26l. 5s.; Weald of Kents, from 18l. to 21l.; Sussex pockets, from 18l. to 20l. The crop comes down in most instances much short of expectation, and the duty is now generally estimated at 50,000l. Yearlings and Hops of older dates continue in good demand at firm rates. HART & WILSON.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.

MONDAY, SEPT. 25.

Since Monday last large quantities of home-grown potatoes have come to hand. The imports have been trifling, viz., 1 ton from Charente and 24 sacks from Dublin. A full average business is doing, on the following terms:—Regents, 80s. to 90s.; middlings, 45s. to 50s.; Shaws, 60s. to 70s. per ton.

ENGLISH BUTTER MARKET.

September 25.

We are looking dearer for most kinds of English butter, as supply is beginning to fall off.

<i>Dorset, fine weekly</i>	106s. to 110s. per cwt.
<i>Do., middling</i>	94s. to 98s. „
<i>Devon</i>	98s. to 100s. „
<i>Fresh, per dozen lbs.</i>	11s. to 13s. per dozen.

BELFAST, (Friday last).—Butter: Shipping price, 90s. to 95s. per cwt.; firkins and crocks, 9½d. to 10d. per lb. Bacon, 54s. to 60s.; Hams, prime 63s. to 74s., second quality, 60s. to 64s. per cwt.; mess Pork, 90s. to 95s. per brl.; beef, 105s. to 112s. 6d.; Irish Lard, in bladders, 66s. to 70s.; kegs or firkins, 62s. to 64s. per cwt.

Sept.	Butter.	Bacon.	Dried Hams.	Mess Pork.
	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.
22.	64 0 70 0	37 0 42 0	65 0 70 0	60 0 62 6
1850.	65 0 73 0	45 0 47 0	62 0 68 0	64 0 66 0
1851.	72 0 78 0	50 0 56 0	66 0 70 0	85 0 90 0
1852.	94 0 99 0	58 0 60 0	74 0 78 0	85 0 87 0
1854.	90 0 95 0	54 0 60 0	68 0 74 0	90 0 95 6

PRICES OF BUTTER, CHEESE, HAMS, &c.

Butter, per cwt.	s. s. d.	Cheese, per cwt.	s. s. d.
<i>Friesland</i>	104 to 106	<i>Cheddar, new</i>	68 to 80
<i>Kiel</i>	94 93	<i>Cheshire</i>	68 80
<i>Dorset</i>	106 108	<i>Double Gloucester</i>	60 70
<i>Carlton</i>	98 100	<i>Single do.</i>	80 70
<i>Waterford</i>	98 100	<i>Hams, York, new</i>	76 84
<i>Cork, new</i>	84 94	<i>Westmoreland</i>	72 82
<i>Limerick</i>	—	<i>Irish</i>	66 70
<i>Sligo</i>	—	<i>Bacon</i>	72 74
<i>Fresh, per doz.</i> 13s. 0d. 14s. 0d.		<i>Waterford</i>	—

CREW CHEESE FAIR.—Not less than 120 tons of cheese was brought into the new cheese-hall at an early hour in the morning. The greater portion was of good quality, but met with rather a dull market. Some dairies of a superior quality sold at 70s. per cwt., which we believe was the highest price realized. Two or three dairies, of very superior quality, were taken home again, as the prices offered did not meet the wishes of the owner.

GLASGOW, (Wednesday last).—There was a smaller supply of cheese. All sold at a slight advance on former prices. Best old, 60s. to 62s. per cwt.; new cheese, 43s. to 47s. per cwt.; skim milk cheese, 24s. per cwt.

WOOL MARKETS.

ENGLISH WOOL MARKET.

LONDON, MONDAY, SEPT. 25.

There has been a fair enquiry for most kinds of English Wools since Monday last; but the increased quantities on offer have had the effect of checking any further upward movement in price. Generally speaking,

however, the market is firm, and we have buyers on the following terms:—

	s. d.		s. d.
<i>Down legs</i>	1 1	<i>to</i>	1 2
<i>Half-breds</i>	1 0	—	1 1½
<i>Ewes, clothing</i>	0 11	—	1 0½
<i>Kent fleeces</i>	1 1	—	1 1½
<i>Combings skins</i>	1 0	—	1 2
<i>Flannel wool</i>	0 11	—	1 1½
<i>Blanket wool</i>	0 8	—	1 1
<i>Leicester fleeces</i>	0 11	—	1 0½

LIVERPOOL WOOL MARKET, SEPT. 23.

SCOTCH WOOL.—There is more doing in Laid Highland wool. Both staplers and manufacturers continue to supply themselves with more confidence. White Highland is more inquired for, with light stock. The stocks of crossed and Cheviots are very much reduced, and the farmers sending the clip slowly to market, prices are well supported.

	s. d.	s. d.
<i>Laid Highland Wool, per 24lbs.</i>	9 6 to 10 0	
<i>White Highland do.</i>	12 0 12 6	
<i>Laid Crossed do., unwashed</i>	12 0 13 0	
<i>Do. do., washed</i>	12 9 14 0	
<i>Laid Cheviot do., unwashed</i>	13 0 14 6	
<i>Do. do., washed</i>	16 6 17 8	
<i>White Cheviot do. ....do.</i>	24 0 26 0	

FOREIGN WOOL.—There is a fair inquiry for all kinds of consumable wool, of which the supply is found to be small, and a fair business by private contract at fully late rates. Public sales are to take place here on the 4th, 5th, and 6th of October, when about 5,000 East India, 600 Buenos Ayres, about 1,000 Oporto, Egyptian, Turkey, and other low wools, will be offered.

FOREIGN WOOL MARKETS.

BRESLAU WOOL REPORT, SEPT. 20.—A lively demand is prevailing for almost all descriptions of combing and clothing wools, home and Saxon combers and manufacturers being the chief purchasers. Prices in general are rather higher, particularly of low and middling qualities, which continue in great request. Lamb's wool is equally much inquired for, and realizing almost fully last year's quotations; transactions, however, are of no great amount, owing to the scarcity of the article. Fine and superfine fleeces, on the contrary, are much neglected, notwithstanding an excellent choice, and comparatively moderate prices. The total quantity which has been taken out of the market during the last four weeks amounts to nearly 4,000 cwt.; and there would have been sold still more if supplies from Russia had not arrived so uncommonly late and sparingly. —GUNSBERG, Wool-broker.

YORK WOOL MARKET, SEPT. 21.—At this our fifteenth market we had about 80 sheets of wool, chiefly Moor kinds. Business was very dull, not more than 20 sheets being sold, at rates tending downwards.—*Yorkshire Gazette.*

MANURES.

LONDON, Monday, September 25.

PRICES CURRENT OF GUANO.

<i>Peruvian Guano</i>	per ton £11 10 0 to £12 0 0
<i>D. first class (damaged)</i> ..	„ 10 0 0 11 0 0
<i>Bolivian Guano</i>	„ 0 0 0 0 0 0

ARTIFICIAL MANURES, OIL CAKES, &c.

<i>Nitrate Soda</i>	17 10 0	18 0 0
<i>Nitrate Potash or Saltpetre</i> ..	25 0 0	28 0 0
<i>Sulphate Ammonia</i>	17 10 0	18 10 0
<i>Muriate ditto</i>	22 0 0	23 0 0
<i>Superphosphate of Lime</i>	6 0 0	6 0 0
<i>Soda Ash or Alkali</i>	0 0 0	8 0 0
<i>Gypsum</i>	2 0 0	2 10 0
<i>Coprolite</i>	3 15 0	4 5 0
<i>Sulphate of Copper, or Roman Vitriol for Wheat steeping</i> ..	38 0 0	0 0 0
<i>Salt</i>	1 5 0	2 0 0
<i>Bones ½ inch</i>	per qr. 0 17 0	0 18 0
<i>Dust</i>	0 18 0	0 18 6
<i>Oil Vitriol, concentrated</i>	per lb. 0 1	0 0 0
<i>Brown</i>	0 0 0	0 0 0
<i>Rape Cakes</i>	per ton 6 5 0	6 10 0
<i>Linseed Cakes</i>		
<i>Thin American in brls. or bags</i> ..	10 17 6	11 10 0
<i>Thick ditto round</i>	10 2 6	10 5 0
<i>Marseilles</i>	10 0 0	10 5 0
<i>English</i>	10 15 0	11 0 0



A Visit to the

The Property of Mr James Lockdale of Sutton Coldfield, Warwickshire, on the 17th of May 1854.
 The horse is dark bay, with white markings on the lower part of the legs, and is a very fine specimen of the breed.
 Bred by Messrs. Lockdale & Co., Sutton Coldfield, Warwickshire.



Black and White Bull.

This is a picture of a cow, taken from a drawing of a cow, which was made at the University of the State of New York, in the year 1850. The cow is a black and white bull, and is shown in a field. The drawing is a detailed engraving, and the cow is shown in a standing position. The background is a simple landscape with hills in the distance.

THE FARMER'S MAGAZINE.

NOVEMBER, 1854.

PLATE I.

WELLINGTON,

THE PROPERTY OF MR. JAMES STOCKDALE, HUTTON, NEAR DRIFFIELD, YORKSHIRE,

Is rising six years old, stands 16 hands 3 inches high; is a beautiful dark-brown, short legs, great substance, and splendid action; is perfectly sound, a good worker, and a sure foal-getter.

Wellington was got by Young Lincoln; Young Lincoln by Mr. D. Howson's noted horse, "Lincoln;" Lincoln by Oxford; Oxford by Farmer's Glory. He was bred by Mr. T. Booth, of Darfield, out of his noted cart mare, which bred four very valuable stallions; dam by Mr. Lambert's black cart horse; and, when two years old, obtained the First Prize at Wentworth, in 1850, and the First Prize at Barnsley, the same year, and a Silver Medal at the same place, being judged the best cart horse. He also obtained a Prize of £10 at the Great Agricultural Show at York in 1853, and the First Prize at Wetherby, in the same year. In 1854 he received the following:—The First Prize of £5 at Hedon, the First Prize of £10 at Driffield, the First Prize of £30 at Lincoln, and the First Prize of £3 at Bridlington.

PLATE II.

A HEREFORD BULL, "MAGNET,"

THE PROPERTY OF EDWARD PRICE, ESQ., OF THE COURT HOUSE, PEMBRIDGE, HEREFORD.

PEDIGREE: Calved 22nd of August, 1851, by the Knight (185), dam Spot (139) by Big Ben (248), g. d. Tidy (109), gr. g. d. bred by Mr. Rea by Old Court (306).

PRIZES: At the Royal Agricultural Society's Show at Gloucester, July, 1853, the First Prize in the Second Class, £25; at Ludlow Cattle Show, September, 1853, the First Prize in the Sweepstakes, £30; at the Royal Agricultural Society's Show at Lincoln, July, 1854, the First Prize in the First Class, £40; at Ludlow Cattle Show, September, 1854, the First Prize in the First Class, £5; at Leominster Cattle Show, October, 1854, the First Prize in the First Class, £5 5s.; and at Hereford Cattle Show, October, 1854, the First Prize in the Fourth Class, £6—Total, £111 5s.

WHEAT SOWING.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

The present wheat-sowing season will in many districts be unusually retarded; the cause I need not explain to any but *non-agricultural* readers. It is only such who may be reminded of the long-continued drought of August and September—of land so dry and hard as to defy all the efforts of the ploughman. Let us, then, take advantage of

this delay, and gather together a few more of the novel practical hints which have recently appeared on the subject of wheat sowing. Let us inquire if anything has resulted from the comparative examinations of the chemist in his laboratory—the farmer in his fields, upon the differing composition, and the still more widely varying produce of dif-

ferent varieties of wheat. To the practical agriculturist it is needless to urge the importance of such an inquiry, since every season seems to afford fresh indications of its importance. Let us first travel over the ground with the chemist, because if he can readily discover any material difference in the chemical composition of different varieties of seed-wheat grown on the same soil, and under other exactly similar circumstances, why then we have a scientific ground for the common and increasing belief that certain varieties of wheat, even of the same species, may be much more profitably cultivated on any given soil than those which are now used as seed.

Two German chemists—Fehling and Faist—have usefully employed themselves on some laborious experiments on wheat and other cereal seeds, the results of which have been lately given by Dr. Anderson (*Trans. High. Soc.*, 1854, p. 338). They show that not only do the organic matters of wheat, such as gluten, starch, &c., materially vary in amount, but the same remark applies to the ash or earthy and saline matters which they contain; and, as might have been expected, this variation is influenced materially by the season.

The following tabular statement will easily present us with these facts:—

Column I. gives the grain, and year of its growth; II., the water in fresh grain; III., the gluten in grain dried at 212°; IV., the starch and fatty matter; V., the woody fibre; VI., the ash. The first ten being grown in Hohenheim; the next seven in Ackenshausen; the next six in Kirchberg; and the last six in Ellwangen.

I.	II.	III.	IV.	V.	VI.
Winter wheat .. 1850	14.78	13.24	81.95	2.84	1.97
Wintergetel do. . 1850	18.03	12.59	82.12	3.32	1.97
Bath rye 1850	14.04	15.83	78.58	3.29	2.30
Ditto..... 1851	14.66	13.29	82.07	2.59	2.05
Jerusal. barley .. 1850	13.97	15.73	78.60	2.58	2.32
Ditto..... 1851	13.73	13.76	78.55	4.96	2.73
Kamtsch. oats 1850	12.75	15.59	70.24	11.39	2.78
Ditto..... 1851	14.13	14.11	73.10	9.90	2.89
Spelt wheat 1850	14.33	12.33	73.26	9.32	4.09
Ditto..... 1851	15.25	13.08	72.92	10.19	3.81
Barley 1851	15.19	12.01	81.08	4.13	2.78
Kernel ditto 1850	12.97	13.71	82.92	1.26	2.11
Ditto..... 1851	14.33	17.46	78.60	1.84	2.10
Rye 1850	12.62	12.32	83.70	2.08	1.90
Ditto..... 1851	14.07	13.20	83.59	1.24	1.97
Oats 1850	12.47	12.37	74.25	10.37	3.01
Ditto..... 1851	12.96	11.62	75.35	10.37	2.66
Ditto..... 1850	15.06	14.12	82.90	0.92	2.06
Ditto..... 1851	14.86	14.16	82.30	1.41	2.13
Rye 1850	14.70	13.83	81.83	2.33	1.99
Oats 1850	13.27	11.53	75.21	10.37	2.89
Ditto..... 1851	13.43	13.04	73.64	10.37	2.95
Ditto..... 1851	15.60	13.14	79.81	4.13	2.92
Barley 1850	13.71	12.02	75.12	10.21	2.63
Oats 1850	12.59	10.69	76.41	10.00	2.90
Barley 1850	15.17	12.10	81.04	4.18	2.62
Ditto..... 1851	13.91	12.88	79.53	4.55	3.04
Rye 1850	14.66	14.20	81.51	2.47	1.82
Ditto..... 1851	14.49	10.40	85.25	2.33	2.32

We have next the recent evidence of a practical farmer, the result of whose inquiries I ever rejoice

to see reported. It is that of Mr. T. E. Pawlett, of Beeston, who has long seen the importance of the inquiry, and has for some considerable period acted on his conviction by instituting a series of comparative and carefully-conducted inquiries. In writing a few days since to the editor of *Bell's Messenger*, he observes—

“ Having just concluded my annual experiments on the comparative merits of different varieties of wheat, I must again beg your permission to insert the following statement in the next number of your paper, as I believe many of my friends are anxious to see it. If it should be thought that my produce in some respects is large, I beg to say that my experimental pieces of wheat were grown on very good land, and in the middle of a field, on small plots of about a rood each; that no hedges, banks, nor roads were measured in, neither was the wheat in consequence injured by birds or vermin, so that when I give the result of a plot of land producing 50 bushels per acre, it must not be supposed that a whole furlong or field would produce anything like that quantity. I mention this lest persons adverse to the farmer should think there is a larger yield of wheat this season than there really is. I began my experiments last autumn on the 12th of October, by drilling at eight-inch intervals the following sorts of wheat, on plots of land containing about 25 perches each, at the rate of about seven pecks of seed per acre, after a white clover ley which had been summer-eaten by sheep. I found the result to be as follows:—

EXPERIMENT No. 1.

	Quantity per Acre.	Value per Qr.	Value per Acre.
	Bush. pk. gal.	s.	£ s. d.
Improved Browick red ..	52 1 0	52	16 19 7
Spalding red	48 2 0	52	15 15 3
Overman's red	49 2 1	52	16 2 6

“ On the same day, and in the same manner as the above experiment, and also on land which had borne a good crop of white clover during the summer, were drilled, at the rate also of about seven pecks of seed per acre, the following varieties of wheat:—

EXPERIMENT No. 2.

	Quantity per Acre.	Value per Qr.	Value per Acre.
	Bush. pk. gal.	s.	£ s. d.
Albert red	50 1 0	52	16 7 5
Improved Browick red ..	53 0 0	52	17 4 6
Golden-drop red	51 1 1	53	17 0 3
Lammas red	47 1 1	53	15 15 10
Prima Donna red	43 3 1	53	14 0 8

“ As I generally sow a considerable portion of land with white wheat, I made another trial to see whether any sort of white would beat, in value per acre, my old and favourite sort—the imperial white. I therefore drilled on a piece of land contiguous to experiment No. 2 the following sorts of wheat, at the rate also of about seven pecks of seed per acre. The undermentioned statement was the result:—

EXPERIMENT NO. 3.

	Quantity per Acre.			Value per Qr.		Value Per Acre.	
	Bush.	pk.	gal.	s.	£	s.	d.
Imperial white	47	3	0	59	17	12	2
Ditto ditto	45	3	0	59	16	17	5
American white.....	44	1	0	60	16	10	0
Brown straw white	42	2	1	58	15	9	0
Prima Donna red	43	3	1	58	14	0	8

"These experiments were all made in a field where the land was very good, of a deep gravelly loam, and in a fair state of cultivation, which accounts for the great produce I have this year. The prices I have given as the value per qr. for the wheat is what I consider it is now worth to the miller; the markets, however, are so fluctuating, that I do not know that I have stated them correctly. It is of little consequence, provided that the relative value of each sort is properly given, which I have endeavoured to do.

"These trials show a great difference in value per acre, as much as £3 11s. in one experiment, and £2 6s. per acre in another, where all the wheat was of the red kind. I have grown the Browick red six seasons, and the imperial white ten seasons, and they still seem to keep the pre-eminence. I scarcely, however, know which of the two sorts is the best; therefore I cultivate both."

To the tenant farmer need I urge anything to show the very material advantage of knowledge thus acquired? of the difference which may thus be made in the appearance of the annual balance sheet? If there is a young farmer who believes that the maximum produce per acre of wheat is already attained, let me remind him that four centuries since, the English farmers thought so too; but since then how great has been the increase! If he will refer to vol. i. p. 18, of the "British Husbandry," he will find that in the year 1387, on the fine manor farm of Hawstead, in Suffolk, the produce of 66 acres of wheat was only 69 qrs. 2 bush., and from 26 acres of barley only 52 qrs. 2 bush. were produced. About the same time, on the manor farm of Dorkings, in Surrey, from 30½ acres of barley were produced only 41 qrs. 4 bush.

The steady increase, then, in the produce of wheat which has taken place for a lengthened period in England, shows clearly what skill and enterprise can accomplish. Such reflections encourage us to persevere—tell us, too, that "Onward!" must still be our motto. We have a curious instance of the increased produce of a Surrey parish during the last four centuries, in the parish upon whose fields I am now looking from the windows of my study. I allude to the picturesque and well-cultivated parish of Beddington. The rectory of this parish, which contains about 3,800 acres, was valued in the year 1454: the certificate of its value is still preserved in the registry of Winchester. It is noticeable from containing a specific statement of the then amount and

value of the agricultural produce of this fine parish, whose rectory is now worth more than £1,200 per annum. The certificate is as follows:—

	£	s.	d.
6 Qrs. of wheat at 5s.	1	10	0
60 „ barley at 3s.	9	0	0
20 „ oats at 1s. 8d.	1	13	4
Peas and tares	0	6	8
30 Lambs at 6d.	0	15	0
160 Fleeces of wool at 2½d.	1	13	4
Tithe of geese and pigs	0	6	0
Tithe of hemp.....	0	1	5
Tithe of hay.....	0	1	0
Tithe of cows and calves.....	0	2	0
Tithe of apples and nuts.....	0	2	6
Tithe of the mill.....	0	16	8
Offerings	0	13	4
Tithe of the rabbits and doves of Sir Nicholas Carew	0	13	4
Tithe of Synclors rabbits	0	2	0
Straw and chaff	0	1	4
Glebe lands	0	1	0
On the feast of the purification of the Virgin Mary, and for the purifying of other women	0	5	0

The tithe was evidently then taken in kind; for in the same certificate, under the head "Deductions and reprises," we find—

	£	s.	d.
For collecting the wool and the lambs..	0	1	0
For collecting and carrying the grain ..	1	16	8
For thrashing the said wheat	0	3	0
„ barley	1	0	2
„ oats	0	5	0
„ peas and tares..	0	0	6
For bread, wine, frankincense, and wax	0	3	4
For bell ropes.....	0	1	8
The archdeacon's fees	0	9	8½
Moiety of the tithing	1	0	8
Annual repairs	1	0	0
For the business of the church.....	0	6	8
The Abbot of Bermondsey's pension ..	5	0	0

The sum total of the receipts then being equal to 21 2 3
And the deductions 11 15 4½

There remained a clear profit of. 9 9 10½

It would be curious to trace the scanty notices of English farmers about the period to which this certificate relates; and I may on some future occasion make the attempt—our Harry of Monmouth had only just then died. It was the period when hops were petitioned against as "a wicked weed." More than a century after this, old Fitzherbert gives us a sorry glimpse of the condition of the Beddington farmer of those days, when he tells us that the duties of a farmer's wife was, amongst other occupations, to help her husband to fill the dung-cart. It was a condition most probably like that of the present farmers of a large portion of the Russian empire, who are too ignorant or too idle to use the manure which accumulates round their houses

(Journ. R. A. Soc., v. iii., p. 129) ; and which, with themselves and their families, are transferred with the land, from one owner to another.

Let us then mark carefully these things ; and let us not forget that like most other sciences, that of agriculture has ever been, and will continue to be, progressive. In the proved superiority of our favoured country over that of other nations, there

is no portion of the triumph more marked than in that of agriculture ; and so long as its cultivators exert the skill, the patience, and the enterprise, which have hitherto marked so honourably their career, so long will England have little dread of the rivalry of those foreign farmers, who possess even soils like that of " the black earth " of Russia, or other natural advantages far superior to our own.

THE CALORIFIC ACTION OF LIME.

Lime is the oxide of calcium, one of the newly-discovered terrigenous metals, of which the properties have not been accurately investigated, as the substance has hitherto been obtained only in very small quantities. It is, as far as known, a brilliant white metal, highly inflammable, and more than twice as heavy as water, solid, and white like silver ; and when heated in the open air, it burns brilliantly, and quicklime is produced. Combined with oxygen, it forms lime, which consists of 20 calcium + 8 oxygen = 28 lime. Lime contains :

Calcium	71.91
Oxygen.....	28.09
	<hr/>
	100.00

On the subject of the primitive formation of lime as a rock of the earth, various opinions have been entertained. Some contend for an igneous production ; and others think that it proceeds from the putrescence of marine animals, and has been formed under water, which gives it an oceanic origin ; while not a few reckon it a peculiar preparation of the aluminous and siliceous earths. It is a substance of all others the most diffused over the globe, and in the composition of animals and vegetables. It abounds in most places of the world, forming vast regions of rocks and mountains, and in a great variety of forms and combinations produces materials of very great utility to the purposes of human life. It appears that until the means of calcareous matter was provided, few or no air-breathing animals had lived ; but as it increases, life of every kind becomes numerous and prolific.

In geology, limestone appears in the primitive rocks as a granular crystalline body, which affords the finest statuary marbles. In the transition class, the quality is somewhat coarser, and affords the black and variegated marbles, and the rougher kinds used in architecture. In the fletz formation, it lies upon the sandstone, is more compact and translucent than the former, and constitutes the mountain limestone and the varieties commonly used, also the liasitic and oolitic limes, chalks, and

marls, and the tertiary formations above the chalk, with the siliceous and fresh-water formations.

Lime is most commonly found in combination with carbonic acid gas, or fixed air ; and then it forms the carbonate of lime, which consists of :

Lime	1 atom	..	28	..	56
Carbonic acid	1	..	22	..	44
	<hr/>		<hr/>		<hr/>
	1		50		100

With sulphuric acid, it constitutes gypsum, or the sulphate of lime. The combination with some other acids is little noticed. The compact limestone of common use contains, at an average :

Lime	56
Carbonic acid	44
	<hr/>
	100

It is infusible by the strongest heat of our furnaces or burning-glasses, when the exposure is unconfined ; but when the substance is closely covered, to prevent the escape of the gas, the fusion has been readily effected by the oxy-hydrogen blow-pipe. It constitutes a violent flux in mixture with other bodies, and is nearly insoluble in water, requiring 400 to 700 parts to dissolve it, and is not altered by exposure. It effervesces strongly with acids, and is almost wholly soluble in them ; does not vitrify in the most violent heat, but parts with the gas, and becomes a light cinder from incineration.

The use of lime as a cement has been known from an early period of time, and the application of it to agricultural purposes has also a date of very considerable antiquity. When limestone is subjected, in confined heaps, to a strong fire above redness, the water of crystallization is expelled, and the carbonic acid gas escapes. A cinder or shell remains, reduced to one-third of the original weight, but without any diminution of the bulk or of the hardness ; and the lightness of the shell is a criterion of the quality, as the earthy mixtures do not lose weight by calcination. It should be removed immediately after burning, as it increases in

weight by absorption, 100 parts of lime absorbing about 28 of moisture. Good limestones contain 60 to 85 per cent. of carbonate of lime—in some instances as much as 99 $\frac{1}{2}$; and though whiteness of colour is generally mentioned as denoting quality, yet it is known that some substances will alter the colour of lime without debasing the quality, and that others alter the quality without changing the colour. But, in general, good limes are white and light, and feel soft; while sandy and mixed limes are heavy and dull in colour, and feel gritty. When water is applied to lime in a newly-calced state, a hissing noise takes place, a swelling follows, vapour arises, much heat is evolved so as to ignite combustibles, and light is also emitted, if the process be performed in a dark situation. The sulphurous smell arises from a part of the earth being elevated with the vapour, and the exhalation has the power of changing vegetable blues to green. Part of the water is evaporated, and the other combines with the lime and becomes solid, and the shells fall down into a powder of granular globules, and, when more closely inspected, of minute cubical masses. In this process the lime absorbs about one-third of its volume of water, and is called slaked lime, or the hydrate of lime. By being reduced to powder, lime increases in bulk about threefold; and pure lime requires most water and time to become pulverized, and mixed limes are observed to require less. Cold water dissolves more lime than hot—a property not belonging to other bodies. Water at 60 deg. and at 212 deg. show a wide difference of the dissolving capabilities of the different temperatures. After lying for a determinate time exposed to the atmosphere, lime imbibes from the air a portion of the carbonic acid gas that was expelled by the burning, and becomes milder in its nature, and similar to pounded limestone, though it does not resume the structure it before possessed.

Lime in a powdered condition is applied as a manure to lands that are reduced in the texture by the process of fallowing, as a preparation for green crops, or for autumnal wheats, as it affords the best opportunity of using both the substances in contact; and the period of the year also affords the most leisure and convenience of procuring the lime and using it effectually. The most general and best-informed opinions ascribe to lime the power of two agencies in the soil, or the chemical and the mechanical. The first says that lime, being a homogeneous body, will exercise a chemical action on all substances in contact, for all bodies of simple constituents have an aptitude to enter into combination, and the results will depend on the strength of the respective actions; that lime exerts an influence on fibrous vegetable matter, and

forms with it a compost partly soluble in water, and by this kind of operation converts inert matter into a nutritious form; and that, in passing from the caustic to a mild state, it prepares soluble out of insoluble matter; and that in a mild state it acts merely as an earthy ingredient; that it corrodes animal and vegetable substances, renders some matters insoluble, acts as an antiseptic, and arrests equally the vinous and putrid fermentations, operates injuriously on fresh substances, but is very efficacious in producing nutriment from decayed materials. By attracting carbonic acid gas, it supplies that element as food to growing plants, as quicklime attracts five times its weight of æriform matter, and thus forms a regular communication between the air and the plants. But it may deprive the plants of the carbonic acid gas, and retard vegetation, as it attracts to itself that æriform body.

The most enlightened practical men, of the best experience, suppose lime to act as an alterative in rendering stiff soils less adhesive, breaking the firm texture, and changing them into a state more porous to the roots of plants, and more conducive to vegetable life; and also as a stimulant, by exerting an influence on other substances in the soil, by converting them more readily into food, or by quickening their action. The use of lime has hitherto received no assistance from chemical or physical theory; and the farmer yet applies it by custom and fashion, without any definite rule. The analysis of soils and limestones has not imparted any certainty of proceeding either in the quantity or the mode of application, as the extremes of fertility and barrenness have been shown by the component parts of fertile soils that have been examined. The action of the mineral remains in doubt, both in the mode and amount of the efficacy.

An opinion may be hazarded, and is confirmed by a very strong analogical probability, that the benefit which lime confers on the land arises from the caloric, or the cause of heat which emanates from the lime, and which raises the temperature of the ground to a degree that is very favourable to vegetable life. No arguments are required to show, nor any demonstration to prove, the value of temperature for the support of every kind of organised life: experience has fully proved the value of paring and burning to consist in the temperature given to the soil by the flames of the burning; and the ashes have done little or no good when laid on pared ground where no burning had been performed.

The benefit lasts till the temperature sinks by cooling, and then vanishes; and the period of duration is long or short, according to the power of

the soil in imbibing and retaining the caloric, or cause of heat. It is well known that the value of lands has a large dependence on this property of the alluvial stratum.

Lime is an alkaline earth, or an earth having the properties of an alkali in turning vegetable blues to green, and at last yellow; the taste is acid, pungent, disagreeable, and urinous; and these properties impart the alkaline character and a distinguishing feature. The alkaline earths are four—lime, magnesia, barytes, and strontian—and form a connecting link between the earths and the alkalies. They are dissolved in acids, and not precipitated by the caustic volatile alkali, but very readily by the fixed vegetable alkali; and this property distinguishes them from other earths. The fixed alkalies are bodies from fire, and are composed of pure air and highly inflammable metallic substances; they are largely provided with specific caloric, or the quantities in each necessary to produce a given change of temperature. Water being the standard, or 1, potash contains 0.759; soda holds 0.728; and ammonia contains 1.03. Lime holds 0.6189, and shows that the earth falls little below the pure alkali in the relative quantity of heat. The oxide, or the limestone, having undergone the process of calcination—by which metallic substances are apparently converted into earthy matter—the residue may be supposed to retain some portion of the phlogiston of the fuel by which the lime was changed in the condition, and which being joined with the elemental infusion of the igneous property must constitute lime to be a very heated substance, as is well known to every observation. Specific caloric is increased with the temperature of bodies, and by their being combined with oxygen. The absolute heat in bodies has not been ascertained by any satisfactory rules. It has been thought to bear a proportion to the specific heat, or, rather, that the latter was proportionable to the absolute heat; but the supposition has not been admitted, though supported by some very ingenious reasonings.

Heat is a peculiar substance, and a material agent highly attenuated, which causes a sensation; and caloric is used to designate the cause of it. All bodies are pervious to heat; and the addition of it produces an expansion of the bulk, or an enlargement of the volume. To this general law there are, perhaps, one or two exceptions. Caloric produces no sensible effect upon the weight of bodies; it is the same whether a substance be hot or cold. The particles of heat are never found cohering together in masses. Caloric not only increases the bulk of bodies, and changes their state, but its action decomposes many compounds altogether, either into their elements, or it causes these elements to combine in a different manner. In

general, those compounds which have been formed by combustion resist the action of heat with considerable obstinacy. Those which have been formed without combustion are easily decomposed; and so are those which contain combustibles. Organized substances in general, both of animal and vegetable origin, when highly warmed, are converted into their ultimate elements; and, having been formed without combustion, are easily decomposed.

Bodies seem to conduct heat in consequence of their affinity for it, and of the property which they have of combining with an indefinite number of doses of it; hence the reason of the slowness of the process; hence, also, the reason why the temperature of the body through which it passes diminishes equally as we advance from the source of heat to the other extremity. Bodies vary in their power of conducting heat. The metals are the best conductors of all known bodies, and gold and silver are the best among the metals. The following table shows the conducting powers of several of the metals and other bodies:—

Gold	1000
Platinum	981
Silver	973
Copper	898.2
Iron	374.3
Zinc	363
Tin	303.9
Lead	179.6
Marble	23.6
Porcelain	12.2
Clay	11.4

The comparative power or capacity of quicklime in the quantity of carbonic at a given temperature—the standard being water, or 1—is .4391 with water, in the proportion of 16 to 9; it is .3 by itself, and .28 when saturated with water and dried.

The general operation of heat upon all matter tends to convert it successively from the solid to the liquid, and from the liquid to the gaseous form. But decomposition does not frequently take place, unless extraneous matter be present. An increase of temperature produces decomposition where the physical effects upon the dissimilar molecules of matter are equal; the tendency to separate is increased by the further accession of caloric, and decomposition ensues. This is, however, in a great measure, a physical operation; on the other hand, heat is a powerful promoter of chymical combination. The just boundary is not very precisely marked between physical and chemical action, but caloric is a most important agent in the operations of chemistry. Compound bodies are acted upon by it simultaneously, and the practical effects of caloric are very considerable. Heat modifies the affinities between the molecules concerned of any original

state, and facilitates the production of new combinations. It promotes solution in part, possibly, by being in itself a great antagonist to solidity; and it seems almost always to be the spontaneous concomitant of all violent degrees of chemical action.

The subtilty of the matter of heat is such that we cannot ascertain its accumulation in any body by the nicest balance; its fluidity may be considered as proved by the ease with which it insinuates itself amongst the particles of matter; its affinity for other matter is shown by its being universally contained in all bodies in proportions differing in each kind of substance; its repulsion amongst its own particles is proved by its tendency to exist in a state of equilibrium in contiguous bodies.

The repulsive energy of heat is limited to insensible distances, and the expansion of bodies by caloric proves the mutual repulsion of their particles. Chemical action can only happen between the ultimate elements of matter; and the forces opposed to expansion and reciprocal action are cohesion and aggregation. Expansion is least where cohesion is strongest; and the facility with which bodies conduct heat is not exactly in proportion to any of their sensible qualities, but is more nearly in the direct ratio of their density than any other quality. But the conducting power is not always in the ratio of their density, but probably depends also on their affinity for caloric.

Heat is conducted through bodies by transmission or radiation from particle to particle. Each particle is supposed to be surrounded by an atmosphere of heat, which remains latent or quiescent till disturbed by the approach of bodies of a different temperature, when motions or undulations are induced, which end in establishing an equilibrium of temperature, and transmitting the excess to the contiguous particles, where the same process is performed, and the same result attained. Very dense bodies and spongy bodies are equally unfavourable to the quick radiation of heat: there seems to be required for the speedy conducting of caloric a certain contiguity of position of the particles, and a natural affection or affinity between caloric and each kind of matter.

The conducting power of bodies depends principally upon three circumstances — by the mechanical relation of their particles to each other, by an attraction between the heat and the particles of which the body is composed, and by the radiating power of the heat. The operation may also be regarded to be of a mechanical nature, in there being something in the arrangement or shape of the particles which hastens or retards the passage of the heat along them. The radiation of heat from the surface may have some influence in certain cases; heat passes more rapidly upwards than in

any other direction, and extensive surfaces may draw from the interior to supply the caloric that is radiated, and thus increase the general transmission of heat. But we must not enter on any abstruse theory to illustrate a practical purpose or point.

Caloric must be held as one chief spring of chemical affinity; it dilates bodies, separates the particles, diminishes the attraction for each other, and proportionately augments the attraction of the particles of adjacent bodies, and consequently produces combinations, and facilitates reciprocal unions. Chemical affinity is reckoned a case of electrical attraction, and that bodies combine from being in opposite electrical states, and decomposition consequently proceeds from the same electrical condition. Though usually reckoned the same, electric attraction may be termed the principle in action, and chemical affinity the power by which bodies unite—the one being in this sense a measure of the other. All chemical forces are subordinate to the cause of life, and to heat and electricity, and to mechanical friction and motion. The latter power is able to change their direction, increase or diminish their tendency, and also completely to stop and reverse their action; but causes must exist to produce chemical affinity, or the cycle of life would stand still; and from our ignorance of these causes and the application, it is probable that in many cases their action is arrested or stopped, often rendered useless, not produced at all, or at least but accidentally, arising from proceedings not being yet based on definite or measured causes.

My own experience in the practice of agriculture has been extensive and varied, almost beyond the common lot of the middle age of man; the employment has been close without any interruption, and the performances have been sufficiently continued to establish a fact from a majority of similar results. Among the other operations of the common and enlightened qualities, the use of lime was largely introduced, both where I was the agent in the case, and where I only acted a subordinate part. The first case occurred on the estate of the Duke of Portland, in South Northumberland, where the soil is composed of the shale of the coal, and forms a clay land of poor quality. The continuity of the aluminous beds is frequently broken by outbursts of the new red sandstone rock, which covers the coal measures, and over the rocks there is a light sandy loam that is nothing better in quality than the clays that encircle the up-heavings of the red sandstone. The clay soil is poor in quality, and requires to be summer fallowed for wheat; and the returns being scanty, both in grain and straw, there is ever a great want of dung, to be applied to the fallow grounds for wheat. This scarcity compelled the trial if lime would render any assistance in

manuring the ground. One half-acre in the middle of a large field was limed at the rate of 200 bushels an acre, and when the shells were pulverized, the ground was harrowed, then ploughed, and sown with wheat in October, along with the rest of the field. The rotation of crops extended to five years, but on no one was the least benefit from the lime to be perceived. It was very narrowly watched, and any result could not have escaped notice.

In this case, the lime failed by reason of the want of exuvial matter in the land which would receive the caloric of the lime, retain it, and give it to the use of the plants. The conducting power of clay, as shown above, is very low in 11.4 of the graduated scale; and, therefore, it would receive scarcely any portion of the caloric of the lime, and the very anomalous quality it possesses of contracting by heat, which so very much baffles cultivation, would exclude any benefit from the heat that was administered. The caloric was, therefore, completely lost from want of the proper materials for its action. The action of lime is none on clay lands of an aluminous composition that tends to that substance in the major degree. The reasons have now been stated.

On the same farm, a half-acre of land was limed at the same rate, on the surface, in April, after the turnips were removed, and just before being ploughed for barley. The ploughing was lightly done, after the harrows had scarified the lime into the ground, and the barley and grass-seeds were sown in the usual way. The failure was as complete as on the clay land: no benefit ever could be perceived from the lime in any crop of the course.

In this case the failure arose from the caloric being radiated too quickly along the particles of the sandy soil, escaping from the land, and no part being retained for the use of the plants. Sand is easily heated, and as easily cooled, and the caloric found no retention for the benefit of the crop. Without exuvial matters, the primitive earths afford no ground of fertility or scope for manures.

Another field, of a deep black loamy earth, on the same farm, showed a very different result in the action of the lime from the two instances that have now been quoted. The land was fallowed for turnips, and the lime was spread on the surface of the ground before being drilled, and was harrowed immediately. The benefit was very large, and the action did not cease during two rotations of the crops. The land was a heavy black earth, on a bottom of indurated soapy clay of a red colour, with some stones and white sand in mixture.

In this case the success arose from the caloric being absorbed, retained, and husbanded by the black earth which had been formed from exuvial matter, or from the upper stratum of clay that had

been changed by its mixture into the heavy earth of a very useful quality. There can be no mistake in making this estimation. The action of all manures is in a direct ratio with the quality of the soil itself, and lime proves the fact almost beyond any other substance that is used as a fertilizer.

A large extent of paring and burning was done under my personal superintendence on the same farm, on a thin clay soil of the shale of the coal, and of the most inferior quality. Oats, clover, and oats were borne by the land after burning, and then summer fallowed. In August, lime was applied in the mode and quantity as before detailed; but, as in the former case of clay land, not the smallest advantage could be discovered from the lime, though two ridges were separately left without it, in order to show the value of the lime. Though farm-yard dung was applied at the same time, the failure was most complete.

In this case the lime failed from want of suitable materials to use the caloric: the exuvial matters were deficient for that purpose, and the clay repelled the heat.

The field of my experience was afterwards shifted to the estate of the Marquis of Hastings, in Leicestershire, where I found a soil of clayey loam, of good quality, and in the immediate neighbourhood of the magnesian lime of Breedon, where the rock stands in an upright, insulated position, with a flat top, on which the parish church is situated. I had heard of magnesian lime, but had not seen it, and was ignorant of the opinion that it was injurious to vegetation. The rock lies on the coal formation, and forms the basis of the saliferous system; it had been scientifically examined, and the noxious quality was attributed to the causticity being longer retained by it than by other limes, in consequence of the portion in 20 per cent. which it contains of magnesia, which body, it seems, is more corrosive in the nature than common lime. This rock was specifically examined and detailed upon by Mr. Tennant, Geological Professor of Cambridge, who found by experiments made during winter, and in a heated room, that vegetables did not thrive so well in magnesia as in common lime, and that the former imbibed fixed air at a much slower rate than the latter substance. It was hence inferred that the noxious quality arose from the longer causticity of the magnesian lime. Compared with common lime, calcined and uncalcined magnesian lime both failed, the former most: mixed with sand, the calcined magnesia seemed to be very hurtful, and the noxious quality continued for many weeks. It is singular that the idea had never occurred to Mr. Tennant of the caloric of the lime overheating the sand, or not being retained by it, and thus shown him that the fault lay not in the lime, but in the soil with

which he was experimenting. Experiments made in flower-pots, and in a heated room, bear very little relation to the open field, where a variety of known and unknown affections occur. The mixture of magnesia in 20 per cent. destroys the homogeneity of limestone, and imparts a greater power of imbibing and retaining caloric. All mixed bodies possess an increased power in relation to heat and moisture beyond the elementary substances, which possess more limited powers and less varied affections. The metal of which magnesia is the oxide contains more oxygen than the metallic base of lime, which will cause the slowness of imbibing moisture and carbonic acid; but the accession of another ingredient in the magnesia will confer the above-mentioned power, which has caused the damage and the inquiry. I was very kindly warned by the neighbouring farmers of the danger of using that kind of lime which had been very generally condemned and debarred from use. But, having observed a soil of strong earthy loam to be used, and thinking that a greater causticity in the lime, if it did exist, instead of being hurtful would be very necessary to impart warmth to the soil, and raise the temperature of the ground, and in direct opposition to the opinion of Mr. Tennant, I proceeded on that conviction, and against the repeated warnings of local ignorance that was conscious of the fact, and was most kindly meant. Causticity denotes a quality belonging to several substances, by the acrimony of which the parts of living animals are corroded and destroyed, arising from the strong tendency to combine with the principles of organized bodies. Concentrated acids and pure alkalis are the chief agents of that kind. The destruction is effected by extreme minuteness, asperity, and quantity of motion, which act like those of fire, and change and destroy the texture of the substances to which they are applied. The causticity of lime is produced by the banishment of fixed air, which renders all alkaline substances to be mild when it is present. Causticity acts only upon living organisms; in the soil it will meet with no bodies to receive any damage; the earths are beyond its force, and the exuvial matters will be heated by its power, and stimulated by its action. That the longer causticity of magnesian lime is the cause of the supposed damage inflicted on the land, was a conclusion most unphilosophic and illogical, though bruited by Mr. Tennant.

The clayey loams that were under my management were reduced in the usual way for green crops, and the planting of beet commenced in the month of May. The lime, in cinders from the kiln, was brought forward during the two previous months, and laid in a longitudinal heap upon the headland of each field to be limed. When the land was ready, the heap of lime was turned over, and water

applied to the undissolved parts, in a quantity sufficient to effect the pulverization, but not to form a paste. The next day, the lime, in that hot, caustic state, was spread over the land at the rate of 200 bushels an acre, and immediately covered by harrowing. The lime ran through the chinks of the carts like quicksilver, and must have possessed the utmost possible causticity. Without delay the land was opened into drills of 28 inches apart, in the intervals of which, farm-yard dung fully half rotted was laid in an ample quantity; the drills were reversed, and the seeds of beet inserted by the dibble on the newly-made ridglets. Potatoes, Swedish turnips, and common white and green globes were sown in the same way, with lime in the same state and quantity, and with the farm-yard dung suitably prepared. In all cases the movement of the ground by being twice drilled had the effect of mixing the lime with the soil in the most intimate and comminuted manner, and the appearance exhibited a specimen of the matrix of finely-blended materials, in which vegetation delights to live and flourish. A quantity of lime was left from the covering of the field on which the common turnips were sown; it was laid on a space of ground in the middle of the field, in a double dose, or 400 bushels per acre, with the view of fairly calling into action and bringing to sight the hurtful qualities of the magnesian lime. The crops of every kind were most superb: beet, potatoes, Swedish and common turnips were very full and heavy crops, as were the wheat and barley which followed the root crops, and the succeeding clovers and oats. No such crops had ever been seen in that country, and they attracted a very general notice. The wheat that grew on the space of land which was doubly limed showed a most visible superiority, from its first appearance above ground till the ripened crop fell beneath the sickle. The braid of the autumn and the leaves of winter were thicker on the ground, and exhibited a colour of a darker and healthier hue than the surrounding vegetation; the second growth of the spring shooted earlier, and the summer crop stood taller than the rest of the field; the maturation of the grain arrived first of the crop, and the pickles were more plump and more golden in the colour than the other produce of the field; the straws or culms were brighter and more reedy than the neighbouring growths, and the shocks were thicker on the ground in the autumn. The difference in the growth and appearance of the crop was visible during the whole winter and summer from every view of the field.

Here was a complete disproof of the universal opinion of the hurtful quality of magnesian lime; and not only in the seemingly extra dose of 200 bushels on an acre, but in twice the amount being

attended with a very large benefit. The damage on the limestone gravels of Doncaster may arise from the constitution of the soil not being capable to use the caloric that is transmitted by the lime.

The very great success on the clayey loams above mentioned, arose from the deep and strong quality of the soil in a heavy earth of loam, which was mixed with the earths in an intimate commingling, and contained a very considerable quantity of exuvial matters. These matters, having been formed without combustion, are very recipient of caloric, readily warmed, retain the heat very equally, and are easily decomposed. The earthy parts of the soil, being very much reduced and intimately mixed, present a body equally favourable to caloric; and the whole cultivable stratum was capable of being thoroughly heated, and of using the caloric by retention and radiation.

The instances that have now been cited of the success and failure of lime on various soils, and under different circumstances, may be sufficient to prove the theory advanced of the efficacy of caloric; and the well-known fact is ever concomitant, that the action of all fertilizers is in direct ratio with the quality of the soil itself. The source of that quality affords a full scope of action to the heat of the lime, and supports the fact in the fullest demonstration.

It has been ever observed that composts of earth and lime are more efficacious, on all lands below the mediocre quality, than lime when used by itself; and the fact arises from the earths in the composts being of good quality, from the scourings of ditches, scrapings of roads, and the virgin earth of the sides of roads, and untouched patches and corners of ground. These substances imbibe and retain the caloric of the lime; and on whatever soil the compost is used, the effects of the lime are certain, from the earths that are applied.

Earthy limestones, or limestones of the shale, are the best for the fertilizing purposes, provided the quality is not deteriorated beyond the just comparison. The salt must be at least one-third of the composition. My attention was satisfied on this point in Ayrshire, on the property of the Marquis of Hastings, where two limestones were used in nearly adjoining situations. The beds lie in an insulated position, among the tilly clays of that county, and seem to have no connection with the usual subjacent and overlying formations. One rock shewed the purest and whitest lime I have ever seen, and the other was a coarse-looking bed of limestone shale. I was told by the farmers of the neighbourhood that the earthy lime was best for the land, which my experience of it very fully proved. The superiority arises from the earthy part of the composition retaining the heat of the

burning, and conveying it to the land for the benefit of the vegetation. It is not meant to say that all coarse earthy limestones are the best, but only that a considerable part of earth is useful in the composition, and that benefit may depend not so much upon the quantity as upon the mode of mixture and the relative bearing to other substances.

Lime will be very beneficially applied to fallow grounds by being spread on the surface in burnt cinders of a small size, which have been reduced to the bulk of a goose's egg, from the parent rock by the action of the hammer. A ploughing of the land will cover the lime shells, and the moisture in the soil will burst the cinders, which will evolve much heat, of which the damp exhalations will penetrate the ground, warm it, and raise the temperature. Two operations of Finlayson's harrow, done alternately lengthwise and crosswise, will thorough mix the soil with the lime, and incorporate the two substances, and effect it in a way very much superior to the usual mode of ploughing and harrowing. The subsequent drillings of the ground will very materially assist the commingling of the pulverised lime with the comminuted earth. It is an application of lime that promises a large benefit from the adoption.

A corollary of seeming importance may be drawn from the above resolved problems on the application of lime. Heat or fire is a violent agent, which changes all bodies that undergo its action, banishes the properties which they possess, and confers new qualities that remain, while the former never again return. In changing state or condition, the bodies also change capacity. The retention of moisture, and the contraction by heat, form the baffling qualities of clay in respect of cultivation, while the sulphuric acid which is present confers the usual noxious quality of its nature. The mixture of clay with hot lime, in compost heaps, shews the complete subjugation of clay by the action of lime: the earths are converted from dead, inert, or even hurtful substances, into a soft, mucilaginous mass, of easy decomposition, which constitutes a manure of very considerable value. Hence all clays of any kind or degree may be changed from the stubborn and intractable nature into deep warm loams of a value at least tripled in amount. In order to completely change the nature of the clays, so that the soil never again returns to the original condition of wet aluminous earths, the agent must possess sufficient power to overcome all resistance, and to dissipate it in every form, that it does not again assemble. Sands, chalks, and earths, may be applied with the view of altering the texture of clay lands; but the process will be slow and gradual, if the mixture be done at all. The application is formed of inert substances, which have no force of

action beyond the power of external impulse. With such agents, the viscous clay is exposed to no penetrating agency of attack, nor suffers any constitutional damage; the natural preponderance of its qualities will overcome the power of the materials, set it at defiance, and altogether nullify the effects. Such is the fate of all attempts of that kind, from want of the acting power being superior both in quantity and quality to the resistance that is opposed to it. The quality of the inherent vigour must be active, energetic, and powerful; and it must be in contact with circumstances which promote the action and call it into life. Fire and heat are most violent agents, and penetrate, perforate, crumble, reduce, and change all bodies that are subjected to their action; and the presence of air and moisture are effective in developing the calorific action of lime in a calcined state.

Resolution of substances *only* is in the power of man; combination is reserved by nature to its own operations. A mechanical mixture *only* can be performed by human skill; but, in so doing, there is afforded a ready opportunity of substances forming the intimate chemical combinations which in other circumstances would not have happened.

Judging from the relative quantities of clays and lime that are used in compost heaps, it may be inferred that one bushel of lime-cinders to a cubic yard of land will demolish the obstinacy of the worst clays of the plastic and London formations, and the same quantity may be required by the lias, clunch, and Kimmeridge clays. The land must be dug by the spade in the end of the summer fallowing season, and the cinders very carefully placed in the trenches by the hand of the spadesman, who will finish an acre of ground in three weeks, which will cost £1 16s., reckoning the labourer at 2s. per day. One spit of the spade will reach the depth of nine inches, which will require, to form a cubic yard, a superficial area of 36 square feet, or four square yards; and an acre of ground contains 4840 square yards, or 1210 cubic yards, which will require 1210 bushels of lime, at the average cost of sixpence, will make an expense of £30 5s., and with the digging-in, £1 16s., £32 1s. The general cost per acre may be taken at £30.

The moisture in the clay soils, and the access of air through the interstitial state of the land that results from the digging, will dissolve the lime-shells, the bulk will swell, a large evolution of heat will follow, the caloric will thoroughly penetrate the aluminous mass, unbind the texture, sever the particles, banish the sulphuric acid and water by the process of vaporization, and after the action is expended, relapse into an earthy mixture with the base of the clay, which will possess new properties,

and be so effectually disintegrated as never again to contract into the old adherence of indurated clamminess. The soil will be wholly altered into a workable condition by the two-horse plough, and will produce green crops of every kind in a very large abundance. The capacity of the soil will altogether be changed—less moisture, but still a sufficient quantity will be imbibed; caloric will produce the usual effect of expansion, and the heat will be duly received and equally husbanded. The value will be raised in at least £1 per acre; will pay the outlay in a very fair time, and the security exceeds that of any bank, as it exists in the property of the owner.

The very extreme solubility of lime in water, and the consequent inutility for any active purpose, demands all wet lands to be thoroughly drained before the lime is applied. Some clay lands are not very wet: judgment will easily determine whether the wetness needs to be removed. It is not here asserted that one bushel of lime-cinders will thoroughly effect the purpose in the cubic yard of every clay soil; the statement is made as an analogical probability, and trials must decide on the various qualities and degrees of the clay-lands that occur in Britain.

The above corollary may be extended to the digging and mixing with lime every soil or land, whatever the degree or quality may be as naturally formed. The very primest quality of loams may not be eligibly meddled with; but all lands that are below 30s. an acre of yearly value, are capable of being vastly improved by the calorific action of lime, and by the residual earth of the neutral salt. The original substances will be sweetened by the action of the heated lime, and the staple will be enlarged in the bulk by the earthy materials of the lime. Gravelly, sandy, and earthy subsoils, being dug in the depth of one foot, and mixed with hot lime, will be converted into a new condition, of which the temperature will be raised, and the capacity in every shape improved. In the operation of digging, the surface can be still kept on the top, and have a mixture of lime given to it. The under-soil will be penetrated, sundered, and mellowed by the action of the lime, will become an aerified stratum along with the upper layer, and add to the depth of the land, which ever forms a chief point in the character of soils. The value of the inferior loamy earths will be doubled by this procedure.

Though an idea may be old, yet there may always be found new uses and dispositions of it; so that originality is equally exhibited in the adaptation to various purposes, as in the primary conception. "Let us only find a thing," said D'Alembert, the celebrated French mathematician, "and

plenty of means will be found to put it into shape." The idea may not be new that lime confers benefit by raising the temperature of the ground; but the extension of its use to wholly convert clay-lands into loams, may probably claim an early notice, if not the original promulgation; it is no chimera, but the offspring of reason and the understanding; it is a part of the lofty aim that must incite all our actions, and be constantly before our eyes, if we wish to attain any distinction or eminence. By such proceeding, the objects of science and industry are attained in the full and complete manner, and in all the varied relations.

Such purposes as have now been detailed, are the province of the landowner, who will reap the permanent benefit. The farmer uses only his time and capital in obtaining the fruition and in distributing the results; his general occupation realizes

the proceeds, rather than constitutes the foundation. Great results require adequate means; but in such cases, not the means required, but the ultimate object is the consideration—not what will be the outlay, but what income may be expected. The above-mentioned alterations of land would quadruple the produce of the United Kingdom, employ labour, diffuse capital, cheapen the price of articles, and enlarge the sphere of their use. These are the legitimate objects of action; the channels must be widened, every avenue explored, and all impediments removed. Those persons who write about man, and the different states and stages of his existence, moral, social, and political, would do well to remember two things—the cultivation of the earth, and the supply of the necessities of life; for they uphold or overturn all their ideal fabrics.

J. D.

LOUGHBOROUGH AGRICULTURAL SOCIETY.—AGRICULTURAL STATISTICS.

The following is the paper, on this important subject, read by Mr. GEORGE KILBY, at the Loughborough Agricultural Society's meeting on Thursday, June 1.

Mr. Chairman and Gentlemen,—The first want of man is food for his subsistence, and what he naturally seeks to obtain before all other things; so I conceive it is the duty of civilized governments to assist him in procuring a supply of daily bread whenever there may be an insufficiency of food. Even in the days of the patriarchs we read of the famine being "sore in the land," and Jacob addressing his sons in a tone of reproach for their seeming apathy, in these emphatic words, "Why do ye look one upon another? Behold, I have heard there is corn in Egypt: get ye down thither, and buy for us from thence, that we may live, and not die." It is true, we of modern times have not been visited with famine to such an extent as this, or of those of which we read in the history of our own country; still we must recollect that within a few years, from the failure of only one particular article of food, gaunt famine made fearful havoc in the sister kingdom. By this visitation, many of her inhabitants perished for the want of food; and so greatly was the calamity felt and feared by others, that they fled from their native land to seek subsistence in foreign climes; and her population, from these causes, has been diminished to such a degree as to render it impossible to conceive what will be the result to her as a prosperous country for the future. We have every reason to be thankful that Providence has not visited this country with such

calamities in our day, but there is no telling what may be the case hereafter, for He who sent the potato blight can also blight the wheat, and it behoves all provident governments to use every precaution to alleviate, by all means in their power, such awful visitations in case they should again occur. How deficient in foresight would this great nation be accounted, if she were found, under a severe scarcity of corn, not to be as early and as correctly informed on the subject as her neighbours on the continent! Yet there is not the least doubt that on the eve of the last harvest, with all her boasted acquirements of useful knowledge, the government was greatly behind that of France in forming an estimate of its produce. We find this matter to be considered of such importance in that country, that the Emperor began his speech to the Legislative Chambers to the following effect:—"that the government had found the insufficiency of the harvest to be ten million hectolitres, which it could not undertake to purchase. Commerce alone could do it; but it did the only thing possible, by encouraging purchases and in setting the import of grain free from all duties." Then he adds, "seven million hectolitres of foreign corn had already been imported for home consumption, and the rest was either in bond or on its way." From this it is clear that the government of France knew accurately their position early in the season, when we were left only to conjecture as to the yield of our harvest. Their system of collecting agricultural statistics gives them a decided advantage over this country, in making early provision for a sup-

ply of food for the people from foreign nations when their own falls short. This fact has been fully exemplified this season; for we find that the French merchants laid in their stocks of wheat at a much less cost than our own, in consequence of their early and correct information; and we scarcely began to think of our own position till we found large purchases were made by France from the grain-supplying ports. Without wasting the valuable time of this meeting in crossing the Atlantic for American examples, to our colonies, or to other countries nearer home, this fact alone is sufficient, in my humble opinion, to induce us to co-operate with government in devising some method whereby we may be enabled to form as correct an estimate as other nations of the supply of food which any particular harvest will produce to meet the wants of the people for the ensuing twelve months. No doubt it is from the example afforded us by foreign nations that the subject now under discussion has so forcibly attracted the attention of our rulers, and taken such strong hold upon the public mind. During the few past years experiments have been made, first in Ireland, then in Scotland, and afterwards in England, with the desire of legislating upon the subject with the best effect; and our government is pledged to pass some law for this purpose; and allow me to say that discussions on this matter, at meetings of societies like the present, may probably give some hints to our legislators which may be useful in framing laws on this very difficult question, which may prove beneficial to the country. I am glad to find, sir, that the subject which you have done me the honour of allowing me to introduce at this society has been framed on a liberal basis, and that I am not required to prove that the adoption of a system of "correct agricultural statistics" shall be of advantage to any particular class, but on its merits as a general question, "will it be of advantage to the public?" I shall, therefore, mainly argue it on this ground; and I beg to observe that I believe any measure enacted by the legislature, the result of which proves to be of public benefit, will not in the end be prejudicial to our own particular interests. I thank the committee that they have not imposed upon me any restrictions in this respect; for I think the time is gone by when any public body should discuss a question of national policy in any other spirit than "will it be for the public benefit in its general results?" At the same time, allow me to say that I shall not shrink from remarking upon the effect which I believe the collecting "correct agricultural statistics" in this country will have upon its agricultural interests. I am, sir, of opinion that it is a great disadvantage to this country in not having so early and correct

information as to its internal resources being sufficient to supply food for the population, while other nations think it an obligation and a duty to make themselves acquainted with the probable amount of the fruits of the earth, about the time of gathering them in, at their disposal for the ensuing year, when, alas! we are left in doubt and conjecture. This affords them a decided advantage over us in seeking and obtaining those foreign supplies which are necessary to make up any deficiency, consequently giving greater facility to the commerce of those countries than we possess. This fact was never more plainly exemplified than at the last harvest, as I have before stated, in regard to France. Had we possessed similar information to that which they had at that time, our merchants would have been in the market, and purchased corn on as good terms as those of that country; but we find they had filled their granaries with foreign corn, bought at a low price, before we were acquainted with our own wants. We followed them into the market when prices had risen, in consequence of their extensive purchases, and were obliged to get our supply of grain at a much higher rate. Now, sir, I think there is not the least doubt but a large saving to this country would have resulted had we possessed a correct system of agricultural statistics, or one equal to that of France. Shall it be said that we, as an enlightened nation, ought much longer to remain in this state of ignorance on an important public question with which our continental neighbours are perfectly acquainted? I know it may be said that the saving of which I have spoken would have resulted from buying corn at a lower rate than could have been done had the public not known the state of the crops, and consequently would have further depressed the price in this country. I by no means wish to infer that the buying of such foreign corn at a less price by our merchants would have been, as far as the bargain goes, any benefit to the farmers of this country; but we must look further, and trace the results. Whatever profits made by early purchases would have gone into the pockets of our merchants, and suppose they cleared a million of money by the speculation, it would be better for this country than they should not have bought till the advance upon the article had amounted to that sum, which in that case would, to the same extent, have benefited the foreign merchant at the expense of this country generally, whoever the individual or individuals might be that made the lucky speculation; therefore, in the case which I have put, probably a million of money might have been saved at the last harvest had we possessed "correct agricultural statistics." I well know, sir, that farmers are very sensitive as to cheap corn,

and from what they have suffered during the last seven or eight years from this cause, I can only say I wish I were ignorant of the fact that they have great reason to be so. But let us go a little further. Suppose we had possessed knowledge equal to our neighbours across the channel at the last harvest as to its probable yield, what would have been the effect upon our own markets? I find the average price of wheat for the week ending on the 27th August, 1853, was 48s. 6d. per quarter, and on the 13th, two weeks previous, it was 53s. 3d.; so that it actually fell 4s. 9d. per quarter in a fortnight, on the eve of one of the most deficient harvests as regards that grain on record. Now, I ask, could this have occurred, had we known our true position in reference to the harvest then at hand? Had we known our real state by collecting information as to the probable yield of such harvest, we should have found, at least we should have been acquainted with the fact, that it would be a very deficient one, especially from two causes,—first, that from the wet autumn the land was not in a fit state to receive the seed, and only a very small breadth was sown, but we were ignorant as to the extent, and if we had that finished in the spring, the whole would fall short of the average quantity, still we should be ignorant of the average under this all-important crop; second, that the produce of the whole would be greatly beneath an average, probably two-fifths, but this was all guess work, which a system of agricultural statistics would completely dispel. Had this been known to the public by correct returns, our merchants would have been in the foreign market buying all the grain they could have laid their hands on. Our farmers would have been easy about thrashing, knowing the great deficiency, and that prices must soon rise at home; none of that decline I have quoted would have occurred, and those farmers who are most needy, and thrash and sell their corn as soon as they get it, would have reaped the advantage of this early advance. Now, sir, it is clear to me that if we possessed those statistics which we ought to have, it would be the means of keeping the price of corn more uniform. We should not have those extremes in rates in a few months which we experienced after the last harvest. I have said that in the last week of August, 1853, the average price of wheat was 48s. 6d. per quarter, and I find in the last week in January, 1854—that is, in five months—it had advanced to 83s. 3d., showing an excess per quarter of 34s. 2d., or nearly 68 per cent. I am firmly convinced that, had we had a system such as I advocate for ascertaining the quantity and quality of our crops last harvest, the value of corn would not have varied so greatly as it did. Prices would have advanced much sooner, and at a time when a great

bulk of home-grown wheat is always brought into the market; but they would have been lower when it was more heavily supplied with foreign. I therefore contend that, thus far, correct agricultural statistics would be of benefit to the home producer, and especially to those who are forced to sell early from needy circumstances. At the same time I do not mean to assert that corn would have gone to that high rate which we experienced in January; and, sir, I must confess I do not think extreme fluctuations, with high prices at particular periods, and very low ones at others, is of any permanent advantage to the British farmer. Then I am persuaded that the adoption of “a system of correct agricultural statistics” would have the effect of keeping prices more steady, as all parties would know what they had to depend upon, and on an average of years I cannot see that such a system would have the effect of reducing agricultural produce below its legitimate value. Many persons have affected to believe a measure of this kind would interfere between landlord and tenant as to existing agreements—that it will expose the affairs of the occupiers in an ungracious manner, and reveal to the public what ought to remain secret, as regards a man’s private business; yet, I do hope, sir, that the wisdom of our rulers will find it possible to devise a plan on such principles as will be entirely free from these anticipated evils. Suppose, on the other hand, these statistical returns proved that our harvest would be an average or even an abundant one, how would the system work? In such a case there would be no reason that our merchants should be in haste to purchase corn from other countries; and this knowledge would prevent any glut from large supplies of foreign being brought into the market immediately after harvest. Speculation would cease, and there would be no depressing effect from that cause; therefore, prices would be prevented from falling to that very low point they would do if we were groping in the dark. Ignorance never brought home any good to its possessor, and I think never will; but knowledge always sheds a light before the steps of the traveller, and will guide him safely on to his journey’s end. If the question be put to me, What do you mean by “correct agricultural statistics”? I answer, the list of items will be rather numerous, and they are required to supply the place of ignorance by a diffusion of knowledge. All the acute information which political economists have given us in this matter, I believe to be signally incorrect; not from any inclination on the part of those who have written most learnedly and confidently on the subject, but from the want of actual data whereon to calculate results. Thus, McCulloch and Porter tell us the number of acres under each particular

crop of grain, the average yield of each—the number of cattle, sheep, horses, and swine in the kingdom. Now such statements, I believe, rest merely on supposition: they may in some instances be nearly correct, and in others extremely wide of the truth. The statistics we want are such as will place these matters beyond all doubt; consequently, to be correct, we require that a return be made of the number of each kind of stock every individual has in his possession throughout the length and breadth of the land. Then, as regards land, how many acres in permanent and annual grass; what portion is grazed and what mown; how much arable land and what quantity of acres in each grain and pulse crops, for instance—wheat, rye, barley, oats, beans, peas, vetches, &c.; then what in roots—turnips, potatoes, cabbage, mangold, carrots, and all other kinds; also what is planted to raise the seeds of vegetables? I would not ask any man to state what quantity of land he has without any crop; that would be invidious, and could answer no good purpose; some farmers might boast they had none, and others might fear ridicule from having too much. We may reasonably suppose that this return, as far as it goes, would be correctly and easily made: it would merely be a registration of facts. But thus far our labours are but half completed: the most important matter is to obtain as accurately as possible the probable yield of each crop of any particular harvest about the time it is gathered in; for at present we have no means of knowing how far we can, from our own resources, feed the people. I believe, in order to arrive at this result, we must submit to some government interference, and I trust that it may be so managed as not to be offensive to those who will be obliged to supply the details. I admit that great difficulty exists in devising a plan to be effective and not offensive on this part of the subject; for at best, it can only be an estimate of the produce of a harvest which is only just at hand. We must have returns in this case of more value than those made in Ireland; for they were truly Irish, not being delivered in till fifteen months after the harvest to which they referred, thus telling us the quantity of corn at our disposal three months after it has been consumed. We must not make a bull of this sort. We, in fact, want to know the produce of the harvest now gathering in; consequently, it can only be an estimate, as the grain is not thrashed, much less weighed or measured; and we must take means to get this estimate as correct as possible. The published returns for three counties in Scotland appear to me to attempt to prove too much; for they give, for each district to which they refer, the number of quarters, bushels, and pecks of corn, and the tons, hundredweights, and quarters of roots. I do not see how a return

to such a nicety could be made at the time of harvesting; and such a plan is calculated to throw distrust upon the whole. To have statistics of real value, it involves the necessity upon the farmer of stating what number of acres he has under each kind of crop, and the number and kinds of stock he has on his farm, as before mentioned. Inquiries of this kind are not very palatable for us to answer; still, they are necessary, and must be submitted to, if it be required for the nation's good; but great care ought to be taken that they are made in a manner the least offensive. Perhaps that may be effected by forms being transmitted to every occupier of land, requiring him to fill them up correctly; and I can see no valid objection to this, in case they are kept from the public eye. No man, I think, would like to make such a return, and have it submitted to a board of guardians, where it might be examined by his neighbours as a matter of curiosity. I know it has been suggested by some that the officers of unions would be proper persons to employ in this work; but I really think that would be highly objectionable, and by no means satisfactory to those who have to make the returns. Relieving officers have enough to do, if they attend to their duties properly, and are debarred from exercising any other employment than that prescribed by their office; and the clerks are men whose habits are foreign to everything connected with agriculture. I think assistant overseers of the poor might be employed to distribute notice-papers to occupiers; and when the latter have filled them up, they should return them by post, sealed, to some officer appointed for a certain district, who should be sworn not to divulge their contents. By this officer they should be properly classified, and entered into a book, which he should transmit to Government. This will only complete one-half of the task: we have yet to provide for the most difficult part of the scheme—that is, *the yield of produce of the acres under cultivation*; and by whom shall this estimate be made? Such estimates for corn and pulse crops, to be of real value, should be published as soon as the harvest is got in; therefore, it will be necessary that it should be made about the first week in August, and that of root crops near the first week in October. These dates may vary according to seasons. Now, sir, comes the question, Who is to make this estimate? It can only be done by judging of the crops from observation when growing. It does strike me that it would be difficult to find any person so well able to judge correctly of the yield of these various crops as he who cultivates them. He has known, probably, for many years past, what their annual average produce has actually been on his farm; and if he be a man of tolerable judgment, he can

tell, I think, better than any other person, from their present aspect and appearance, what they will prove to be in the end. I know this plan is objected to by many; and they allege that the farmer would, from interested motives, not make the return according to his real judgment. I do not think there are many farmers—at least, I hope not—who would do violence to their conscience in this matter; and I firmly believe that as correct an estimate will be come to by these means as by any other that can be devised. But suppose we say that the farmer is not to be trusted in forming an estimate of his own produce, then I see but one way in which we can overcome the difficulty—and that will be rather an expensive one. The country must be divided into districts, over which inspectors must be appointed, and if the work is to be well done these districts must not include a large area of land. The individual appointed to this office should possess many qualifications, to enable him to perform his duties satisfactorily. He must be a man who has had great experience in agricultural practice—of sound judgment in estimating the difference in the fertility of various soils, and acquainted with their actual produce; a man of integrity, and one that would carry with him the respect of those whose crops it might be his duty to inspect; his demeanour and bearing ought to be that of a gentleman of courteous manners, who would make his inquiries in a way that would divest them of that inquisitorial aspect which of necessity they must in some measure partake, and not as a blustering imperious Government official. I believe a great deal depends upon the bearing and manner of those who, under such a system, would be intrusted in estimating and collecting these statistics, in order to obtain them with any degree of accuracy. I know, sir, this is a delicate subject to treat of before this highly respectable body of agriculturists, and that some may conclude that they will be required to publish more as regards their private occupation than those engaged in trade and commerce. If there be such present, I would ask them to look calmly at the question, and not to make up their minds too hastily—to consider its importance not alone to agricultural interests, but to the commerce and the people of this great nation, and not to throw obstacles in the way of its adoption until they are convinced that it would be of no benefit to the country generally. Having thus, sir, at much too great a length, given some reasons why I think it will be of advantage to this nation to possess “correct agricultural statistics,” and ventured, as I am aware, very imperfectly, to throw out some hints as to the way in which I think it might be accomplished, and from what we see passing around us must before long be carried into

effect in one form or another, we all must be sensible that whatever scheme Government may adopt, it will be a work of considerable difficulty, and cannot be divested of an inquisitorial character—its very nature is such; yet I hope there may be no necessity to render it compulsory, and that those who cultivate the soil of Old England will not feel any great reluctance to acquaint the world with the produce they raise from it. The fact of knowing under what particular crop every cultivated acre of land in this kingdom is annually placed will be gaining something; and a register of every head of stock bred and fed would further add to our knowledge; and the last point, of ascertaining at each harvest the probable amount of its produce, that the wants of the people might be provided for, the work would be completed; and in so doing I think the nation would gain valuable information of general interest, and I trust not detrimental to any particular class. I now, sir, conclude with apologising for the length of time I have detained this meeting, and I beg to thank you most cordially for the attention with which you have listened to my observations on the question before us; and I hope any one present will freely remark upon what I have advanced. I by no means conceive that I possess a greater insight into this subject than any gentleman in this room; and I only presumed to introduce it in order to elicit the opinion of the Loughborough Agricultural Society on a subject which I believe will shortly occupy the serious attention of the Legislature, and in which the members of that society will have to act an important part.

DIFFERENT WEIGHTS OF THE STONE.—Smithfield, 8lbs. of 16 oz.; imperial weight, 14lbs. of 16 oz.; common Scotch, 16lbs. of 16 oz.; Glasgow Tron, 16lbs. of 22 oz.; Ayrshire Tron, 16lbs. of 24 oz.; Dutch, 17½lbs. of 16 oz. Nothing is more desirable in Britain than an equalization of weights and measures; the hitherto Legislative acts on the subject are not *compulsory* and therefore useless for the intended purpose.

CARCASE AND OFFAL.—The following shows the proportion of carcase and offal in 10 stone of each respectively :—

	Carcase.		Offal.	
	st.	lbs.	st.	lbs.
Devon	6	13	2	4½
Durham	6	13½	2	1¼
Hereford	5	12½	3	2
Highland	5	6	4	4½
Cross	4	7½	4	4½

FOOD FOR THE MILLION.—INDIAN CORN.

Although strong prejudices still exist in Western Europe to the use of maize as an article of food, more especially in England, such must sooner or later give way before the progress of science, since none of the cerealia holds out greater prospects of a regular supply than it does, especially to the limited means of our labouring population. From a tabular statement formerly given, it will be recollected that its nutritive value stands thus in comparison with wheat:—

	English fine Wheat Flour.	Indian Corn Meal.
Gluten	10	12
Fat.....	2	8
Starch, &c.....	72	66
Water	16	14
	<hr/> 100	<hr/> 100

Now, from this, it appears that Indian corn meal is two per cent. richer in gluten, and six per cent. in fat, than fine wheaten flour; so that the difference is greatly in its favour. The fact that our transatlantic cousins use it largely, proves the soundness of our proposition; for they and their forefathers entered the New World with all the prejudices of the mother country as to food. When they first settled they did not like "mush" (porridge of Indian-corn meal), owing to its peculiar taste; but now the yellow meal which has the strongest flavour is preferred to the white, in the majority of provinces. How do we account for such changes?

"Experience is the great master teacher" in food as in other things. Indian-corn meal is not only more nourishing than wheaten flour, but also more wholesome to the generality of people, owing to the large quantity of fat and peculiar medicinal elements which it contains, and this is just what experience teaches Englishmen when they arrive in America. At first, however suspiciously they may look at their "mush" and "Johnny cakes," they soon find they keep the stomach and bowels in better order than wheaten flour, lubricating the whole system, and promoting a higher degree of health at much less expense. They also find that the palate not only becomes reconciled to its peculiar flavour, but to relish it in preference to the comparative insipidity of fine wheaten flour. Even in England herself, where prejudices in dietetics are probably stronger than in any other branch of science, farming itself not excepted, the more intelligent now admit that savoury food is absolutely essential to good health, even in the case of the hard-working man. The day was when exercise was thought the best seasoning for his food, being sufficient to qualify almost anything so as to secure an ample supply of health, and that savouriness was only required by "gentle stomachs;" but *such a day is gone*, while the experience of modern times has established a conclusion virtually the opposite—that labouring people, although their complaints may be less

heard of, or cared for, than those of the rich, do not yet enjoy that amount of health which is sometimes attributed to be the result of exercise; and that what they do enjoy is as much dependent upon the medicinal quality of the food consumed, so to speak, as its mere nutritive character, or amount of alimentary matter: instead of their hard toil, for instance, exposure to the vicissitudes of climate, and confinement occasionally during day, and generally during night, in damp and badly-ventilated hovels, being in favour of health, it but too frequently proves the reverse—in short, their exercise, instead of being in degree just what the greatest amount of health demands, shoots as far beyond the mark, if not farther, than that of those of sedentary habits falls short of it; consequently they require the most savoury diet of the two, in order to assist their stomachs and alimentary system in manufacturing and working up the extra quantity of food required to support life under such circumstances. Now, the preference given by the American labourer to yellow corn meal over either white or wheaten flour, proves that the more active flavouring matter of the former possesses medicinal qualities favourable to health: in other words, "mush," Johnny cakes, pancakes, dumpings, &c., of yellow corn meal, are more savoury than those made of white corn meal, or the batter puddings, biscuits, &c., of the mother country, made of wheaten flour.

But although experience has thus established beyond a doubt that Indian corn is wholesome—indeed, the most so of all the cerealia—yet chemical science, we are afraid, has not yet sufficiently investigated its medicinal qualities so as to account satisfactorily for it. More searching and detailed analyses are required in order to enable us to say why it is more healthy than wheat as an article of food; for the difference in the proportions of gluten and fat, in the above analyses, is insufficient to do so. No doubt the extra quantity of fat—equivalent to upwards of one pound to every stone of wheaten flour—makes it more grateful to the alimentary canal; but when this quantity of suet, butter, olive oil, or palm oil, is added, so as to place the two upon a footing of equality as to fat, there is yet a wide difference between them. And independently of the peculiar aroma of maize—that which more particularly distinguishes it from wheat as to taste—the qualities of the gluten, starch, and fat, appear also to be different from those of other cereals, according to Dr. Pereira and others who have written on the subject; indeed, we have only to cook and eat a dish of mush, or Brown Johnny cake (Indian Yorkshire pudding), to appreciate the soundness of the proposition at issue. It is also different in its mechanical construction or granulation from wheat, thus presenting a dissimilar resistance to the stomach; but these chemical and mechanical differences require further

investigation, we say, in order to enable us to apply them successfully or to the greatest advantage in the art of cookery.

Although yellow corn meal is generally preferred in America to white, yet in not a few cases it is otherwise. For instance, in answer to the Patent Office Circular, Washington, from Xenia, Ohio, Mr. Alexander Ruff writes as follows:—"The yellow varieties are most esteemed for distilling and fattening stock; the white preferred for bread and other purposes." Dr. John Little, of Cass co., Indiana—"White flint most esteemed for making bread;" and Dr. Lee, quoting from the Report of the Ohio Board of Agriculture, 1849, says:—"Three varieties are cultivated—the common gourd seed for cattle, the yellow Kentucky for hogs and distilling, and the white for grinding and exportation." So that the question as to quality is far from a settled one, especially when we take into consideration the fact that the yellow is the most hardy, and easily cultivated in the northern states, and the influence which such must have upon the habits and opinions of consumers.

In order to illustrate quality, and the necessity of further chemical research, we shall quote the proximate organic analyses of three samples of Indian corn, by Dr. Salisbury, of Albany, New York, that under column I. being the larger variety of eight-rowed yellow corn; II., small eight-rowed yellow; and III., white flint-corn:

	I.	II.	III.
Gluten.....	5.40	5.60	7.69
Albumen.....	3.32	6.00	3.40
Casein.....	0.75	2.20	0.50
Fibre.....	11.96	26.80	18.01
Oil.....	3.71	3.90	4.63
Starch.....	49.22	30.29	40.34
Dextrine.....	1.89	4.61	2.90
Sugar and extract.....	9.55	5.20	8.30
Water.....	14.00	13.40	14.00
	99.80	98.00	99.82

Now, from this table, it will be seen that white flint-corn is richer in nitrogenous and fatty matter than the larger variety of yellow; and although it is deficient in the former, when compared with the small yellow, it yet contains a larger per-centage of the latter (fat) than it does: so that the question of colour being an index of quality becomes a problematical one.

The above analyses, however, when compared with the preceding, quoted from "The Chemistry of Common Life," and that by M. Payen, from Dr. Pereira's "Elements of Materia Medica and Therapeutics," subjoined, may be queried; for the difference between the first and second columns, in the quantity of fibre, is not very easily reconciled with the results of experience in the feeding of stock. In other two examples of yellow corn, the one (Golden Sioux) yields 18.50 per cent. of fibre, and the other (Ohio Dent) 21.36, with a medium of the two examples given as to oil, the latter giving 4.62 gluten, 3.88 albumen, and 1.32 casein; and the former, gluten 5.00, albumen 4.42, and casein 1.92, so that dissimilarities are not so great. The following

is the result of M. Payen's investigations, just referred to:

Starch	67.55
Gluten and other azotized matter	12.50
Dextrine and glucose	4.00
Fat	8.80
Cellulose	5.90
Silica, potash, &c.....	1.25
	100.00

The above, taking into consideration that it is the analysis of the article in a dried state, corresponds pretty nearly with that given in the first paragraph, where the meal is in its natural state, or rather, with 16 per cent. of water, the per-centage of water being very varied, as we shall by-and-by see; and although the two may be admitted as more accurate than the transatlantic examples, they are yet scarcely more satisfactory, from their taking no notice of the different varieties, colours, and tastes which this interesting cereal exhibits.

The inorganic elements of our cerealia must also exercise a very important influence upon their nutritive value in food, as the following tabular statement will show:

	Wheat.	Oats.	Barley.	Rye.	Maize.	Beans.	Peas.	Potato.
Potash and soda	31	26	32	33	32½	45	46.50	58
Lime.....	3	6	2½	5	1½	8½	4.50	2
Magnesia	12	10	8½	10½	16	6½	6.96	5
Oxide of iron	1	4	26	1½	1	3	..	..
Phosphoric acid	46	44	26	48½	45	33	28.85	18½
Sulphuric acid .....	..	10½	2½	1	3	4½	5.85	18½
Chlorine	6	1	5	?	1	1½	4½	4½
Silica	1	2½	23	½	1½	4½	0.84	4½
Common salt							4.30	
Carbonic acid.....							2.12	
Per-centage of ash in corn	2	4	3	2	2	3	2.25	4

The column under Peas is by Professor Way; the others from Professor Johnston's "Catechism of Agricultural Chemistry;" and the difference between the several columns cannot fail of impressing our readers with the effect which they must have in cookery.

No doubt, the per-centage of ash in the grain is small, as seen in the last line, there being only 2lbs. of ash, for example, to every 98lbs. of organic matter in maize; so that the daily consumption of the elements of the former is small. Still, little as they may be, when we consider the fact that nearly one pound, or the half, is phosphoric and sulphuric acid, upwards of one-third potash, soda, and lime, and one-sixth nearly of magnesia, it is evident that such active chemical agents must play a very important part in the economy of life, so to speak. The use of salt in cooking illustrates this in a very forcible manner; for each of the above kinds of corn contains a deficiency of it to support health, while they each require different quantities of it to season them. The blood of a healthy person contains potash, soda, and all the other articles mentioned, and more than they, and must have a regular supply of them for building and keeping in repair the system; while different degrees of health may not only require different proportions, but the presence of others, which

some cereals, as maize, may contain, but which others, as wheat, do not, or they may have to be derived from other sources than our cerealia. Iodine, for instance, is contained in water-cresses now so largely used in the metropolis; while codliver-oil exhibits iodine, bromine, phosphoric compounds, &c., whose united action has procured for it so much fame both as medicine for man and beast.

A regular supply of inorganic elements, in just proportions to one another, is, therefore, essential to good health, as is that of the organic. Now when we perceive that those proportions are so very unlike in our different cereals, and that dissimilar constitutions, degrees of health and exercise, demand such, it consequently increases the duty of chemical science at the present moment to ascertain with a greater degree of accuracy than either the American or European analysis quoted exhibits, what are the number of elements, organic and inorganic, which maize contains, their proportions to one another, and the effect which they have when administered in a natural form, or in combination with other vegetable or animal products. The numerous varieties which are grown, and the peculiar characteristics of each as to colour and taste, not only invite, but hold out flattering prospects to such an investigation, both in a culinary and medical sense.

The consumption of Indian corn is fast gaining ground throughout the whole of the continent of Europe, and also its cultivation; so that the probability is, that the industry and perseverance of French and German chemists will be the first to solve the problem at issue, informing us not only of its value in comparison with other cereals, but also which of the varieties cultivated is the best.

We have entered somewhat more at length into this chemical view of the question, lest eventually it should turn out that Americans have been prejudiced by circumstances as to the best quality of Indian corn. We always put a high value upon the judgment of experience, whose award at present is in favour of yellow corn; but as she finds that this kind is easier grown than the white, and has consequently accustomed herself to it, the question arises, has she allowed habit and her pocket, two very influential companions, to bias her judgment? Looking at the difference of opinion which exists upon the subject, with the whole facts of the case, it is not very easily avoiding the affirmative answer. At the same time, it is manifest that colouring matter must affect quality. The yellow or red meal, for instance, is said to be sweetest. Now redness of colour indicates sweetness in many fruits, as gooseberries, and even cornstalks, &c.; so that if this is all the difference, it may only amount to a certain percentage of sugar, which may be added in the cooking. On the contrary, the colouring matter and extra quantity of sugar, in combination, may possess very active principles; and, moreover, the compounds of art never equal those of nature in their medicinal efficacy.

Indian-corn meal of every kind, the white as well as the yellow, has a flavour or taste peculiar to itself, irrespectively of sweetness, which the prejudices of this country have yet to overcome. The quantity of sugar

which she annually consumes, proves that the English taste is not averse to sweetness, but the contrary; so that chemical inquiry has got something else to search for than saccharine matter. Moreover, the analysis of Dr. Salisbury quoted do not prove the white to be deficient of sugar. American science and taste are here divided.

Indian corn is either used in a green state like peas, or in meal cooked in various ways. In the former case the green corn is cut as required, and boiled for ten minutes in the ear—sometimes with the leaves that encase it; and either eaten off the cob with butter, pepper, and salt, or the boiled corn is stripped, or cut off the cob with a knife, into a dish, where it is mixed with the above ingredients, and helped at table with a spoon; or the green corn may at once be cut from the cob into a pan, and done with butter, &c. Green corn soups are also made with milk, in the same manner as rice, Scotch or pearl barley, in this country; sometimes a little butter, flour, and eggs are added, just before the saucepan is taken off the fire. When boiled along with meat, it forms what is well-known in some of our provinces as broth. Other vegetables may be added, so as to make “hodge-podge,” &c. &c.

Another mode of cooking green corn is in dumplings and puddings. Miss Leslie gives the following recipe for the former:—

“A quart of young Indian corn grated from the cob,
Half a-pint of wheat-flour sifted;
A pint of milk;
Six table-spoonfuls of butter;
Three eggs;
A tea-spoonful of salt, and a salt-spoonful of pepper;
Butter or lard for frying.”

Having grated as fine as possible sufficient young fresh corn to make a quart, mix it with the wheat flour, and add the salt and pepper. Warm the milk in a saucepan, and when warm put in the butter to soften, mixing it with a spoon. Then add, gradually, the milk and butter to the corn and flour. Stir the mixture hard, and set it away to cool. Beat the eggs very light, and stir them gradually into the mixture; then stir the whole very hard; then flour your hands, and make it up into little dumplings or balls. If the mixture is not stiff enough, add some more grated corn. Having heated a frying pan or a skillet over the fire, put into it a sufficiency of fresh butter (or butter and lard in equal portions), and when it is boiling hot, and has been skimmed, put in the dumplings (as many at a time as the pan will conveniently hold), and fry them ten minutes or more, in proportion to their thickness. Then drain them, and send them hot to the dinner table. Eat them with meat.

Nantucket Pudding.—Boil six or seven ears of green corn; grate them down from the cob; mix a quarter-pound of butter, and the same weight of sugar; add a pint of milk and four eggs, and season with powdered nutmeg and mace. Put the pudding in a buttered dish, and bake it in the oven for two hours. Eat with butter and sugar, or sweetened cream.

In some such manner a large quantity of Indian corn is annually consumed, not only in America but also the

continent of Europe, Africa, and Asia; and in a season like the past, when wheat and old corn were selling so high, the consumption would be greatly increased. In the more favourable climates of this country—English, Irish, and Scotch—it might also be profitably grown for cooking in a green state, forming an important economical link between the old and new corn, when prices generally range high—even beyond the means of the poor man obtaining a proper supply. In this respect the labourers and farmers of the continents of Europe and America, who grow maize, have a very great advantage over their Anglican neighbours. In the absence of statistical information as to the facts of the case, it would be the height of speculation to say how much might this year have been consumed more than ordinary; at the same time, it would be equally unfair in the opposite extreme to suppose that it has not been considerable—sufficient to exercise a very important influence upon corn markets. Starvation prices amid fields of green Indian corn is even an absurdity too gross for speculation herself swallowing, in these steam locomotion times. By the month of July we ought to have green Indian corn imported to Covent Garden, if the metropolis would only learn to eat Nantucket puddings, &c., as it now eats French beans.

Good Indian-corn meal is hardly to be had in this country; for, judging from some forty to fifty samples we have purchased, upwards of the one-half would not be considered, in America, fit for human food. Even the best samples of corn on the Corn Exchange smell musty—an infallible proof that injury has been sustained, either in the “crib” before marketing, or subsequently in granary or vessel during transport.

For some time past our transatlantic cousins have been deeply impressed with the necessity of more attention being paid to the quality of dairy produce and salted provisions exported to the mother country; but if they would only turn their eyes to their breadstuffs, especially Indian corn, they would find the Union sustained a much greater loss from this latter source than the former, and that consequently it presented a wider field of usefulness before them, promising results not very easily estimated in the present revolutionary progressive state of the old world.

The principal injury corn is subject to arises from the quantity of water it contains when harvested, such producing chemical changes in its composition, reducing the quality of the sample before it is fit for grinding. Ripe corn, for instance, contains about 37 per cent. of water, and the shuck even more, while that fit for grinding should only possess from 12 to 14, so that 25 per cent. and upwards has to be evaporated. Now, this is not always done successfully in the crib or before shelling for market; on the contrary, much damage is done both before and after it passes from the hands of the farmer.

In the first place, farmers are induced to sell, for the sake of extra weight and measure, before the corn is fit for shipping to this country. “When farmers sell corn soon after it is ripe,” says Dr. Lee, quoting from the Patent-office report, “there is considerable gain in not

keeping it long to dry and shrink in weight.” So that the practice is virtually approved of by the highest authority; consequently, whether it is shipped directly or put in granary for subsequent export, damage to a less or greater extent is sustained according to the per-centage of water contained; for in this state it soon becomes musty, and not unfrequently so firefanged as to be unfit for pigs. Things are, if possible, even worse when the corn is ground, and the meal exported in too moist a state.

Now the practical inference to be deduced from this is, obviously, *the short-sighted policy of exporting water to this country (?)* Our transatlantic readers will not misunderstand this Yankee mode of stating the question at issue, and the wholesome advice which it contains; for if they think that John Bull will part with his sovereigns for what he has generally too much of already, it is high time they took a more comprehensive view of the real value of an American dollar.

At the present moment there is scarcely any topic perhaps more interesting to American agriculture, and, indeed, all our colonies, than the harvesting of cereals in the highest condition, with the view of supplying the increasing demands of the mother country, and, of the different kinds of corn, maize is the most deserving of special attention; for from experiments made by us lately, we have no hesitation in saying that if it were imported here fresh, and free from injury, it would soon become a favourite at the tables of more than our toil-worn population.

In the second place, the topic is not less deserving of notice by our colonies, on account of what they themselves consume and export in a properly dried state; for it takes no great amount of chemistry to perceive that cobs thrown into cribs in too moist a state involves a sacrifice of property not very easily estimated, even for the feeding of live stock, to say nothing of human food. In Canada and some of the northern states of the Union, the climate may be against drying in the open air; but the southern states, and our colonies of the opposite hemisphere, possess ample facilities for doing so. And even the northern states and Canada ought to do more than compete with the European shores of the Black Sea. Moreover, with the reclaiming and cultivation of our colonies, their climate will very much improve. In point of home consumption there is no empire in the world to be compared with them; for from the civil and religious liberties enjoyed, their domestic comforts are without a parallel, every table overflowing, so much so that the new world, as a whole, has proverbially been styled the “land of plenty”—“a world of farmers grumbling for want of markets to consume its produce.” And why? Simply because that produce, from slovenly farming and the short-sighted policy already referred to, is unfit for the consumption of the mother country! We are not insensible to the pioneering difficulties experienced by farmers when newly settled; but experience herself ought to teach even them that “a little fire to warm them is better than a large one to burn them”—that a good article will find a market, when a bad one will not; and that the difference of the value of food

adapted for man, and that only fit for pigs, is such as scarcely to bear comparison. In short, Jonathan can never succeed in learning John Bull to eat either "sour flour" or "musty meal;" whereas, on the contrary, he will soon find a ready customer for "Johnny cakes," "crumpets," and "slap jacks," *if he only attends to quality.*

In the third place, a supply of fresh Indian corn free from damage, so as to dispel prejudices existing against it, and create a regular consumption, is a subject as interesting to the mother country herself, as it is to her colonies and other exporting states; for were our bread-consuming population to use Indian meal as those of the United States, and, indeed almost all nations now upon the face of the earth do, scarcity, high prices, and privations consequent upon short harvests at home, would be greatly ameliorated, if not averted. At the moment we write, very strong efforts are being made to improve the manufacture of barley, oats, Indian corn, and other farinaceous substances, so as to make us less dependent upon wheaten flour than we have been; but as we ourselves cannot grow Indian corn, our millers and mechanics, however industrious and successful they may be in this laudable enterprise, can never make fresh meal from musty American corn that has undergone firefanging or fermentation in the crib, granary, or vessel, while under transport. Our increasing consumption of foreign corn demands thus much of our millers and others connected directly or indirectly with the corn trade; for to be entirely dependent upon one cereal (wheat) in a climate so precarious, and that one neither the most healthy nor nutritious, especially to hard-working people, as our bread-consuming millions are, is anything but consistent with the domestic economy of England. No doubt restriction, and the consumption of wheaten flour alone, with a large amount of American breadstuffs sour and musty, may suit speculation, European and transatlantic; but the practical lesson which such suggests is that American farmers and the British public pay attention to their respective interests themselves, studying how closely they reciprocate with one another. From the African shores of the Mediterranean, the Cape of Good Hope, and our East Indian and Australian territories, an ample supply can be had to all our wants, were their agricultural resources only developed; and there cannot be a doubt but the expulsion of capital now engaged in the corn trade from Turkey and the Russian shores of the Black Sea and Baltic, with the obstacles thrown in the way of our own corn trade generally by the war, coupled with the unsettled state of the East, will induce our corn merchants to extend the sphere of their labours. Under existing circumstances and prospects we can hardly see the possibility of avoiding changes of this kind, while we can see every reasonable inducement to rejoice at their consummation. But, although we may thus, and doubtless will, establish machinery sufficiently powerful to render us independent of America, it yet becomes no less the interest of our transatlantic neighbours than ourselves to weigh well the duties we owe each other at the present moment, and not to put a selfish interpretation upon the

dispensation with which Providence has seen fit to visit us.

In cookery, the extra quantity of fat or oil which Indian-corn meal contains, amounting in some cases to as much as nine, and even ten per cent., gives it a high value, but renders it better adapted for puddings and pancakes than bread; and accordingly this is what experience verifies both in America and the continent of Europe. We ourselves have gone to some expense in the shape of experiments, and can add our testimony to the same conclusion. At this rate, every hundred-weight of meal would contain 10lbs. of fat; equivalent to an equal weight of butter, and probably more, if its chemical value was better known. Now, we are paying at present 1s. 6d. per lb. for butter, so that the value of the fat per cwt. of meal amounts to 15s., or something more than the price of the meal itself. Even at the price of American butter, it will be worth three-fourths of its value. In comparison with wheaten flour, this, bearing in mind that it is otherwise richer in gluten, gives it a very important advantage—one which cannot long be lost sight of in our domestic economy, in these piping times of peace.

When made into what is termed "fine Indian bread," from one-third to one-half of wheaten flour is added in America, and in Spain equal quantities of wheat, rye, and Indian-corn flour are used. "Indian wheaten bread" (American) is composed of equal quantities of wheaten flour and Indian-corn meal, while "common Indian bread" is entirely composed of the latter; in other respects, the process of baking is similar to the wheaten loaf. Unleavened cakes or bread, however, are probably more common than leavened; and of these there is an endless variety, every state and county almost having its own favourite, arising from some often insignificant difference in the manipulation, such as greasing the gridiron, or toasting before or over the fire. The process is that of cakes of oatmeal, as in the north; often with a degree of rudeness, or rather simplicity, reminding us of practices chronicled in this country centuries ago, such as spreading out the dough upon a board, stone, or brick, and toasting it before the fire.

The more common plan, we believe, however, is to bake the cakes in a frying-pan along with butter, or fat of any kind, mutton suet excepted, when they assume an intermediate form between cakes and puddings, and are eaten hot. In short, they are Yorkshire puddings of Indian meal without eggs; and these, too, are frequently added, with sometimes sugar or treacle, carraways, nutmeg, ginger, &c., according to taste. The variety is almost endless; and we venture to affirm that, if our labouring population had puddings of this kind smoking hot before them at breakfast and supper, made of sound Indian meal, they would soon prefer them to the coarse bread and rancid butter they now use.

In plum puddings, all sorts of pies, dumplings, tarts, &c., &c.—Indian-corn meal is used in the same manner as wheaten flour.

Indian-meal porridge (the mush or hasty pudding of America), eaten with milk, beer, butter, or treacle, is another favourite dish. It is sometimes made with water, and

sometimes milk, in the same manner as oatmeal. It is less heating than oatmeal porridge; and, for bringing up children, has many things to recommend it to the serious consideration of the poor man.

So much for maize—the cheapest, most prolific, and nourishing of all the cerealia; which, although little known to ancient Europe, is now fast establishing itself in every province, and, indeed, among all the civilized nations of the world, as an invaluable article of food.

In cookery, the strength of habit is, no doubt, inveterately strong, even where education has removed from the mind many a prejudice, owing to taste and the digestive powers of the stomach becoming vitiated by exclusive usage to certain things; but a little presence of mind, so to speak, as to the seat of the disease, will soon suggest the proper remedy, so that a very short experiment will

soon reconcile both to what is best for them. As a diet for children, along with milk or molasses, it has many things to recommend it: and when we glance at the magnitude of this juvenile class of our population; the painful degree of starvation so largely experienced by it; the quantity of food which it ought to consume, were it properly fed; and the fact that vitiated habits are but shallow-rooted here, it will at once be perceived that the importation of a sound article, with its proper cookery and use, is a question second to none in our domestic economy. We are not here saying one word against the use of wheaten flour; quite the contrary: but, unfortunately, a large portion of our population are not in circumstances to get a sufficient supply of it; and therefore, to use strong language, *why, in the name of humanity, should our millions be starved thus?*

ON THE BEATSON SYSTEM OF CULTIVATION.

“Petty operations, incessantly continued, in time surmount the greatest difficulties; and mountains are levelled, and oceans bound-d, by the slender force of human beings.”—DR. JOHNSON.

If there ever was a season adapted to Major-General Beatson's system of cultivation, it must be the present one. It principally consists in pulverizing the soil without the intervention of ploughs, or, in fact, by the aid of scarifiers or grubbers together with the various harrowings, rollings, and the like, necessary to bring it into a thoroughly pulverized state, duly prepared to receive the seed. The present is certainly an unexampled season for the facilities it affords for thus pulverizing, cleansing, and preparing the soil for the ensuing wheat crop; and if it can thus be done effectually, the saving of labour will be very great. My object in this paper is to call attention to this particular point in autumn culture. Every good farmer has undoubtedly been incessantly engaged during this beautiful weather in cultivating and cleansing his land. The appliances are so many and so good, that perfect tilths may readily be obtained. In my own occupation I have broken up a considerable breadth of land with Bental's scarifier, and crossed it with Biddle's scarifier, and in this way have obtained a deep and highly satisfactory preparation for the wheat seeding, at a moderate cost and without the aid of a plough; and as my land is subsoil-drained, I purpose after all requisite harrowings to drill-in the seed, and thus save the expense of ploughing and other subsequent management. No one can be a greater advocate for the due use of the plough than myself; but with

favourable seasons like the present ones, the adoption of the scarifying mode of breaking up land is preferable. I do not advocate breaking up clover leys or seeds in this way; for these a good ploughing is best to be followed in about 21 days by a powerful scarifier, to cross the furrows and tear the whole into pieces. If the season continues dry, this with a few harrowings will make an admirable seed-bed. For bean and pea land the scarifier is the best implement: it may easily be worked to the depth of ordinary ploughing, and the whole of the dead haulm, rubbish, &c., being on the surface, it can easily be collected and then taken to the fold-yard to be converted into manure, or if twitch to be burnt. In all cases where the land is not subsoil-drained, it is necessary to plough, in order to “lay up” the lands for surface drainage; but it is not requisite where good drainage has been effected: the “laying up” the lands is not of great importance, it being borne in mind that subsoil drainage is by filtration, not furrows.

I beg to call attention to this mode of putting in the wheat crop for this season, as in many cases it may advantageously be practised; but much caution must be exercised before its adoption. If the land cannot bear treading, it is best to lay up the land and work the horses down the furrows; if this dry season is succeeded by much rain before the sowing is completed, it must be given up—however, as in all such cases, the farmer's judgment must be his guide. My object is to save expense in culture, if it can be done without danger to the crop: I will only say, it is by no means absolutely necessary to plough the land in all cases.

MICHAELMAS RENTS ON CORN AVERAGES

SIR,—The adoption of corn rents, based on the average prices of wheat, or of wheat, barley and oats, for the farmers' year ending on Michaelmas-day, having been strongly advocated by many gentlemen, as forming a more equitable bargain between the landlord and tenant, I was induced to make a communication to you in October, 1853; and, as a continuation, embracing the year ending Michaelmas-day, 1854, I have prepared the annexed statement. I also subjoin the weekly averages, upon which the quarterly and annual average is founded, put into a shape more convenient for reference than the return published in the *London Gazette*.

It would tend very much to promote the extension of the system if a general plan of proceeding could be introduced; and, with a view to this object, it would be gratifying to me to be furnished with information as to the mode in which the adoption of corn rents has been introduced and carried out in different parts of England, particularly with reference to the basis prices of grain.

By way of example, we will suppose that a farm would be worth £300 a year rent, if the average prices were as follows, viz.:—

	Per Imperial Bushel.	Per Imp. Quarter.
	s. d.	s. d.
Wheat	7 0½	56 2
Barley	3 11½	31 8
Oats	2 9	23 0

Now, at these prices, if we turn one-third of the rent into each of the above kinds of grain, the corn rent will be

234. 76 bushels of wheat,
505 63 — barley,
72' 272 — oats,

and these quantities, valued into money at the annual average prices ascertained up to each Michaelmas-day, will give the rent from year to year during the continuance of the agreement.

I am, sir, your most obedient servant,

CHARLES M. WILlich,

Actuary, University Life Office.

25, Suffolk-street, Pall-mall, Oct. 6.

AVERAGE PRICE PER IMPERIAL QUARTER
IN ENGLAND AND WALES.

	WHEAT.	BARLEY.	OATS.
	s. d.	s. d.	s. d.
For quarter ending			
Christmas, 1853....	69 10	40 0	24 9
Lady-day, 1854....	79 6	40 1	26 11
Midsummer, —	78 4	37 0	29 1
Michaelmas, —	63 10	33 5	28 2
For year ending			
Michaelmas, 1854 ...	73 1	37 9	27 4

WEEKLY AVERAGE PRICE PER IMPERIAL
QUARTER (*per London Gazette*).

	WHEAT.	BARLEY.	OATS.
	s. d.	s. d.	s. d.
1853:			
Oct. 14....	64 0.803	33 7.894	22 9.914
— 21....	68 4.779	40 1.871	23 10.748
— 28....	68 11.534	40 7.003	24 2.465
Nov. 4....	69 1.719	40 9.486	24 8.810
— 11....	71 9.247	41 3.011	25 5.883
— 18....	73 7.718	42 2.986	25 5.340
— 25....	72 7.154	42 3.194	26 0.870
Dec. 2....	72 0.479	41 9.762	26 0.546
— 9....	72 7.950	40 9.977	26 3.242
— 16....	71 11.713	39 9.201	25 4.630
— 23....	70 9.827	38 9.580	24 11.752
— 30....	70 0.633	37 11.086	25 0.169
1854:			
Jan. 6....	73 0.202	39 4.387	25 6.543
— 13....	76 2.273	41 3.803	25 5.183
— 20....	78 10.676	42 0.627	26 4.442
— 27....	82 4.481	42 10.724	27 2.759
Feb. 3....	83 3.040	43 0.819	27 1.650
— 10....	82 8.527	41 8.961	27 0.479
— 17....	82 4.010	41 3.205	27 4.916
— 24....	80 1.990	39 11.765	27 5.631
March 3....	78 5.659	38 4.474	27 1.991
— 10....	78 3.674	37 10.102	27 0.199
— 17....	79 6.173	38 7.136	27 2.089
— 24....	79 2.989	38 9.965	27 7.404
— 31....	78 4.079	38 6.802	27 5.690
April 7....	75 0.181	37 8.588	26 10.847
— 14....	73 5.758	36 2.864	26 11.914
— 21....	78 3.350	36 10.791	27 6.519
— 28....	79 11.991	37 5.008	27 6.148
May 5....	79 5.596	37 3.533	28 9.627
— 12....	79 9.947	37 0.365	28 8.671
— 19....	78 9.829	37 1.042	29 5.936
— 26....	78 2.646	37 2.454	29 4.887
June 2....	78 9.683	37 1.221	29 11.404
— 9....	79 11.885	36 9.510	29 10.201
— 16....	78 9.390	37 1.692	30 8.757
— 23....	78 3.049	37 3.218	29 5.140
— 30....	77 11.508	37 1.563	30 6.391
July 7....	77 8.708	37 2.865	30 7.430
— 14....	76 6.946	36 6.674	30 2.827
— 21....	74 6.995	36 10.649	29 8.706
— 28....	71 10.339	37 1.564	30 7.462
Aug. 4....	69 8.211	36 3.790	29 10.600
— 11....	64 8.418	35 9.941	29 11.009
— 18....	62 3.219	34 8.239	28 11.140
— 25....	61 0.742	34 6.821	27 9.098
Sept. 1....	63 7.048	32 5.459	28 7.542
— 8....	62 3.860	32 5.789	27 8.970
— 15....	59 4.676	30 9.243	27 6.822
— 22....	52 5.288	29 2.912	25 11.975
— 29....	53 2.611	29 2.148	24 7.502
Oct. 6....	55 9.154	28 2.859	25 3.664

DRAINING BY STEAM.

"TWO THOUSAND" for the first implement the agriculturist requires to commence farming with, is rather a startling introduction; yet such is the mechanical genius of the times, that the proposition has become a leading one, for farmers can no longer farm successfully without more efficient drainage, generally speaking, than they now have. While the discovery of gold in our colonies, the opening up of their internal resources by railroads, the consequent demand for labour on the mother country, the unshackling of colonial legislatures, and the impetus which the joint influence of such is giving to emigration, is rendering drainage by machinery a *sine quâ non*. But effective machinery cannot be started under this sum, according to the catalogue of implements of the Royal Agricultural Society of England at Lincoln (stand 71, article 19, "Fowler's patent steam draining plough"); hence the upshot.

Steam drainage at present has peculiar claims upon the agricultural public; and if the necessary provision is not made for embracing the advantages which it holds out, it may be difficult to estimate just now the loss which, experience will unquestionably very soon unfold, has irrecoverably been sustained. The legislature may refuse an adjustment of the poor-law, landlord-and-tenant-right questions, to meet the progress of applied science in connexion with the investment of labour and capital in land, and even toss to the winds drainage-bills themselves; but the owners and occupiers of land, to whom we now humbly address ourselves, are obviously called upon, by the best interests of their country, to weigh well the events which an Omnipotent and Over-ruling Arm has placed in the scales before them; for undoubtedly they never saw, on the one hand, our colonial governments' resources and industry in their present prosperous state, and, on the other, the land and naval forces of France and England liberating the shores of the Black Sea and Baltic from the tyrannical domination of Russia. Never in the history of the world did events of such magnitude "loom in the distance" as those which now rise before the British farmer; and, therefore, every obstacle ought to be removed which may stand in his way of bringing the most effective machinery of the age to his assistance, so as to enable him successfully to enter into competition with his colonial and foreign rivals, which otherwise he cannot do—and that machinery obviously involves drainage by steam.

It were thus difficult to say whether the political or agricultural view of our subject is of the greatest importance, for a very superficial glance at our colonial empire cannot fail to satisfy the most casual observer that the influence of self-government, with an overflowing abundance of the precious metals, added to its present prosperous state, must, according to any rational calculation of things, be eventually productive of no

ordinary results. And, for similar reasons, the political freedom of the provinces of the Black Sea and Baltic must also greatly increase their capabilities of exporting agricultural produce to England; while the energies of English agriculture are so cramped by statutes, more than a century out of date, as almost to prevent her from calling to her assistance expensive machinery, however effective and even economical as to ultimate results; for, until she acquires liberty of action, she can only conveniently go to work on the old profitless "hand to mouth" system, while the prosperity of our colonies and emigration of our labouring population are even beginning to deprive her of the means of doing so advantageously.

And this is not all: for, were steam to become the auxiliary of colonial and foreign agriculture before it becomes so of that of the mother country (and there is every probability of its doing so in the new world, at least), consequential circumstances may give rise to the emigration of landlords' and tenants' capital, and even capital generally (for our antiquated statutes have no limiting restrictions over it prior to its investment in the English soil), a result which would be productive of greater calamities than even the emigration of labourers; for then steam itself could not be brought to bear upon the drainage and cultivation of the British soil, until its circumstances were brought to a uniform level with those of our colonies—circumstances which ought to convince every one of the true position and value of his property, present and prospective, in connexion with land.

No doubt the soundness of this latter conclusion may be queried, from the fact of its being partly prospective; but it can only be so by those who practically have adopted the well-known maxim of "a little more sleep," "or those who never lock the door until the steed is stolen;" for the progress of facts at the present moment are such as entirely to exclude any other source of objection. It is notorious, for example, that the prices of land in the mother country and her colonies are annually approaching nearer and nearer to a uniform level; that with the progress of railroads, assistance of more effective machinery, and the growth of manufacturing and commercial towns, the pioneering hardships of the settler are fast disappearing, and that the domestic circumstances of colonial farmers are beginning to exceed in comfort and independence those of the farmers of the mother country, even including the younger members of landlord's families. In other words, the opulence of the former is annually increasing, while that of the latter is decreasing, owing to the greater amount of capital requiring to be invested, with no increasing security for it. Nay, such is the fact, that instead of security having increased with an increasing investment, it has taken the inverse direction! Hence the consequences which the British

farmer now experiences of either being at the mercy of his landlord, or else the Bankrupt Act. It is all very well to tell us his landlord will not take the advantage of him! But is this the position in which he should be? or that which the more independent colonial farmer enjoys? Should not the one have equal security with the other, benefiting by the whole profits arising from the investment of his own capital? Now, such being the facts of the case at the present moment, who can look abroad upon the face of the world, now rent by political convulsions from pole to pole by the pent-up industry of nations struggling for civil and religious freedom, and witness the manner in which England is involved, and not perceive that "coming events are beginning to cast their shadows before them"? Who, for instance, can look on China, and not perceive that the reformation taking place there will greatly contribute to the prosperity of our Australian Colonies, thus stimulating the great work of emigration to that quarter? on the slow, but sure, progress of things, again, in our East Indian empire, and the pioneering influence which it is beginning to have upon the nations immediately surrounding it, at the present moment on the eve of rebellion, as if the Mohammedan and pagan eras were about to expire? Next we have France and England commencing in earnest, as it were, the civilization even of Africa herself, one beginning at each end; then we have Spain, Cuba, and almost all the governments of the new world, including the Russian and British territories of North America, in political commotion; and, lastly, our commercial prospects in the Baltic and Black Sea already noticed—who, we ask, can look on these things, and the progress of science involved, and yet conclude that English acres are to continue to be improved by Acts of Parliament? The idea is preposterous in the extreme; for steam, and steam alone, is the auxiliary whose assistance the landed interest can safely rely upon under existing circumstances; one which we have no doubt will soon be brought to bear upon the stubborn soil of England in the most effectual manner.

Ploughing by steam is still a problematical question; but the problem of draining has been fairly solved by Mr. Fowler, and therefore every means in the power of a great nation should be used in reducing it to general practice. The area of land suffering for the want of drainage is far larger than generally imagined, and the national loss proportionally great; so that our proposition does not stand in need of any other argument in support of its reduction to practice. England loses more annually by badly-drained acres, for instance, than what she would do were the Autocrat of all the Russias to reduce the Turkish empire to a Muscovite province. To suppose that she would strain every nerve she has in equipping fleets and armies such as the world never saw, and sacrifice her best blood for what at the best is mere commercial speculation, as she is now doing in the Crimea, and yet by some unaccountable supineness at home neglect her agricultural resources of far more importance to her both in a commercial and political sense, is an hypothesis entirely at

variance with the genius of the times. No doubt, commercial and manufacturing interests are attractive, and may, as they have hitherto done, continue to engross too much of the attention of those whose time and capital should be wholly absorbed in the permanent improvement of the soil. But, however strong commercial predilections may still be in the English mind, the progress of agricultural science has been such of late as to place the circumstances of the soil in a more favourable position when prospectively viewed; so that there is every reason to believe that steam drainage will at no distant date meet with the hearty reception of every agriculturist in the kingdom, and be generally and efficiently carried out.

The successful issue of the practice, like that of all others in connection with agriculture, and indeed every act, depends upon the profits arising from it; and here the patentee will have more difficulty in procuring unanimity in his favour than may well be imagined; for strange as it may appear, yet such is the fact, that the general question, Will drainage pay? is one which is far from being solved to the satisfaction of every mind; for we have even met with very intelligent, practical men, who believe it does harm rather than good; basing their conclusions on the result of experience. Indeed, we ourselves could point out numbers of fields where the subsequent crops were inferior to those which preceded the work. But in such cases the cause was manifest, parties having hastily concluded, under some "penny-wise and pound-foolish" estimate, that if drains were put in according to some arbitrary rule, such as 4 feet deep and 24 feet apart, the work would be finished; whereas the contrary was the case; for in nine cases out of ten the drains were not only too far apart, but the subsequent management was also imperfect. The schoolmaster may write a copy-book, and his pupils may transcribe it successfully, but the work of drainage cannot profitably be carried out in accordance with such a rule; for fields are seldom of uniform quality, and different qualities require specific rules both in the drainage and after treatment; efficient drainage in each case being followed by efficient cultivation, in character, according to the geological circumstances of the soil, *without regard to expense*; for to drain a field is to produce a definite result apart from any other consideration. The increase of produce arising from drainage is not dependent upon the amount of capital expended in the execution of the work, but upon certain physical changes which have been effected in the soil; consequently the first great aim of the drainer should be the production of those changes, so as to obtain the end sought, whatever may be the cost; reducing it afterwards to the lowest possible level. When an implement maker, for example, makes a new machine capable of performing a given result, either to order or on speculation, he makes his calculations according to the means required to perform this result, and not according to the weight of his own pocket; and, in estimating these means, experiment alone must guide him. This latter is a cardinal point; and therefore we repeat that experiment alone must determine

the means required to produce a given effect in the manufacture of any new machine. And so should it also be in draining. More experimenting and less theorizing is required to secure unanimity in the execution of this, the first and greatest of all agricultural improvements. After once the greatest increase of produce has been obtained from a given soil, and the cost of obtaining the same reduced to the lowest level, then we shall be in a position to say whether the profits will justify farther investment. If an affirmative answer is returned, no time should be lost in prosecuting the work; but, if the contrary, then we must bring more effective machinery into the field, capable of performing the work at less expense; but assuredly on no account reduce the cost by placing the drains farther between each other, of less depth, or by decreasing the effect of subsequent culture, for this would be reducing the produce at a greater rate than the expenses.

Steam will afford more facilities for experimenting as to results from a less distance between drains, as proposed above, than can now be done under manual labour, because the increase of expense will not be in proportion to the number and length of drains, for the same engineering staff will then be able to superintend two or more engines and ploughs, if wrought close to each other, while there will be less shifting from field to field in putting in a given number of pipes. There

are, no doubt, many practical objections to one staff of hands attending to several engines and ploughs, but these must be overcome; for to pay high wages daily for walking at the slow pace of a draining plough, is at variance with economical draining.

We have thus arrived at the conclusion of an increase of machinery to execute the work at the lowest expense, so that the mode of remunerating the patentee for his invention becomes a question of primary importance; for to charge it upon the machine in the outset is obviously calculated to exclude its operation. And the monopoly of the work of drainage, on the other hand, by the patentee himself, must ever be surrounded with many serious objections, and therefore equally against his and the public interest. The more commendable plan appears to be a small royalty per acre on such heavy machinery as this, and the machinery itself at a fair manufacturing price, so as to encourage the establishment of draining companies in the different provinces of the kingdom, and honourable competition for the best and cheapest work. At Lincoln, for instance, we might have had half a dozen companies, at least, competing, who would make the best and cheapest work; but, whatever plan is adopted, the work is attended with heavy investments, which call for the removal of all statutory obstacles out of the way, and the hearty co-operation of landlords and tenants at present.

THE AGRICULTURAL STATISTICS OF SCOTLAND.

The important inquiry into the agricultural statistics of Scotland, which Government has intrusted to the Highland Society, is, we are glad to learn, making satisfactory progress. As our readers are aware, the inquiry of last year extended to only three counties—Haddington, Roxburgh, and Sutherland; this year it will embrace the whole of Scotland. The machinery by which the necessary information is being collected is much the same as that adopted in the case of these three counties, with a few slight alterations, which the experience of last year suggested.

The limited inquiry of 1853 was farther advanced than the present one at this period of the year; but this has arisen not so much, if at all, from the greater magnitude of the work to be performed and the results to be attained on this occasion, as from the late period at which the society received the authority of Government to make a commencement. No step, even of a preliminary nature, could be taken till this authority was given, and nothing could, therefore, be done till the month of June. In succeeding years—for it is to be inferred that the inquiry will be an annual one—the same delay will not take place, and the machinery, which had this year to be organized, will not have to be called into existence.

This machinery, we may state, consists of enumerators and committees for each parish or district of the country, every enumerator and every member of the committee being a farmer. The duties of enumerator are much less onerous than they were last year. He had then to serve and collect the schedules, and to examine and return them to Mr. Hall Maxwell; but this was not only a laborious but an invidious task, for many farmers objected to pass the details of their

crop and stock under the review of a neighbour. To obviate this difficulty, the schedules are now issued by and returnable directly to Mr. Maxwell. The services of enumerators in regard to schedules will only be required where occupiers have failed to make returns in the ordinary manner; after a certain date the enumerators will be asked to procure the returns in the mode which they may think best. They will also, along with the committee, prepare an estimate of the crops; and this is the most important part of their duty. These estimates will not be given in till the end of October or beginning of November, and they will form as close an approximation as possible to the average acreable yield of each crop grown in the district.

One of the first things to be undertaken in connection with the inquiry was evidently the preparation of lists of the occupiers of land to whom schedules were to be sent. It was originally proposed to ask the inspectors of the poor for the different parishes to furnish these. Ultimately, however, it was resolved to request the sanction of the Board of Inland Revenue to apply to the Property-tax Assessors for copies of their lists. This sanction was at once given; circulars were issued to the assessors, and in cases where the assessors refused to furnish the required information application was made to the parochial inspectors. For future inquiries the lists will, of course, require only a revision. While these lists were being made up, Mr. Maxwell visited most of the principal county towns, and held public meetings, which were influentially attended, and at which he explained the nature and objects of the inquiry. We believe it was Mr. Maxwell's intention to extend his visits to the northern counties and to Orkney, but the arrangements

necessary in contemplation of the Berwick Show made it impossible for him to fulfil this intention. The result of all the meetings which he held was highly satisfactory.

The next step was to arrange suitable districts. This having been done, the services of upwards of a hundred well qualified enumerators were obtained, as well as the assistance of nearly 900 influential farmers, to act as members of committee in their respective parishes.

The lists of occupants having been prepared, the schedules to be filled up with the requisite information were issued. The schedule consists of two sections—one for crop, the other for stock. Under the first the farmer is asked to state as nearly as he can the acreage of his farm, and how that acreage is cropped—how many acres he has of wheat, barley, oats, turnips, potatoes, &c.—how many of grass under rotation, and of permanent pasture. In the second, the number of his horses, cows, &c., is to be stated.

The issue of these schedules is now completed, except in Bute and Arran, the Upper Ward of Lanarkshire, the parish of Kincairdine (Ross-shire), and the parish of Ellon, for which no lists have yet been received from the assessors. They have been forwarded to about 47,000 occupiers of land; this must not, however, be regarded as the number of farms in the country, because it sometimes happens that one man has a dozen farms, and in one instance twenty-eight farms were included in one schedule. A large proportion of these schedules have now been returned, and they are in course of being arranged and tabulated.

Last year these schedules were sent to all persons having farms above two acres in extent. This year it was resolved to limit the issue in the Lowlands to parties paying not less than £10 of rent, and in the Highlands to persons paying £20 and upwards. But as it is desirable that information should be obtained regarding the extent and produce of land rented below these rates, the enumerators have been furnished with forms of return exhibiting the number of occupiers, the gross acreage so occupied in their respective districts, the average rotation of cropping observed, and the total estimated amount of stock possessed by such tenant.

As last year, each enumerator will, with the assistance of the committee of his district, prepare an estimate of the average produce of the various crops grown in his district; and Mr. Maxwell has requested that, in addition to the estimates of this year's crop, committees shall report what, in their opinion, has been the average yield of the different crops over an ordinary period—say of five years—in order that a comparison might at once be made with the returns for the present year, showing whether they are in excess or deficiency of an ordinary average. Without such a standard, Mr. Maxwell observes in his circular to the enumerators, this information could not be acquired from the annual returns for a series of years.

The magnitude of the present undertaking may be judged of from the fact that since the month of May the postage amounts to no less a sum than £450. Although the results may not be obtained so early as those of the three counties taken last year were, we have no doubt that in the hands of the Highland Society and their indefatigable secretary, Mr. Hall Maxwell, the inquiry will be concluded so satisfactorily in every way as to justify the confidence reposed in them by Government.—Scotsman.

We append a list of the enumerators:—

ABERDEEN.—R. Copeland, Haddo House, Methlic; Alexander Duthie, Aberdeen; John Ferguson, Coyneab, Ellon; William Murdoch, Huntly; Robert Williamson, Bendauch, Blackburn, Aberdeen.

ARGYLE.—Donald Campbell, Tyree; Duacan M'Arthur, Pennyfair, Oban; James Archd. M'Diarmid, Kilmichan, Mull; Archd. M'Farlane, Clachau, Cairndow; Neil M'Lean, Coll; Neil Macleod, Feolin, Jura; Archibald Macdonald, Arduawe, Bowmore; N. M'Kechnie, Inverary; Peter Watson, Campbeltown; John A. Sellar, Ardtornish, Morven.

AYR.—David Cuninghame, Chappleton, Ardrossan; James Drennan, Holehouse, Dalrymple; John Guthrie, Holms, Kilmarnock; Alexander Ralston, Lagg, Dunure; Thomas Reid, Monkton Mill, Monkton.

BANFF.—James Black, Knock, Keith; George Williamson, Auldtown, Turriff.

BERWICK.—Robert Logan, Woodend, Dunse; John Wilson, Edington Mains, Chirside.

BUTE AND ARRAN.—Samuel Girdwood, Little Kilmory, Rothessay; James Allan, Clachau, Arran.

CATHNESS.—Alex. Henderson, jr., of Stempster, Thurso. An enumerator for the Wick district is in course of arrangement.

CLACKMANNAN.—Thomas Ritchie, Bowhouse, Alloa.

DUMBARTON.—Lorne Campbell, Roseneath.

DUMFRIES.—Bradshaw Barker, Wyseby Hill, Ecclefechan; James Church, jun., Tower of Sark, Canobie; Robert Elliot, Hardgrave, Lockerbie; James Grierson, Morton Mains, Thornhill; James W. Paterson, Peasmont, Dumfries.

EDINBURGH.—John Finnie, Swanston, Burghmuirhead; Peter M'Lagan, jr., of Pumpherston, Mid-Calder; James M'Lean, Braidwood, Penicuik.

ELGIN.—James Geddes, Orbliston, Fochabers.

FIFE.—James Balfour, Milton, Leuchars; Robert E. Beveridge, Urquhart, Dunfermline; William Dingwall, Ramornie, Kettle; James B. Fernie, of Kilnax, Kennoway.

FORFAR.—John Alexander, Mains of Glammis, Glammis; Robert Hector, Kintochat, Brechin.

HADDINGTON.—Matthew Buist, Tynninghame, Prestonkirk; Henry M. Davidson, Haddington; George Harvey, Haddington; George Hope, Fentonbarns, Drem; P. H. Hume, Lawfield, Cockburnspath; David Wright, Southfield, Gladsmuir.

INVERNESS.—Robt. Ballingall, Portree House, Portree; Thomas Macdonald, Fort-William; Alex. Macdonald, Balranald, North Uist; Dr. M'Gillivray, Eoligary, Barra, Lochmaddy; Dr. Maclean, Dremisdale, South Uist; James Macpherson, Biallid, Kingussie; Donald M'Rue, Luskintyre, Harris. Enumerators for the other three districts are in course of arrangement.

KINCARDINE.—James Farquharson, Auchinblae.

KINROSS.—Andrew Donie, Blair-Adam.

KIRKCUDBRIGHT.—James Barbour, of Bogue, Dalry; Thomas Laurie, Terreglestown, Dumfries; Walter M'Culloch, of Kirkcaldagh, Gatehouse; Robert M'Knight, of Barlochan, Castle Douglas.

LANARK.—James Brown, Libberton Mains, Carawath; William Forrest, of Treesbanks, Allanton, Hamilton.

LINLITHGOW.—Robert John Thomson, Hangingside, Linlithgow.

NAIRN.—James Mitchell, Mill's of Nairn, Nairn.

ORKNEY AND ZETLAND.—In course of arrangement.

PEEBLES.—James Murray, Drochil Castle, Noblehouse.

PERTH.—Alexander Conacher, Alton, Pitlochrie; Robert Geekie, Rosemount, Blairgowrie; Thomas W. Lorimer, Belbie, Auchtermoidie; John Matthew, Colin, Perth; Fletcher Norton Menzies, Tirluie, Aberfeldy; Robert Patterson, Offers, Stirling; Thomas Ross, Bachilton, Perth; Thomas Wylie, of Airlewright Bankfoot, Perth; James Young, Cairnemyll, Perth.

RENFREW.—John Colquhoun, Corkerhill, Pollockshaws; James Foster King, West Longhaugh, Bishopston; Arthur Mather, Nether Place, Newton; Alexander Wilson, Forehouse, Kilbarchan.

ROSS AND CROMARTY.—David Logan, Auchtertyre, Lochalsh; Wm. Murray, Kilcoy, Inverness; Murdo M'Aulay, Lynshader, Stornoway; A. K. Mackinnon, Corry, Broadford; Charles Robertson, Auchtercairn, Gairloch, Poolewe; Crawford Ross, Cadboll, Fearn, Tain. An enumerator for another district is in course of being appointed.

ROXBURGH.—Adam Brack Boyd, of Cherrytrees, Kelso; John Dugeon, Spylaw, Kelso; George W. Hay, of Whiterigg,

Melrose; John Jardine, Arkleton, Langholm; Daniel Mather, Hallrule, Bonchester Bridge; John Ord, of Muirhouselaw, Nisbet, Kelso, James Robertson, Ladyrig, Kelso.

SELKIRK.—John Anderson, Lewinshope, Selkirk.

STIRLING.—William Forrester, Stewarthall, Stirling; Thomas Graham, yr., of Balfunning, Kilmearn.

SUTHERLAND.—Alex. Clarke, Eriboll, Tongue; Chas. Hood, Inverbrora, Golspie; Evander M'Iver, Scourie; Robert B. Sangster, Golspie.

WIGTOWN.—James Caird, Baldown, Wigtown; John Crawford, Glenhead, Stranraer.

AN INTERESTING VISIT TO A GUANO ISLAND.

Amongst all the new-fangled manures introduced by experimentalizing agriculturists, during the last twenty years, not one has been so rapidly and universally adopted as guano. Its astonishing fertilizing qualities and easy mode of application have rendered it a general favourite with the farmers, though the immense distance of the places from which it is chiefly obtained, and its consequent high price, must limit its use, even if the supplies were inexhaustible.

The island of Ichaboe, on the west coast of Africa, from whence guano was first obtained in large quantities, is perhaps the most remarkable instance of a desolate rock becoming suddenly the port of destination for hundreds of large ships, and the source of immense wealth to numerous individuals. But Ichaboe was soon exhausted, and the dusty treasure that had for many centuries been accumulating on its rocky bosom was literally swept away. The once busy island has now returned to its former loneliness, and the fleet of ships that gathered round it seek, on still more distant coasts, the fertilizing powder that shall fatten the impoverished fields of Old World countries.

More than half the guano imported during the last ten years has been obtained from a small group of islands called the Chinças, that lie off the port of Pisco, on the Peruvian coast. Of these islands, the largest, Saugallan, has very little guano upon it, the principal deposits being found on three smaller ones, the most northern of the group. These are distinguished as the north, middle, and south islands. The north island has been constantly worked ever since the introduction of guano. The middle one has also been occasionally invaded; but the south island, on which we believe the accumulation to be greatest, remains untouched.

Every ship bound to the Chinças is compelled to anchor at Pisco, in order to pass the necessary custom-house formalities, before proceeding to her loading-ground. A couple of hours are then sufficient to carry her across the few miles of water that intervene, and she soon drops her anchor amongst the numerous fleet that is ever laying off the island, waiting their turn to load. The odorous scent of the guano is distinctly perceptible at several miles distance, and is far from unpleasant when thus mingled with the pure sea air.

The first duty of the crew after the ship's arrival is to discharge the extra ballast, and, as the captains have no dread of port-officers or harbour-masters, the sand or stone is quietly tossed over the side, until there is barely sufficient left in the hold to keep the vessel on an even keel. In the meantime the long-boat is hoisted out of her berth amidships, and a part of her crew are busily employed in bringing off boat-loads of guano from the island, to replace the discharged ballast.

The peculiar odour pervades the whole ship; the carefully tarred rigging becomes a dirty brown, while the snow-white decks and closely furled sails assume the same dark hues.

On the side next the mainland the islands rise precipitately from the sea to a considerable height, presenting only a bare dark wall of rock. From the upper edge of the precipice the huge mound of guano slopes rapidly upwards for a short distance, and then spreads into a level surface that gradually descends on every other side to within a few yards of the water. Here and there huge craggy points thrust their white heads through the brown crust of guano, which has completely filled up the deep hollows that have originally existed in the island, and would soon, had it not been disturbed, have covered even the crests of what were once tall pinnacles. The only safe landing place is on a narrow strip of beach, the remainder of the island being surrounded by low rock and small detached reefs; but the irregular formation has greatly facilitated the loading of ships, enabling the crews to accomplish that in a few days which, under other circumstances, must have cost them studious weeks of labour. Close to the face of the rock the water is deep enough to float the largest merchantman; and the steady constancy of the trade-wind, which rarely increases beyond a pleasant breeze, enables the ship to lie in perfect safety in close contact with her two most dangerous enemies, a rocky island, and a dead lee shore.

Having taken aboard by her boats sufficient guano to ballast her, the ship is hauled in close to the steep reef, to which she is securely bound with warps and chains, two anchors being dropped to seaward, to enable her to haul off again when loaded.

Down to the very edge of the precipice, on its summit, comes the point of a triangular enclosure, open at its base, and made of strong stakes driven into the solid guano, and closely knit together with iron chains. At the point resting upon the edge of the cliff there is a small opening, to which there is firmly attached a wide canvass pipe, which hangs down the face of the precipice, and passes into the hold of the vessel beneath. The enclosure, which will contain several hundred tons, is filled with guano by the Indian labourers, and a small line that encloses the mouth of the pipe being slackened, the whole mass is poured into the ship at a rate which very soon completes her cargo. From different parts of the pipe bow-lines lead to the mast-heads of the vessel, and from thence on deck, where they are tended by the crew, who alternately haul upon and slack them, so as to keep the long pipe in motion, and prevent its choking. But, however well they may succeed in that effort, the men have considerable difficulty in avoiding some such catastrophe in their own persons; for the guano,

after falling from so great an elevation, rises through the hatchways in one immense cloud, and completely envelopes the ship, and renders the inhaling of anything else but dust almost a matter of impossibility. The men wear patent respirators, in the shape of bunches of tarry oakum, tied across their mouths and nostrils; but the guano mocks at such weak defences, and a brisk continued fusillade of sneezes celebrates the opening of the pipe, and accompanies, in repeated volleys and unwilling tears, the unremitting shower of pungent dust. In the meantime a gang of Indians are at work in the hold, trimming and levelling the guano as it pours from above. How they contrive to exist at all in such an atmosphere is a matter of astonishment; but even they are unable to remain below longer than twenty minutes at any one time. They are then relieved by another party, and return on deck perfectly naked, streaming with perspiration, and with theirrown skins thickly coated with guano. The two parties thus alternately relieving each other, a ship of seven or eight hundred tons is loaded in two or three days—the Indians working during the night, and filling up the enclosure, ready for shipment the following day. A smaller enclosure and pipe supply the boats of the vessel anchored off the island.

The guano is dug out with pick and shovel down to the level of the rock; and on the North island the cutting thus formed is in some places from 60 to 80 feet in depth, in others it is only a few inches; but these shallow spots are comparatively rare, and usually border on some deep valley, firmly packed with the prevailing substance. From the pressure of the superincumbent mass, the lower strata have become almost as hard and compact as the rock itself, and the colour deepens from a light brown, or sometimes white, at the surface, to nearly black at the bottom of the cutting.

The guano of the China Islands is said to surpass all other deposits in its strength and fertilizing qualities, and this is chiefly attributed to the fact that rain never falls on the islands. Owing to this extreme aridity of the climate, the saline particles of the manure are never held in solution, and are therefore less liable to be lost by evaporation than where the surface of the mass is frequently washed by heavy rains. Large lumps of very strong and pure ammonia are, in fact, frequently turned up by the diggers. The thick fogs that at certain seasons are of nightly occurrence on the coast, convert the outer layer into a greasy paste, which is immediately baked by the sun into a hard crust, that prevents even the fogs from penetrating into the interior. This crust is completely undermined by the birds that still frequent the island in vast numbers, though they are said to bear no comparison to the myriads that formerly held sole and undisturbed possession of them. These are misos, gamets, penguins, pelicans, divers, sheer-beaks, and many other sorts of sea-fowl, but the most common is the guano bird, a very handsome creature, beautifully variegated, and decorated with two pendant ear-drops. Naturalists, delighting in hard words, call him, I believe, *sulieta variegata*. These web-footed colonists form regular towns beneath the crust of the guano, and various settlements, communicating with each other by galleries, running in all directions, so that it is deemed almost impossible to set foot upon the untouched surface of the island without sinking to the knee in some feathered lady's nursery, and either smashing her eggs or mutilating her half-fledged progeny. The egg-shells, and the remains of fish brought to feed the young birds, or to be devoured at leisure by the old ones, must form a considerable item in the deposits.

Thickly tenanted as are the islands and the air above, the waters beneath are no less full of life. Shoals of small fish are

continually passing through the channels. Whales are frequently seen rolling their huge bodies in the offing; and the numerous caves that perforate the islands on every side are inhabited by colonies of seals and sea-lions, that wage an unceasing predatory war upon the sparkling shoals that pass, unconscious of all danger, off their gloomy surf-bound territories.

The islands themselves are perfectly barren. Not a blade of grass, nor even a particle of moss, exists upon them. They present only one brown arid expanse, incapable of furnishing food for the tiniest nibbler that ever gnawed a grain of corn; and yet they possess sufficient fertilizing power to transform a barren desert into a fruitful garden, and they annually furnish food in other lands for thousands of hungry mortals who never even heard of their existence. They are also completely destitute of water—the Indians, who live upon them, being supplied with this necessary of life by the shipping, in turns. Every article of food is brought from Pisco, to which port the guano-diggers occasionally resort to spend in extravagance and dissipation their hard-earned wages. The Commandant resides on the north island, in a miserable cottage; four poles stuck in the guano, with grass mats or a few reeds stretched between them, and covered in with a flat roof of the same material, form specimens of a high order of China architecture. Furniture is, of course, unknown, and clothes are as nearly so as possible; but the high wages given to the labourers appear to balance the *desagremens* of their position, for several Englishmen are amongst their number. Some of these are employed in mooring the ships alongside of the rock.

Guano has been used for agricultural purposes in Peru ever since the invasion of the Spaniards, and there are good grounds for believing that its use was known to the Indians long anterior to that period. It is now chiefly applied there in the cultivation of maize and potatoes, and large quantities of it are consumed in the haciendas that skirt the banks of the rivers which flow from the mountains through the desert, raising in their passage through the arid sand-ocean long green islands of extraordinary fertility. The mode of applying the manure differs considerably from that adopted with us. It is never used with the seed; but when the plants are a few inches above the surface, a long shallow trench is made close to the roots, and in this a small quantity of guano is placed, the white being always preferred, the trench being laid completely under water by dams and sluices erected for the purpose, or, where no such system of irrigation exists, other means are adopted for thoroughly saturating the soil. The potatoes produced by this mode of culture are perhaps the finest, both for size and quality, in the world, and the extraordinary rapidity of their growth, after the application of the manure, is most astonishing.—Canadian Agriculturist.

DISCOVERY OF A NEW GUANO ISLAND.—Private advices received on Monday from San Francisco refer to the recent report of the discovery of a new guano island on the coast of the Pacific. It was understood that one of the principal American houses at San Francisco, in connection with some parties in the Sandwich Islands, had received information on the subject, and had purchased a revenue schooner, named the *Frolic*, and a clipper bark, the *Emily*, of 400 tons, to proceed at once for cargoes. These vessels were fitted out with as much secrecy as possible, but were believed to have taken a considerable number of men and a large supply of implements. The situation of the island is supposed to be about the latitude of Acapulco. It is said that it has no good harbour, and that the guano will have to be shipped from it in small vessels to some port near. Other accounts allege that the island is somewhere on the coast of Lower California.

TRADE OF THE CRIMEA.

Some interest will be felt in knowing the nature and importance of the commercial relations kept up by the Russian province where the allied armies have already obtained a footing. The following sketch will give some idea on the subject.

Let us first of all remark that the situation of the Crimea is admirable, situated between the Black Sea and the Sea of Azoff—that is to say, between the Danube on the west, the Dnieper on the north, and the Kuban on the east, all grand commercial affluents of the European continent in its Eastern portion and of Southern Russia, as likewise of the Caspian basin. No position could be better for carrying on the international transactions of this part of the globe. The Crimea is, moreover, specially favoured in its interior by the mildness of its climate and by the fertility of a large portion of its territory, which is susceptible of every culture. In 1855 Mr. Schnitzler estimated its extent at 1,646 square miles, and its population at 400,000 inhabitants, about 100,000 of whom are Tartars—a race which is dwindling away and disappearing before the increase of the Christian population.

Corn, wine, cattle, wool, pelts and furs, hides, hemp, honey, oil, salt, and some fisheries—such are the chief elements composing the wealth of the land, where a transit trade also exists, since here corn and grain, oleaginous seeds, tallow and grease, tobacco, silk, Eastern tapestry, and the like, are brought for barter with the suifs, sugar, hardware, and other articles wrought in Europe, more especially in Russia itself.

Corn constitutes the bulk of the exports from the Crimean harbours—these harbours being adjuncts, we may almost say dependants, on the harbour of Odessa, that granary of the Levant, or rather of Southern Europe. According to the official reports for 1851 from the government of Taurida, the corn harvest had increased to 2,568,497 hectolitres. Ten years before it was hardly 1,000,000. It is particularly in the district of Berdiansk, peopled in part by foreign settlers, that the culture of the cereals is most developed, and it is thought that the entire basin of the Crimea, with that of the Sea of Azoff, may supply commerce annually with 5,000,000 or 6,000,000 hectolitres. Moreover, the Crimea in 1851 was found to possess nearly 2,000,000 sheep, half of which were fine-wooled, 248,260 head of horned cattle, and 85,700 horses. The salt-mines of Perekop and Eupatoria have some celebrity, and, although very inadequately worked, are a valuable source of wealth to the country. It is also well known what an importance the culture of the vine has acquired in the Crimea, especially the vineyards of Simpheropol, Yalta, and Theodosia. In 1851 their yield amounted to 83,798 hectolitres. The entire vintage of the Crimea—the greater part of which is consumed in the country, and the remainder of which is sold to customers in the provinces of Southern Russia—may amount, it is said, to double the figure given above, that is, to about 160,000 hectolitres.

The wines exported from the Crimea are, in general, of secondary quality, and are chiefly used, like those from the Caucasus, for mixing with other wines or with other preparations. The rich vineyards of Prince Woronzoff are much praised. They yield a sparkling wine, something like champagne. Brought originally from Hungary, the Rhine, and Burgundy, the plants to which the Crimea is now indebted for its wines have almost superseded the indigenous vine of the peninsula.

M. de Tegoborski says that the Taurida possessed, in 1848, 35,577,000 vines, a number six times larger than what grew there 16 years before. The Russian Government has at all times made great efforts to develop the culture of the vine in the Crimea, and, to say the truth, it is almost the only culture which has acquired there any importance. Manufactures are at the lowest ebb. There are two or three factories for the weaving of common cloth, a few tanneries and a few yards for making morocco (Russian?) leather, and that is all.

As for the value of the exchanges carried on in the entire basin of the Crimea and the Sea of Azoff, we will give the figures quoted in the *Annales du Commerce Extérieur*, the best authority on the subject, since it is formed either from foreign statistics, or from the correspondence of our consular and diplomatic agents. In 1841 the estimate was—

	Imports.	Exports.	Total.
	F.	F.	F.
Ports in the Crimea ..	780,000	2,308,000	3,088,000
Ports in the Sea of Azoff	5,203,000	22,088,000	27,291,000

Ten years later, in 1851, the value of the traffic of the Crimea was only 1,747,000 f., a result showing a great diminution; and for the ports in the Sea of Azoff 34,084,000 f., which, on the contrary, shows a great increase. Kertch, placed on the straits separating the Crimea from the Transcaucasian provinces, and Taganrog, situated quite at the bottom of the Sea of Azoff, count for much in this commercial total. They alone exported in 1851 corn to the value of 7,564,000 f.—a sum almost equal to the aggregate amount from all the other ports. We must not, however, measure the commercial activity in the ports of the Crimea and the Sea of Azoff simply by the results of the foreign trade. The coasting trade, which is there extremely active, would give almost an equal value of exchanges. The home trade is also of some importance in the Crimea, and it may be judged of by remarking that there are 79 fairs held there every year. Goods to the value of 2,494,000 roubles (nearly 9,000,000 f.) were brought to them in 1851; and what is remarkable is the fact that, with the exception of the two fairs at Simpheropol, all of them are held in the Northern districts, almost exclusively peopled with Christian agriculturists. To sum up, the foreign trade of the two seas in 1851 employed 1,561 ships, carrying 400,000 tons; and the coasting trade may well have been three times larger.

The coasts of the Crimea offer, in fact, a large number of harbours that in all times have been eminently useful to ships frequenting these difficult, and sometimes dangerous seas. The chief harbours are Eupatoria, Theodosia, or Kaffa, Kertch, and Sebastopol; to which we must add, as belonging to the same sphere of commercial activity, the ports in the Sea of Azoff—viz., Berdiansk, Mariopol, Rostoff, and Taganrog. The Genoese thoroughly understood the importance of such a line of coast when, towards the end of the 13th century, they purchased, or rather took, from the Mongol-Tartars the ancient Theodosia, spread their colonies over all Taurida, covered with their ships the shores of the Euxine, and founded Kaffa, which soon became the principal centre of Europe's commerce with Asia Minor, Persia, and the Indies. Two centuries later the Crimea was for a long time blighted, as it were, with sloth and sterility; its cultures, its commerce pined away more and more through atrophy; and the yoke imposed upon it by the

Muscovites in 1749 was little calculated to restore it. But, thanks to the franchise granted by the Empress Catherine to its ports subsequently, the peninsula saw its prosperity rapidly return. Unfortunately, the Czar Paul, through some malign inspiration, thought he ought to protect the commerce of Taurida by cancelling this franchise, and replacing it by an oppressive system of Customs, with all their restrictive regulations. Nevertheless, the Crimea has progressed by the force of things, by its own elements of vitality, by the constant growth of the Christian population. And, now that the Black Sea and the mouths of the Danube, free at last, are about to be opened to navigation, to all the transactions of the western nations, we may look upon this country as destined for great things.—*Debats.*

AGRICULTURE IN EGYPT.—It is as true now as in the days of Zechariah, that in the land of Egypt there is no rain.—Zech. xiv. 17—and the country is watered wholly from the Nile. A trench is dug from the river leading to a reservoir below its level, in which the water continually flows; from this the water is dipped up in buckets, by a contrivance like the rudest well-pole—the Shadoof—which is worked by hand or by a wheel with buckets—the Sakia—which is turned by a rude cog-wheel apparatus, moved by a buffalo or a camel. Sometimes, where the banks are high, there is a succession of platforms with Shadoofs or Sakias to raise the water from one to another. At the surface it is poured in a trench, from which—as from an artery—smaller trenches branch off at intervals, and usually at right angles, intersecting and irrigating all the adjacent land. As the whole of Upper Egypt is but a fertile strip, four or five miles wide by as many hundred miles in length, lying upon both sides of the Nile, between two deserts and their mountain boundaries, it is possible in this way to keep the whole country well watered. In the broader parts of the Nile valley, canals are cut, into which the water flows when the river rises by the effort of rain in the mountains of Nubia and Abyssinia and from these canals it is dipped up by the Shadoof and the Sakia, and poured into smaller trenches. In the Delta, or Lower Egypt, below Cairo, the different branches of the Nile, with the aid of artificial canals, suffice to flood the whole country during the season of high water; and in the time of low water, the Shadoof and the Sakia perform here, also, their customary office. It has been computed that there are in Egypt about 40,000 Sakias, or about four to every square mile of cultivation; but this seems to be an over-estimate. The large sugar plantations of the Pasha along the banks of the Nile, as well as the royal and the public gardens at Cairo, are now watered by means of steam forcing-pumps. In Nubia each water-wheel is taxed about fifteen dollars per annum; but there is no tax upon the land. In Egypt the land is taxed about three dollars per acre—which is from ten to fifteen per cent. of its cost—but there is no tax upon the water-wheel. In this state of things, it was natural that the Shekh, on hearing of the great American Nile, should wish to know the cost of irrigating the country from the river as a first item in his comparison of the two countries. He was surprised to hear that there were, no Shadoofs or Sakias on the Mississippi, but that sufficient rain fell to irrigate the land, and seemed to regard this as a great advantage. And so it is: for in Egypt the land-owner must erect his own water-wheels, and, as the land is held or rented in very small lots, the expense of watering it by the toilsome process of the Shadoof is a main item in the cultivation. Frequently three or four neighbours combine and

work the Shadoofs in company, for their common benefit. But on the other hand, a land of rains requires better building materials than are found in Egypt, and especially shingles, for which this country furnishes no wood, unless the barks and leaves of the palm could be made a substitute. The statement that land could be bought for one dollar twenty-five cents per acre, and held in perpetuity by the purchaser, sounded strangely in a land where the greater part of the soil is held in fee by the Pasha, and can be bought only at from twenty to thirty dollars the acre, subject to a government tax of three dollars.—*Rev. J. Thompson, in "Independent."*

TRUE VALUE OF A FARM.—There is something in the owning a piece of ground which affects me as did the old ruins of England. I am free to confess that the value of a farm is not chiefly in its crops of cereal grain, its orchards of fruit, and in its herds, but in those larger and more easily reaped harvests of associations, fancies, and dreamy broodings which it begets. From boyhood I have associated classical civic virtues and old heroic integrity with the soil. No one who has peopled his young brain with the fancies of Grecian mythology but comes to feel a certain magical fancy for the earth. The very smell of fresh-turned earth brings up as many dreams and visions of the country as sandal-wood does of Oriental scenes. At any rate, I feel, in walking under these trees and about their slopes, something of that enchantment of vague and mysterious glimpses of the past which I once felt about the ruins of Kenilworth Castle. For thousands of years this piece of ground hath wrought its tasks. Old slumberous forests used to darken it; innumerable deer have tramped across it; foxes have blinked through its bushes; and wolves have howled and growled as they pattered along its rustling leaves with empty maws. How many birds; how many flocks of pigeons, thousands of years ago; how many hawks dashing wildly among them; how many insects, nocturnal and diurnal; how many mailed bugs, and limber serpents, gliding among mossy stones, have had possession here before my day! It will not be long before I, too, shall be wasted and recordless as they.—*Henry Ward Beecher.*

FARMING.—Among the most vigorous class of people, the farmer may be found. There are many ways by which men of the present age procure the necessities of life, but no occupation is more conducive to health and happiness than farming. There are several ways by which this may be exemplified. First.—In order to make the muscles of the human body rigid and strong, they should all receive their due proportion of exercise. Those trades and kinds of exercise that tend to give every muscle its proper share of action, both of the upper and lower extremities, are most salutary, as it tends to develop and strengthen them equally. Second.—The purer the air we breathe, the longer the muscles can be employed in labour. What department can be more thoroughly ventilated than the open fields? Third.—Light has as great an influence upon man as it has upon the plant, particularly that of the sun. You have doubtless noticed a plant that grows in the shade is weak and pale. The same is true of man; both, in order to make them strong, require the stimulus of this great agent. There might be numerous other reasons brought forward to show that farming is most conducive to health; but it is useless to multiply them. In regard to happiness, I would ask but one question to be resolved in your minds. What is health but happiness? Knowing that farming promotes the greatest blessing, let each and every one of us be engaged in

this business; for shop work (particularly shoe making) does not bring the lower limbs into any action, while the upper limbs are constantly employed. The air indoors, where labourers are employed, is not so healthy as it is in the great department or shop owned by Uncle Sam, which was not

planned by man, and needs no ventilation. In-door work is not exposed to solar light; hence let us devote ourselves to that which affords us the purest air, and which exercises the muscles in the right mode; and that, as we have already proved, is farming.—*Farmer and Mechanic.*

FLAX CULTIVATION IN INDIA.

SIR,—The effect which the war with Russia will have in calling into action the latent powers of other countries to furnish those products which may be said to be indigenous to her soil, will render it impossible for her, in a commercial point of view, to return to the *status quo* at the end of the present contest. The result of a prolonged trade strike is the only parallel to this probable condition; and the causes are the same, namely, the changes that take place in surrounding circumstances during the time occupied in active hostilities, leaving neither party in the same relative position at their termination.

Flax being a plant that is capable of profitable cultivation over a very extended range of country and climate, and being one of the principal articles of export from Russia, and the staple of one of our most important home manufactures, it is to be hoped that every legitimate effort will be made more fully to develop and ramify its culture both at home and abroad. As an incentive to the British farmer to continue to keep these considerations in view, I beg to draw his notice to the operations of a society in one of our most remote and most recently-acquired provinces of India, called the "Agri-Horticultural Society of the Punjab," a copy of whose printed proceedings has just reached me by the Overland Mail. From these it would appear that the "Zumeendars" of that province have hitherto cultivated flax solely for its seed as an oil-producing staple; but the authorities and leading men now appear to be fully alive to the increasing importance and value of the fibre, and if they succeed in enabling the native cultivators to produce a suitable article for our markets, it will be difficult to set a limit to the supplies which our vast Indian territories may afford.

The members of the Agri-Horticultural Society of the Punjab, who met on the 20th of June last, to take up the subject of flax cultivation, appear to be confident of success; and as they comprise the Judicial Commissioners, the Deputy Judge Advocate, the Settlement Officers, several officers of the army, and other qualified individuals, every reliance may be placed on their judgment.

In May last, they had sent samples of flax grown under the auspices of the society to the Chambers of Commerce of Bombay and Calcutta, and the latter reported the samples as "the finest flax that had been grown in the country," and that "its cultivation might be safely encouraged."

In June following, J. Stalkartt, Esq., of the house of W. H. Wharton and Co., of Calcutta, used this flax

in the manufacture of rope, and reported, that though "not so fine as that of Europe, the length of the staple is satisfactory," and he consequently ordered a large quantity for rope-making.

Up to a recent period, as already stated, it appears that flax has been cultivated in the Punjab solely for the production of linseed oil. Now, however, it is proposed to save the fibre; and the means by which this is intended to be accomplished, is by the Indian Government giving the *bazaar price* for the seed, with 25 per cent. added for the straw until its merchantable quality has been ascertained in the English markets. This appears slender encouragement to the native cultivator to preserve the fibre, compared with what is the case in this country, where a return of about *four* times the value of the seed, or say £12 per acre, is obtained; and this may account for the weakest point of our practice—the reverse of the Zumeendars—being that of not universally saving the seed.

The Punjab Society has applied to Government and the Court of Directors, requiring them to import a large quantity of Belgian seed for this autumn sowing; likewise *hand-breaks*, *seed-combs*, and *heckles*. A certain Irish corporal had been found most useful in teaching the natives the use of these several articles, and as they show considerable aptitude in acquiring the art of manipulating the fibre, it may be thought worthy of consideration by Government whether it would not be good policy to send out, and place under the auspices of this and other kindred societies in India, a number of the industrious weaver-farmers of Ulster, to teach the ryots how best to cultivate the crop, and prepare it for mark—a step exactly similar to one which I recommended the Leeds and Yorkshire Flax Society to adopt, in a communication addressed to them last April, and which was read at its inauguration meeting, and published in their reported proceedings.

In India, the Government, through the bazaars, will supply a desideratum which has been the cause of much discouragement to the growers in this country, namely, *middlemen*: to buy the straw and prepare it for the manufacturer. But these may be expected gradually to spring up here, as required; and even should their absence, in some districts, oblige *new* growers to retain their flax in stack for a year or two, they may gain by so doing, as it is well known that the fine Courtray flax of France, which is now selling at £120 a ton and upwards, is so kept, after being slightly heated in the stack, and thus improved from 40 to 50 per cent. in value.

If private enterprise should fail to supply the necessary middlemen and locally convenient scutch mills, this

may be done, in many districts, by joint stock companies, with "limited liability," on the principle laid down by Mr. Commissioner Fane, in a paper lately issued by him on the subject.

But with all existing drawbacks, the profit arising from a reasonable breadth of well-managed flax has now been so frequently and uniformly demonstrated, and its non-exhausting effects upon the soil so fully proved, both practically and scientifically, that it is to be hoped, Mr. Editor, your able and influential pen will continue to be employed in maintaining and inculcating its advantages. The *future* holds out more encouragement to the farmer than the *past*. Our commercial relations with Russia are not likely to be securely re-established for some years to come, and the present convenient outlet for her produce through the Prussian port of Memel may next year be entirely shut up.

The agricultural produce of Russia imported into this country in 1852 was valued as under:—

Flax, hemp, and linseed	£4,500,000
Wheat and other grain	5,000,000
Tallow	1,800,000

Total.....£11,300,000

and it is now for the British farmer to sit down calmly, and calculate, which of these products it will suit him best to supply. Perhaps the decrease in the breadth of flax grown in Ireland, from 175,495 acres in 1853 to

159,328 this year, may appear ominous in the eyes of some; but when the inducements that existed twelve months ago to increase the breadth of wheat are borne in mind, and the fact that the quantity of land under flax cultivation this year is still nearly three times that of 1847-48 and '49, and greater than in any preceding year except the last, the doubts thus raised as to the advantage of flax-growing to the cultivator, ought altogether to disappear.* On the Audley estate in the south of Ireland, under my agency, upwards of 100 of the occupiers have, for several years past, had a portion of their ground under flax, and are gradually increasing it; and though not in the habit of making calculations, most of them believe that it affords a clear return, equal to that derived from any other crop grown; and my own observation confirms their opinion.

I am, Sir, your obedient servant,

THOS. SCOTT.

5, Charing Cross, September 25th.

* FLAX GROWN IN IRELAND.

1847	58,312	acres.
1848	53,863	"
1849	60,314	"
1850	91,040	"
1851	140,136	"
1852	137,008	"
1853	175,495	"
1854	159,328	"

M'GLASHEN'S PATENT TRANSPLANTING APPARATUS.

On Wednesday, Oct. 11, Mr. M'Glashen, the inventor, had the honour of exhibiting the apparatus in its most improved form, in full operation, in the palace grounds at Balmoral, in presence of his Royal Highness Prince Albert, the Hon. Eleanor Stanley, Major-General Charles Grey, Colonel Phipps, the Baron Stockmar, and Dr. Robertson.

Mr. M'Glashen first showed the simplest form of the invention—viz., that adapted for transplanting herbaceous plants—with which he lifted a plant of common heather, with an adherent ball of earth nine inches in diameter. He then applied a machine with four spades or cutters, with which he lifted a tall poplar tree with an adherent ball of earth 22 inches square. By adding four other spades to those used in this operation, the apparatus was in a few minutes converted into one suitable for lifting a ball of earth 4 feet 8 inches in length by 3 feet 5 inches in breadth; and with it he proceeded to operate upon a fine birch tree about 20 feet in height. The cutters being driven in, and the apparatus adjusted, the tree was speedily raised out of the ground, with a fine ball of earth around its roots, the operations being conducted by Mr. Paterson, her Majesty's gardener at Balmoral, with the assistance of two workmen. His Royal Highness was greatly interested in the invention, and with the satisfactory manner in which the work was performed. In the course of the different experiments, his Royal Highness called attention to several important improvements which he perceived the inventor had made since

the exhibition of the apparatus in the London Horticultural Society's Gardens, when a poplar 55 feet high was successfully transplanted.

While preparations were being made for lifting the birch tree, his Royal Highness took up one of the smallest-sized transplanters (adapted for removing herbaceous plants), and, having lifted with it a young poplar tree, remarked the great facility with which the operation was performed. The large birch tree was afterwards conveyed by the improved transplanting carriage (drawn by a horse) to a distance of a quarter of a mile, where it was safely deposited. Notwithstanding the roughness of the road, the conveyance of the tree was effected with great ease, the construction of the carriage being such as to require comparatively less strength for propelling a given weight than an ordinary cart.

The whole of the experiments were so highly satisfactory, that his Royal Highness gave orders for the purchase of the apparatus employed on the occasion, for use on the Balmoral estates.

From our account of the experiments, it will be seen that the machine used at Balmoral is applicable to various sizes of trees. When all the spades are used, it is adapted for lifting trees with a ball of earth 4 feet 8 inches long by 3 feet 5 inches broad; but, by using only four of the spades, a ball of 29 inches square may be raised with equal facility.

THE WHEAT TRADE.—No. II.

DEAR SIR,—I propose in this letter to consider the question of the supply of wheat for the ensuing season; but before entering upon it, I would beg leave to remark that there are many circumstances in the present condition of this country, without any precedent in its history; and therefore that any calculations of the future, founded upon the experience of the past, are more likely to prove fallacious than otherwise. The state of warfare into which the nation has been plunged, if there were any analogy between the present and the last contest, would infallibly cause a high price of provisions of every kind. Those who remember the late war from its commencement, are aware of the effect of a season of scarcity, like that of last year, in thus raising corn to a famine price; and they may well be surprised at the comparatively very moderate advance, which was barely sustained, with so large a deficiency as then existed in the crop, and at the regularity of the supply obtained from abroad. The fact is, free trade in corn has completely changed the character of our commerce in that article, affording us ample facilities for supplying any deficiency, at home from the redundancy in foreign parts; and henceforth, unless we are foolish enough to go to loggerheads with all the world, we never need fear a famine of bread. Every country with whom we are at peace will be ready enough, both to send us what they have in stock, and to extend their cultivation to meet our future necessities.

Having premised thus much, I now turn to the immediate object of my letter. I have already stated, taking Mr. Sturge's estimate, that the stock of old English wheat is at, the present moment, less by five million quarters than it was at the same period last year, and perhaps than the average of years. On the other hand, the quantity of old foreign wheat is probably larger by half a million quarters than it usually is at this season, which will reduce the deficiency in stock to four and a-half millions. With this acknowledged deficiency, what are, then, the prospects for the ensuing season?

It is generally supposed that, both in England and in Ireland, there has been an unusually large breadth of wheat sown the last season; but from some considerations, we have reason to believe the excess in Ireland is far greater than in England. In the former country, there is no regular system of cropping, every farmer being at liberty to sow his land with whatever grain, &c., he thinks most likely to be profitable. Hence, the deficient crop of wheat last year, coupled with the breaking out of the war, giving promise of remunerating, if not high prices, the Irish farmers returned to the cultivation of wheat, which many of them had seriously determined to abandon altogether. It is extremely probable, that at least one-fifth greater breadth of wheat was sown in Ireland last year, than in any one of the ten previous years, there being no covenants of lease to check it.

But with the English farmers generally the case is widely different. A large proportion of these are bound by their leases to a certain routine of crops, any deviation from which, without the special permission of their landlords, would render them liable to an ejectionment. And independent of this check, the arrangements of the English and Scotch farms are so rigidly systematic and methodical, that very few of them could with impunity be thrown out of course, for the sake of obtaining an extra profit upon an excess of a given crop. By such a proceeding the farmer would at once disarrange the entire routine of both cropping and grazing, for which any extra profit would be considered a poor remuneration.

It is equally true, however, that this adherence to system was in some measure broken in upon by the excessively wet season of 1852-3, which rendered it impossible to sow the usual quantity of land with wheat. We have, in a former letter of last season, estimated this at one-fifth, to which extent therefore the land was *involuntarily* thrown out of course. But this would not affect that portion which would come in course for wheat the next season, and it is probable that a part of it at least was sown with wheat last autumn, which would swell the aggregate breadth to that extent. What this is, it is impossible to say. Many agriculturists with whom I have conversed on the subject are of opinion that the excess is very small, whilst others represent it as one-sixth above the average. From all that I can gather, I am disposed to think that *on the light and mixed soils there is very little more than usual, because they were less affected by the wet weather; but that on the heavy lands, where it was impossible to sow in the autumn of 1852, a large portion of the land was sown last autumn.* Taking, therefore, these various circumstances into account, I do not think I shall be far beyond the mark in estimating the extra breadth sown in the United Kingdom last season at *one-tenth above the average*, equal to 1,600,000 quarters. On the other hand, there is an excess of produce above the average of from one-sixth to one-eighth. Taking the mean of one-seventh, our account of the present crop and stock stands as follows:—

	Qrs.
Average produce	16,000,000
Excess in breadth one-tenth.....	1,600,000
	<hr/>
	17,600,000
Excess of produce one-seventh	2,514,285
	<hr/>
Qrs.....	20,114,285

If to this we add one million and a-half of foreign grain, we have an aggregate of 21,614,285 quarters to meet the consumption of the year, which is estimated at 21,000,000. There will still, however, be the usual stock of the country—now minus 5,000,000 quar-

ters—to be made up. For it would be monstrous to suppose that in a country like this there should be no stock on hand, to fall back upon in an emergency. We shall, therefore, require an importation this year of from four to five million quarters, to place us in the average condition we have hitherto found ourselves in, in regard to the stock of wheat.

We shall next take a look round, and see how this supply is to be obtained. As we have just stated, any calculations for the future, founded upon the experience of the past, are not to be depended on. With present appearances, it is not at all likely that we shall obtain the usual supply from the Black Sea ports, even if the Danube is free to navigation, and the Crimea and Odessa were in the possession of the Allies—as I hope will soon be the case. The consumption and waste of such large armaments, and the disarrangement of commerce and agriculture under the iron rule of war, to say nothing of the probable prohibition of the Czar to his subjects from supplying the Allies or conducting commerce with them from the interior—all these circumstances lead me to think that the quantity of wheat we shall obtain from Southern Russia this season will be very small. And with respect to the Danubian Principalities, they have been for twelve months the seat of war, and are still occupied with vast armaments. Under the Russian coercive domination, neither agriculture nor commerce could be conducted with any regularity; and it is probable that not only was a large portion of the land left unsown last autumn, but that much of the growing crop has been destroyed by the military operations, and in furnishing the Russian cavalry with green food; for no economic considerations would, by any possibility, enter the mind of a Russian officer. We shall therefore have much less grain than usual from the Danubian and other Turkish Black Sea ports, *if we get any at all*, which is very doubtful.

From the Mediterranean ports, with the exception of Egypt and Syria, we shall obtain but little wheat. France and Italy are, for the present, closed against exportation by prohibitory laws. The former country, like the United Kingdom, has exhausted her stocks of old native wheat, and is compelled to fall at once upon the new crop, which, however good, will not be enough both to meet the consumption and provide the usual reserve stock. It is probable that France and England will continue, as last year, to trade mutually with each other in wheat, according as the markets fluctuate. If the price falls here below that in France, the latter will be buyers in our market; and *vice versa*.

With regard to the Baltic and northern countries, with the exception of Russia, the stocks of old wheat are exhausted. Not only had the merchants the stimulus of high prices to induce them to ship to the utmost; but the insecurity, and the uncertainty as to what course the war would take, induced them to export to the last quarter to England and France, as the only countries where it would both be safe, and obtain remunerating prices. The crops in those countries are good, and we shall probably get an average quantity from thence, if no untoward events cause a blockade of the Baltic ports.

We now come to the United States of America; and if the accounts of the maize crop—and wheat also, in some parts of the Union—be correct, their prices will probably be too high this season to allow of their shipping more at any rate than the usual quantity this season. It is stated in the American papers that the corn crop (maize) is at least one-fourth deficient, which amounts to 125,000,000 bushels, or 15,625,000 quarters.* And, with regard to wheat, in some of the western States, where the largest quantity is raised, the crop is very deficient—in many cases amounting to a total failure. To what extent this may be the case it is impossible to say; but, taking the deficiency in both crops into account, it must necessarily have its effect upon the price; and, unless our prices are higher than theirs, it will materially affect the export of wheat from the States, and also, probably, draw off a considerable portion of the supplies from Canada, where the crop is represented to be excellent.

Under these circumstances I estimate the supplies for the next year as follows:—

				Qrs.
The Northern ports	..	..	..	1,750,000
Mediterranean do.	..	..	..	500,000
Black Sea do.	..	..	..	300,000
United States	..	..	..	800,000
Canada	..	..	..	400,000
				<hr/>
				3,750,000

This may probably be made up to four millions from quarters that do not come under the sections above given; but I cannot by any possibility see where we can increase that quantity unless “a sudden transition from war to peace” should restore our northern trade to its accustomed channels. However, with this quantity added to the abundant crop, we shall be able to reinstate the country in nearly the same condition as to stock that it has usually held; and we need not fear that prices will materially fluctuate throughout the season.

There is abundant reason for grateful reflection in the prosperous condition of all classes throughout the United Kingdom. Although the crop last year was a deficient one, the price was sufficiently remunerative to indemnify the farmer; whilst on the other hand, every other kind of agricultural produce bore a good price also, where there was no failure, as in meat, cheese, &c.; so that, generally speaking, it was a profitable year for the British farmer. This year, however, there is no question as to the success of agriculture. It is the opinion of many eminent men that we have not had so productive a season for fifty years. Certainly, we have had credible accounts of a produce in wheat, such as we never before heard of. This is undoubtedly to be ascribed to the highly improved system of farming, coupled with the favourable season; and thus a kind Providence has worked with and seconded the efforts of human industry and intelligence to the production of splendid results.

Yours faithfully,

London, Sept. 20th, 1854.

S. C.

* The corn (or maize) crop of last year was 500,000,000 bush.

REMARKS ON THE HORSES EXHIBITED AT THE LINCOLN SHOW OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

By CECIL.

The meeting of the Royal Agricultural Society of England, held at Lincoln on the 20th and 21st of July, presented a tempting inducement to visit that highly celebrated and sporting county; it also afforded me an opportunity of inspecting Lord Henry Bentinck's hounds in their kennel—a gratification which alone was quite sufficient to compensate an enthusiastic admirer of the fox-hound for the journey. The minute details of an agricultural meeting are perhaps not quite suitable to these pages, if we except that portion relating to hunters which always excites an interest with sportsmen. Strange to say, they are a class of horses excluded from the category of this highly influential society. The blank, on this occasion, was most admirably filled up by the worthy Mayor of Lincoln, J. J. Tweed, Esq., who gave a sum of £40 for the best stallion calculated to be the sire of hunters, and two prizes—one of £20, the other of £10—for the most promising geldings or mares, three years old, to make hunters.

No doubt can exist of the advantages which would accrue from the adoption of adequate prizes for hunters and all kinds of horses adapted for pleasure or business, whether they be under the auspices of the Royal Agricultural Society, or others of a similar character; but the conditions require to be well matured and judiciously defined. There is a stimulus to the pursuit of breeding at the present crisis which only requires careful assistance to ensure ultimate success. Prejudices exist in the minds of many owners of stallions against exhibiting them on such occasions, not altogether without foundation. To bring the custom of exhibiting horses into good repute, the temptation held forth must be a prize of adequate value, and the selection of competent judges is a circumstance of the utmost importance. The office is an inviolable one, and, to alleviate that objection, certain data should be adopted for their guidance, but without fettering them in their general opinion; for decisions in such cases must be, to a certain extent, matters of opinion, in which the most experienced judges will at times vary; entertaining, as they do, different ideas on the merits, perfections, and defects, as to what are the most important qualifications in horses. No person is competent to adjudicate on the eligibility of a candidate for the honour of begetting hunters, or any other class of horses in use for the saddle, unless he has had great experience in the breeding department; with this must be combined a thorough knowledge of pedigree, and also of racing, in order that he may be able to trace hereditary characteristics which are transmitted through certain families, many of which are developed on the turf more unequivocally than by any other test. A judge of hunters, and of horses best adapted to become sires of hunters, must be accustomed to ride to hounds, and constantly observing the horses he meets with in the hunting field, so that he may have an eye for the kind of animal most generally admired, and be able to determine what blood is most celebrated for soundness, speed, and endurance in that occupation, which is not on all occasions correlative with racing performances. Many horses have been very remarkable for their success as sires of hunters, which have been singularly unfortunate in the harem of the turf. Of these, we may name Master Henry, Fyledener, Spectre,

and Belzoni, neither of which was the sire of an animal worthy of the name of race-horse, but for hunting purposes their stock was very superior. There are likewise several horses which have distinguished themselves as the progenitors of superior stock in both departments, and their blood should never be lost sight of, when making selections for stud purposes. The most conspicuous of those which occur to me at the present moment are Orville, Muley, Sir Oliver, Williamson's Ditto, Pantaloon, and Sir Hercules; any descendants from them, unless hereditary defects are established from other sources, are especially adapted to beget hunters. There are very few horses, indeed, against which some objections may not be raised; it is therefore incumbent upon judges that they compare the merits with the defects, and award their decisions in favour of those in which good qualities predominate, estimating them likewise with reference to their specific importance. The character of the stock from every tried stallion is also a subject which demands especial notice, and ought to form a conspicuous item whereby the estimate of his merits are balanced. One of the very important features connected with the exhibition of horses at agricultural meetings consists in the examples afforded to all classes of breeders, but more especially to the inexperienced, of the kind of horse which is best adapted for the purpose. This information is, or ought to be, gained from the selections made by the judges; similar opportunity also arises from the discussions which ensue between friends. It is exceedingly amusing to hear the opinions expressed by spectators, who, entertaining very felicitous, but mistaken notions of their own judgment in horse-flesh, give utterance to the most ludicrous expressions.

With the exception of horses, mares, and young stock adapted for agricultural purposes, the prizes offered by the Royal Agricultural Society are confined to roadster stallions—a term of expansive comprehension, and might be subdivided into four or five classes. A horse sixteen or seventeen hands high, only fit for harness, comes under that denomination; so does the powerful, active, sure-footed cob, from fourteen to fifteen hands high, capable of carrying a heavy weight, which, if very handsome and clever, is worth as much money as a hunter. The speedy hack, nearly, if not quite thorough-bred, adapted to carry a moderate weight fifteen miles within the hour; the lady's docile, graceful palfrey; and the child's pet pony—these are alike deserving of encouragement. But the horse that is calculated to be the sire of one class, cannot under any circumstances, however diversified the character of the mares, be expected to fulfil the same duty in the production of either of the others. It would be just as reasonable to expect that a Derby winner should be the issue of a cart stallion.

The country around Lincoln could have supplied horses of higher reputation and greater intrinsic worth than those which were exhibited for Mr. Tweed's prize, peradventure the prejudices already named interfered. Nevertheless, the example is worthy of imitation, and with well-digested arrangements, would doubtless become popular. There were nine entered, and the award was given in favour of Loutherbourn. Without introducing any comparison between the merits of this horse

and those of his competitors, he is certainly not the animal that an experienced judge would select for the purpose of breeding hunters; his symmetrical proportions are not calculated to transmit power; he possesses hereditary bad fore-legs, has narrow hips, with exceedingly light thighs, consequently a deficiency of the propelling powers indispensable in a hunter. Neither will his pedigree prove attractive to a fox-hunter. Mameluke was his sire, his dam by Smolensko—blood never celebrated for endurance, substance, or stamina; hereditary properties inseparable from the perfection of a hunter. Mameluke was by Partisan, a strain of blood not so deficient of stoutness as the Smolensko; but the badness of their fore-legs, observable in most of his stock, has generally proved an impediment in the essential consideration of soundness. The first prize given for three-year-olds, calculated to make hunters, fell to the share of Mr. Stockdale, on behalf of a very clever gelding by Robinson, from a mare nearly related to Lottery, the celebrated steeple-chase horse, to whom considerable resemblance might be traced. The owner of this colt also exhibited another by the same sire, well worthy of notice, but not quite so lengthy as the former; perhaps on that account not less estimable. The second prize was awarded to a chestnut gelding, by an Arabian, dam by Cardinal Puff, exemplifying much more the character of a good hack than that of a hunter. The arrangements of these exhibitions do not afford spectators opportunities of forming opinions with respect to the action of the horses brought to them for competition, as they are confined during the whole of the day in the boxes or stalls appropriated for their accommodation, and action is one of the most important accomplishments riding horses can inherit. There is a great laxity observable in the pedigrees of the horses entered for competition; the accuracy of which ought to be regarded with as much exactness as in entering for a racing engagement—*Sporting Magazine*.

DAIRIES v. PIANOS.

"Farmers' wives were too proud for their work."
 "If a farmer's wife would have a good dairy, she would have little time to play the piano." (*Vide Observer Newspaper*, Oct. 8th, 1854.)

SIR,—The account in the *Observer* of the meeting of the Sparkenhoe Farmers' Club, at Ashby-de-la-Zouch, and the speech of Mr. Colvill, M.P., from which the above extracts are taken, may not be unworthy notice, for it shows from what quarter the wind blows; although it may not always be wise to raise a breeze, or to speak one's thoughts too freely, yet the sentiments of Mr. Colvill are such as find an echo in the breast of many a country gentleman and English landlord.

We educate the children in the National Schools to sing, though they are but labourers' children; but the wives and children of those who are of the class above them are not to think of music, but to be mere serfs.

It is in vain to deny that the landlords of England, as a class, do not like to see a thriving tenantry. A small shop-keeper may put by something out of his earnings—but not so the farm tenant. If he does, it is looked upon as so much out of the landlord's pocket, and the rent is raised. Few landlords like to see their tenants otherwise than "at their work;" and yet all landlords call out for tenants "of capital," for improving tenants;" but then the capital is to be spent on the landlord's soil, in improving it, not the tenant, and is not to come back to him.

A tenant guiding a plough, his wife milking her cows, or doing household drudgery, is a sight most tasteful to most landlords. The tenant must be sufficiently thriving to pay his rent in full; have capital enough to drain and manure highly, and "with spirit" to do it; and with confidence enough in "a vigilant agent" to be guided by him as to the kind of manure to be employed, its quantity, and where to be spread. But the tenant is not to feel himself, or to be, independent; he is to be a machine to raise rent for his landlord; he is to have for himself no comforts abroad or at home, or recreations there. He is not to drive a gig, be it ever so homely or convenient to himself and wife on market-days; it savours of the wish to keep a carriage—which is a landlord's luxury.

Other capitalists, paying £200 or £300 per annum or more, of rent, may be expected to make out of their business an equal sum for themselves, and how this is spent no landlord would think of asking a shop tenant; but not so the farm tenant. He is to be just able to live decently, but not aspire to put anything away for old age.

But if a tenant pays his rent and cultivates his land fairly, why need he feel under an obligation to the landlord, who has let him the land?

He may be sure that it was not to benefit him in particular, that the farm was let. The interests and convenience of the landlord were first consulted in the matter, and the landlord either had not the capital or the inclination to keep the farm in his own hands, or was afraid of not merely losing his rent, but of incurring a still greater loss of capital.

I am, Sir, your most obedient servant,
 Oct. 13th, 1854. A TENANT FARMER.

A DROP OF OIL.—Every man who lives in a house, especially if the house be his own, should oil all the various parts of it once in two or three months. The house will last much longer, and will be much more quiet to live in. Oil the locks, bolts, and hinges of the street-door, and it will shut gently, with luxurious ease, and with the use of a small amount of force. A neglected lock requires great violence to cause it to shut, and with so much violence that the whole house, its doors, its windows, and its very floors and joists, are much shaken, and in time they get out of repair in all sorts of ways, to say nothing of the dust that is dislodged every time the place is so shaken. The incessant banging of doors, scrooping of locks, creaking and screaming of hinges is a great discomfort. Even the bell-wire cranks should sometimes be oiled, and they will act more certainly and with such gentle force that there will be little danger of breaking any part of them. The castors of tables and chairs should be sometimes oiled, and they will move with such gentle impulse and so quietly that a sleeping child or old man is not awakened. A well-oiled door-lock opens and shuts with hardly a whisper. Three pennyworth of oil used in a large house once a year will save many shillings in locks and other materials, and in the end will save many pounds in even the substantial repairs of a house; and an old wife living and sleeping in quiet repose will enjoy many more years of even temper and active usefulness. Housekeepers, pray do not forget the oil. A stitch in time saves nine, and a drop in time saves pounds.—*The Builder*.

CULTIVATION OF FLAX.

In some observations which appeared a few months since in our columns, on the importance of extending the cultivation of flax in the United Kingdom, we adverted at considerable length to a process patented by Mr. J. N. Dixon, for preparing the finest flax-fibre from the straw as it comes from the field, without the retting process, and for rendering coarse, fibrous materials, the produce of foreign countries and our own colonies, capable of being spun into the finest yarn. In drawing attention to this process, we did it in no unfriendly spirit. We allowed Mr. Dixon to tell his own story; we gave in detail the certificates which he had published from Dr. Ryle and others, in testimony of the fineness of the specimens submitted to their inspection, and the advantages which would follow if the process should succeed on the large scale. We stated, moreover, that we knew strong hopes to be entertained by some eminent flax-spinners that it might be possible to prepare flax without retting it, so that it could be employed as a substitute for the Russian flax used for the coarser fabrics, for which there is the greatest and most increasing demand.

This, it appears, was not sufficient for Mr. Dixon, who is offended because we expressed, at the same time, doubts whether, for the finer fabrics, we shall ever be able to dispense with steeping, in some form or other. He has reprinted separately, under the title of "The 'Mark Lane Express' *versus* Dixon's patent Machines and patent Fluid," a letter originally addressed to the *Banner of Ulster*. Of this brochure he has forwarded us a copy, together with a private letter, in which he says that he has been compelled to this course, as it would have prejudiced his "views" and "damped his exertions" if he had suffered the matter to remain unanswered. He begs us also to reprint his letter to the *Banner of Ulster*, or such parts of it as we may deem "a sufficient answer to the point at issue."

We can only say that we wish Mr. Dixon every success; and that the best answer he can give to our doubts (expressed, as we contend, with the greatest moderation, and, we repeat, in no unfriendly spirit) would be, certificates from manufacturers who had worked up a few tons of the fibre prepared by his process, and who were satisfied with the quality of the fabrics produced from it. There has been abundant time for this; and, with the present dearth of flax, there are plenty of

spinners who will not be deterred from making the experiment by anything which they may read. This, however, is not the course pursued by Mr. Dixon. He wants the leading journals of Great Britain and Ireland to "ascertain and report on the absolute facts, as it is well known that we are at a loss for paper materials;" and he trusts the powerful assistance of the press will not be solicited in vain. We would remind him, therefore, that paper and cambric are two very different things, and that it may be quite possible to prepare fibrous materials for the manufacture of the former by processes which would not produce an article applicable to the latter. Flax-spinners must be better judges of the raw material adapted to their wants than the gentlemen of the press; and even as regards paper, the latter are better qualified to judge of it in its manufactured state than in that of the raw material from which it is made.

This fact is admitted by Mr. Dixon himself, who intimates that he must be a better judge of flax than the Editor of this journal, in consequence of twenty-five years' experience in the cultivation, selection, spinning, and weaving of flax; besides some years' experience in a brewery and distillery. He looks upon us as mere theorists, while he has reduced his theories to practice.

We do not question Mr. Dixon's experience; but we know gentlemen of equal experience, who have made large fortunes by flax-spinning, on whose judgment, rather than our own, we expressed doubts whether, though it may be possible to prepare flax for the coarser fabrics without steeping, it can be wholly dispensed with for the finest, in some form or other, or in some stage of the preparation. Of the principles of Mr. Dixon's process we know nothing; for we cannot consider that he has explained them, till he publishes details of the nature of the fluid which he employs; whereas, all he tells the world about it is, that it is "neither soda, barilla, sulphuric acid, chloride of lime, nor any other bleaching stuff or liquid now in general use, and that it consists entirely of vegetable matters the produce of our own soil"—a fact, by the way, quite consistent with its being either an alkali or an acid.

"In my opinion," says Mr. Dixon, "the only way to clearly demonstrate the facts to the manufacturing trade, and for the information of the *Mark Lane Express* Editor, and to convince him of the foundation and evidence I have for saying

he is in error, will be given in the following *calculations.*" The calculations thus triumphantly appealed to refer to the greater produce obtained by Mr. Dixon's process than that which is yielded by the old method. It is not calculations, however, which we want—it is facts; and above

all, the fact that some of our principal spinners have tested the plan commercially, by spinning a few tons of fibre prepared by Mr. Dixon's process. Till then, we must retain our doubts, while at the same time we wish Mr. Dixon every success.

NORTHAMPTONSHIRE AGRICULTURAL SOCIETY.

It is only within the last few weeks that we have had to speak to the commendable tone, as the legitimate object which now so generally characterize the meetings of our Agricultural Societies. Of the many we have attended during this last summer, in the proceedings of others as we have gathered them from local reports, we scarcely remember to have heard or read a word out of "order." We can speak as proudly as honestly to the excellent taste shown by the agriculturists of this country. We must add, too, our word for the majority of those with whom they were so lately engaged in all the unprofitable hostilities of a civil war. By a combination of whatever "lucky accident" better times may have been brought about, let us be content to take them as they are, and make the best use of that talent committed to our care. By this test must the farmers of the kingdom be judged. Acting on this line of policy must their demonstrations be made; and with this as the golden rule for their observance will their own class associations continue to exist and to flourish.

We repeat that it is this wise they do flourish. There is not an assemblage now, district or national, but where the one great object is the steady and rational advance of British Agriculture. On our last reference to meetings of this kind, then being held in many parts of the country, we had to call some evidence as to what landlord and tenant are now saying and doing for the becoming progression of their joint interest. Strange as it may appear, there was little indeed to find fault with. The most critical observer, armed with a "brief" to ridicule and bring into contempt all he heard and saw, must have found his task a hopeless one. Bold as it may be to write it, no man committed himself. No one, here or there, owned to sufficient bad taste to revive bye-gone bickerings. None of those called up to address their fellows yielded to the attractions of sheer buffoonery, or to the more delicate fascinations of sarcasm, in jeering or carping at others not directly united with them in the business of the day. The toast list, like the prize sheet, was kept closely to the text-word of such societies, as now so properly interpreted—what can

landlord and tenant do for British Agriculture as it is?

The meeting held yet later in the not unimportant county of Northampton was precisely of this character. The Society we find flourishes exceedingly, simply because its proceedings are confined to the legitimate object of such a Society. "The Show-yard was full of excellent stock and poultry"—"the ploughing field presented an animated scene"—"the attendance was unprecedented for numbers." So says the report from which we quote. The senior judge, too, in returning thanks for the compliment paid to these gentlemen, "spoke in high terms of the stock shown." Everybody, in fact, appears to have left satisfied that such exhibitions had done much, and would do yet more, for the farming of Northamptonshire. So far, the Society is all the most exacting might expect of it. Let us see it, however, a little further—from the show-yard to the dinner-pavilion, where "upwards of two hundred sat down." Let us watch here, whether our Northamptonshire friends are going to counteract all the good they have been aiding to in the morning. We follow them accordingly, speech for speech and line for line, and we rise up well satisfied with our scrutiny. There is scarcely a word but is in excellent keeping with time and place. Suggestions for what may be done yet; well-merited tribute to those who work with us; the caution of the experienced; the honest compliment from those well qualified to pay it; a pardonable joke, perhaps, or a curious fact from the practice of those who have already gone so far ahead of us—all this tends yet more to assure us that the meeting of the Northamptonshire Agricultural Association was a most creditable as well as a most successful one.

"To be sure," as our powerful contemporary the *Times* writes it, "there can be no great use in commenting upon the past mistakes of political opponents." To be sure there cannot. Let our endeavour be the rather to assist them to forget that they ever made or owned to them. Let us even admit, if it be necessary, that a "lucky accident" or two *had* something to do with the total

prostration of this egregious error. But, above all, let our aim be to wash out the remembrance of this political opposition. As conquerors, surely we can be generous enough to say nothing about it, if they do not. While, if they do more than this—if, instead of sinking into obstinate despair, they try everything in their power to suit themselves to altered circumstances, and so to prove yet the more how right we were, surely it is but our duty to offer them every encouragement, and give them every credit, we honourably can.

We are glad to declare our thorough conviction that the public generally are doing this, and that such political opposition as that referred to, is dying out day by day. Extraordinary, however, as it may sound, the able journal from which we have quoted so excellent a piece of advice—as to “there being no great use in commenting on the past mistakes of political opponents”—contradicts in the very same article its own assertion. If there be any use in the *Times*' critique on the Northampton meeting—which we beg very honestly to doubt—it is simply by commenting on what are called “the past mistakes of political opponents.” In this, in fact, we have everything. There is scarcely a word on the society as it now acts and prospers, saving, perhaps, a laugh at “a long-woolled tup” or “a prime cart stallion.” No; the men, landlords or tenants, who are now filling their positions so worthily, and really doing so much not merely for their own, but the common good, once thought this, or said that. Enough. Every hard word that could wound and rankle in the fiercest days of political opposition is revived. Every effort is made, to place the agriculturist of this country once more in open warfare with those it should be the aim of all of us to see him united. Happily, the thing carries with it its own remedy. We believe there is not a man in the kingdom, who takes the trouble to think for himself, but will read this commentary on “past mistakes of political opponents” with sorrow and regret. Seldom, indeed, have we ever seen anything so thoroughly indiscreet; or, as it were, intended to work more harm and arouse more ill-feeling. Every word appears tortured into ridicule and party purpose. It would be worse than tedious to follow out “comments” offered in such a spirit, and which the writer himself admits can be of no use! Let us be content with the first line or so in his analysis of the several speeches of the day. “Mr. Stafford,” then, “broke ground with a regulation tirade upon the agricultural labourers of England.” Here is the “tirade;” so that the reader may judge for himself how much in place it was at an agricultural meeting; and as, according to our commentator, “how much better it would have been had the red wine been trickling down

Hodge's throat,” and so on: “When economists said that labour was simply a question of trade, they said the truth. But did they say all the truth? If, in their intercourse with their fellow-men, they cut off the kindly affections and generous sympathies, ignored the self-denial, the love of country and of home, however humble, they would do little to maintain the institutions of the country, and to kindle that kindly feeling in the poor man's heart which, after all, they must trust to, and not the less because they knew how to trust themselves while they sympathized with others. Was it not, too, a question of the oldest and the best English feeling—a feeling which had made England what she is, and what he trusted in God she might ever continue? If they wanted proof of this, he would remind them that in later times, after the question of free import of provisions had been settled, when riots in the towns were rife, there was no disaffection in the agricultural districts. (Hear, hear.) The labourers of England stood by the tenant-farmers, bearing manfully their burden with the rest of the community. From no one locality was heard a word of complaint from those men to whose health he asked them to fill their glasses to the brim and drain them to the bottom—‘The Agricultural Labourers of England.’”

Somehow or other we do not see that Mr. Stafford need be so much ashamed of his “tirade,” or afraid of any one attempting to deny the great truths contained in it. It is but fair to say his commentator does not; resting well satisfied with the facetiæ of “pouring the red wine down Hodge's own throat,” and such like unanswerable argument. Mr. Knightley, the chairman, is treated in the same way, chiefly (one would think), from labouring under the double misfortune of being a son of Sir Charles Knightley, and having heard of a man in the Highlands who was mowing oats with one hand and holding a large cotton umbrella in the other! As for Sir Charles himself, no abuse is too bad for him; all this, of course, mainly depending on the maxim of there being “no great use in commenting on the past mistakes of political opponents.” Beyond these, which consistently occupy more than half the article, we find the worthy Baronet registered as “disliking guano,” because he dared to give vent to his suspicions of its being occasionally adulterated! recorded as disliking superphosphate for just the same reason; then, gradually patronized for “acting in his true vocation;” and at length commended outright for displaying none of “*the insanity of the mischievous politician, who would perpetuate civil discord!*”

A word yet, and we have done with what one hardly chooses to further consider. Is there any use in commenting on, or in perpetually harping

over and sneering at, the past mistakes of political opponents? None. Then why do so? And, who is it that *has* been displaying the insanity of the mischievous politician, who would perpetuate civil discord? Not the Agriculturist, you say, Landlord or Tenant? Need we press the question?

The most successful meeting ever held by this society came off on Thursday, the 21st Sept., at Daventry. The show-yard was full of excellent stock and poultry, the ploughing-field presented an animated appearance, and the attendance was unprecedented for numbers.

At the dinner, over which Mr. Knightly, M.P. (the president of the association), presided, that gentleman, in returning thanks for his health being drunk, said he had come from the extreme North of Scotland to attend this meeting. It was said they ought to learn something everywhere; but he feared, as far as farming went, that he had not brought much thence which could be of service to the agriculturists of Northamptonshire. He had seen a farmer getting in his hay, and carrying it in a huge hencoop on two poles, harnessed to a pony about as big as a jackass. There were no forks or rakes, but the hay was gathered by Highland women, with no other weapon than nature gave them. That was what he called hay-making under difficulties. A friend of his told him he saw a farmer moving oats with one hand, and holding a large cotton umbrella over his head with the other (laughter). He was happy to learn that in these parts they had been most successful in getting in a most productive and fruitful harvest. Thank God for it! Never was there a time when it was more needed. The country was afflicted with two of the greatest evils that could well befall it—war and pestilence. If to disease had been superadded famine, the consequences would have been fearful; for at present we are contending with a power that held in its hands the keys of the granary of Europe. He would not re-open the corn question, but he thought the most sceptical must now be convinced that in times of danger and difficulty these islands must be dependent for subsistence on the industry and energy of the British farmer.

SIR CHAS. KNIGHTLEY, in returning thanks for his health being drunk, said he was very glad to see his old friends, and he was more gratified than he could express at finding that they had not forgotten him altogether, though he had ceased to hold the honourable situation amongst them which he so long filled. It was so long since he was in a large meeting that if it had been anywhere else, or amongst other company, he should have almost felt modest and abashed, and should probably have been unable to express the few remarks which he desired to utter. He supposed they had come there to tell each other all they knew; he hoped, however, they would say it in plain English, and not talk in a style alike unintelligible to themselves and to other people. He was one of the old brown-coated farmers, and he confessed that he was not illumined by the fresh lights of modern days. Although he did not depreciate modern improvements and modern science, still he believed that many of them were such as farmers could not profitably put into practice. Many of them no doubt were useful, but many were worthless. He remembered, for instance, once going to a Shropshire meeting, where he heard of an experiment at Lord Hill's, of putting a quantity of iron conductors into the ground to draw down the lightning to fertilize the corn (laughter.) He subsequently asked his lordship whether he thought that any benefit had been derived, and received a reply in the negative. As to the modern manures

he was ready to allow that great improvements had been made. He contended, however, that men should know what the manures were made of. He read of guano and superphosphate of lime; but he believed that much of the so-called guano had never crossed the seas, and that the phosphate was often nothing more than bones dissolved in sulphuric acid. Oilcake, again, if good, was most valuable. He had bought it, however, filled with sand, and he believed there was no greater fraud practised upon the farmers than in the supply of adulterated oilcake. With regard to the breed of cattle, he might be allowed to say that he was an old practitioner, and he had lived long enough to discover that there was as much humbug in that as in anything else (loud laughter). Perhaps they may not be aware of the fact, but it was so nevertheless. The man who made the money was not the man who had got the best stock, but he who was reputed to have the best (laughter)—the man who could get his friends to hold his stock up, and puff it up for him, and run down that of his neighbours (renewed laughter). For his own part, he had been trying a great many years to get his stock with good shoulders and bosoms; but now he found that he was all wrong. The modern plan was to get wide heavy shoulders like steam-engines; such being the only animals, he was told, to carry flesh. Well, he supposed he must conform, or he should lose the sale of his stock (Hear, hear). There was one thing worthy of notice: owing to free-trade alterations and the unrestricted importation of cattle, the value of cattle in this country had become materially changed. His advice to his friends therefore was, to breed the best animals they could. It was the fashion to go into the fairs, and buy a lot of Scotch and black cattle; that had, perhaps, been done as well as they could in their own country, and looked and handled well. When they got them home, they gave them oilcake, &c.; but after all, they were disappointed that the beasts did not get on, and eventually they were displeased with their Smithfield salesmen for making so small a price of them. The fact was, they were a set of animals that never would do well; and if farmers continued to buy them they would go to the wall. Every man ought to breed the best for himself, and not be dependent on another. Some might say that their land was too good for breeding. He knew the land of the county as well as any man in it, and he knew that there was a great deal of it supposed to be good that was not good. Much of it that was used for feeding land would not feed. Now the great thing was for farmers to adapt their system to the land they occupied. Much of it now used for feeding will dairy to greater advantage. Cheese making, too, was but little pursued in this county, possibly because the operation devolved upon the lady part of the family, and required the operator to go to bed early and to get up early. The young ladies did not like this, and the old ladies were not up to it—hence there was no cheese-making (laughter). He believed, nevertheless, that on many farms it would be a much better way of employing time and capital than was now pursued. He congratulated them on the bountiful harvest which, through God's goodness, had been granted to them. He did not think that corn would rule at either a high or a low price; but he hoped that the price would be such as to remunerate the producer, whilst it was not too high for the consumer. He should be glad to see it range between 7s. and 8s. per bushel; he never wished to see it higher, and he hoped it would not go lower (Hear, hear). He cautioned them, however, against regarding the present year as a criterion for another. Next year's harvest might possibly be as plentiful as the present; but corn would not probably bear the same price. This was an exceptional year. There was drought in America, which had caused

the Indian corn crop to fail, and had materially affected the wheat crop. The Black Sea ports were shut up, and we were mainly dependent upon our own supplies. Sufficient for the day, however, was the evil thereof. We were well off for this year, and he hoped we should be more happy and comfortable

than we had been for several years past. He had lived amongst them many years (cheers), and he hoped to remain amongst them as long as he lived, and he could assure them that their kind feeling and estimation would be the greatest comfort of his life (renewed cheering).

SCOTCH FARMING.—LANDLORD, TENANT, AND LABOURER.

With whatever satisfaction we may watch the proceedings of such meetings as may be supposed to come within our own more immediate province, it is gratifying to find that we can go yet further afield under equally encouraging auspices. It is not merely in England alone that we notice the good sense with which an agricultural festival is kept to that object for which it is assumed to be held. True enough though it be that even now, perhaps, one so-called agricultural society is strangely mixed up with all the by-gone bitterness of a political instrument, such a one becomes only the more distinguished by its want of discretion and of common sense. The farmers, however, as we take it, have themselves but little voice in the continuance of any so unprofitable an exception; if they have, we can only impress upon them the good policy of reforming it altogether.

Let "byegones be byegones," and our only aim be to cement a union which shall worthily advance the cause of British agriculture. In looking, again, for some who are doing this, we may, as we have already hinted, extend our travels with some good showing for the excursion. At such a time—just when we are hearing so much of what the Scotch farmer is doing, or what he is *not* doing—it may not be altogether out of season to take our way northwards, and there learn what the Scotch owner and occupier do really think and say for themselves.

At Haddington, then, only a few days since, a dinner took place to celebrate the opening of the new Corn Exchange in that town. It appears to have been well attended by both the landlord and tenant interests of the district; the addresses, at least so far as we can find them reported, being chiefly in the care of the former. From either, however, we seek in vain that wild exaggerated spirit of going-a-head, by which we have lately been told to distinguish our northern neighbours. The meeting, on the other hand, strikes us as being remarkable for the soundness of the doctrines advanced, and the excellence of the advice offered. The Marquis of Tweeddale for instance, the chairman of the occasion, in proposing the especial toast of the evening—"Success to the Haddington Corn Exchange," concluded his speech with this excellent caution:—"Allow me to guard you against

theories. Rather carry out the practical experience of men who are acknowledged authorities in the matter, and if confirmed by science, in spite of all the opposition and competition you may meet with, I have not the least doubt but the tenantry of East-Lothian will remain the same skilful agriculturists that they have been acknowledged to be for the last hundred years."

The nobleman who offered this advice to his brother farmers was subsequently himself brought under the notice of the meeting, as "one of the most eminent and successful agriculturists of the day."

We confess that we could wish to have seen the tenantry reported at a little more length than our friend the "North British Agriculturist" has thought proper to allow them. In lack, however, of what they may have said for themselves, we must be content with what was said for them, and well said, by Lord Elcho, the vice-chairman of the day:—"Their fame extended wherever agriculture was practised as a science. The names of Rennie, of Bogue, of Howden, of Walker, and of Brodie, were known throughout Great Britain as those who had ever been the pioneers of agricultural improvement, and as those who, by their energy and high character, had raised the agriculturists of East Lothian to the position which they had so long held. The character of the tenantry of East Lothian, he believed, now stood as high as it ever did, and he saw many before him who were the worthy successors of the eminent agriculturists whom he had named. It would be presumptuous in one not a practical farmer to give any advice to the tenantry of this county, but they had already heard the advice given them from the chair as to the exertions which it would be necessary for them to make in order to maintain the position which they had attained in the van of agricultural improvement; and he might be permitted as croupier of this meeting to indorse what had fallen from the chairman in this respect. No man who travelled through the country could fail to observe that everywhere in England there were signs of an improved and improving system of agriculture in existence. All this showed the need of exertion here; but, for his part, he had no fear of the result, for he knew what

the energy, perseverance, and skill of the farmers of this county could do; and he might mention that he was credibly informed, as a proof of their being aware of the necessity of increased exertion, and as to the necessity of their adopting the latest mechanical improvements, that the tenantry of East Lothian had already taken more reaping machines than the whole of the rest of Scotland."

All this is fair enough. No one can object to any display of national feeling so becomingly expressed; while none of us can dissent to the terms of a competition, in which "energy, skill, and perseverance" are laid down for us as the great essentials to success. Lord Elcho attributes the proud pre-eminence of the Lothians, as so far maintained, to the old recipe—"The character of the agriculture of this country was in a great measure owing to the independent position of the tenantry, secured to them by their leases. He knew that in England the system of leases was viewed with little favour; but he was confident it was greatly owing to the system which here prevailed so generally that Scotland, and especially East Lothian, occupied that high position which it did."

We should have been pleased to have seen Mr. Christopher, one of the Members for Lincolnshire (who was present), follow this up, with a word to the action of that principle which has done so much for the farming of his own county, too, by establishing "the independent position of the tenantry." We care not whether it be attained by the use of a lease or a custom; but in this we have long agreed with Lord Elcho, that good farming can never be insured without insuring the independent position of the farmer.

Notwithstanding the efforts recently made in some quarters to attach ridicule to the toast whenever it is offered on this side of the border, "The health of the labourer" was not amongst those omitted at Haddington. It fell to the same noble lord we have just quoted, who, in proposing it, did not by any means endeavour to cloak the weakest point of Scotch farming, the home of the working man:—"Much of their success as an agricultural community was due to the patient, enduring, sober habits, and to the skill and physical capabilities of the agricultural labourer. He believed none were more anxious for the welfare of that class than those who were connected with them in the capacity of employers. There was a story related of the late Mr. Howden, who, when examined before a committee of the House of Commons, was asked what was the condition of the agricultural labourers in East Lothian, and whether they were tolerably comfortable. His reply, he believed, was, 'Yes; generally speaking, they are comfortable. They

have mostly a good razor, a good cow, and a good wife.' Now, undoubtedly, these were most essential ingredients to human happiness; but since that time, civilization had made great strides, and they were now of opinion that they must add to these requisites what was no less necessary to his comfort and well-being—a good cottage. He feared that many of the cottages of our agricultural labourers were not in the condition they would wish them to be—not in a condition which contributed to health and morality. But when an evil was acknowledged it was more than half cured. An association had been formed for the purpose of improving the dwellings of the agricultural labourers of Scotland; and he trusted that while every proprietor would deem it his first duty to see that there was not a bad cottage on his estate, they would not, in attending to the physical comfort and well-being of the labourer, neglect his moral or intellectual cultivation, but would at the same time endeavour to extend the means of giving him and his children the benefit of a sound moral and religious education."

We have thus traced out the tone and spirit of this meeting with much pleasure, and, as we trust, with some advantage. It may set many right as to the position our Scotch friends really lay claim to. We must repeat, however, that we should like to have heard more from the tenantry themselves; at the same time we must admit that they were worthily represented by those who spoke for them. We ask no more.

THE POTATO MARKET, KING'S CROSS.—Going up York-road, face northward, we meet a succession of waggons, spring carts, costermongers' barrows, and market vans of all varieties—the horses at a walk or a trot according to the weight of loading, but all loaded with one article. This article is the potato, in its several varieties of "regents," "cups," "blues," or "reds," from the districts in which it delights to grow, most of them but newly opened to the London market by the Great Northern Railway. Bedfordshire has its light fertile loam, in which the potato grows to perfection about Biggleswade, Sandy, and Pottton. The carriage hither is 7s. and 7s. 6d. per ton. Huntingdon and St. Neots send a contribution from their best soils. Peterborough a few, Lincoln and district contribute liberally. But the largest supplies come from Yorkshire through the Selby Railway, and from the Goole and Howden districts. Rates of carriage 15s. to 18s. per ton. The next districts north of York which contribute noticeable quantities are the Dunbar and North Berwick red sandstone soils, in the county of Haddington, Scotland. The carriage from thence to London is 30s. per ton; last year it was 35s. As many as three hundred tons a day arrive, and are sold at this market, though on some days not so many. The season for a full business in north country potatoes has hardly yet set in. The finest qualities from Scotland do not begin to come up until November, or between that and Christmas. It is alleged that were the

rates of carriage lower, say 20s. per ton from Scotland, and proportionately from the great potato districts of Yorkshire, this would become the chief potato market in London. It is the second now. Tooley-street market, supplied by sea, is first. The freight by sea from Yorkshire is 9s., and from

Scotland 13s. and 14s. per ton. It is said that, owing to the lower prices and greater abundance of the article this season as compared with 1853 and spring of 1854, the buyers in the north must resort to the cheaper, though slower, transit by sea, unless the railway companies make some concession.

MR. CAIRD AND HIS FACTS.

Our readers, we believe, will not think the time and space thrown away which we have lately devoted to Mr. Caird's extraordinary statement at Tiptree, as to the making of twenty-five tons of dried hay off a Scotch acre of land. In his own emphatic words, given with all the confidence and authority of one fully acquainted with the truth of what he was saying, "it was no use our doubting—the thing has been done!" As, however, all who heard it then, or heard of it subsequently, continued to something more than doubt, it became a duty to ascertain, if possible, how it had been accomplished. Mr. Caird was content at the time with the bare announcement of its having been accomplished, and of liquid manure having been the grand agent in effecting it. When further pressed for something a little more in detail, he followed this up with an "explanation" altogether so vague and unsatisfactory, that it really became necessary to ask the favour of a word or two from the gentleman himself who had achieved this wonder.

In seeking this, we are forewarned that we must not expect to find any hay at all. The farmer who had been picturing to himself an almost indefinite increase of stacks, is brought to understand that this part of the story is scarcely so clear or tangible as he might have wished. When Mr. Caird said, in plain English, that "the thing had been done," that twenty-five tons of dried hay per acre had been made in Scotland, he said what in reality never has been done. The gentleman upon whose authority he spoke, we are assured, never makes hay. We thus lose at once that direct proof, without which so startling a statement should never have been ventured upon. Let us take it, however, as "the fact" should have been properly put in the first instance, and understand Mr. Caird to say that, instead of *having* been done it *might* have been done—that is, sufficient Italian rye-grass to have been grown in one season to make twenty-five tons of dried hay.

Mr. Caird assures the agriculturists of England this is the fact, and that Mr. Telfer of Ayr has accomplished it. Strangely silent for some time on the subject, we are at length compelled to ask the latter, in the name of the farmers of England, for his confirmation, or answer to the statement. We

give it in our paper of to-day. Putting aside at once the general misapprehension or diversity of opinion "in regard to the quantity of grass required to make a ton of hay," we will keep ourselves as closely as possible to the facts of the case. Mr. Caird then says Mr. Telfer made, or *might* have made, twenty-five tons of dried hay per Scotch acre. Mr. Telfer says, in the only really tangible paragraph of a not very satisfactory letter:—"The facts stated to Mr. Caird were to the effect that my operations had been so successful that the cuttings had reached sixty-five tons per Scotch acre, which, according to my experience in Italian rye-grass haymaking, were equivalent to twenty tons of hay."

Now, just to begin with, the slight difference of five tons of dried hay per acre may be a matter of very little consideration to a gentleman of so sanguine a temperament as Mr. Caird. It is something, nevertheless, we can assure him, to such matter-of-fact men as those to whom he addressed himself. Many of them would be quite content with the five tons only; and certainly, making the best of it, there is something a little more wonderful in that extra five tons an acre. "Dash it! they say they made five-and-twenty tons of hay an acre," exclaims John Bull in amazement. "No, no, only twenty tons," interrupts Sawney in correction. "Well, twenty tons or five-and-twenty tons, it don't much signify," says Mr. Caird. "Well, I suppose it don't," says Mr. Bull.

Did Mr. Telfer make five-and-twenty tons of dried hay per Scotch acre? He did not. Did he grow sufficient grass to make it? He did not. "What we want are facts," down even to such a fraction as five or six tons an acre.

But this, we repeat it, is altogether making the best of it. A correspondent, whose letter we published a fortnight since, considers Mr. Telfer does not grow more grass than would produce eleven tons of hay per acre. Another correspondent, whose letter follows Mr. Telfer's in our paper of to-day, goes clearly against a high calculation being made in reference to this kind of dried hay crop. We insert this letter the more readily, as the writer honestly admits his own sympathies to be with Mr. Caird, Mr. Mechi, and that school, at the same

time that he enjoys considerable experience of the climate to which Mr. Caird refers in his "explanation." It will be found how little even these two are inclined to agree. One piece of advice from him we earnestly recommend to the consideration of his friends. Let "Mr. Telfer, Mr. Kennedy, and Mr. Caird propose a gathering in Ayrshire, so as to afford parties an opportunity of judging for themselves, and thus establishing the success of the practice of the North upon a solid foundation." Let us know how many acres Mr. Telfer has annually devoted to the development of this profitable occupation. Let us have the size of his "plots," and a little further information, for another correspondent, "Vindex," as to how he accomplishes so much by the first of July. The important communications from Mr. "Beale Brown" and "Agriculturist," which will also be found in our columns of this day, must be considered as speaking for themselves, without requiring further comment from us. The cry is still "impossible!" Of one thing we are quite sure, in thus leaving the matter for the present, that it will require far more "explanation" than any it has yet received, before it will gain much credit for any of those chiefly interested in its discussion.

Just a word more, in place here. In recording the extraordinary statement made by Mr. Caird, at Tiptree, we were not content with our own impression as to its effect. We availed ourselves, on the contrary, of the reports of such of our contemporaries as were published in time for us to do so. Those, then, who followed the speaker detailed that this wonderful story was received with derisive cries of "Oh! oh!" "and laughter;" while we added, from a summary of the day's doings in the *Gardeners' Chronicle*, that "it was not believed, in consequence of being too abruptly announced."

In commenting on "the explanation" of Mr. Caird, as so lately afforded us, we had occasion to quote our own remarks at the time "the fact" was first proclaimed, embodying in the extract the borrowed matter from other papers, as already referred to. The *Gardeners' Chronicle* of last week, in an article on this subject, declares that it never said anything of the kind—or, at least, that the words we gave were not to be found in its columns. We could have wished that in place of a vague contradiction the *Chronicle* had been good enough to go a little farther, and to show its readers what really was said, and how strangely we had perverted the sense of it. May we now be allowed to do what a sense of justice should have prompted our contemporary to have done when penning his indignant and very curious denial.

The *Gardeners' Chronicle*, in its account of the

Tiptree gathering, says, truly enough, that "Mr. Caird electrified the company in his address after dinner, by an announcement to the above effect"—the notorious crop of dry hay, to wit. From this the report diverges to one of Captain Basil Hall's traveller's tales, which the gallant author provided with some pages of prologue before he ventured to tell it! With such a precedent, the *Chronicle* could have wished the traveller's tale at Tiptree "had been illustrated and argued in like manner, instead of being abruptly announced; for it was not believed."

In adapting this to the sentence in which it was introduced, we merely transposed the words—"It was not believed, in consequence of being too abruptly announced." And yet for this is it that we are subject to the elaborate correction of our contemporary, for "words which are not to be found in his columns." We beg to say, they are to be found in his columns, or so triflingly altered as in no way to impair the meaning they were originally intended to convey. We challenge the *Gardeners' Chronicle*, or any man who will undertake to read the article in question, to say that we have in any way misrepresented him. If his words have any meaning, it is that we have given to them. The story was not believed; it might have been, thinks the *Chronicle*, had it not been too abruptly announced; or, the story was not believed, in consequence of being too abruptly announced! We venture to suggest to the *Gardeners' Chronicle* that splitting straws in this way is scarcely worthy of so respectable a journal; and further, that when making a serious charge against any one, it would be better to bring it to something more definite than vague inuendo. If either have been misrepresented in this instance, it has been ourselves, when the *Gardeners' Chronicle* wishes its readers to understand that we have perverted the sense of what we quoted from its columns. Luckily we have the facts of the case to go upon, and with them we can afford to give any such kind impression as that wished to be conveyed, the most direct contradiction.

As to the assertion of our object being to damage the reputation of Mr. Caird as an "agricultural teacher," we have only to say that we might have accomplished this far more effectually by leaving him and his statement without a word to the public. Mr. Caird told his "pupils" something they never for a moment believed—something which no one ever volunteered to corroborate, and that, consequently, was only the more ridiculed the more it was considered. We question the value of a "teacher" who commands neither the respect nor the credit of his scholars; and we so believe that we are only doing him a service when we urge upon

him to place himself if possible in a more satisfactory position.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—My attention has been directed to your leading article of the 25th ult., in which you appeal to me for the facts stated to Mr. Caird about the acreable produce of my Italian ryegrass. I have much pleasure in complying with your request.

The facts stated to Mr. Caird were given to explain and confirm Mr. Kennedy's results, and were to the effect that my operations had been so successful that the cuttings had reached 65 tons per Scotch acre, which, according to my experience in Italian ryegrass hay-making, were equivalent to 20 tons of hay.

There appears to be a general misapprehension in regard to the quantity of grass required to make a ton of hay.

In one of my trials, 3 tons of grass gave 20 cwt. 1 qr. 12 lb. of hay, which would make the 65 tons equal to 22 tons 1 cwt. 8 lb.

In an experiment by Mr. Dickenson, reported in the Journal of the Royal Agricultural Society of England, vol. viii. part 2, it was found that 12 tons 8 cwt. of grass gave 5 tons 18 cwt. of hay. This considerably exceeds the proportion stated in the above experiment.

But the correct way of ascertaining the proportions is by chemical analysis. Professor Way found that hay contained 16 per cent. of moisture. He also found that Italian ryegrass grown on the College Farm at Cirencester contained 75 per cent. of moisture. From these analyses, it appears that about $3\frac{1}{2}$ tons of grass should give 1 ton of hay.

An analysis of Professor Anderson of Italian ryegrass grown in Cuning Park this season showed that it contained 74 per cent. of moisture. This agrees very closely with my experiments in hay-making.

This season has been unusually favourable for the growth of Italian ryegrass. By the end of this month, my cuttings will much exceed 65 tons per Scotch acre. I think it proper, however, to state that these results are not obtained without liberal applications of manure. I apply to each Scotch acre during the season 25 cwt. of Peruvian guano, which is washed into the ground with the liquid of 10 cows diluted with 500 tons of water.

In an experiment made this year, with the view of ascertaining whether the growth of Italian ryegrass was due to ammonia alone, a quantity of gas-water, containing 1,940 grains per gallon of ammonia, was applied to a plot of Italian ryegrass in spring, and on the 17th of May a portion was cut and weighed, in the presence of several agricultural friends. The produce amounted to 22 tons 10 cwt. per Scotch acre. Another portion, which was left till the 31st of May, reached 27 tons 10 cwt., which, by Professor Anderson's analysis, is equivalent to upwards of 8 tons of hay.

I am, sir, &c., &c.,

A. B. TELFER.

Cuning Park, Ayr, N. B., Oct. 3.

SIR,—The Tiptree-Ayrshire Italian ryegrass con-

troversy, is, if I mistake not, being allowed to shift its grounds, and intrench itself, like Russia on the Danubian Principalities lately, on those it has no right to occupy; for the question at issue is a *crop of 20 or 25 tons of hay per acre annually*, and not the old cuckoo-song of "agricultural impossibilities." "Mr. Telfer annually grows in Ayrshire 20 tons of Italian ryegrass hay per imperial acre, or 25 per Scotch acre." Such are the facts of the case, as stated by Mr. Caird, at the Tiptree Hall gathering of July last. Mr. Mechi, according to the further reports of the same meeting, not only teaches landlords and tenants by precept to ignore the profitless routine of antiquated times, but also by example, thus placing science and practice, as they should be, in matrimonial alliance. In the case of Italian ryegrass he is rather unfortunate this year; but where Tiptree practice falls short, Ayrshire theory superabounds, thus leaving him at no loss to show how both may fill their pockets in a very short time. The taught, however, who can only grow two tons of hay per acre, and who see little better before them, feel rather disposed to "beware of amateur theorists," so that the teacher is again in danger; but Fortune, ever favourable to the brave, rushes to his assistance with the astounding announcement, "It's no use doubting the statement, gentlemen; the thing's been done. *Twenty-five tons of hay have been grown.*" There is nothing ambiguous here—nothing requiring explanation. The question is a plain one, and its solution manifest; for if Mr. Mechi cannot grow 20 tons of hay per acre next year, to exemplify his liquid manure theory, he must remove his standard to Ayrshire, or the instruction he affords will again be ranked with that of the peripatetic school, as it has been this year, for in modern times experimental philosophy can only be successfully taught.

There are many things possible, and even profitable, which are nevertheless not done—a proposition as applicable to every other class as to agriculturists. It may be perfectly possible for the farmers of Ayrshire to grow 25 tons of hay per Scotch acre, for example; and yet they may not do it. An individual amateur among them may even have grown this unprecedentedly large crop; yet that is no reason why the public should believe it, until the fact is authenticated in the usual manner by which it has been found necessary to establish applied science on a solid foundation, in connexion with every branch of industry. The liquid manure practice of Messrs. Mechi, Telfer, and others, now undergoing the ordeal of introductory probation, cannot be admitted as an exception from a rule so expedient, and even absolutely necessary, as this. Nay, more: such farmers labour under a very serious disadvantage, from their being merely amateurs, *experience having established the fact that their experiments are but too frequently unworthy of credence*, and of which farmers more especially have just reason to beware.

But this is not all; for the practice of amateur farmers is not only subject to revisal, but the individual practice of the one condemns that of the other. Mr. Mechi's Italian ryegrass, for instance, in the warmer

climate of Essex, is a comparative failure under the liquid manure system; while that of Mr. Telfer, in the colder climate of Ayrshire, is superabundant. This is plausibly accounted for by Mr. Caird, from the dripping sky of the latter (?). But are we to understand from this that the liquid manure is better adapted for the cold, wet climate of our northern isles, where "it rains for ever," than for the southern provinces of England, which suffer so frequently from the want of more liquid? or are we to condemn Tiptree practice? The former would, no doubt, suit the Ayrshire amateur (Mr. Telfer), in his present predicament; but does it suit the parched soil of our southern provinces?

I have, individually, always supported the general conduct of Mr. Mechi and Mr. Caird, believing that both, to the best of their abilities, have heartily espoused the cause of agricultural progress; but, however anxious otherwise to do so, I positively cannot append my approbation to the utopian manner they, along with Mr. Telfer and some others, are now treating a topic of so much national importance as that of the *liquid manure system*. I not only admit, but have always maintained, that it was the duty of every farmer to follow a good example when shown him, provided it was applicable, of course, to his own peculiar case. I even go farther, by admitting that some of the most profitable lessons I have learned during my experience of nearly half a century, have been from total failures. I therefore conclude that farmers ought to profit both from Mr. Mechi's successes and failures, and consequently have no right either to ridicule the one or the other; but his success in the crop in question this year was not exemplary, and therefore the practical question which ought to have occupied every useful mind was, the reason why? and not to have taken imaginary possession of the classic soil of Ayr, where

"Fays, spankies, kelpies, a' they can explain them,
And even the very de'ils they brawly ken them."

A course which left no alternative but force the 25 ton bolus down the throat of the practical man, although unwilling to swallow it otherwise—*aye, even in the absence of the bolus itself!* It will be high time to call upon him to swallow such a pill when once he gets it. This may no doubt be said to savour too much of scepticism; but an example from the manufacturing world will show the contrary, viz., what would the Royal Agricultural Society and the Commissioners of the Exhibition of 1851 have said of our American friends had they merely told us, without further evidence, that they had reaping-machines which would cut down our harvest fields, and insist, with all the Yankee suavity peculiar to the far West, that they were consequently entitled to that degree of merit and applause conferred upon them by an opposite line of conduct? And yet this is the very line of policy which the introducers of the liquid manure system are now following. They will have us believe in their own amateur propositions before practically demonstrated before us—conduct nowhere to be met with in the whole industrial system; conduct which neither can be approved of nor palliated in the slightest

degree. Had Mr. Telfer, Mr. Kennedy, and Mr. Caird proposed a gathering in Ayrshire, so as to afford parties an opportunity of judging for themselves—thus establishing the success of the practice of the North upon a solid foundation—how differently would it have been taken?

This state of things is the more to be regretted from the importance of the field thus, in a great measure, misoccupied. Amateurs, for example, never had such an opportunity before them of making themselves useful to the country; and yet is the fact not notorious that half their conduct will not bear investigation, while they have not even taken the trouble to put the other half in a proper shape to be credited by the public, or afford that information which otherwise it is calculated to give, if all be true which they themselves say. If Mr. Telfer, for instance, has been growing 20 tons of hay per acre, why did not he take the proper steps to bring such results practically before the public, instead of theoretically, as he has in the long run prematurely done?

Over-wise is dangerous, more so probably than any other extreme. Mr. Caird, for instance, accuses others of being in the opposite scale of "limited knowledge;" but the accusation is much more applicable to himself, as his letter of explanation proves; for it is not only premature, but erroneous in doctrine. Before he again proposes to pull the mote out of a brother's eye, it would be well for him to revise his notions of the grass-growing rainy weather of Ayrshire; for during my stay there, on more occasions than one when farming in the North, I had good reason to conclude that something more than half the quantity which fell *did harm*—a conclusion generally acquiesced in. Were we to take the *rain-gauge* as an index to grass-growing fertility, we should lose our Highland shelties among the long grass of Orcadia, where "it rains for ever." A warm moist climate is no doubt more favourable to grass growing than a dry one; but a warm moist climate and a rainy one are two different things; for I have farmed extensively in both, and can therefore speak from experience. Ayrshire dare not compete even with the drained portion of Plumstead Marsh in grass growing, or anything else, naturally or artificially, with all her moist climate; and I may safely say England generally, letting alone her moist and warm climates of Devon, Somersetshire, and Cheshire. Scotch farmers, as a body, are too sensible of the disadvantages they labour under, both as to soil, climate, and produce, animal and vegetable, to entertain a contrary opinion: and the more artificial the South becomes, the further the North must inevitably fall behind, so essential is heat to vegetation when accompanied with a *sufficiency of bottom moisture*—a sufficiency which I deny to be an *agricultural impossibility*, on the part of Mr. Mechi, to supply by art, as Mr. Caird obviously assumes in his letter of explanation. Moreover, on the necessary practical inquiry being made, it will be found that agricultural impossibilities lie at the door of our traducers, and not ours; for experience has shown it an *agricultural impossibility* beyond question for Mr. Mechi to make the thing pay—to show his balance-sheet—to grow 20

tons of hay in an Essex climate, &c.; and even where this fortune-making crop has been grown, it is yet doubtful whether it will be possible or not to show it to the English farmer.

Our native breeds of cattle have generally, and justly, been taken as a true index to the grass-growing fertility of the soil in its natural state; and when we compare the oxen and sheep of the west coast, from the Hebrides to Cornwall, with those of the east coast, from Caithness to Romney Marsh, facts speak for themselves.

With regard to the quality of the grass for agricultural purposes, that grown on the low lands of the west appears better adapted for the produce of milk than butcher-meat; hence the famed dairies of Devonshire, Somersetshire, Cheshire, and Ayrshire. This, no doubt, arises from its containing a larger per-centage of water than that of the east, as in Lincolnshire, the marshes of the Thames, &c., better adapted for feeding, with probably a slight difference in some of the other constituents. It is also possible that some of the plants peculiar to moist climates may conduce medicinally to the secretion of milk; and that the influence of this moisture will also affect the skin. We cannot say, however, from experience that our cows when farming in the moist climate of the west gave more milk than when farming on the eastern coast, as in Essex, but the contrary; for although milk cows require more water than fattening stock, that is easily supplied by art; so that the reason why the west has adopted dairy husbandry appears to be that the grass contains too much water for fattening.

This extra quantity of water renders the grass of the west not so well adapted for making into hay, more especially when it contains a large quantity of crowfoot, buttercups, and plants of this kind, which luxuriate in moist climates and soils, containing a much larger per-centage of water than even the grass itself. A ton of grass in Ayrshire, for instance, will return a less weight of hay than a ton of grass in Essex; and the difference will very much depend upon the kinds of plants the soil produces. A ton of green buttercups, like that of clover or tares, for instance, will not yield a large per-centage of hay.

Italian rye-grass, however, is an artificial product; and therefore, under the liquid manure system, is not likely to be infested with many weeds of this kind. It will, however, contain a larger per-centage of water, which will be in proportion to the stage of growth at which it is cut. When cut three times, for feeding cows or other stock in-doors, each cutting must of necessity be commenced early; so that the per-centage at this stage will be very great, but decreasing daily until finished.

The weight of hay per acre when thus cut for feeding is a result, it will readily be perceived, which is not very easily ascertained with that degree of accuracy necessary to estimate the true value of the liquid manure practice; for the cutting of every day would have to be carefully weighed, while the dews and

“Heavy, dark, continued & day rains”

of Ayrshire would have to be deducted. In making hay at one cutting of common rye-grass, with a fair mixture

of clover, I used to calculate on one ton of the former from three of the latter; but it is only a rough mode of guessing, although near enough to give one an idea of how much hay he might have from a field. Appended will be found the analysis of Dr. Voelcker (Professor of Chemistry, Royal Agricultural College, Cirencester) of Italian rye-grass, extracted from the “Quarterly Journal of Agriculture,” which will enable your readers to make more correct calculations if they desire. Well-made hay, for keeping green, may contain about fourteen per cent. of water, but is frequently stacked with more.

What farmers stand most in need of, at present, are *the facts of the case*—the agricultural statistics of the liquid manure practice now being introduced in all their instructive details, in order to enable them to judge for themselves. In the olden time, the will of the lord was the law of the manor. But those iron times are gone, and the yeomanry of England will now think and judge for themselves; and who has a right to deny them the privilege?

I am, Mr. Editor,

Your obedient servant, B.

ITALIAN RYE-GRASS (*LOLIUM ITALICUM*).

A.—Water and Ash Determinations.

	I.	II.	Mean.
Per centage of water.....	81.09	80.45	80.77
Ditto ash	1.90	1.97	1.98
Ditto ash in dry plant	10.04	10.07	10.05

B.—Composition in 100 parts.

	Natural State.	Dried at 212° F.
Water.....	80.77	—
Portion soluble in water:—		
<i>a.</i> Organic substances ...	6.29	32.97
<i>b.</i> Inorganic substances (ash)	0.82	4.00
Portion insoluble in water:—		
<i>a.</i> Vegetable fibre	10.96	56.99
<i>b.</i> Inorganic matters (ash) ..	1.16	6.04
	100.00	100.00
Per-centage of nitrogen..	0.457	2.38
Protein compounds ...	2.861	14.87

C.—Constituents arranged in groups.

	Natural State.	Dried at 212° F.
Water	80.770	—
Nitrogenized substances (flesh-forming constituents)	2.861	14.87
Substances not containing nitrogen, heat and fat-producing substances	14.389	75.09
Inorganic matters (ash) ..	1.980	10.04
	100.000	100.00

SIR,—I have read with interest the leading articles, as well as the letters, that have from time to time appeared in your paper upon the subject of the observations made by Mr. Caird at Mr. Mechi's late gathering; but none of them have obtained my notice to the extent of the leader of the agricultural portion of the *Gardeners' Chronicle and Agricultural Gazette* of Saturday last, wherein the editor, in the article alluded to, steps forward as the champion of Mr. Caird, and treats the discussion that has taken place in your paper, as well as in those of your contemporaries, as being carried on with the view of “damaging the reputa-

tion of Mr. Caird as an agricultural teacher;" and states that you "seem disposed to fasten upon Mr. Caird a responsibility which really rests upon other shoulders." I have inquired of persons who were present at Mr. Mechi's gathering, and I have examined those of the reports given in the papers published at Colchester and Chelmsford, in the county wherein the meeting took place, and all of them agree in that portion of the statement made by Mr. Caird, that 25 tons of dry hay *had* been made from one acre of land in that season, and that the gentleman was present who had accomplished such a marvellous achievement. As to the fact, therefore, of this statement having been made, there can be no doubt whatever; and then it was followed up by the further statement of Mr. Caird, in corroboration, by giving the proportion of live stock and sheep that could be maintained in Essex and in Scotland upon an equal quantity of land so managed—leaving not the slightest doubt that the assertion, to the full extent as reported, was uttered then and there by Mr. Caird. If Mr. Caird had been a stranger to the agricultural community, little notice would have attached to such a statement at such a meeting—notorious for marvellous announcements. But as Mr. Caird had on various occasions set himself up not only as an agricultural teacher, but had published a book, showing that high farming and great profits were synonymous, as cause and effect, operating to produce invariably like results, the whole attention of the agricultural, as well as the would-be agricultural community, was directed to his statement; and the endeavour to obtain from him an explanation was not made, as the Editor of the *Gazette* states, to "damage his agricultural reputation," but to set both him and the public right upon a question of such importance, and which, upon a pecuniary consideration, is a question of from four to five hundred per cent. upon the acreable produce of Italian rye-grass in England and Scotland. As Mr. Telfer was present, he ought undoubtedly to have either corroborated the statement made by Mr. Caird, or to have set that gentleman right if labouring under some misconception of the facts related to him.

Mr. Caird has at length supplied his explanation, in confirmation of his first statement; and his mode of clearing up his point is really amusing for its ingenuity and sophistry. But I fear it places him in a worse light than his assertion had placed him in the first instance; for all that his letter supplies mystifies his previous deductions, or leaves those inexperienced in agricultural proceedings to take it for granted that what he had in the first instance asserted was correct, except that the grass *had not been* actually converted into *dry hay*, as at first stated, although it was sufficient in quantity to have allowed it to have been effected.

Allowing him to have been in the first instance speaking of the produce of an acre Scotch—which is about equivalent to $1\frac{1}{4}$ acres English—he very properly reduces the quantity produced to 20 tons per statute acre, as the quantity of dry hay that this crop would have realized.

I am unfortunately unable at this instant to put my

hand upon any papers by which I can ascertain the relative weight of grass and hay, or of the produce of grain crops cut in a green state, as compared with their weight of straw when dried. My opinion however, practically deduced, is that a full crop of wheat cut twenty-eight days before being fully ripe would weigh about 8 tons per acre, and the straw when harvested about 2 tons. A heavy crop of grass would probably weigh 8 tons, and the produce in dry hay be $1\frac{1}{2}$ to 2 tons.

Upon the first introduction of Italian rye-grass into this country, I had a bushel sown by way of experiment. The soil was a deep alluvial one, adjoining the river; and the land was, independent of being in a high state of cultivation, fallowed and treated exactly as for turnips, and also heavily manured. The autumn and spring being moist, the result was astonishing as to the bulk produced; and on the 28th of May it was weighed, and found to be 119lbs. per square rod, or $8\frac{1}{2}$ tons per acre, the seed-stems then having attained the height of from $6\frac{1}{2}$ to 7 feet. At that time my crop of rye, of the early broad-leaf variety, was in greatest perfection, and had eared fully out, being somewhat taller than the tallest of the Italian rye-grass. Two or three experiments by weighing were made, and the largest weight produced was about two tons per acre more than of the Italian grass, being at the rate of 147lbs. to the square rod. Other experiments were made upon broad-leaf or red clover, lucerne, vetches, &c., the result of which I somewhere have, and hope to be able to subjoin in a marginal note. The result, however, in neither instance was equal to that of the rye or of the Italian grass.

Perhaps some of your correspondents can supply the difference in weight betwixt grass, clover, and the straw of cereal crops when cut green, and when afterwards dried for hay and fodder: so far as my experience enables me to estimate them, the waste by drying will be fully equal to three-fourths of the gross weight obtained when cut in a green state. In that proportion, 10 tons of rye-grass would produce $2\frac{1}{2}$ tons of dry hay, and three cuttings of *that weight* might produce altogether 10 tons of dry hay per acre; but how three cuttings of produce of that weight could be realized before the expiration of the month of July, rests with Mr. Caird to explain: in my opinion only two cuttings of rye-grass having the seed stems fully grown could be obtained; and my second cutting this season having just commenced when Mr. Caird made his statement corroborates that opinion.

I should not have ventured to have troubled you with this lengthy statement, had it not been, as you state, for the elucidation of a *fact*. I have given you some actual experiments, made without reference to this statement: and I have no hesitation in stating that I do not consider it possible to produce 30 tons of Italian ryegrass from a single acre of land, in one season, previous to the last day of July, in any one year, with all advantages and appliances, without regard to cost, that any experimentalist may choose to avail himself of; and that not even *ten tons* of dry hay could under any circumstances be obtained

previously to that date, or in the space of one entire summer and autumn.

That Mr. Caird should assert that double that quantity was produced, and afterwards address a letter in corroboration of that assertion, is to me a subject upon which I will not venture to express my opinion; but let him not treat those who cry out "Impossible!" so contemptuously, nor let his supporters challenge others who deny his statements as doing so to damage his agricultural reputation. The statement being one of fact can surely be proved, and, if incapable of proof, may be tested by future experiments.

I am, Sir, equally desirous as yourself to elucidate the truth. We unfortunately have, from time to time, had such startling announcements made upon agricultural production, that we almost doubt whether we may be farming under the same influence of climate, or, I may say, in the same planet.

I am, Sir, your obedient servant,

VINDEX.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I am unjustly attacked in the *Gardeners' Chronicle*, and I enclose you a copy of the letter I have sent them. In future, I shall order your paper instead of theirs. Will you kindly insert the letter in your paper, as a copy of the letter I sent to the editor of the *Gardeners' Chronicle*? [I am, sir, yours, &c.,

T. BEALE BROWNE.

Dublin, Oct. 7.

"TO THE EDITOR OF THE GARDENERS' CHRONICLE.

"SIR,—I took your paper to read in the train to Holyhead, and I am much hurt to see you adopt the wild statements of Mr. Caird.

"I had always looked up to you as an agricultural authority. I now cease to have any confidence in you.

"I should have stopped Mr. Caird in his impossible statements had it not been for the respect I have for our friend Mechi, not wishing to have an unpleasant discussion at his hospitable board.

"Afterwards I expressed indignation at such misstatements being made, when a Scotchman defended Mr. Caird (I suppose Mr. Telfer), and said it was perfectly true 25 tons had been made and dried at three cuttings; when I showed that if such crops were grown they could never be dried in that climate. He said, the hay-making machine was frequently moving it. I then exclaimed—*"This settles the matter, for no hay-making machine ever invented would move half such a crop."*

"Now, sir, I should have liked you better if you had mentioned my name when you attacked me.

"I am prepared to stake my agricultural reputation of many years' standing as to the impossibility of Mr. Caird's assertions, and to appeal to the practical agricultural world whether it would be possible, three times before the end of July, to dry such crops if they were ever grown.

"I consider such statements as most wicked, and your adopting them as most damaging to an agricultural leader.

"I am, sir, yours, &c.,

"T. BEALE BROWNE,

"OF HAMFEN, GLOUCESTERSHIRE."

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Your having this morning, with the view of affording me an opportunity for explanation, favoured me with the perusal of a letter from Mr. Telfer, of Gunning Park, Ayrshire, in which he lays claim to the producing of more Italian ryegrass per acre than would be equivalent to *only* 11 tons of dried hay—the quantity I gave him credit for in my letter to you of the 25th ult.—I suppose I must abandon that quantity as *his maximum* produce. A few tons more or less, however, in the quantity of grass, and its *estimated* equivalent of hay, is of minor importance as compared with the fact of Mr. Caird having to abandon his astounding statement that *twenty-five tons* of dried hay per Scotch acre *had actually been made*, and that, too, by the 26th of July last; while *now* Mr. Telfer states that he will only have cut *sixty-five tons* of grass, equal, he supposes, to *twenty tons* of hay, by the *end of this month*. I am, nevertheless, still so strongly impressed with the correctness of my recollection of the items of Mr. Telfer's statement, as given in my letter, and which was made to me personally after Mr. Mechi's gathering—confirmed as it is by the remark which he added by way of rider, that "Mr. Caird should not have made the announcement he did until he had been better acquainted with the particulars of the case"—that I shall to-day write to him to endeavour to clear up the discrepancy; and if the point is thought worthy of further notice, you shall duly have the result.

The point at issue, however, is not as to Mr. Caird's veracity in relating what he thought to be true relative to Mr. Telfer's crops, for that no one who knows him would, for one moment, think of doubting; but as to the *facts* which he was led to outrage by his extreme love of the marvellous, exemplified as it is by his acting sponsor for so many new systems, or points of a system, of *practical* farming; and I think the occasion is opportune for intimating to him the prevailing sentiments of English agriculturists, who, I believe, have been brought to think that if he has nothing more useful to tell them during his peregrinations here than the necessity of adopting those wonders of the north, which tend to disturb their imaginations without strengthening their hands, he had better confine his labours to the other side of the Tweed until he can shew that the leading farmers of Scotland have been brought to give his new principles *even a trial*, far less to have *engrafted* them on their practice. In the mean time, Mr. Editor, are the English occupiers of the soil, as a body, to submit tacitly to the taunt that they don't adopt Mr. Caird's agricultural *possibilities*, *because* they don't understand them? On the contrary, I assert that they do not adopt them, *because* they do understand them. Is the hobby of an amateur, or the toy of a successful tradesman, to be substituted for the *business* of farming? What, I would ask, are the *primary* wants that present themselves to farmers, whose *occupation* is the *business* of their life, before they can be expected to entertain the extreme theories of this new school? Do they not understand that probably one-half of the land in England is yet

undrained, and one-half of the holdings without adequate buildings; and that to supply these *primary essentials to ordinary*, not to *extraordinary*, farming, would absorb *sixty millions* of money, which is more than all the available capital of the United Kingdom, and probably a larger surplus than this country will be able to raise, for such a purpose, with all its mighty powers of accumulation during the next 50 years.

Then, if we turn to Ireland, what do we find there? Not, certainly, an agricultural condition ripe for the adoption of force-pipe irrigation, but one requiring an expenditure of £88,000,000 on farm buildings and fences, and £20,000,000 on stock, as estimated by Arthur Young in 1779, to raise that country up to an agricultural level with England; since which time it has been but slightly changed. To these sums I will venture to add £30,000,000 as my own estimate of the manure required to bring up a soil impoverished by crops grown without it, and carried off without an equivalent, to a parallel condition with that of this country. And will an expenditure of £20,000,000 more in practical tuition raise up the 2,000,000 of agricultural labourers and squatters in Ireland to the commercial value of an equal number of the agricultural labourers—they deserve the name of artisans—of either England or of Scotland?

Then, while it is thus essential to the successful continuance of the practice of agriculture, and the maintenance of its progressive advancement, that so much capital should be expended and so much labour bestowed, why should Mr. Caird and our other modern agricultural peripatetics pursue a “Will-o’-the-Wisp” only dimly visible to their own intellectual optics, and endeavour to lead the practical tenant farmer from the fields of successful industry and skill, into the delusive quagmire of excessive gains of easy attainment, while they might take up the ball of progress where only it has been *practically* left by the cultivators of the soil, and thus accomplish some good to the science they profess? As well might the market-gardens of Hammersmith, from which the occupiers make a hundred pounds an acre, or the Aromatic Garden of Mr. Grossmith, at Epsom, from which he realizes *two*, be held up to the farmers of England for universal adoption, equally as the experiments, however laudable, of such gentlemen as Mr. Telfer. Their protection against all such unreal advantages, is their good common sense, which will lead them, *first* to count the cost, and *secondly* to estimate the *result* (when that is *possible*), before they adopt them into their practice.

Yours faithfully,

AN AGRICULTURIST.

Monday Morning, Oct. 9, 1854.

SIR,—May I take the liberty of drawing the attention of those of your readers not familiar with the details of haymaking to the erroneous calculations in Mr. Telfer's letter in the *Mark-lane Express* of last week, relative to a ton of hay from 3½ tons of grass, according to Professor Way's experiment? You will perceive that “75 per cent. of moisture” gives 25 of dried hay.

Now, add to this “16 per cent. of moisture,” which the Professor found that hay contained, and we have 41 per cent. of hay in its ordinary state, according to the Cirencester experiment above; or 100 tons of grass gives 41 of hay, 10 tons of grass 4 tons 2 cwt. of hay, 5 tons of grass 2 tons 1 cwt. of hay, and 2½ tons of grass 1 ton and 56lbs. of hay, which approximates pretty closely, we may observe, to the experiment of Mr. Dickenson, quoted from the Journal of the Royal Agricultural Society. The 80 per cent. of water, again, according to Dr. Voelcker's experiments, given in my last, would give only 20 of dried hay; so that, if we add 16 to this, we have 36 per cent. of hay, or every 25 tons of grass would give 9 tons of hay, 12½ tons of grass 4½ tons of hay, and 8½ tons of grass 3 tons of hay, or 3 tons of grass would give rather more than 1 ton of hay, the crop being free from clover; which approximates to Mr. Telfer's own experiment, although it differs widely with his subsequent statement, that grass in Ayrshire only contains “74 per cent. of moisture.” Moreover, 74 per cent. of moisture would give 42 per cent. of hay; so that 27½ tons of grass would yield a great deal more than “8 tons of hay,” or upwards of 11 tons.

The difference of five per cent. of moisture between the two experiments at Cirencester is, no doubt, accounted for from the hygrometrical difference of the two seasons, and stages of growth when the two crops were cut; and we should rather feel disposed to calculate, in the absence of experiment, that grass in Ayrshire, forced up to the enormous weight of 27½ tons per acre, contained five per cent. more moisture than the latter experiment of Dr. Voelcker, if not more, instead of six per cent. less, as Mr. Telfer—unwittingly, we presume—would have us believe.

Fair play is a jewel; and, in making these corrections, it is no more than reasonable to suppose that Mr. Telfer is as anxious to give the real weight of his grass crop this year being experimented upon, as we are to hear it, although it is evident we must accept his calculations with caution; and therefore we would suggest its chemical analysis (if such has not already been done), in order to settle the question as to the per-centage of water which such an enormous crop contains—or next year, if our proposition is too late to be carried into effect this. Statistical and practical information of this kind is invaluable, apart from the question at issue relative to 25 tons of hay per Scotch acre in one season, for Practical Chemistry has acquired such authority among us of late, that unless her demands of this kind are complied with, the accuracy of experiments, otherwise invaluable, is liable to be questioned. In the above experiment, for instance, where we are told that “3 tons of grass gave 20 cwt. 1 qr. and 12lbs. of hay,” the per-centage of moisture which the hay contained ought to have been given, for, in the absence of such, it may be said that it contained some 30 per cent. instead of from 14 to 16, which would materially affect its value; and even where analytical demands of this kind are complied with, the greatest circumspection is necessary to avoid error.

I am, Mr. Editor, your obedient servant, B.

FF 2

SIR,—Having paid a little attention to the correspondence which has appeared in your paper lately regarding Mr. Telfer's hay crop, perhaps a few suggestions from a bystander may lead to a unity of opinion among the parties concerned.

I believe I am not in error when I state that Mr. Caird did not mean to aver that 25 tons of hay were actually made from the product of a Scotch acre at a single cutting, but during one season, and as the result of three or more successive cuttings.

Judging, too, from Mr. Telfer's letter, the 25 tons of hay were not actually made, but only that such a quantity of grass was grown, which, if converted into hay, that weight might have been realized.

If these suppositions be correct—and I am pretty sure that they are—the possibility of Mr. Caird's unqualified statement is then less difficult to be believed, although as yet there is no evidence to prove that it has ever been accomplished in fact, either on this or your side of the border.

I am, sir, yours respectfully,

Leith, Oct. 14.

T.

[Mr. Caird distinctly said, and reiterated, that "it had been done"—25 tons of *hay* made. No one, however, has attempted to maintain such a further absurdity, as that this could be done at a single cutting. That would be a little too much.—ED. M.L.E.]

SIR,—Though not an agriculturist, yet as one who takes a lively individual interest in what ought to be interesting to all men, I venture to put to you the following questions on this subject, which perhaps some of your correspondents will enable you to answer specifically through your columns.

According to Mr. Telfer's letter to you of the 3rd, Professor Anderson (not the Wizard, I hope) has found that Italian rye-grass subjected to chemical analysis contained of moisture 75 per cent., while hay was found by Professor Way to contain 16 per cent., leaving only 59 per cent. of moisture in grass *more* than in hay; consequently, 65 tons of grass would be equivalent to 26 tons 7 cwt. of hay, nett.

Now, free from the mists of controversy, let us have a few facts.

First. Are Professors Way and Anderson correct in their analyses, and are they correctly quoted?

Second. Did Mr. Telfer actually raise as much as even fifty tons per acre of Italian rye-grass?—for even that would give 21 tons 10 cwt. per acre of hay, on the basis of calculation furnished.

Of course I am aware that grass is not hay, and that the winnowing, if it takes place on the field, must be accomplished at the expense of the next crop; but that is a purely mechanical difficulty, and it is not impossible it may be conquered.

Let us have what Nature gives in bounty to enterprise first; for, if the above be the facts, they are certainly great facts.

I remain, yours, &c.,

Edinburgh, Oct. 20, 1854.

AN ENQUIRER.

ADVICE TO FARMERS.—It is quite possible that a farmer may make what is termed a lucky hit; but we very much question whether a farmer who either holds or sells on speculation that prices will either rise or fall, ever permanently

succeeds so well as those who act on another principle. The business of the farmer is to cultivate, not to speculate; and when he quits his proper business for a crude estimate of what foreign politics or unknown weather may possibly bring, we apprehend that in the long run he will discover that he has made a bad investment of his time. But happily there is another mode of determining the proper period at which the farmer may calculate that he sells with safety, a mode which we have heard wise men say is the best of all, namely, the period which is best for the farm, irrespective of all foreign politics, Czars, Turks, Tartars, Cossacks, allies, or anything whatever, save only of the best possible way of managing the farm. We cannot help thinking that the system which is best for the farm must ultimately be best for the farmer. With a steam mill it is quite easy to thrash off a crop in a few weeks, and occasionally such a venture might produce most money—to be followed, however, by inconvenience in the farm work and farm feeding all the rest of the season; and the question is, whether any amount of human foresight could—say on a period of ten years—secure a greater advantage by a speculative attention to prices, than by ordering everything, sales included, exactly as was most conducive to the agricultural welfare of the farm itself, and by taking the market price at the time, and in the quantity, which the farming operations required. The thrashing and the sales would thus come to be distributed, not by an attention to wars and rumours of wars, but by an exclusive attention to the more and more perfect outline of the farm; and the farmer would thrash and sell exactly as his horses, cattle, labour, manuring, and other things, required—going to market with his grain, not with regrets that prices had fallen, or fearing that they might rise, but with the honest consciousness that he was doing his best to be a good farmer, and to leave speculations to those whose especial trade it was to deal, and not to cultivate. Good farming will in the long run be incomparably more profitable to the farmer than speculating, however fortunate or however clever the latter may happen to be occasionally.—Edinburgh Witness.

THE FALL OF THE LEAF.—The fall of the leaf is a most curious circumstance, and has puzzled many a wise philosopher. It cannot be merely because of the cold to which the leaf is exposed, for when a frost in June blackens our hedgerows, and desolates our gardens, the leaves do not fall off; they only wither and die. It may be because of the arrival of old age, but this is a phrase which explains nothing. One would naturally ask, moreover, why some leaves remain on the tree the whole winter, though others fall so early. To understand these things, we must first learn what the leaf is, and how it is joined to the branch. A leaf is the thin part of the outer layer of bark, pushed outwards and stiffened by tough fibres, which pass into it from the wood, and form its veins. By these means, a simple and very curious apparatus is constructed, the green or bark part of which, consisting of small bladders, acts as a stomach to digest with and lungs to breathe with, while the fibres convey food and air from the branch into the stomach and lungs. Now, when the leaf is first formed its bladders and fibres have very thin sides, and whatever is introduced into them is readily returned again; and if what they receive was quite pure, it is not improbable that they would go on receiving and returning for a long time. But the fluids of plants are not water; on the contrary, they contain a great deal of earth, and other matters, which they deposit every time they pass over the surface. We know that when a kettle first comes home from the ironmonger its inside is bright and clean, but as soon as we have boiled any water in

it, the inside becomes a little furred, and when it has been thus used a great many times it becomes very much encrusted, till at last it is quite lined with a substance like hard earthenware. Something of this sort takes place in the inside of the bladders and fibres of a leaf; they are at first quite clean, but by degrees they are furred till their sides are rendered so thick that the fluid on which the leaf feeds can no longer pass through them readily. As soon as this happens the leaf begins to be starved and to leave off growing; want of food renders it weak, a sort of indigestion takes place, and at last it altogether dies. In the summer time leaves are always falling off as they die, those on the lowest part of the branches falling first; but we do not remark it, because the falling leaves are hidden by the living ones. Now the reason why a leaf

falls off when it is dead seems to be this: the bark to which it is attached goes on growing and expands; the leaf-stalk, as it dies, shrivels and contracts; the consequence of which is, that the one separates from the other. It is, in fact, just what happens when a piece of iron is heated and then cooled; the outer part, which is an oxide, cools much quicker than the inner part. The metal contracts, but as the metal and the surface cool at a different rate, they also contract at a different rate, and so separate. Such is the case in the summer time; and, when the frost comes in the autumn, something of the sort takes place. At that time the leaves are generally in a dying state, for the reasons already explained; a partial separation has in fact taken place between them and their branches. —Literary Journal.

THE SHEEP.

(Continued from page 292.)

"First, with assiduous care from winter keep,
Well foddered in the stalls, thy tender sheep."

DRYDEN.

A good deal of fruitless discussion has taken place as to the propinquity or family relation of the different breeds of sheep in the world, no less than of their origin. How many breeds Noah preserved of the antediluvian stock, neither sacred nor profane history gives us any definite information; while the breeds themselves, at the present day, afford ample materials for endless disquisition. The Mosaic account, for instance, is sufficiently broad to admit of a very wide construction; for the sheep being a clean animal, according to the Adamitic dispensation subsequently reratified with the Hebrews at Sinai, either seven kinds, or seven couples (the male and female) of each kind, may have been preserved. The former is a definite number, and may, therefore, be assumed; but the latter is otherwise, leaving a wide field for the imagination to traverse among existing breeds.

Assuming seven varieties, or fourteen head (a very small flock, we may observe, considering its usefulness, to save from the old world to stock the present) the long and shortwoolled breeds would necessarily form two of these; and if the fat-rumped and fat-tailed are admitted as two others, then the Musmon, Argali, and bearded sheep of Africa (*Ovis tragelaphus*) may be given as the remainder.

There are, however, many objections to this hypothesis of the different species of sheep, not very easily answered; for it is a well-known fact that, in the case of the fat-tailed and fat-rumped kinds, food has a great influence upon the deposition of fat, and therefore may have given rise to those two varieties. We see in some of our own breeds, for instance (as the Leicesters), a propensity to lay on fat on the rump and back, which has become hereditary; and again, when fat-rumped and fat-tailed breeds are put upon a different quality of pasture, and under different treatment and climate, they lose those fatty characteristics: but if, on the other hand, they are thus descended of either of the other

varieties, this "steatopygous" type must have been developed at a very early period of their history, for the inspired penman mentions the burning of the fat upon the rump, in sacrifice, during the exodus of the Hebrews from Egypt, which leaves more than probability in favour of its being an original specific qualification, for the purpose of serving some peculiar exigency of nature in warm climates, similar to that of the fatty hump of the Indian ox; for, had it been a malformation, it would have been a blemish unfit for sacrifice.

In illustration of these objections as to the effects of food, we may observe that it has been attributed to the peculiar saline and bitter herbage of the deserts of Tartary and Syria, where the steatopygous breeds are generally found; but the argument, independently of what we have said above, does not appear to be conclusive, for there the facts of the case only prove that on some pastures the sheep take on fat faster than on others containing a different quality of grass, for whenever the sheep becomes lean, and lacks fat or carbon to supply the respiratory and other functions of the animal economy which it serves, then it must, as a matter of course, draw upon the fat of the rump, and exhaust that supply also, which, in point of fact, is placed there by nature for that express purpose. The effect of salt on the fattening of sheep of every breed is well known. No breed can enjoy health long without it. But with regard to the bitter herbs spoken of, such as wormwood, we hardly can swallow the conclusion, as some have done, that it, from its medicinal qualities, would make our native breeds of sheep lay on some 40 to 100lbs. of pygous or caudal fat, requiring carriages to carry it, as in the extra-fat sheep of the East. We are carrying the fattening process to an excess already, but fortunately have not got so far as this. At the same time, it may act as a tonic, and thus enable the stomach to dispose of a larger amount of nourishing grasses; so that the experience of the Calmuc Tartars, &c., may furnish us with a useful practical lesson, after all.

The other hypothesis of Noah's flock would give fourteen short-wools and as many long-wools, with a

similar number of each of the other species, which would increase its numbers to the opposite extreme of what was formerly observed of the first supposition, unless we reduce the fat-tailed and fat-rumped to one original breed, as some have done, and the three wild breeds to a common parentage also, thus making a total of only 56 in the flock, subdivided into four species—viz., long-wools, short-wools, fat-tailed, and some gigantic and large-horned breed whose character had unfitted it for herding with the others, and on that account allowed to run wild, where it would change its features in many respects, owing to the different physical circumstances to which it would be subject, analogous to what we see in our own native breeds, between which there is scarcely a less difference than between the Musmon, Argali, and bearded sheep.

These observations on the breeds of sheep are rather thrown out for the purpose of arousing enquiry, than any attempt to settle the knotty question at issue. Whatever may have been the number of species which comprised Noah's flock when he descended into the plains of Armenia from Ararat, it is plain that each is now subdivided into many varieties or breeds, and the practical questions which most interest the farmer are the means which have been employed for producing such an effect.

The causes in question are many, and shepherds appear to have been acquainted with them from time immemorial. Moses and the early Hebrew writers who followed him, for instance, mention many interesting facts in corroboration of this: so do Hesiod, Homer, and the early historians of Greece; while subsequent writers, of every age, make special mention of the changes to which the breeds of sheep are liable, and the causes which produce them.

The more prominent of these causes may be thus stated generally, 1st, food, or those which affect the alimentary system, and the consequent development of the members of the body; 2ndly, physical causes from without, affecting the sensorial functions or the nervous system; 3rdly, physical causes, also from without, affecting the muscular system, bones, &c.; 4thly, climate, or those affecting the heat of the body; and 5thly, mixture of blood.

The first of these, food, embraces the Tartarian theory of *wormwood and salt*, already noticed. Our native breeds of sheep, where left to themselves, as in the mountains of Wales, Scotland, and Ireland, and also the different kinds of deer, will go miles to the sea to drink salt water of their own accord; and on other occasions, eat wormwood, tansy, and such like plants, possessing medical qualities of a kindred character. If annoyed with intestinal worms, for instance, they drink sea water as a vermifuge, and as both are voracious creatures, liable to overload and injure their stomachs, they may have recourse to wormwood for the same reason that gourmands, after a surfeit, have recourse to *Crème d'Absinthe*. When sheep pastures abound in plants of this kind, especially wormwood, their mutton will even partake of a bitter flavour, relished by many, if not the majority. It is to plants possessing strong aromatic

properties that the fine flavour of our hill and heath-fed mutton is to be attributed; so that a very important practical question arises—ought we to cultivate such plants, and mix them along with the food of sheep? Every farmer is familiar with the fact that the great art of feeding, or procuring heavy weights at an early growth, is the preservation of good health and appetite, especially when large quantities of oilcake are consumed. Ought not bitter herbs, therefore, to be consumed along with such food, not less for health and appetite than the quality of mutton?

But when an excess of such plants is consumed, the health may be impaired in the first place, and after an effort has been made by nature to adapt herself to them, health may recover; but unnatural developments may take place, such as the accumulation of fat on the rump and tail. So some have argued (?), although their arguments, as we have already said, are far from conclusive, for then constitutional malformations of this kind, according to such a theory, would at the best be an index of natural debility, while they are experienced as the opposite, being an index of health.

The more rational theory of the pastures of the Tartar and Arab tribes is, that the peculiar quality of the grass and climate requires a certain proportion of saline and tonic plants to promote the highest degree of health; and that with these, sheep fatten faster than without them; and that as they suffer from the extreme drought of summer, a large supply of fat is required for the lubrication of the skin and body generally, than can be procured at that season from the scorched grass of the desert. Hence, Nature has made a wise provision for such an exigency by enabling them to lay up a store when grass is abundant; and that where such provision is not made, as in the absence of such plants, when flocks, instinctively endeavouring to make it, overload their stomachs, producing surfeits, bad health, and all their consequences, then they must suffer seriously in seasons of drought, if they be not cut off altogether. It is also more than probable that the peculiar flavour which such antiseptic plants confer upon the mutton makes it of a quality better adapted for the exigencies of an oriental climate, independently of its enabling sheep to lay up a larger store of fat without endangering health.

An extra supply of salubrious food, again, throughout the year, may induce indolent habits or a want of muscular action, and therefore development; and hence a preponderance of fat in the system. The sheep may carry too much fat, and too little lean. Good health requires a just proportion of the two; and this is what sheep, under such circumstances, therefore, cannot enjoy. In some cases they "make a stand" in feeding and growth, out of which it is hardly possible to stir them. Nature feels the precarious predicament in which she has placed herself, and therefore wishes to retrace her steps, as it were. In short, more practically stated, the sheep loathes its food, and refuses to eat. In other cases the appetite remains good, or rather, the stomach and absorbents become voracious, devouring every edible

which comes in the way ; so that the result is, a huge carcase of inferior quality.

A similar result may be produced by food containing an excess of carbonaceous matter. It is rarely that such is to be met with in any of our natural pastures ; but it may be so in other climates, as in Tartary, although we are not cognizant of the fact. In artificial feeding, it is but too frequently experienced, as in extra quantities of oilcake, corn, and roots deficient of nitrogen or flesh-forming substances. Food containing an excess or deficiency of the elements of bone will, for similar reasons, have a tendency to produce large or small-boned animals.

A scanty supply of inferior herbage throughout the year, or a limited supply of inferior food during winter, with a full bite of rich grass during summer, will produce examples of a very different kind. The sheep will now have more than a sufficiency of exercise in gathering its food, for instance ; and therefore its muscular development will exceed its adipose, and both fat and lean will be of superior quality, compared with those of the former examples. In the first case, where there is a short supply during the whole year, there will be a tendency to legginess, with a light body, the bone being fine or coarse according as the food contains less or more of the elements of bone. In the second case, the full bite during summer will increase the size of the body, especially the belly. At this season, an extra supply of fat will be laid up for winter use, during which it will be consumed, especially in aged sheep. This is also the season when ewes nurse their lambs, so that they, by having better keep, will also have more milk, and hence produce heavier stock. Young sheep will, for similar reasons, grow faster during the summer than the winter season ; consequently they, by having a less supply of extra fat for winter use, will suffer more from the inclemency of this period than after they have arrived at maturity of growth. Farther, this alternate action of superfluity and want in the alimentary system cannot fail to produce a constitutional type in sheep. They will be slow feeders, for example, until they have attained to a maturity of growth, and rapid feeders afterwards, because they have always been habituated to such circumstances. The quality of the mutton will generally be good on sound pasture, with a fair proportion of fat and lean ; although the two may not always be very well mixed, the alternate depositions of fat giving rise to a contraction of the adipose tissue in some parts of the body, but producing the opposite effect in others—the fat being laid upon the outside, creating “parchiness.” Under such circumstances, the “leg of mutton” will at times eat remarkably sweet, but be deficient of fat ; while at other times it may be somewhat coarse and dry. The shoulder may be similar, and yet an abundance of fat may cover the back, at times well mixed, but at others not.

When the sheep, on the contrary, has a regular supply of proper food during the whole year, then there will be a tendency to the highest degree of health, with a proportionate development of fat, lean, and bone ; so

that the several objections above noticed will be obviated. When we come to apply these observations to practice, we shall find that the grand object of every good shepherd, in every age and climate of the world, has been to preserve his flock at a uniform degree of fatness during every season of the year, experience having taught him that success could only thus be obtained. Even in patriarchal times, when as much value was placed upon the milk of the ewe as upon the quantity of wool and mutton annually produced by her, unless a regular supply of food was consumed, neither good milk-ewes nor a large quantity of rich milk or good wool could be obtained. In other words, her offspring would neither be profitable for the pail, shears, nor shambles ; while with regular feeding all these qualifications are obtained, and at less expense of food than under the adverse treatment.

Much more might have been added on this head had our limits permitted ; but enough has been said to show how far food has been instrumental in producing those varieties now existing among the different breeds of sheep even when considered by itself, and when in joint co-operation with the other agents its influence will be found still more powerful. “*Science*,” it is said, “*is the voice of sound practice* ;” so that its application in the feeding of sheep becomes a golden rule for the shepherd.

SONG OF THE FARMER.

BY THE “PEASANT BARD.”

Give to the lord his palace grand,
And halls of splendid pride ;
A sig for all his dignities,
And all his pomp beside !
Give me the FARMER'S peaceful home,
Beneath the maples high,
Where Nature's warblers wake the song,
The waters prattling nigh.

The citizen may love the town,
And Fashion's gaudy show ;
The brilliant pageantry of Art
May please the eye, I know ;
But NATURE'S charms delight the heart,
All simple though they be ;
The acres broad, the streamy vales,
The lowing herds for me !

What though the bronze is on our cheek,
Toil-calloused is our hand,
With honest pride we stand erect,
The nobles of the land ;
For “patriot TRUTH,” that spirit bright,
In this wide world so rare,
Points proudly to the Farmer's home,
And cries—My own are there !

CHORUS.

Then here's to him who tills the soil,
The true, the strong, the brave !
Without him ART would fly the land,
And COMMERCE leave the wave ;
And yet no frown of hauteur cold
Distains his manly brow ;—
Hail to the FARMER ! thrice all hail !
Lord of the mighty plow !

GRANTHAM AGRICULTURAL SOCIETY.

It is with much pleasure that we are enabled to give the following from *The Times* newspaper, in introduction to a very able speech from Sir John Trollope, as President of the above society. We can only repeat that we have very carefully watched the tone of the different agricultural meetings as held within this last year or so, and that while we see much to commend, there is little indeed to find fault with. A reply may be forced from them; though, if left to the direction of their own good sense, we believe the agriculturists of this kingdom will show little desire to revive unprofitable discussions. We are glad to notice our powerful contemporary inclined to treat their sayings and doings in this much fairer spirit, and we have only to hope that neither may for the future find occasion for the display of any less becoming expression of feeling or opinion.

[FROM THE TIMES.]

On Wednesday last one of our Protectionist chiefs addressed his constituents, at an agricultural show, in a speech which ranged over the topics of the day, from the position of England and the policy of the German Courts to the events in the Crimea and the general prospects of the war. In this there was nothing very singular. Lord Derby's adherents are not usually disposed to be dumb, nor is it at all uncommon to find them plunging into every subject as far as they can reach, and occasionally getting beyond that mark. The remarkable feature of the exposition at Grantham was its thorough good sense. Sir John Trollope got through an oration of some length without any abuse of free trade or freetraders, without any display of factious spite, and with an effect which did him no small credit. In particular, his remarks upon the principles by which the Government of this country is characterized, and his description of the contrast presented by the German States, are deserving of more than ordinary attention and approval.

Sir John Trollope, it appears, has recently returned from a tour in Germany, where he "made it his business to ascertain what was the prevailing opinion with regard to the war." He found the people almost unanimous in concurring with France and England and condemning Russia. Throughout these parts of the continent, indeed, the sympathy with England was everywhere strongly marked. Our language, our literature, and our institutions were studied; and a variety of inducements combined to make British policy popular. Seeing this, and being impressed at the same time with a decided admiration of the community whose views he was thus observing, Sir John "naturally inquired how it was that a great and enlightened people possessed no influence over their Government, or had the power

to call upon them to put an end at once to this miserable struggle between despotism and liberty?" To these questions he received for answer, that in Germany Germans went for nothing; that affairs were managed, not for the people, but for the princes; and that, while the former were opposed heart and soul to Russia and her system, the latter were attached by family connexion, and even by "less honourable links," to the Court of St. Petersburg. "It was this," added Sir John Trollope—this, the contrast between Germany and England—"that made him proud of being an Englishman, feeling, as he did, that no Government here could act contrary to the will of the people." What some of Sir John's friends may think of this political axiom we do not stop to consider; but if these are the tenets of the Protectionist leaders, we can readily understand the truth of Mr. Bright's remark in the House, that the country "would never get a more Conservative Government than it had at present."

Equally notable were the speaker's reflections upon the continental revolutions of 1830 and 1848. "It was," said he, "from the want of this principle"—viz., that constituting the people the real possessors of power—"that those terrible disturbances occurred. Governments were there overthrown simply because they were not in accord with the people; but in this country Parliament was the reflex of the feeling of the constituency, Government was the result of the will of Parliament, and thus, in fact, the people constituted the Government of this country." Unless these words contain some lurking suggestion that a Parliament which operates in so desirable a manner cannot need any reform, they might have been reported, without any apparent improbability as proceeding from the mouth of Mr. Hume himself, and, indeed, the whole speech, from first to last, might have been delivered by any Liberal statesman without any forfeit of character. Sir John admitted that even Lincolnshire agriculturists could not "presume to be right upon all points," that they "lived to learn," and that they ought to look with satisfaction upon the contrast discernible between the present aspect of agriculture and that exhibited in the good old times. What made the whole scene more remarkable was, that all these observations upon politics and farming were received with tumultuous approbation by the agriculturists assembled, and, in particular, it seemed as if Sir John had found his way to the very hearts of the Lincolnshire graziers by a proposal to reconstitute the kingdom of Poland. Evidently there is small hope for the Emperor Nicholas from any parties in this country.

With respect to the statements made by Sir John concerning the tendency of opinion in Germany, we have abundant reason for believing that they represent the actual condition of affairs with unimpeachable truth. We may go, indeed, so far as to say that no nation or

Government in Europe has attempted to vindicate the proceedings of Russia or to condemn the conduct of the Western Powers. The unanimity of sentiment prevailing upon this subject produces a state of European opinion entirely without precedent. Even those courts the sympathies of which are secretly engaged in favour of the Czar have so far and so publicly committed themselves by their declared views upon the cause at issue as to be debarred from openly opposing the allies, except at the cost of their reputation, and possibly of their power. The Prussian Government itself, which, so long as the dispute seemed likely to stop short of war, was eager in asserting its obligations to action, plainly acknowledged both that Russia was in the wrong, and that the redress sought for this wrong by France and England was not exorbitantly conceived. In the United States of America there are certainly one or two journals which have suddenly displayed an attachment to the Russian cause so strong as to produce a defence of the Czar's doings on their own merits. These publications argue that an absolute unconditional adherence to European treaties and established landmarks would simply produce a general stagnation, beneficial only to those States that were content with their own; that Russia, in seizing upon the territories of the Sultan, was but obeying a natural law of State development, and that the outcry raised at the proceeding is altogether absurd. This, it must be owned, is straightforward advocacy, and is, perhaps, the best which the cause of the Czar admits, but it has not been ventured upon in Europe, nor would the theory, we imagine, be regarded with unmixed approval by States which might some day find the same principles applied to themselves. The course of the German Governments has been very different. With a pretentious desire to be reckoned for something in European transactions, they have shrunk from the obligations which such a capacity involves, and, after confessing that the Czar was undoubtedly an offender against public law, they have confined their exertions to screening him as far as possible from public justice. They have admitted that what England and France are doing required to be done; but, instead of bearing their own share in the work, they have maintained a neutrality favourable to the offender, and have unhesitatingly sacrificed their own recorded convictions to the private interests of their Courts. The German people are notoriously of a certain opinion in respect of the pending war; the German Governments have declared themselves of this opinion also; but, as the consequences flowing from these admissions would be disagreeable to certain German princes, the action of Germany is nullified altogether.

What a contrast to such a policy is now presented in this kingdom! Here the people not only identify themselves with the Government and its objects, but they even anticipate its operations in all that may promote the success of the war. The Administration finds it impossible to outstrip the feeling of the public. The provision made by the Legislature for the expenses of the campaign is swelled by voluntary offerings; and it almost

seems as if the people were ready to take upon themselves the charge of any particular department, rather than permit its efficiency to be curtailed by economical management. This, as Sir John Trollope truly observed, is the real strength of a Government. We have not maintained our millions of armed men, or lavished the resources of the State in creating the appearance of military power; but we can dare and do what Governments with innumerable legions at their command have not ventured to attempt—we have encountered that Power which all Germany has taught itself to dread, and, with the aid of our ally and the support of popular unanimity, we trust to give a good account of our undertaking.

The anniversary of this society was held at Grantham, Lincolnshire, on Wednesday, Oct. 18. The exhibition presented several excellent specimens of good breeding; but in consequence of the drought in the early part of the summer, there was not, generally speaking, so fine a show of stock as in the preceding year. On the ground we observed the right hon. Sir J. Trollope, M.P., Sir M. J. Cholmeley, Sir J. E. Welby, M.P., Major Allix (the father of Captain Allix, whose name is so favourably mentioned by Lord Raglan in his recent despatches with reference to the battle of Alma), Mr. Burbridge (the Mayor of Grantham), Mr. Ostler, Mr. T. C. Beasley, &c.

After inspecting the showyard, a large number of agriculturists and visitors, including the principal gentry of the neighbourhood, proceeded to the Town-hall, where an excellent dinner was provided by Mr. Wakefield, of the Red Lion Inn.

In proposing the toast "The Army and Navy," Sir J. TROLLOPE, who presided on the occasion, observed, that he had several young relatives at the seat of war, performing their duty to their country; but while our brave soldiers were achieving glory to the British arms, much misery and many broken hearts must necessarily accompany their deeds of valour (Hear, hear). For the sufferers, therefore, in this conflict be trusted that the sympathies of the association would be aroused, and that they would each contribute to the general fund for the relief of the widows and orphans of those who fell in the cause of freedom and right against barbarian oppression (loud cheers).

On the toast of the evening being given, "Success to the Grantham Agricultural Society," Sir J. TROLLOPE, after regretting that the showyard had not made so good a display this year as upon former occasions, said, that one reason for the comparative falling off was the fact that the Royal Agricultural Society had held its meeting this year. He happened to be at Munich upon that occasion, and there read with considerable amusement the commentary of the great and eminent leading journal, the *Times*, in giving an account of that meeting, in which it was stated that the agriculturists of Lincolnshire lost no opportunity of lauding their own merits. Now, whatever might be taught them that was useful they were ready to adopt; therefore, they assumed to themselves an honest pride in having achieved what they had in the improvement of their county (Hear, hear). They did not presume to be right upon all points; they lived to learn—observation was what made an agriculturist, and by watching the seasons and the climate they discovered how best to cultivate the land. Some few of them were old enough to remember when the face of that county presented a very different appearance from what it did at the present time; that in some parts of it there were mere rabbit warrens, heaths,

and wolds, while in other parts were undrained swamps, or places overrun with ferns; therefore he thought they might with some reason consider that they had contributed to the improvement of their county (Hear, hear), and that they might, like the old Roman, who said he found his city brick and left it marble, exclaim that they who found their county a waste, uncultivated and barren, left it fertile, fruitful, and well cultivated (cheers). In what was it that they were deficient? It was said that their breed of sheep was bad, and that they ought to adopt another—the Cotswold breed; but, when he could get almost four times the quantity of wool from the backs of his Leicester or Lincolnshire sheep, he begged to decline changing his breed at the suggestion of any one. In fact, he had always observed that taking an animal out of its own particular county caused it to degenerate, decreasing in size and in quality, and in quantity of wool. He maintained, therefore, that they could not make any improvement on their present system, and thought it better to leave things as they were (Hear, hear).

Sir G. E. WELBY then proposed the health of the chairman, who, he said, was essentially, and *par excellence*, the farmer's friend and champion in the House of Commons (cheers).

Sir J. TROLLOPE returned thanks. His hon. friend had alluded to the high trust which he (the chairman) had received from their hands as the member for their county. It was no light thing for a man to undertake the responsibilities of representing a large county constituency in the great council of the nation. He had not only to consider the mere local interests of his constituents, but it was his duty as an honest man to weigh well all matters involving the well-being of the nation at large (Hear, hear), and he could conscientiously declare that during the many years he had had a seat in Parliament he had never forgotten any engagement that he had in his twofold capacity entered into (cheers). If, however, on this occasion he were to be called upon to render an account of what had been transacted within the walls of Parliament during the recent session, he confessed he should be somewhat at a loss how to meet that call; for, speaking not in any party or sectarian spirit, but taking an impartial retrospective view of what was actually done in the last session, he felt that the six months which were occupied by Parliament had been productive of very little practical benefit to the country. Much, indeed, was promised in Her Majesty's gracious speech from the throne. Twelve important measures were proposed to be brought forward for the consideration of Parliament; but, after all, what was the result?—no less than eleven of them fell to the ground. They were either withdrawn, or they were defeated because the temper of the moment did not admit, though they might be good in themselves, of their being adopted. Men's minds were entirely absorbed by the great struggle now pending. War had been declared, and England was called upon to carry a vast armament by sea and by land a distance of 2,000 miles from our own shores. Parliament had not only to provide means for this great immediate outlay, but to devise the best method of sustaining and supporting a most expensive and possibly protracted war. It was one of the most disagreeable duties of a member of Parliament to impose taxes upon the country, but, in this instance the country had imposed that duty upon Parliament (Hear, hear); and the votes to meet the expenses of the war were granted unanimously. Having this heavy responsibility cast upon them, it was not likely that Parliament would be in a condition to set about reforming its own constitution. That, however, was one of the great measures of the Ministry of the day. They said that the House of Commons wanted to be reformed. The first thing, however,

that they would have had to do would have been to prove that proposition, and to show that the House required to be set in order at all; but that measure was withdrawn. Even if it were admitted that there were defects in the existing system, the country was not at the present moment prepared to call for their correction. Many of the other measures which in times of quiet and peace would have received the respectful attention of the House, were, for the reasons he had detailed, postponed to a more convenient season. At the close of the session it was usual for the Speaker of the House of Commons to announce to her Majesty on the throne what were the measures which her faithful Commons had passed during the session; but the right hon. Speaker—a man of noble presence, eloquent, and seldom wanting in fluency of phrase—when approaching the royal presence, after a few brief sentences, actually broke down, for he had nothing to tell. His case was something like that of the knife-grinder, who, on being invited to tell his “pitiful” story, replied—“Story! God bless you! I have none to tell, sir.” (Laughter.) Hitherto, however, he had been speaking of the past, but what chiefly concerned them was the conduct of the future (Hear, hear). What were the prospects of this country as regarded the war in which they were now engaged? It was of the greatest possible importance to know how this country stood with her allies. They all knew the loyalty and fidelity with which the Emperor of the French had carried out his engagements with us. The two nations knew each other's worth and valour by former conflicts between themselves, and now they were gloriously ranged side by side in a foreign land (cheers), to fight the cause of freedom, without any sordid view of territorial aggrandizement. They were at this moment lavishing their blood and treasure to resist the overreaching and undermining policy of Russia, who, if unchecked and unrestrained, would allow no peace for Europe. The present was a struggle between a barbaric Power, which kept its subjects in a state of ignorance and serfdom, and two enlightened nations, whose mission it was to advance the cause of civilization throughout the world. He had recently travelled through a great portion of Germany, and had made it a subject of deep interest to watch the proceedings of the great Germanic Confederation. He had looked at the conduct of the allies of this nation in that country. Austria, having nearly half a million of men in arms, had gone along with England to a certain extent, but she had wavered and hesitated. His belief was, that if Austria had thrown down the gauntlet, and had said to Russia, “Thus far shall you go, and no further,” there would have been no war. He did not, however, mean to blame the Government of this country for what had occurred. War had taken place, and they must meet it with honour—they must meet it with energy, determined to sustain the honour of the Crown and the glory of the country. (Cheers). He had recently attended a great exhibition at Munich. No part of the continent was more civilized, or its inhabitants more learned; their sympathies with England were great, as indeed among the people was the fact throughout all Germany. They studied our language, our literature, and our institutions. He made it his business while among them to ascertain what was the prevailing opinion with regard to the war; and he found among the people, whether Austrians or Prussians, that the opinion was one of condemnation against Russia. Finding this to be so, he naturally inquired how it was that a great and enlightened people possessed no influence over their Government, or had the power to call upon them to put at once an end to this miserable struggle between despotism and liberty. But what was the answer he received? These

enlightened men, who took a rational view of the position of affairs, declared to him that while they and the great bulk of the Germanic people were in heart opposed to the aggressive system of Russia, they were compelled to yield an apparent acquiescence to Russian policy and the bias of their Courts. The people of Germany said they were one thing, their rulers were another; the latter were allied with Russia by the closest ties of marriage connection, and, they added, by less honourable links, for it was well known that Russian gold, applied by Russian diplomacy, had operated greatly among the Courts of Germany. But of this he was convinced—that the people of Germany were in perfect sympathy and accord with England and France at this moment (cheers). It was this that made him proud of being an Englishman, feeling as he did that no Government here could act contrary to the will of the people. (renewed cheering). It was for want of this principle that the terrible disturbances on the continent of Europe occurred in 1830 and 1848. There Governments were overthrown simply because they were not in accord with the people; but in this country the Parliament was the reflex of the feeling of the constituency; Government was the result of the will of Parliament; and thus, in fact, the people constituted the Government of this country. If the Governments of Germany had acted with the same feeling as the English people had done, if they had shown their strength in the first place, Russia would have been a Power weak even as a child, and would have inspired no fear (cheers). One's only hope was that to meet the demand of this great struggle some man of genius and of power might arise equal to the emergency, and at once bring the contest to a close. Should the Allies be successful in the Crimea, what was there to prevent them from carrying their victorious arms into Asia itself, and there encounter the enemy in his steppes and fastnesses, with the same irresistible result? But, furthermore, why should we not again call into being that great nation which, more than any other, would form a barrier against Russian aggression? Let us at once restore the kingdom of Poland (loud cheers). It was the natural barrier between the civilized nations of Europe and the semi-barbarous despotism of Russia (Hear, hear). He threw these thoughts out somewhat at random; they might be deemed utopian and wild ideas (cries of "No, no"); still, if they could not approach the heart of Russia and crush it in its solidity, let them at least cripple it at its extremities by lopping off limb by limb. He looked upon the spoliation of Poland as a crime to be expiated; for, though the Western nations were no participants in the spoil, yet they looked acquiescently on, while the great military powers, Austria, Russia, and Prussia, appropriated that territory among them. The importance of Poland as an integral Power of Europe could scarcely be over-estimated; it extended on the one side from the Baltic to the Black Sea on the other, and those provinces of it which had been annexed to Russia contained a most warlike population, not a man among whom, if he had the opportunity, would not gladly leave the coerced servitude he now rendered the Czar. The idea he had thus ventured to suggest was one which he knew met with the cordial sympathies of the French people, and they might depend upon it that in directing their views to the accomplishment of a great object like that of restoring a people to its nationalities and rights was a far better course to pursue than that of following a buccaneering expedition against harmless villages, and the capture of barks engaged in peaceful commerce. He had received a letter from one of his constituents at Boston, complaining of the detention of a vessel freighted by himself. That was not the course to be pursued by a great nation. They should remember the words of the

illustrious warrior, who declared that England could not afford to have a little war. No doubt great disappointment would be experienced at finding the noble fleet and its gallant crew returning from the Baltic Sea without having achieved more than they had; he blamed not, however, the gallant commander. Explanations would probably be readily afforded why the expectations of the country had been disappointed, and why those exploits which were anticipated had not been accomplished; for it was expected that when England undertook a war, it would be upon a grand and splendid scale (cheers).

Various other toasts were then given, and the proceedings terminated.

LORD BERNERS ON AGRICULTURAL STATISTICS.

His Lordship has addressed the following letter to one of the relieving officers of the Billesdon Union:—

"Keythorpe Hall, Tugby, Leicester,
"Sept. 26, 1854.

"SIR,—I have ordered the schedule for agricultural statistics, which I received last week at the board of guardians, for lands in my occupation, to be filled up as accurately as possible, and delivered to you the first time you passed, as it might possibly serve as a pattern for others. Should you find any parties with whom I am connected doubting the propriety of filling up the returns, you are at liberty to repeat what I stated at the board as my opinion on the subject—

1st. "That no harm could result from the measure, but that much good might accrue.

2nd. "Had a true statement of the numbers employed in, depending upon, or interested in agriculture, together with the amount of capital employed by them, and the value of their produce, been of late years more generally known, we never should have had those virulent attacks upon the agriculturists which have prevailed of late. Their actual position would have been recognized.

"I never fear the promulgation of truth, and am perfectly satisfied that a thorough knowledge of the actual value of agricultural produce from year to year would have the tendency to prevent many of the panics and fluctuations in the value of our produce we have of late years experienced.

"For instance, lately in one fortnight wheat fell 8s. to 10s. per quarter, and nearly a corresponding rise during the last two weeks, the first caused by a consideration of the abundant harvest and the extraordinary propitious weather Providence has vouchsafed to us, without having regard to the produce or requirements of other countries, the failure of Indian corn in six of the United States of America, the limited imports of corn from other countries as compared to those of the corresponding month, quarter, or year of other seasons, the small quantity of stock in hand in the various parts of the country, and the probable demand in other countries; consequently all needy sellers suffered a loss, which a more perfect knowledge of the state of markets, and probable rate of supply and demand, throughout this and other countries, would have obviated.

"I am, your well-wisher,

(Signed) "BERNERS.

"To Mr. W. Harrison, relieving officer,
"Billesdon Union."

TELFER VERSUS CAIRD.—THE AYRSHIRE HAY CROP.

There is a story told of a coachman in days of yore, who, with a very heavy load, had but a sorry team to work on. Rushers going off with a jump that threatened to break through everything, and then bolting or jibbing to one side or the other directly they were fairly forced up to the collar. In vain did he try to pull them together, and make a respectable appearance in the eyes of the public. Equally unavailing the fine hand or double thong on them; like pigs fighting, they were going all ways at once, and never pleasantly with each other. It was palpably but labour thrown away; and so at length dropping his hand, the artist exclaimed in despair, "there! divide it among you, for I'll be bothered no longer!"

One feels half inclined to treat the Ayrshire hay crop in the same fashion. A terrible load it is, no doubt, while there is no getting those who put it together to go handsomely away with it. What bolting and jibbing, this side or the other, has followed the grand rush with which it was started! In vain now every effort to make them pull together. What one "authority" affirms this week was done, *his* "authority," again, the next week, assures us never has been done. How curious to notice the extraordinary efforts made to turn dry hay back again into green grass! How amusing the desire to sink the five-and-twenty tons recorded into twenty only! and how yet more ingenious the complicated calculation which has made so much hay from so much grass, where there was no hay made at all! Well might we drop our hand to them, and let them fight it out one with another—"divide it amongst you, for we'll be bothered no longer."

The further we get into the facts of Mr. Telfer's hay crop, the more do we come to this. The more we are enabled to force explanation, the more direct becomes the difference between Mr. Telfer and Mr. Caird. The latter, on the strength of a passing conversation in the crowd assembled at the Tiptree gathering, gives, with all the confidence of a man thoroughly acquainted with what he was detailing, an astounding achievement, for which at the time he names no higher authority than himself. Armed with this, he holds out an example to the farmers of England as to what they should do from what *has been done*! The involuntary derision with which this lesson was received turns out very soon to have been perfectly justified. What Mr. Caird declared so emphatically had been done, never has been done; and his agricultural possibility—so far, at any rate—turns out to be what every-

body from the first considered it, an agricultural impossibility.

We might well rest satisfied here. Having done our duty in showing up an unwarrantable exaggeration attempted to be palmed on the farmers of the kingdom, we have nothing to do with the onus of this affair, as it now rests between Messrs. Telfer and Caird. Enough for us that we have been enabled to arrive at something like the real truth of the case. Mr. Caird, however, in a second explanation having thought proper to attack us for the course we have taken, we shall deign a word or two further to him; leaving him, as we have already intimated, to settle with Mr. Telfer how far he was armed with *facts* somewhere so strangely exaggerated. Mr. Caird, then, commences thus: "Somehow or other, though the political question is at an end, there are certain persons connected with the agricultural interest who resolve to make me stand ill with the English farmers." In answer to this we would simply ask what Mr. Caird has ever done to make him stand well with the English farmers? As *Blackwood* said of him years back, his public sayings and doings from the very first have been marked by "an under-current of foolish sneering" at the agriculturist, either English or Scotch. It is Mr. Caird himself who makes Mr. Caird stand so ill with the English farmers. Mr. Caird, of Baldon, a strange complication of assurance and prejudice, who has set himself up as the self-constituted judge of British farmers, and who has scarcely ever attempted to carry out an argument but that it might be made to tell against them. Mr. Caird, the trumpeter of amateurs and theorists, who proves so glibly the English farmer to be a sloth and a stand-still—by proving nothing! We believe we are justified in recording that Mr. Caird's public life has been little short of one continued libel on the agriculturists of this kingdom; and that if he does stand ill with them, he has none but himself to thank.

But then Mr. Caird is "an agricultural teacher," and has so a right to find fault. And pray who made him one? Does he take his diploma from Scotland, the scene of his own quondam operations, and whence he still draws his miracles? We are assured on the best practical authority that Mr. Caird is far less recognised as an authority in Scotland than he even is here. Who is it, then, whose invincible confidence has placed Mr. Caird in that exalted position to which he so complacently assumes? The English farmer?

No. The Scotch farmer? No. We really scarcely know whom to name, without it be our friend of the *Gardener's Chronicle*. He is of the faithful indeed! while we are almost afraid his recent reference to Basil Hall will only tend the more to impress upon us a very old joke in the service. Our contemporary will find frequent allusion to it in the gallant captain's works. Whenever a sailor attempts to spin his messmates rather too tough a yarn, he is politely requested to "tell that to the marines." For the future, whenever we hear anything over-marvellous about agriculture, we may save ourselves a deal of trouble by requesting they will "tell that to the *Gardener's Chronicle*!"

Mr. Caird objects to the tone and terms used towards him by ourselves, and the correspondents of the *Mark Lane Express*, at the same time that he wishes us "to speak out like men." We beg to assure Mr. Caird that we mean to speak out, not wildly, nor as braggarts, but "*like men*," who will be prepared at any time hereafter to stand to what they say. In accordance with this, we will admit that, considering the tone which has so long characterized Mr. Caird's own effusions, he is just about the last man alive on whom we should exercise any over-refinement in what we had to say to him. On the other hand, we have allowed the practical men of the kingdom to meet him on his own terms, and, as he has it, to "speak out."

Mr. Caird "throws back our insinuations with disdain and contempt." We make no insinuations, but come, if you please, to direct facts and charges; while, as to the contempt of Mr. Caird, that, considering all things, is a matter of no great moment. It is the public we look to for a verdict, and we are quite willing to let them mete out the measure of contempt either of us may have earned in this affair. Contempt, Mr. Caird, should be the ultimate reward of mere assumption and pretence.

With another letter from "An Agriculturist," which to a great degree embodies any further reply we might feel called upon to make, we here leave, at least for the present, this extraordinary business. We by no means regret the time and space we have given to its investigation, feeling as we do that good must come of it. At the same time, we may add that we may even again return to the subject should we, in our search for facts, feel it necessary to do so.

SIR,—The space you have already allowed to communications to prove the *impossibility* of growing 25 tons of dried hay per Scotch acre, or 21 tons per English acre, (as asserted by Mr. Caird at the Tiptree Hall gathering), and to elicit the *fact* that Mr. Telfer never grew such a crop, has been liberal. The subject deserved it, and the mind of the agriculturist is in some

measure assuaged. I am, therefore, reluctant to obtrude further on your space; but as there appears to be some discrepancy between the *data* of Mr. Telfer's letter to you of the 9th instant and mine of the 25th ultimo, I am anxious, as far as possible, to clear it up. In my communication of last Monday, I intimated my intention of writing to that gentleman for this purpose; but, on reflection, I perceived that this would bring us into personal collision, which it is desirable to avoid, and I think it unnecessary; for, when writing the hurried letter of last Monday, I was under the impression that his statement was a more serious contradiction of the facts stated by me, than, on a second perusal, I found it to be, and I think I can show that his premises are partial and his reasoning illogical.

Mr. Telfer says that the facts given to Mr. Caird were, "that my cuttings had reached 65 tons of grass per Scotch acre, which, in my experience, were equivalent to 20 tons of hay." Now, this *supposed equivalent* is a meagre substitute for 25 *tons of dried hay*; but it is one step on the toilsome road to *facts*. But then Mr. Telfer adds, that it is only "by the 30th October" that he will have cut "65 tons of grass per acre, and upwards"—meaning thereby, I infer, a fraction over or under that quantity. Mr. Caird, however, told us, that this had been done *at three cuttings* by the 26th of July last: so that, *by his data*, Mr. Telfer's cuttings ought, by the 30th October, to be 80 tons and upwards. And following this up, according to the experiment of Mr. Dickenson, adduced by Mr. Telfer, that 12 tons 8 cwt. of grass gave 5 tons 18 cwt. of hay, these 80 tons of grass should produce an equivalent of 38 tons of hay: while Mr. Dickenson himself, in a letter in to-day's *Gardeners' Chronicle*, says that it is only *possible* to grow as much of his Italian rye-grass upon a Scotch acre of good land in *one year*, as will produce 20 tons of hay—equal to 16 tons per statute acre. These are wide discrepancies indeed, not very easy to reconcile!

Mr. Telfer next "supposes there is a general misapprehension regarding the grass required to make a ton of hay." We are not aware of the existence of any such "general misapprehension;" nor has any evidence of it appeared in the present controversy. But if the *supposition* were correct, though it might affect a discussion on the *theory of conversion*, it can have no bearing on an inquiry into *physical facts*. It therefore appears beside the question for Mr. Telfer to adduce the results of his own *trials*, or of Mr. Dickenson's *experiments*, or the *analysis* of Dr. Anderson or Professor Way. If such points were pertinent to the matter in hand, I would add that the grass of the Edinburgh meadows contains 88 per cent. of water, and that, consequently, 100 tons of it would only produce 12 tons of hay; or that, in 1842, I cut at the rate of 52 cwt. of grass per acre off a meadow in Cheshire, which yielded at the rate of 28 cwt. of hay (equivalent to 35 *tons of hay* for 65 *tons of grass*), the grass being in an advanced state of ripeness, and scoured by a six weeks' continuous sun—so much so, that it was at once raked into cocks as cut, and carted into rick on the following day. It must, therefore, be

evident to every one's common sense, that the stage of growth of the grass when cut, the state of the weather, and many other circumstances, must make the quantity required to produce a given weight of hay vary so much as to leave no fixed criterion. In fact, not only will the quantities vary on different soils, though cut at the same period of the same season, but the *relative equivalents of grass to hay* produced by the same field will be found to differ one year from another. Had Mr. Telfer, instead of confining his experiment to one cutting, as I infer he did, continued his cuttings from the same piece of land, say one acre, throughout the season, turning each cutting into hay successively as cut, he might then, and then only, have adduced his experiment as one leading to a sound conclusion.

Those who are acquainted with Mr. Telfer's operations are aware that, as an amateur farmer, he has done much to illustrate *agricultural possibilities*, and that his neighbour, Mr. Caird, has *done nothing in imitation*. It seems, therefore, unnecessary that Mr. Telfer should lend even the cautious connivance, which by his letter he appears to do, to Mr. Caird's exaggerations, or join him in the mistaken belief in the credulity of the public. He may safely leave these onerous duties to the agricultural editor of the *Gardeners' Chronicle*, as he is not afraid openly to own that the perpetrator of an erroneous statement, uttered but not retracted, may be excused, because he has done previous good service as an "agricultural teacher." Verily, it is time that the science and practice of agriculture were taught and illustrated at our "common schools,"—as lately recommended by this writer in his admirable lecture at St. Martin's Hall—so that the rising generation may be proof, if not against false theories, at least against fictions issued into circulation without hesitation, and continued without compunction. False teaching of any kind is sinister, at best; and teaching but to mislead in the practical business of life is, as Mr. Beale Brown has emphatically said, "most wicked." Fortunately, in this case, sir, we find the antidote in your columns; and I doubt not but that it will save many of the less practical owners of land from *delusive expectations*, and the occupiers from *unreasonable exactions*. If any should think that we under-estimate Mr. Caird's *teaching*, let them enquire how he is appreciated at home, and they will find an answer in *Blackwood's Magazine* for April, 1850, under the title of "Caird's High Farming harrowed." His agricultural wonders, however, have never ceased to be dunned into our ears; they demand faith, and can dispense with investigation; they court admiration, even where they do not exact adoption. Thus, at Tiptree Farm, he says, "Mr. Mechi's Italian ryegrass is his only unsuccessful crop;" and yet, with this acknowledged failure staring us in the face, and that, too, in a season which Mr. Telfer says "has been peculiarly favourable to the growth of Italian ryegrass:" this is the crop of crops, and his the appliances so commended to our special adoption, and in support of which a *fictitious* crop is foisted upon us from the other side of the Tweed!

And now that we have got before us Mr. Telfer, *The Gardeners' Chronicle*, Mr. Dickenson, and Mr. Caird himself, what tangible and undeniable facts have we arrived at. In what character was Mr. Caird called upon to address us at Mr. Mechi's? Why, solely as an "agricultural teacher;" and did he not, in the whole manner of his address, sustain his character to perfection! Did he not, from beginning to end, speak of the "25 tons of dried hay" as a *fait accompli*, and as from his own personal and practical knowledge, and endeavour to impress the company with the conviction that he did so? On any other supposition, the tone and temper of his speech would have been ridiculous, apart altogether from the subject-matter of it. Mr. Telfer's name was never mentioned; and it was only by strong expressions of incredulity by the company that Mr. Caird was driven to fortify his personal authority (which, up to that moment, he may have considered to be, *singly*, omnipotent, at a party of *English* landlords and farmers) by turning round and throwing out his arm towards the place where Mr. Telfer sat, and exclaiming, "Gentlemen, here's a living witness." Not, mark you, sir, "Here is Mr. Telfer, the gentleman upon whose farm the crop was grown, and from whom I had the statement to-day." No, that would not have suited Mr. Caird's ideas, nor the character in which he was addressing the agricultural sciolists, by whom he presumed he was surrounded. The whole proceeding was unworthy of one holding Mr. Caird's position; his want of due courtesy towards Mr. Telfer—his attempt to ride into the goal upon Mr. Telfer's shoulders—and his unacknowledged use of the most startling facts (?), furnished to him only a few hours before by that gentleman, was not in keeping with the way we usually do things in England, or desire to see them done.

Mr. Caird (in his letter in the *Gardeners' Chronicle* of last week) complains that Mr. Telfer did not correct him while making his speech: this is a question solely between these two gentlemen. Perhaps Mr. Telfer thought he was consulting Mr. Caird's own wishes by allowing him to make as much capital out of his operations as he could do with impunity; and the good feeling which restrained the company generally from turning Mr. Mechi's hospitable board into a debating arena is correctly interpreted in Mr. Beale Browne's letter—"respect for our friend Mechi."

The result of this discussion, or rather investigation, may now be summed up in three lines:—

I. Mr. Telfer never makes hay.

II. Twenty-five tons never were made off a Scotch acre.

III. Mr. Caird teaches, from hear-say, things incorrect, and things impossible.

And now let me ask, in all earnestness, *when* are we to place dependence on Mr. Caird's teaching?

October 14th, 1854.

AN AGRICULTURIST.

P.S. In my letter of the 25th ult., the following sentence should have read thus:—"Mr. Telfer *never* makes hay, nor does he allege ever having cut more than 70 tons of Italian ryegrass per *Scotch* acre, which, if converted into hay, he thinks would produce about 11 tons per *statute* acre."

THE FLOUR TRADE.

SIR,—A great many complaints have of late been made that the price of flour and bread have not been lowered in accordance with the reduction in the price of wheat; and, further, that the public generally are not supplied with this main article of subsistence so efficiently and so cheaply as they ought to be, owing to the rapaciousness and monopolizing practices of millers, corn-dealers, and bakers. The newspapers have, to some extent, favoured such sentiments; and in Nottingham, Exeter, and other places, it has resulted in rioting, destruction of bakers' shops, and other property.

A question arises, How are the public to know that they only pay that price which is fair and remunerating to those engaged in the trade? The reply to this is, that the principle of competition is quite sufficient to bring the price to as low a point as the nature of the thing will permit. Millering is a trade open to all: no particular mystery attends it. The price of flour is what all (particularly the labouring classes, who are the great consumers) are intent on procuring as low as possible; and under such circumstances it is not surprising, and it really is the fact, that competition is frequently carried to such an extent that the price charged to the public does not yield a fair remuneration to those engaged in the trade. I believe it to be a fact of no unfrequent occurrence, that the stone of flour or the loaf is sold at a 1d. or 2d. below the real cost of the article. Contracts are sometimes made in this way, and the issue generally is the loss or, probably, failure of the contractor; and rarely indeed is there such an occurrence as a want of parties to compete, or that competition failed in reducing the price to the lowest it can possibly be afforded for.

There are, however, some matters connected with this trade which need improvement, and if so improved would tend ultimately to the public being supplied at a less cost, which really is the desideratum.

1st. The public ought to require that the article is good, and insisting on this point will tend to produce a better article: it is surprising how indifferent many are to this. If the bread is not good, the defect ought to be ascertained and remedied: it may be the flour, but this is not so generally the case as is imagined; there is the yeast, the kneading, the time allowed for fermentation, the water, &c.; and unless all these are good and attended to, the bread is sure to be deficient.

2nd. The public ought always to pay ready-money for flour and bread. No credit should exist on such a large consumable article; wages are generally paid weekly; the farmers claim and obtain ready-money for their produce; and if the miller does not adhere to the same, a large charge for credit and bad debts must ultimately come upon the ready-money customer.

3rd. Speculation in this article is to be reprehended. A system prevails, that not only the baker and small shopkeeper, but many heads of families must have their

opinion as to the rise and fall of markets. An idea gets out (whether it be right or wrong does not bear on the argument) that corn is going to rise, and orders come in to the miller for double the usual quantity; at other times there is a corresponding want of orders, from the opposite idea prevailing. Now, it is obvious that an irregular demand arising from the capriciousness or cupidity of customers cannot be supplied so cheaply as one which is regular and continuous, and this system injures the trade, and is generally of no advantage to the parties themselves. Speculation is the same in principle where a man gets 20 stone of flour into his house instead of 10 stone, which is his usual order, as in the man who is hoarding up thousands of quarters. I am not giving an opinion as to the advantage or disadvantage of speculation, but that it is injurious in its operation on the ought-to-be regular trade of the miller. I am inclined to the opinion that the real results and tendencies of large speculators in corn (not entering into the argument as to whether it is right to speculate in corn) are generally beneficial to the public, but injurious and often ruinous to the speculators themselves.

4th. The public ought to find their own sacks; the neglect of this leads to a waste of property, which, to the uninitiated, it is difficult to understand. As the trade is generally conducted, every small shop and family have a few sacks belonging to the miller, and which the customer is bound either to pay for or return, and which probably he intends to do; but, in reality, these sacks are used for great coats, hearth rugs, cart covers, filled with potatoes, chips, supply the ragman and the paper-mill, and this at a cost to some of the millers of sums varying from £50 to £500 per annum, and all of which has ultimately to come out of the price of the flour, and arises from a neglect of honesty and tidiness in small things. In some instances, millers get paid for sacks, or conduct their trade without lending them; but these are exceptions to what generally prevails.

5th. Amongst the millers themselves there occasionally arise leviathan concerns of immense magnitude, that threaten for awhile to swallow up all the small fry, one man or one company attempting to monopolise the trade in a district. These concerns generally fall in pieces from their own inherent weakness, and never answer in the long run. These are some, amongst others which might be named, of matters which attend the trade, and tend to render it unprofitable. It is a fact that the capital invested in it yields miserably poor interest. I occupy a mill in a good situation, on an excellent stream of water, which does not, and has not since its erection forty years ago, paid 1½ per cent. on the original outlay. The adjoining large water corn-mill lies totally unoccupied; and these are but a sample of mill property generally. At most of the surrounding towns, corn-mills are closed, as bad, unpaying property; the principal reason for which may be found in the fact,

that owing to the excess of competition, the price charged to the public does not yield a fair remuneration to those engaged in the trade. Another fact which bears upon this subject is the wages of the workmen: there is scarcely any class of workmen who receive less remuneration than those employed by millers and bakers. Not that we would have them paid according to any consideration of their own intrinsic merits; but they surely ought to be paid in some degree of accordance to the services they render to the community. The real cause of their wages being so low—and the employment is not of a very healthy kind—is that the masters are not unwilling, but unable to pay liberal wages.

6th. The system of working flour-mills the night through is perfectly indefensible. Mill power is in ample supply, or there would not be so many unemployed; and therefore the working at nights can only arise from cupidity, or a desire to get his neighbour's business, and generally defeats its own purpose. It is unnatural in itself, injurious to the men, injures the trade, and can only be justified as an occasional thing, under extreme pressure, and to be given up as soon as

that is past. The Legislature in some case interferes to prevent night working in factories, and there is no reason why that interference should not be extended to corn-mills.

There is no part of the world where the millering art is carried to greater perfection than in this country, and no country where the working classes are provided with a better article of bread, and at a price fully as low as the price of wheat will permit. There are more hands employed in it than is generally supposed—for this reason, that scarcely any part of the country is without a mill; it is not a trade that can be concentrated to any one spot. Every candid mind who examines into this subject will have no great difficulty in ascertaining that millers and bakers are a part of the community whose services to the public are of the utmost importance, whose remuneration is of the very lowest nature, and that the calumnies heaped on them arise from ignorance of the real facts of the case.

I am, Sir, your obedient servant,

J. PEART.

York, October 18th, 1854.

SACKS.

SIR,—There are certain established practices in society so firmly and unquestionably fixed, that they are "like the laws of the Medes and Persians that alter not," and few maxims are more important to be inculcated, especially to young persons, than that of "letting well alone." Innovators are at all times to be guarded against, since there is nothing more common than for a person that has not learned one-half of his own proper business to overleap the other half, and begin at once to make what he deems improvements upon the practice of those who have gone before them. Still there are circumstances in which one may be placed, and points at which we may have arrived, that demand bold and abrupt deviations from what prudence would otherwise have dictated. The sack has been used from time immemorial for corn and other dry goods; hence we read of the sons of Jacob filling their sacks at Pharaoh's granaries, much in the same fashion as our town millers would do at a farmer's barn at the present day; and although we read of the great improvement that tin cases are, in the keeping of flour for long voyages, and see every day the American flour packed in wood, he would be considered a rash man, and one whose feelings were not worthy of his fatherland, that would seek to change the time-honoured practice of taking corn to market in the hempen bag, or of selling flour by the sack.

Sacks seem to have been made for such things, and have long—very long, indeed—been kept to them; but a time came when wise and well-educated men of enterprising minds, and calculating the consequences, had sacks made, and filled them with earth, and by that means paved a quagmire in Chatmoss that has ever since borne firmly the iron tramway between Liverpool and Manchester. A still greater degradation awaited

the sack in the new trade in guano; the excrement of sea-birds was sewed up in sacks, and sent thousands of miles; and on its arrival in our ports, the strength of its stinking capacities was tested by gentlemen educated at colleges, and the price rose or fell as the flavour of the imported filth was above or under par in its proportion of ammonia. The sack has thus, step by step, got from flour and corn, down to earth, for railways, and fertilisers (as they are fashionably styled) for farmers.

There is now lying before me a printed paper, with engravings by a French nobleman, of a sack filled with 60 ounces of cork cuttings, and so ingeniously folded that an emigrant or seafaring man may use it as a cushion to sit upon, and in an instant employ it as a life belt to prevent him from drowning. The sail of canvas has always been a powerful wind instrument, and the tented warrior has good reason to be proud of the canvas over his head, if it is really found to be waterproof; but the canvas for all this had not had its qualities tested until the hose-pipe was made of hemp, and by dint of real good weaving and stitching together, was found by far the most convenient and economical water-carrier that had been tried. And what is this, after all, but a long sack without a bottom? and if it were chopped up into short sacks, each having its mouth well secured, a common dung-cart could be loaded with clean water in sacks, just as convenient as it could with corn. I emptied the contents of an expensive iron water-cart, the other day, into a hose pipe of this nature, and the whole of the three hogsheads of water lay in the sack or hose, and in that state could have been carted in an ordinary cart for miles if necessary; but it is not to this that I wish to direct attention now, but to the important fact

that a *bona fide* corn sack can be made of such materials and sewed in such a way as to carry water neatly to supply the water-drill in the scorching sunny day, when turnips have to be sown, and after spending a little time on a gorse bush or on a thorn hedge to dry, be found clean and fair for barn work in winter. But let us go one step further, and I think we shall then have reached the bottom of the ladder, where the sack can fall no lower, and see that since dry fertilisers have been counted worthy of sackcloth, whether it might not pay the farmer well to put his liquid fertilisers into vessels of some kind, and convey them to the scene of action. Manure, dry enough to admit of its being carted to the field, is likely to hold its place as the mainstay of agriculture generally; although some have done wonders with liquid manure, pumped by expensive apparatus over the land; and it is only as a help to the dung-cart, and not as a substitute for it, that liquid manure put into water-tight sacks should be carried and spread,

either entire or diluted with clean water, or mixed with earth. I consider that the power of being able to carry liquids in sacks, and consequently in great bulk in ordinary farm carts, will turn out of immense importance to the horticulture of this country, as well as to its agriculture, since the little farmer at a slack time could, in his small way, carry liquid manure short distances, with great benefit to his crops, and without any high pressure engines, tanks, pipes, or hydrates, which for reasons best known to himself he declines to employ. Insurance offices should press this style of thing to be kept where their interests are at stake; for there are scarcely as many stable buckets or other suitable vessels for carrying water kept at any ordinary farm-house as would be sufficient to quench a chimney that had caught fire; whereas a sturdy yeoman, with half a sack of water on his back, would go up a ladder, and damp things in such a way as would not require to be repeated.

A. FORSYTH.

FOOT-ROT IN SHEEP.

SIR,—In your last appears the report of a discussion on the foot-rot in sheep, at Mr. Watkins's ram sale lately; excuse my troubling you with a few remarks on this disease, from opportunities of observing it in Merino flocks in Germany.

Flockmasters in that country separate the diseases incidental to the foot of the sheep into two kinds—infectious and non-infectious; or better, into the virulent and the mild foot-rot; for although the common foot-rot is there considered by some to be non-infectious, it is perhaps only comparatively so, being attended with little or no danger, and often disappearing without the application of a remedy, although through neglect it may degenerate into the virulent or infectious state. The following remarks relate, I think, to the disease alluded to by Mr. Watkins, and which he supposes to have been introduced into England of late years; in Germany, they trace its origin in that country to the introduction of the Merino sheep. It first shows itself in the limping gait of the animal, which gradually increases; generally commencing with one of the fore feet, afterwards both are affected, and at last this lameness extends to the hinder feet, with increasing bodily weakness.

The diseased foot is hot, and is often swollen round the hoof, which is more open or wider apart than on the sound foot, and the skin of the coronet is inflamed. An unpleasant smelling humour exudes, which thickens on exposure to the atmosphere, and not only inflames and destroys the immediately surrounding skin, but often penetrates between the horn of the hoof and the foot itself, the horny part partially separating from the flesh; and in the worst cases an entire separation of the hoof takes place, and, if neglected, destroying the muscles and sinews, and attacking even the bones of the feet; in which condition the poor animal moves about on its knees, or helplessly lies down, the whole system gradually becomes poisoned, and although generally with unimpaired appetite, it wastes away until death releases it from suffering.

The worst form of this disease is not so often met with in the coarser Merino flocks, as in those where every care is taken in improving the fineness and quality of wool, by which means they are rendered more susceptible to the changes of temperature and weather. It is of a very infectious nature, if proper precaution be not taken, spreading through an entire

flock in a month or two, and is often introduced by merely driving sound sheep over land where diseased sheep have been a short time previously.

Precaution is the oldest and best remedy; but thorough cleanliness, wholesome food, and attention to the flock in wet and inclement weather, will not always keep the disease away, as long as there are so many channels for introducing it: should it exist in the neighbourhood, the shepherd must keep a vigilant eye on his flock; a sheep observed to be lame must be immediately examined. If a small eruption or pimple appears on the skin between the hoofs (coronet), and the foot is unnaturally hot, the disease has made its appearance, and no time must be lost in applying a remedy; the diseased sheep must be kept by itself, and all the flock very carefully examined.

With a sharp knife remove the scab or pimple, clean out the wound to the sound flesh, wash it with salt and water, and then do it over with strong nitric acid. If the disease has advanced under the horn of the hoof, all the unsound flesh, together with the horn, must be carefully removed, the wound washed out with brine, and strong nitric acid applied; some recommend using sulphate of copper instead of brine, and butter of antimony in the place of nitric acid; but with the brine and acid a cure is generally effected in eight or nine days. Another remedy is a concentrated solution of chloride of calcium dissolved in water: after the feet are well washed and cleaned, and all diseased parts removed, they are carefully painted over with the chloride, as far as the ankle-joint, using a small painter's brush for the purpose; and it is best to apply it also to those which have only heat in their feet. It is a safe and good remedy.

An old German shepherd recommends a composition consisting of several ingredients; but a method of destroying the virus of the disease by electro-chemical action, and the preservative effects of water, deserve investigation. The process is simple, and is said by those who have tried it to answer completely; but, having never seen it applied, I must not trespass further on your valuable space, and am, sir, your most obedient servant,

JOHN P. RUBIE.

1, Dorset-place, Southampton, Sept. 28.

G G

ON THE USE OF TOWN SEWAGE AS MANURE.

The paper by Professor Way, in the last number of the *Journal* of the Royal Agricultural Society "On the use of town sewage as manure," renders it very evident that unless it can be applied in the liquid form, we must be content to allow it to run to waste, and to bear its phosphates and ammonia to the ocean, to be re-imported in the shape of guano. He has shewn satisfactorily that all the plans which have been proposed and patented for converting it into a portable solid manure are fallacious, in consequence of the large quantity of water with which it is diluted, and the fact that after everything has been done in the way of precipitating and deodorising, the most valuable ingredients still remain in a state of solution. He commences with the following very able statement of the present aspect of the sewage question.

"The daily increasing desire of the town population, to render their habitations more cleanly and more healthy, and the necessity in which the agriculturist finds himself of paying the utmost attention to the collection and utilising of manure from every available source, have given this subject, within the last few years, an amount of interest and importance which cannot easily be over-stated. The question is, however, surrounded with practical difficulties of no ordinary kind, and to some extent the interests of the two parties are antagonistic—that of the town population being, by an abundant use of water to obtain as effectually as possible the cleansing of their streets and residences, whilst by these very means the difficulties of turning the refuse of towns to account in agriculture are very greatly increased. It is only natural that under such a condition of things a host of plans should be proposed, with the view of uniting at once the interests of health and comfort in the towns with those of fertility and production in the country. That many of these should originate in ignorance and speculation is not to be wondered at; neither can we be surprised that the two parties interested (especially the town population—with whom delay is disease and death) should gladly catch at any plan which promises a speedy solution of the difficult problem. Those who look on with an impartiality due to the absence of all personal interest, will not fail to see that the urgency of the subject is powerfully contributing to the adoption of some impracticable schemes, and that arrangements are in progress in several localities for the utilising of town sewage, on plans which betray a total ignorance of the nature of that sewage, and which can-

not fail to end in discomfiture and disappointment to all concerned, and to none more than to the towns which shall be so unwise as to adopt them."

In treating the subject, Professor Way divides it into the two following heads—1, The nature of sewage, and the circumstances affecting the possibility of employing it economically in agriculture; 2, The plans proposed, and their prospect of success. In considering the substances which will enter into the composition of the sewage of towns, that is, such portions of their refuse as are capable of removal in water, he puts out of consideration many substances—such as bones, offal, blood, and the various matters resulting from the trades of tanning, glue boiling, &c., which are either of too great value to be turned into the sewers, or are of a nature to render their removal by such means inadmissible. He dismisses also from consideration other substances—such as the excrements of cows from cow-keeping establishments, because improved sanitary arrangements, combined with the extension of railways, are banishing them from the town to the country; and the urine of horses kept in towns, because the greater portion of it is absorbed by the litter. The sewage water is thus ultimately reduced to a mixture of the solid and liquid excrements of the inhabitants, with the water consumed for domestic and general purposes, and the rainfall which carries the washings of the streets. These two last contain some important manuring matters; but the value of the street-washings is confined to granite-paved streets in towns of a large traffic like London, and the quantity derivable from both sources is inconsiderable, in comparison with the personal refuse of the population.

The question, therefore, of the value of town sewage resolves itself into that of the manuring powers of the liquid and solid excrements of each head of the population, and the quantity of water through which these will be diffused. Professor Way estimates, from analyses performed by himself and other chemists, that the liquid and solid excrements voided by each person in the twenty-four hours contain 1,000 grains of solid matter; more than half of which is soluble in water. The next question is the daily consumption of water per head by our town population for domestic and general purposes. It appears, by returns obtained by the Board of Health, that the supply by the water companies to London is at the rate of twenty gallons daily to each individual; and the quantity

of rain thrown into the sewers is half as much as the artificial supply. The quantity of water, therefore, through which the 1,000 grains of solid manuring matter will be distributed cannot be less than 20 gallons, weighing 200 lbs., or 1,400,000 grains. In other words, the solid manuring matter contained in the fæces and urine will be mixed with 1,400 times its weight of water; and as more than half of that solid matter is soluble, if we would separate it by mechanical filtration, we must filter 3,000 tons to obtain one ton of dry manure.

This method of estimating the probable composition of sewage water from the consideration of the substances which it is likely to contain, has been resorted to in consequence of the great difficulty, amounting almost to impossibility, of determining it by direct examination. The nature of sewage water varies with the population and with the hour of the day. To ascertain it with precision, samples must be taken from many sewers, at many different times, involving an amount of labour and expense which no private individual can be expected to incur. Professor Way, however, has made some analyses of it, and he gives them accompanied by this caution, that they apply only to particular samples and conditions. Two of these are from Dorset-square and Barrett's-court; the one representing a rich, the other a poor neighbourhood. In both cases the matters contained in solution and suspension were analyzed separately; and on the whole the analyses bear out the conclusions deduced theoretically from the consideration of the substances likely to be contained in sewage water. They shew that the matters important to vegetation—the ammonia, the phosphoric acid, and the alkaline salts—are to be looked for chiefly in the soluble portion. These remarks apply to the present state of the sewage of London and other large towns. We shall see hereafter that the proposed sanitary improvements are not likely to render it more convertible into a good solid manure.

The sewage water discharged from the sewers of London, under the present system, differs from those of towns in which the new system has been established, being in a more advanced state of decomposition from the friction and agitation which it has undergone in its passage through the sewer, and from the length of time required to make the passage, exposed to the solvent powers of atmospheric air and carbonic acid contained in the water. As it issues from the London sewers it exhibits no visible traces of its origin, but is merely a slightly-turbid liquor, with a flocculent, slimy, fibrous matter floating through it, and a putrid smell, though by no means so bad as might have been anticipated, the chief odour being that of sulphuretted hydrogen. "Except in small

towns," says Professor Way, "or under a very perfect system of drainage in large cities, there cannot be such a thing as fresh sewage. Fæcal matters begin to decompose immediately they are voided; and during this change the nitrogenous matters are being rapidly converted into soluble ammoniacal compounds, whilst the insoluble organic matter that escapes decomposition is more and more assimilated to woody fibre, a substance of comparatively little value."

In pipe-sewered towns, on the contrary, such as Rugby and Croydon, the great bulk of fæcal matter comes down at particular hours in the morning and evening, when the labouring classes are in their houses; it is in a much fresher and more natural state, and at these hours is easily collected in the condition of washed nightsoil. From the above circumstances, and from the large quantity of water employed, the sewage taken in the middle of the day at Croydon did not contain in suspension solid matter sufficient for examination. The liquid, filtered through paper and evaporated, yielded to the gallon 53 grains, containing of organic matter and salts of ammonia 22.63 grains (equal to 2.96 grains of ammonia), of phosphoric acid 1.54 grains (equal to 3.53 grains of phosphate of lime), of soda 1.33 grains, and of potash 2.17 grains. The analysis was not carried further. These 53 grains of manuring matter were dissolved, be it remembered, in 70,000 grains, or more than 1,300 times their weight of water. A quantity of the solid matter was collected at the mouth of the Croydon sewer by means of a flannel bag. It was allowed to drain as much as possible, and afterwards dried with all the necessary precautions for analysis. It yielded of nitrogen 3.27 per cent. (equal to 3.94 per cent. of ammonia). This was the type of the *best* result which can be obtained by the mere mechanical *filtration* of the sewage in order to preserve as manure the solid matter which it holds in suspension. The change of the nitrogenous matters by decomposition from the solid to the liquid state had not yet taken place, and the substance may therefore be considered as representing pure night-soil, out of which the soluble matters had been washed, as they always will be in sewers, by the abundance of water used. Yet here there is only a per-centage of 3.27 of nitrogen, or 3.94 of ammonia, on the *absolutely* dry product. We may therefore conclude with Professor Way, that in neglecting the liquid for the solid matters of sewage water, we lose by far the largest proportion of the manuring substances, and that the collection of the solid matter by filtration will not be a *paying* speculation, at the price which the product is agriculturally worth. His argument is this: It is admitted to be practically impossible to filter the

sewage, for the retention of the solid matter, without the use of some material, such as charcoal; and even supposing it were possible, some subsequent addition would be necessary to facilitate the economical drying of the product; for to dry off the water from faecal pulp directly, by artificial heat, would be plainly out of the question. The substance to be used for this purpose must either be of greater value agriculturally than the matter separated by filtration, or of less: if of less value, then the product will be of less value than is shewn in the preceding analysis; if of greater, then we are diluting the material of higher value by the addition of that of less value—in other words, we are giving to the sewage manure a value which it does

not possess, through the medium of a costly addition, and this is a commercial absurdity, unless it can be shewn that the product obtained by the union of the two is better than either separately.

Such being the difficulties in the way of making a good manure from sewage water by filtration, we shall find that it will be nearly as hopeless to attempt by chemical treatment to raise the value of the solid products by arresting a portion of the valuable manuring substances, which, during the process of mere filtration, pass off in the liquid state. The consideration of this part of the subject, however, must be postponed to a future opportunity.

A PLAN FOR CONVERTING THE LIQUID MANURES OF LONDON INTO A SOLID MANURE, PORTABLE TO ALL PARTS.

The following I wrote, ten years ago, upon the Sewage of London—and very sorry I was to do it—in opposition to the ideas of my late friend Mr. Smith, of Deanston, who then was so intent upon the rich manures of towns being used in a liquid form. I could see at that time, as I now see, that all towns can at all times supply plenty of manures to the surrounding neighbourhood in a solid form and at a cheap rate. I then told Mr. Smith over and over again, that if he laid pipes down to convey the sewage away from London, unless he extended them far away into the country the thing would be an entire failure. From what took place in the Fulham market gardens since his pipes were put down, I was quite correct. It has long been my opinion that London and all other towns afford an immense supply of valuable manure, both in a solid state and in a liquid. The smells arising from the open privies in large towns are the fountains and chimneys of disease, which at every minute are discharging and separately producing, and are the very nucleus of all sorts of disease. A town ought to be more healthy even than the country, on account of its drainage, were it not for those fountains of disease, privies and gully-holes communicating with the sewers. Therefore I consider that a town cannot be at all in a healthy or perfect state without all privies are for ever done away with, and every landlord, by law, made to have water-closets in their stead, and all gully-holes trapped in a simple way* to stop those pernicious gases rising under people's noses. We have too many proofs, in London, that diseases are

at all times the most rife in those localities where accumulations of filth are the most plentiful, and where the side stops the drainage. We also have proofs that where those fountains of disease are done away with, and where pure water is given to the inhabitants, little or no disease ever comes there. The idea of making the inhabitants of the richest town in the world drink sewer water! for the Thames is nothing else in its present state. Think just for one moment what goes into it: night soil; every sort of alkalies from the hospitals, from manufactories of every sort; tons weight of soot from off the house-tops weekly; the liquid from millions of animals of all sorts; saying nothing of dead dogs and cats, with hundreds of little steam-boats continually stirring-up this liquid mass. The Thames is but one living mass of animalcules, breeding spontaneously from the rich liquid mass which is every minute pouring into it. It is said to be filtered before we drink it; but how? In large reservoirs, which is nothing but a hot-water bed to give still more time to a perfect development of vermin, with a still further addition of soot. These were my ideas ten years ago, and they are my ideas now. What has been done to save this immense waste of rich manure? Nothing. I proposed then a simple and easy course to pursue; and it was this:—That the river Thames being the lowest level, and the main sewer for all London on both sides of the town, nothing could be more easy than to run intercepting sewers parallel with the river on both sides: on the London side we know that to get below London Bridge with the intercepting sewer would be quite impossible, although very easy down to the bridge.

* Square buckets of gutta percha, with holes all over, and filled with charred peat, might do.

Once arrived at the bridge, can any engineer give a reason why a series of four-feet diameter cast-iron pipes could not be laid down across the bed of the river to the opposite shore, so as to carry the whole sewerage of London into the Borough-side sewer? The Borough-side sewer from this point would require to be of larger dimensions; and surely engineering is not at such a low ebb as not to find out an easy track to carry this rich liquid as far down the river to the less inhabited and cheapest part where land is of little value.

Once at its destination, and upon one side of the river—for this would save an immense expense to have the works altogether—at the terminus of this main sewer must be an engine-house, to raise the sewage into a sewer on the surface, going parallel with the reservoirs on the south side of them, keeping the reservoirs and works close to the river. The reservoirs each must be large enough to take 24 or 48 hours' flow; their size must be in proportion to hold the above number of hours' flow into them—say, five acres each. The bottom of each reservoir must be well-drained, with a main drain going through the centre of all of them. The reason for this is, because I want to concentrate all the waste or filtered waters at the end opposite the engine-house, so as to form a canal for ships to come up to the works with charred peat (for this is to be my filtering matter). We have millions of acres of this rich manure encumbering the earth in many parts of Ireland as well as in the United Kingdom. We know that charred peat is a rich manure of itself; but when the sewer liquid deposit is mixed with it, no one can doubt but what it will be the richest of all manures. We are well aware that even the charred peat will not take up all of those salts which are held in solution by the water. Some engineers have said that rain-water should not enter into the sewers intended for manures. I say the rain-water ought to flow into the sewers, for the simple reason that from the washing down of the roofs of houses covering some 35,000 acres of land, the tons of soot annually must be very great; besides, soft-water is absolutely necessary to be mixed with the hard sewer-water, to dissolve the salt and make it give up its riches to the charred peat. It is not at all necessary for me to go into the formation of the drying houses, which must be on a large scale, and will take up a long frontage of the river, where ships can also deposit the charred peat as well as take in their cargoes of manure. Neither need I say how I think the manure is to be partially dried, further than that we can now do anything with hot-water piping, on however large a scale. As for the filling-in of large reservoirs with a foot or two of peat, and the taking of it out with the settlement, nothing

can be more easy than to lay down rails: everything once down would be clockwork itself. The inhabitants of this great metropolis will then have their minds eased. I think that we have too many proofs that fear alone carries off just as many as the real disease does.

Questions which may arise.

What is to be done with the sewerage beyond or below London Bridge? The greater part of it might be brought down to the bridge by a main intercepting drain as far as the Tower.

Will this great accumulation of impure waters annoy the neighbourhood at the terminus? Certainly not, on account of the deodorising properties of the charred peat.

Which is the best peat for this purpose? The best peat for this purpose is that which is richest in decayed vegetation. The best peat we know of is found in Ireland, covering many thousand acres; and as for the deodorising properties, no doubt whatever exists on my mind; for in July, 1852, when the thermometer stood at 82 degrees at 9 o'clock in the morning, I covered the corpse of my dearest relation up to the brim of the coffin with charred Irish peat, and was enabled through it to keep the corpse the usual time without danger to myself and others; besides, I proved this deodoriser long before that, at the London Mechanics' Institution; also in my hot cucumber beds, by keeping fish for a week while the glass stood at 75 degrees. No smell whatever came from the box until the fish was thrown out from the middle of the peat. I have recommended it to many gentlemen for privies, having effectually used it myself for twelve months, by only throwing down about a peck once a-week. It is also used in piggeries, cow-houses, and any where where bad smells come from. Peat ought to be kept in every hospital, workhouse, &c., for covering dead bodies.

It is now about twelve years ago since the idea of charring the peat first struck me. Mr. Smith, of Deanston, told me that it was impossible to get the drains to keep right in the peat or moss soil of the Island of Lewis, where he was then draining. I told him to char it, and send it to this country as a manure. My letter to him I published afterwards upon the uses of peat. Shortly after that, the Irish Amelioration Society started in making charred peat from the bogs of Ireland. This peat I have used with the mould of every sort of plant, potatoes, strawberries, melons, cucumbers, as well as greenhouse plants, &c. I may here mention that when at Lord Middleton's, Pepper Harrow, the ashes of the peat from the extensive forcing-houses were all demanded by the bailiff for the growth of carrots for the deer, and the carrots were the finest I ever saw from this manure. But when peat is charred,

and mixed with the sediment and gases of the sewerage of London, plants of all sorts would grow in it most luxuriantly, besides being the cheapest manure. Townspeople then would have a claim on the farmer: they would tell him that we give you back all our manure, and at a cheap rate. As it is now, townspeople eat up everything, and fling away the manure, which is gold-dust itself to the land.

I might enlarge to a great extent on the absurdity and foolish notions of a wealthy country like this, in sending to every corner of the globe after manures, and at a great expense, while we, the richest-living people, and consequently producing the richest manures, allow them all to pollute the rivers and go to waste. With the land well-drained, highly-cultivated, all hedges and ditches as they ought to be, with three-parts of those hedge-trees done away with, and these wild animals called "game" greatly reduced, but not till then, will

England be able to export her grain, instead of buying in millions of quarters annually. Have we not many examples before us—such as Mr. Smith of Lois Weedon, Mr. Mechi, Mr. Morton, and hundreds more? Have we not the whole of the market-gardeners of London taking five or six crops annually off each acre, the finest vegetables in the world? The farmer will smile at the above, and say "what nonsense: we can't do it: where is the dung to come from?" This is just what I am trying at, in this paper, to give you more; but at the same time see that your liquid manure is not growing worthless grass down some ditch, as is to be seen near to many farm-houses even now.

In conclusion, I beg to say, with charred peat and town manures properly collected, and sold at a cheap rate, and in a portable form, Great Britain and Ireland might bid defiance to the world.

I am, Sir, your most obedient servant,

Camberwell.

JAMES CUTHILL.

ECONOMY OF MANURES.

Recent readings and observations have impressed upon us deeply the persuasion that among the bulk of our farming community there is a great want of economy and good management in respect to the manures which the farm itself might be made to yield. We are not prepared to go so far as to say, with Mr. Egerton, in *Country Gentleman* of Aug. 10th, that "no farmer ever need go off from his own farm for means to enrich it;" but we are persuaded that very many allow the fertilizing materials of their vaults, of their sinks, of the droppings of their cattle, and of their swampy lands, to go to waste—giving out their richness, not to the fields and the crops, but to the "desert air." We are persuaded that very few farmers are as strenuous about making and saving all the manure possible on the farm, as is the Massachusetts farmer of whom we have recently read, who says, "As to manure, it has been my constant effort to make and use as much as possible from the barn-cellar, yard, hog-pen, vault, sink-drain, &c., always using it the present (current) season. I keep loam constantly in the cellar, which is ready to be put to the droppings." This model farmer commences his winter management of his farm manures by carrying one hundred loads of mud or black earth to the cellar, which he uses to throw on to the droppings as often as once a-week.

Our persuasion of a general wastefulness and want of economy in the management of the fertilizing materials which the farm itself yields, was considerably deepened by a portion of an extended account

of an agricultural school in France, and of the farm attached to it, which we recently met with in an English journal. In this notice of the school and the attached farm at Grignon, it is said that there is little or no outlay for portable or foreign manures on the farm. Guano has been tried, but poudrette is preferred, having been proved by experiment to be superior. The English visitor who gives the account to which we refer, attempted to persuade the professors, or those in charge of the farm, that there might be larger crops and more profits secured by the use of guano; but he was met with the assertion that the English farmer did not "conserve" or economize the manure of the farm like the French farmer. In this respect, we fear, the American copies more after the English than after the French pattern.

We feel convinced that much larger crops and larger profits might be secured, if farmers were at a little more pains to prevent the escape and loss of their most valuable fertilizers. For example, much valuable manure might be saved from going to waste, if farmers were at some pains to have all the urine on their premises absorbed and fixed by means of meadow muck and other absorbents, or by running it into tanks. Much valuable manure might also be made on every farm, by manufacturing the contents of the vault into poudrette. Much valuable manure might be made, more than usually is, if all that is thrown out of horse and cattle stables was immediately mixed up or covered over with earth or muck, after the manner of the model

Massachusetts farmer, to whom we have already referred. Much, also, might be saved, which is now allowed to go to waste, if manure and compost heaps were more generally put under some kind of cover to protect them from the destructive influences of sun and rain and wind. Much might be done also to enrich the farms throughout the land, if the rich black muck which the rains of many former years have washed down into our swamps and low lands, were carried back again, either by itself, or still better after having been carried to barn-yard or cellar, and there mixed with the cleanings of the stables, and the droppings of the cattle

and the poultry in the yards, after the manner of a compost or otherwise.

As long as a farmer suffers all the fertilizing materials above indicated to make their escape, without being made to yield their riches to his fields and crops, he must be suffering leakage and loss. While the fertilizing materials which the farm itself yields are neglected and unused, it seems as if it could be only with an ill grace, and a great want of consistency and good policy that any farmer, save in extraordinary circumstances, can lay out money for guano or other marketable manures.

THE LINCOLNSHIRE WOLDS (*alias* WILDS), AND LINCOLN HEATH, INCLUDING THE FENS AND RICH OLD SEA-BOTTOM LANDS.

SIR,—I am now on the Wolds of Lincolnshire, where there is some of the best farming in England. It appears that in the county of Lincoln, in about seventy years, there have been upwards of 600,000 acres of waste land brought into fine cultivation. The high waste lands were rabbit-warrens, gorse, &c.; and the low lands subject to water are now sufficiently drained—nay, the lowest parts are now made dry with steam-engines. Bourn Fen, for instance—the wolds which are said to contain about 230,000 acres of land—three-fourths of a century back did not average 5s. per acre to rent; now—through foreign bones and artificial manures, and by converting a great deal of corn and oilcake into meat—at this time it produces at least 25s. per acre rent: nay, the rent of this wilderness is increased five-fold, while the wealth of the tenantry has also augmented in the same proportion—tenant farmers renting from 1,000 to 3,000 acres. The late Mr. Richard Dawson, of Witheall, near Louth, boarded and lodged in his house thirty-four ploughmen, and grew 600 acres of turnips yearly; and laid out in bones for manure £1,500 a year for 22 years in succession, besides oilcake, &c. The money he laid out, direct and indirect, for manure was about equal to his rent. He put yearly 1,500 long-woolled ewes to the ram. Some of these leviathan farmers keep the finest hunters, for the best of all reasons; they breed many of them, and make a great deal of their rents by horses. Some keep their carriages; some have hot-houses and pineries. The interest of their capital would keep them like gentlemen; and yet while this is the situation of the tenantry, the landlords have benefited five-fold. And the labourer has benefited also; and many of them eat meat three times a day, and live as hard-working men ought to live. Such ricks of corn are seldom seen in any county—nay, where the land is naturally good, streets of ricks, nay acres of ricks, disposed in rows—streets of ricks, as long as some streets!—all from land seventy years ago not worth 5s. per acre, and so weak that the strength of a crop must be put into the land before you could take a crop out of it. Let any practical farmer look over the once poor barren sand land in the neighbourhood of Market Rasen, where it often costs £2 10s. per acre to clay it, to make it firm to produce turnips, corn, and clover, besides bones, oilcake, and ashes, &c.; the clay is dug out of a deep

pit in the same close, and carted over the land. The money laid out upon this land yearly in claying, bones, oilcake, ashes, &c., is equal to the rent.

There is another district in the neighbourhood of Lincoln, called Lincoln Heath, not five miles from Lincoln, in the midst of which stood a column in 1751. This column was erected in a desert, and lighted up to guide the traveller in the midst of a howling wilderness. On the same plain may now be seen corn-stacks and clover-ricks standing together in rows, almost like the squares of London; nay, in fact, a city of corn and clover-ricks. How were they obtained? Where only rabbits and vermin once existed, now are bred thousands of fine long-woolled sheep, and many good oxen, fed in the winter upon turnips, clover, and oilcake; these gigantic stacks, and fields of turnips and clover are produced by judicious application of capital, and of generosity, business perseverance, and good sense. Ship-loads of bones and oilcake, &c., have been imported to improve this former wilderness. I have known this once wild land for about fifty years, therefore I can measure the great improvements—a pattern to all the world.

Risley House, near Caistor, Oct. 17, 1854.

S. A.

RACE-HORSE DUTY.—The surveyor of taxes having caused those who run horses in the Grantham steeple-chase to be furnished with surcharges for race-horse duty, Mr. Sanpey, one of the persons charged, feeling indignant at having to pay, wrote to the managing commissioner at Somerset-house, as to his liability, informing him that the horse in question was paid for as all common riding-horses are. In reply, Mr. Keogh wrote:—"The board have made inquiry into the matter, and they find that you are charged only the ordinary duty on your horse for the present year, and that, under the circumstances, you will not be assessed for a race-horse in respect of the use of your horse on the occasion to which you allude." This case fully proves, and may be of service hereafter to the sporting world, that any gentleman who may choose to enter his horse in a steeple-chase, may do so without being compelled to pay race-horse duty.

CARMARTHEN FARMERS' CLUB.

The usual quarterly meeting of this exceedingly useful club, was held on Wednesday the 5th July last, when there were present—Thomas Morgan, Esq., Maesgwrda, Chairman; J. L. Phillips, Esq., Vice-chairman; E. Gwyn, T. Edwards, A. Marr, T. Williams, J. Bagnall, Esq., &c., &c.

The subject for discussion was "The Cultivation of Turnips," and it was appropriately introduced by Mr. John Lewis Philipps, in the following speech:—

"Having been requested to introduce the question, he did so with great pleasure, as it was of importance to all tillers of the soil. As farmers, they depended upon what they obtained from the sale of their stock and their crops, and upon the quantity of them success in farming depends. If he failed to persuade one of the very many corn and grass farmers in Wales of the economy of green crops, it may not be without advantages to detail his conviction of their advantages to the extent of his experience. In winter, from the end of October to the 1st of May, seven months of the year, milch cows, with their calves, fat sheep, pigs, and store feeders of all sorts, mainly depend upon green crops, and they had yet to learn that they can be so well and cheaply kept with any other kind of food. They could trace the permanent advantages of green crops even beyond winter and spring; the longer cattle and sheep were kept from off the old pasture in spring, the sooner was there a full bite for them when the time arrived to leave their winter sheds; the less food they eat and waste when out grazing, the greater chance have the pasture to outgrow the months that feed upon them. Withhold turnips, &c., and you have the cow with early calf, turned out to pasture, lean, half dry, and taking up the nourishment in her grass that was denied her on turnips, and instead of yielding butter and cheese, she is putting on condition; and the same applies to all stock fed on turnips, as they get fat, and the young stock grow and thrive. Again, look at the condition of the *land* as indicating the effects of growing green crops. Where is the best grass in early spring that can be grazed with advantage by ewes with lambs, and the mare with her foal? Not in rich meadows or five or six years' grass, but the seed grass field that was cleaned and manured for turnips, which grew the cleanest and best sown and most luxuriant crop of corn, and that, although grazed bare, is ready to yield a hay crop, and a clover hay or feed crop in the same year. Then, as to the more remote advantages of cultivating turnips, &c., in rotation, as against corn and

grass only, he contended that in a given time, say twenty or more years, let the acreage, climate, soil, and market, be the same in both systems, and if they thought advisable the quantity and quality of produce, and yet upon a turnip and corn course of rotation pursued by one, and the best rotation of corn and grass by the other, the produce of the farm growing green crops yields the most, and will at the end of such a period be in the best condition. First, then, the rotation of crops, for one acre, is as follows:—

No.	£	s.	d.
1. Wheat 25 bushels, at 8s.	10	0	0
2. Turnips & mangolds, 15 tons, at 9s.	6	15	0
3. Barley, 30 bushels, at 4s.	6	0	0
4. Seeds, 2 tons, at £5.	10	0	0
5. Grass at 10s. per acre.	0	10	0
6. Oats, 40 bushels, at 3s.	6	0	0
7. Mangolds, 15 tons, at 12s.	9	0	0
8. Wheat, 25 bushels, at 8s.	10	0	0
9. Barley, 30 bushels, at 4s.	6	0	0
10. Hay, 2 tons, at £5.	10	0	0
11. Turnips, 15 tons, at 8s.	6	0	0
12. Barley, 30 bushels, at 4s.	6	0	0
13. Hay, 2 tons, at £5.	10	0	0
14. Grass, 10s. per acre.	0	10	0
15. Wheat, 25 bushels, at 8s.	10	0	0
16. Turnips & mangolds, 15 tons, at 8s.	6	0	0
17. Barley, 30 bushels, at 4s.	6	0	0
18. Hay, 2 tons, at £5.	10	0	0
19. Wheat, 25 bushels, at 8s.	10	0	0
20. Barley, 30 bushels, at 4s.	6	0	0
	£143	15	0

The best corn and grass rotation is nearly as follows:—

1. Wheat, 25 bushels, at 8s.	10	0	0
2. Barley, 30 bushels, at 4s.	6	0	0
3. Oats, 40 bushels, at 3s.	6	0	0
4. Hay, 2 tons, at £5.	10	0	0
5. Grass, 10s.	0	10	0
6. Grass, 10s.	0	10	0
7. Oats, 40 bushels, at 3s.	6	0	0
8. Barley, 30 bushels, 4s.	6	0	0
9. Wheat, 25 bushels, at 8s.	10	0	0
10. Barley, 30 bushels, at 4s.	6	0	0
11. Hay, 2 tons, at £5.	10	0	0
12. Grass, 10s.	0	10	0
13. Grass, 10s.	0	10	0
14. Grass, 10s.	0	10	0
15. Grass, 10s.	0	10	0
16. Wheat, 25 bushels, at 8s.	10	0	0
17. Barley, 30 bushels, at 4s.	6	0	0
18. Oats, 40 bushels, at 3s.	6	0	0
19. Hay, 2 tons, at £5.	10	0	0
20. Grass, 10s.	0	10	0

£102 10 0

According to the statement, the difference between the two systems is in favour of green crops £41 5s., in 20 years per acre, or £2 1s. 3d. a year. He thought that green crops were charged with more expense than they really occasioned. No farmer could go on during a number of years growing corn without some kind of fallow; the fields would be overrun with weeds; the expense of a naked fallow is less economical than a fallow crop, and the actual on May is more imaginary than real; the manure that the corn-growing farmer gives to his wheat or barley, the green-crops grower gives to his turnips, of which there is always enough left for the succeeding cereal crops, the ploughs, harness, rollers, that were wanted for corn, will do again for turnips, and the same horses and men will be wanted for the turnip land, instead of eating their heads off up to harvest—a few women to weed and store the turnips to be the only item in the whole crops. He could not therefore, bring himself to regard the different sums for so many operations in preparing, &c., the soil for green crops. A number of men and horses were required for the daily working of the farm, and out of the year's expense of those, he would deduct at the same rate so many days' expense employed in turnips, &c., cultivation which would be the actual positive expense. On the most economical mode of cultivating green crops, he should be short: the land must be dry, ploughed deep, and if hard, subsoiled; having once got a good depth of soil to work upon, harrow with a spike harrow (a cheap implement, but a thorough good one), that forks when the lands want forking, that tears the grassy clots, that rolls too as it were in one operation, then the plough and common harrows, must be repeated until the land is fine; by this time the whole strength of the farm must be employed to secure the speedy drilling of two or three pounds of seed upon drills about 27 inches apart; the manure must be of that kind most available, farm-yard or town manure, with two or three cwt. of guano. With the after-culture of green crops we are all familiar; but one thing is indispensable—they must be kept clean. One word about storing the roots: he employed several women with stickles to cut off the tops, then a man follows with a one-horse skeleton plough, to up-root the turnips; they were then left for a few days for the earth to drop off, and then stored in the usual way; he had found it a very safe, expeditious, and effectual plan."

The following communication from Mr. Carver, the late Honorary Secretary, was then read.

"In the first place, I will take into consideration the advantage derived by the farmer from growing green crops, and, secondly, the most economical mode of producing the same. The advantage derived from growing green crops, present themselves

to the farmer in a variety of ways. It is the means of producing an increase in the quantity as well as the quality of the made manure; by that increase, the farmer obviates in a great measure the necessity of purchasing artificial fertilizers. Turnips, &c., are the means of enabling the farmer to send his stock fat to the market, instead of being compelled, for want of food, which is often the case, to get rid of them for almost any price that he is offered, and allow his most enlightened neighbour, who is a large grower of green crops, to derive all the benefit from feeding their cattle, which he ought to have done, when they were sold to the butcher. You must all be aware of the improvement in the grain crops after turnips. Some will recommend sowing spring wheat, others barley, after them; but I am of opinion that wheat is preferable, because it is not so liable to lodge; and, again, the quality of barley after turnips is not so good or fine in comparison to that of wheat; besides, the yield of the grain crop after turnips is much above the ordinary return, when no turnips are grown. Turnip culture is the means of providing employment for that portion of the labouring population as are not fit for the more severe work on the farm. The children, in a turnip-growing district, are brought up industrious, the women find plenty of employment; old men, who are not fit to perform the heavy work on the farm, can here find work they are capable of performing. Turnips, if grown by farmers in general, would, in a great measure, be the means of preventing many an industrious person applying to his parish for relief, and the union would be less frequented by in-door residents. I will now call your attention to the advantages young stock derive from having a liberal allowance of turnips, instead of, as is often the case, nothing but straw. We sometimes see a beast, no matter what her breed may be, that has been kept on straw, with a regular allowance of turnips, and perhaps a little cake or corn every day; in the adjoining farm to where a beast, got by the same bull, out of an equally good cow of the same breed, which has been fed through the winter, as hundreds are, on nothing but straw, and what little they pick up about the hedges. Now, what is the difference between the value and appearance of the two beasts? why, the one looks as a well-bred animal should, and the other a poor, stunted, diminutive-looking creature, showing little or no breed, although they are precisely the same in that respect, and in value the one would be about four times the worth of the other. This, then, proves that it is not the breeding alone that makes a fine animal, but it is the breeding combined with the feeding that does it. There was never a more correct saying than that half the breed of all fine animals goes in through the mouth. Now

then, is not that a great recommendation for farmers in general to grow green crops? Another advantage derived from the growth of turnips is, that it supercedes the necessity of naked fallows; and for the trouble and expense of keeping the land clean, the farmer is remunerated, if he has paid proper attention, by having a good crop of turnips. If mangold wurzel are substituted for turnips, autumn wheat may be sown with success; but after turnips I would recommend sowing the April wheat. I have now to take into consideration the most economical mode of producing turnips. I shall presume that the land intended for turnips was under a corn crop the preceding year. As soon after harvest as possible, the ground should be ploughed to the depth of three inches: in the end of November, or beginning of December, it should have a heavy dragging, then immediately ploughed to the depth of from five to six inches; in fact, if the land had been drained, the plough cannot be put in too deep. It should then remain in that state until March, when it should be again dragged, and a scarifier put through it as deeply as possible, so as to leave the land with a rough surface, that the atmosphere and frost may pulverize it. It is then left until the turnip season commences, when it must be either ploughed or scarified until a sufficient depth of soil is obtained, which must be reduced to a fine tilth by repeated harrowing and rollings. I consider autumn cultivation most essential to the economical cultivation of the land, because by that the soil derives the benefit of the frosts through the winter, which pulverizes it more effectually than could be ever accomplished by implements, and a fine tilth is obtained with far less labour than it would be if the first ploughing were left until after Christmas. It is well known to all, the advantage of autumn digging a garden—why, then, should not the same cultivation on the farm be equally beneficial? For the sake of economy, every turnip-grower ought to be provided with a double mouldboard plough, which would enable him to get over double the extent of land in the same time that he could with a single mould plough. One heavy and one light horse-hoe are indispensable for the despatch of work, and the perfect cultivation of the land, because when the plants are small, you require a light implement to prevent their being buried; and when they are strong, a heavy implement is indispensable to stir the soil to a proper depth between the rows effectually. The hand-hoes should be made of the best steel, so that when they are ground to a fine edge, they would not be so liable to injury from coming in contact with stones. Two men, provided with hoes of that description, would do more work, and neater, than three with tools made of soft sheet-iron, which drag the weeds up, instead of cutting them off. There

can be no doubt but that the best quality and most improved implements are by far the cheapest and most economical in the end. The land being got ready, a double mouldboard plough opens the balks; the carts follow with the manure, which is spread as soon as put down, and covered by another double plough. Should guano (which, in my opinion, is the best manure for turnips), bones, or other artificial manures be used, I strongly recommend them to be sown broadcast over the land, after the ridges have been opened, then to have the balks split, so as to deposit the manure mixed with the soil in the bottom of the drills, which is the most natural place for the roots to seek nourishment. I have no doubt it is beneficial to apply a small portion of the manure by the drill, but on no account the whole of the dressing. I have more than once seen dry bones applied by the drill, and in every case a great portion was left exposed on the surface, in some instances more than half was in sight. What benefit could the crop derive from manure applied in that way? Would it not be more judicious to put the manure where the roots are sure to go, instead of placing it where there is no possibility of their obtaining any benefit from it? The same, I have no doubt, is the result when guano or other finely pulverized manures are drilled; but, from their being so fine, we cannot detect them so readily on the surface. I consider $2\frac{1}{2}$ cwt. of guano applied at the bottom of the drills better than 3 cwt. put in by the common drill. Turnip-growing farmers in general grow too large an extent of land under that crop: if a person who is accustomed to sow fifteen acres were to put in only ten, giving the same quantity of manure to it that he would have done to the fifteen, he would be enabled to give more attention and time to the cleaning of the crop, would have less rent and taxes to pay for the turnip land, and would, by proper attention, grow nearly the same weight of roots that he would have done from the fifteen, with the same manure and labour. An acre of land drilled at 27 inches apart, contains 6453 yards of drills. Now, it would not be anything extraordinary to grow four roots, each weighing 3lbs., which would give 12lbs. to the yard, producing $34\frac{1}{2}$ tons per acre, or if you were to raise four roots 2lbs. each, which would make 8lbs. to the yard, that would give a return of above 23 tons per acre. I have heard farmers say that it is practicable to produce four turnips, each weighing 3lbs., to the yard; and yet, when I have talked to those men about the practicability of growing 30 tons per acre, which does not amount to 12lbs. per yard, they told me it was next to an impossibility to raise 30 tons to the acre. To begrudge labour and manure to the turnip crop has, in every instance that has come under my observation, tended to lessen the

yield of the crop. I have seen turnips sown on really good land, with an abundant supply of manure, which, had they been offered me for the taking of them off the land, I would not have accepted; these same plants, and they were nothing more than small ones in November, had the land been properly cultivated, would, I have no doubt, have produced above 20 tons per acre, which would have satisfied the farmer, and have prevented his saying that turnips were very well for gentlemen farmers to grow, but that it would not do for a man who had his living to get from the farm to cultivate them. As great a proof as any of the advantage of growing green crops is, that nine farmers out of every ten

that sow a small piece as an experiment, are so sure to continue the cultivation of them, and increase the quantity yearly, as they become more convinced of the advantages derived from their cultivation. I could mention other facts which would go to prove the advantage of cultivating green crops; but, as I think that what I have said is quite enough for the purpose, I shall now conclude with requesting all the members to use their utmost endeavours to forward the interests and welfare of the club, and may this society be the means of improving the system of farming in the neighbourhood, and also the introduction of many an improved implement into the county.—Carmarthen Journal.

ROYAL SOUTH BUCKS AGRICULTURAL ASSOCIATION.

At the Annual Meeting held on Tuesday, Sept. 26, the President, the Right Hon. Henry Labouchere, in proposing Success to the Society, said:—

He valued highly all such societies for the opportunities they afforded for men meeting together as friends and neighbours, as they did on the present occasion, to talk over matters in which they had a common concern, to make personal acquaintance with one another, and to mix together in a way for which he regretted to say there were in this country not many opportunities to persons inhabiting the same neighbourhood (cheers). And they had also the opportunity of talking over matters connected with the cultivation of the soil. Mr. Trumper had stated that it was a stringent rule in societies like this never to introduce into their meetings any topics that savoured of party politics. He (Mr. Labouchere) was glad to think the time had passed away when there was any danger at an agricultural meeting of being tempted to diverge into the discussion of such subjects. In former times they might have differed—and some of them did differ widely—as to what was the best policy to pursue with regard to the promotion of the permanent interests of the cultivators of the soil. He rejoiced to think that those differences were at an end, and he trusted the day would never come when they would be revived (cheers). He must ever think it was exceedingly unfortunate that questions connected with the agriculture of the country were mixed up with party politics, and made the subjects of a struggle for power in this country in a great popular arena. He rejoiced that time was over, and that they could now meet to promote the science of agriculture, without its being suspected that they were seeking to advance the interests of one party rather than another (cheers). At the same time, he thought it was natural, on an occasion such as this, that they should express their opinions as to the general condition and prospects of the agriculture of the country. Perhaps he had always taken a more cheerful view than some had taken of the agriculture of this country. For himself, he never had any fear, so long as England prospered, that the soil of England could do otherwise than prosper (loud cheers). He owned, so far as he could form an opinion, he believed that the agriculture of this kingdom never stood on a sounder or more satisfactory basis than it did at this present moment. We had been blessed with a most abundant harvest at a time when it was most important, not merely to agriculturists, but to the country at large, that it

should be so; for every other interest of this country was inseparably connected with the interest of agriculture. It had pleased Providence to give us a most abundant harvest, which he believed had not only conferred inestimable blessings on the whole population, but had also averted great and serious evils which the country must have had to endure had it been otherwise. He thought he was justified in saying, so far as the immediate prospects of agriculture were concerned, that they had every cause for congratulation. But he owned he own opinion was that, looking forward to the future prospects of this country, and believing its prosperity to be on the increase to an extent which had never before been experienced, that the prosperity of agriculture would go on with it, “prospering and to prosper” (cheers). He saw in every direction that intelligence and skill were being more and more applied to the cultivation of the soil. He saw the owner of property, the tenant farmer, and the labourer, all acting together, and all more and more feeling that the interest of one class was the interest of all, and being disposed to act towards one another in a spirit of mutual good will. He saw in those things an earnest of the future prosperity which they on the present occasion looked forward to for that interest with which they were particularly connected—he meant the cultivation of the soil. Of course that interest depended much upon times and seasons. He did not mean to say there might not be periods of gloom and adversity. It must naturally be so. But he believed, upon the whole, they might look forward with cheerfulness to the prosperity of agriculture. In that particular neighbourhood he believed their crops were most abundant. He had heard from those more able to express an opinion on the subject than he was, nothing but accounts of the most favourable kind in that part of the country. He had travelled recently in other parts of England, and he had heard the same thing. He thought, therefore, they had every reason to be grateful to Providence for the blessings bestowed on them in the present year. He could only, in conclusion, assure them that it had afforded him the most sincere pleasure to meet so many of his friends and neighbours on that occasion. He regretted he had no knowledge or experience as a practical agriculturist to enable him to give them any useful information; but so far as his own wishes went, he earnestly desired to see the agriculture of England prosper, and in that respect he would yield to no man (loud cheers).

INOCULATION FOR CONTAGIOUS PLEURO-PNEUMONIA.

Contagious pleuro-pneumonia, as its name indicates, is a disease of the lung and its envelopes, having the sad property of transmission from the diseased animal to the sound one. It is confined to the ox species, though it has been known to attack the pig and, some say, the goat. Its characteristic symptom, its progress, terminations, and the post-mortem lesions it leaves behind, are too well known to need repetition. A great number of proprietors, unfortunately, have but too much reason to be acquainted with it; and the numerous publications on the subject are sufficient to inform those who have not had such opportunities. Nevertheless, there are some points on which public opinion is not sufficiently made up to assist renewed inquiry. Contagion is beyond doubt established by correct observers, and yet everywhere incredulous persons are met with among those of superficial observation. This disease it is true, is not contagious the same as typhus, the rot, the itch, &c., but is so after a manner peculiar to itself, being special in its mode of transmission; and so, people say, "How does it happen that the beast standing next to one dead of the disease does not contract it, but remains even exempt, although one standing at the bottom of the stable becomes affected?" This is easily explained. The contagious virus of this epizootic is volatile, and consequently floats in suspension in the atmosphere; all animals in the same habitation absorb it without exception, and if some contract it more readily than others, it is owing to the disposition of their temperaments; they must remain for a certain time in such cohabitation that the air respired by the diseased animal be inhaled by the healthy one, and that for a certain time and in indeterminate quantity. Some animals there are so refractory to its action, that I have seen cows resist two successive invasions of it, and yet fall victims to a third. This fatal property is so strongly confirmed by experience, that I fear not to say that, out of twenty cases, but one was spontaneous to nineteen caught by contagion. This dreadful disease appeared for the first time in 1840, in the department of Murat.

An animal cured of pleuro-pneumonia is no more liable to the disease: to this general rule I have seen no exception. What may in some cases have given rise to a contrary belief is, that there are animals who have been but imperfectly cured, whose lungs remain hepatized to a greater or less extent, in whom the disease may run into the chronic from the acute stages, and be accompanied in that with all the primary symptoms.

The left lung is much oftener attacked than the right; though the contrary, without any cause assignable, happens in certain cow establishments, and, strange as it may seem, in this last case, the mortality is always greater. This is a fact I have uniformly observed at different dairies. The province of Cantal, whose sole agricultural produce consists in the rearing of cattle, sees its prosperity threatened every day by this devastating scourge, every mode of treatment employed hitherto having proved without success.

Inoculation alone, as recommended by Dr. Willems, was the only means held out to promise. For a long time I felt myself inclined to this operation; I seemed to anticipate results before I had obtained them; but, knowing the great importance that such acts might be of, and feeling how necessary it was to be cautious under the circumstances of advancing nothing save what a thorough experimentation, based upon the number of subjects and the time occupied, I have deferred my opinions up to the present moment.

1. In the month of September, 1852, I was called by M. Dubois, farmer and magistrate of Murat, to treat some beasts on the domain of Pesche. Pleuro-pneumonia prevailed in this flock with rare intensity; two-thirds of it had perished. Inoculation, proposed by me as a new means of experiment, was accepted by M. Dubois, Jun., and practised on fifteen beasts at the time in health. Since, this dairy has no return of the disease.

2. In February, 1853, M. Chaubasse, a lawyer at Allanche, desired my services for his dairy at Condour, in which pleuro-pneumonia had broken out with so much violence, that, out of ten sick beasts, eight had died (the right lung being always more affected). Inoculation was practised on seventy-two beasts, the lower two-thirds of the tail being selected; two of the animals only, with whom, probably the disease was in a state of incubation, perished some days after the inoculation, while two others who failed to take inoculation, on the evidence of the farmer who believed them cured, died. The efficacy of inoculation is at this moment submitted in this domain to a sort of counter-proof, which is the means of its being estimated at its true value. Last spring, M. Chaubasse purchased some cows to replace those which were dead. With these fresh beasts the disease re-appeared, but all those which had been inoculated have remained free from it up to this very day. A fresh inoculation was practised on thirty beasts the 26th of December last,

who had not been so previously. Of this experiment, I shall recount the issue.

3. Encouraged by success, I anxiously looked for fresh opportunity of continuing my experiments. I did not wait long. On the 21st of last July, M. Benoist, mayor of Marienat, and M. Benoid Camille, placed at my disposal their fine dairy of the Roche domain, where pleuro-pneumonia had already attacked fourteen beasts. Inoculation was practised on 142 beasts, at the origin and extremity of the tail, by means of five or six punctures, in order to introduce the largest quantity possible of the virus, without being previously engaged with consecutive accidents, such as M. Willems had witnessed. From the fifteenth to the twentieth day, there arose on the inoculated part considerable tumefaction, causing the loss of the tail to two cows, and destroying two others in whom this tumour extended to the vulva, anus, and muscles of the croup, as far as the pelvic cavity. Apart from these light accidents, and with regard to the number of animals operated on, no beast after this period has presented the slightest symptom of pleuro-pneumonia.

4. On the 23rd of the same month, I inoculated 25 beasts at M. Fabre's house; there the same operation was attended with similar success, with the exception of a single bull, which died in the same manner as the cows at Roche; so that 167 beasts, inoculated in the same week, have been for upwards of six months preserved from every taint of the epizootic. The three notable losses would certainly have been prevented if the operation had been confined to the lower part of the tail. The brilliant results obtained at the house of these two proprietors have made a great sensation in the country, and justly popularised a remedy against which had arisen some days before so many prejudices.

5. On the 20th Oct., I inoculated, at Mr. Chavaroché's house, 36 animals, and from that time I have heard no more of them.

6. On the 22nd of the same month, I operated on 74 beasts belonging to M. Maillance, with the same success.

7. On the 11th of November, inoculation was performed on 56 beasts on the domain of Ambesse, belonging to Capt. Fontelle.

8. On the 14th of the same month, the same operation was performed on seventy-two animals on the domain of Landel.

9. On the 8th of December, I inoculated 36 beasts belonging to M. Boudon.

10, 11, 12, 13, 14.

15. Lastly, on the 23rd and 24th of the same month, 106 animals of M. Tournadre were submitted to inoculation.

These several amounts constitute a total of 855 animals, belonging to different land-holders, on whose farms the epizootic had made more or less considerable ravages. The success of inoculation proved in every case complete, save some trifling accidents happening at a time when inoculation was too far advanced.

In the face of similar facts equally varied and numerous, of which the greater part are established by a considerable lapse of time, can any reasonable doubt remain of the preservative property of pleuro-pneumonic virus? I do not think it. This question appears to me finally set at rest.

This epizootic prevails uniformly with the same intensity. Every day it extends into the provinces of Cantal and Murat, or the great range of pasturage. Every spring induces a prodigious number of beasts from every province, and consequently keeps up between them very active intercourse, so that whenever a disloyal farmer perceives the disease in his stables, he takes good care not to inform the municipal authority of it; but, on the contrary, busies himself to sell all such as still possess value; and whenever the disease breaks out at the house of the purchaser, he in his turn acts the same, so that in this way the infection becomes more and more spread abroad.

For the time to come, breeders, having no longer the same interest in getting rid (at a low price) of their animals, will keep them. The disease, arrested by inoculation, will remain concentrated at some points, and little by little disappear for ever from our mountains. In order to arrive speedily at this result, it will suffice, I think, that a new administrative resolution modify the measures in force, regulating the introduction into fairs and markets of such proprietors alone of animals who are known to have been sick, and not, as in the past, to every inhabitant of the commune where the epizootic may have an appearance, which evidently is impracticable. Thus, what has happened up to the present time? why, that no one has paid attention to existing laws, and that contagion has spread with impunity over all the fields of the fair.

I must be permitted once more to call the attention of M. le Prefet to another question touching the indemnity allowed by government to the loss of beasts; does such gratuity always go to the relief of the truly unfortunate? Does it not too often find a false route? is the chief administration always well informed? Experience would seem to establish that it was not always so. It would be very desirable, I think, in order to escape much abuse in such cases, that all epizootic and enzootic diseases, whatever their nature, were pronounced upon, and treated by a diplomaed veterinarian,

without any regard to the distance he might have to go from his house to the locality of disease.

I can see in this measure the double advantage of furnishing Government with some valuable documents, and veterinary science with some excellent opportunities of studying the nature and causes of epizootic diseases of the ox species on which it yet possesses but some very incomplete notions.—*Marret, V.S., Allanche, in Veterinarian.*

THE BAROMETER ;

OR THE PRACTICAL USE OF THE BAROMETER
TO FARMERS AND OTHERS, WITH RULES FOR
PREDICTING THE WEATHER.

The proper use of the barometer as a means of judging the weather is not generally known, or its great practical value would be more extensively appreciated, more especially by farmers. It is only necessary to be well acquainted with the nature of its indications to form a tolerably good, and mostly a correct, estimate of the impending weather. For this purpose, it is here proposed to embody the most approved rules relative to the barometer. And it may be remarked, that if all persons affected in any way by changes in the weather will but consult their barometer daily, they will soon be sensible of the great advantages derivable from such practice.

It should first be well understood that the principal criterion of the kind of weather to be expected is the *relative motion* of the mercury in the tube, and that its *absolute height* is only of secondary importance when atmospheric changes are to be anticipated. The words engraved on the register plate should not be much regarded, as they cannot be much relied upon to correspond with the state of the weather, and, in fact, would show different indications at the top and bottom of a lofty house; but much greater dependence may be placed in the rising and falling of the mercury. For this reason the words are more deserving of notice when the mercury has just moved from "Changeable" upwards or downwards.

The absolute height of the mercury is a safe prognostic when it is unusually high or low, and the following observations upon it may frequently be found to be extremely serviceable.

1. All appearances being the same, the higher the barometer is, the more likely is the weather to be fair. When the barometer is high it will be found that very dark and dense clouds pass completely over, and that there is very little probability of immediate rain.

2. When the barometer is low it sometimes rains almost without any appearance of clouds; and, though the sky may seem to promise fair weather, it may be depended upon that the appearances will not continue long: the face of the sky changes very suddenly on such occasions. Also when the barometer continues low, there is seldom much rain; though a fair day is very rare, the general character of the weather at such times is short, heavy, and sudden showers, with squalls of wind from the west, north-west, or south-west.

3. The barometer is highest of all during a long frost with a N.E. wind, and it is lowest of all during a thaw after a long frost, and accompanied by a S.W. wind.

4. In all places nearly on a level with the sea rain may be expected when the mercury falls below 30 inches.

To judge rightly of the changes to be expected in the weather, we should especially ascertain if the mercury is actually rising or falling. This will be always seen by regularly adjusting the index of the barometer. Or, we may observe:—1. If the surface of the mercury be convex, standing higher in the middle of the tube than at the sides, it indicates the rising; if the surface be concave, it is falling; and if it appear level, the mercury is stationary. 2. If, on shaking or rapping the barometer, the mercury ascends higher than it stood before, it indicates the rising; but if it descends, it indicates the falling.

The following rules have been laid down, and amply confirmed by long-continued experience, and may be generally relied upon:—

1. The rising of the quicksilver generally presages fair weather; the falling generally indicates rain, snow, and, if the fall be great, high winds and storms.

2. When bad weather *quickly* succeeds the falling of the mercury, it will not be of long continuance. Similarly, when fair weather *soon* follows the rise of the quicksilver, we must not calculate on its continuance for any length of time.

3. On the contrary, if in bad weather the mercury rises considerably, and continues in an advancing state for two or three days before the fair weather sets in, we may expect a continuance of fair weather. And if in clear weather the mercury falls remarkably for two or three days together before the rain sets in, it is then highly probable that it will be succeeded by much rain and perhaps high winds.

4. In winter the rising indicates frost; and in frosty weather if the mercury falls three or four divisions there will certainly follow a thaw, but if it rises in a continued frost it will always be accompanied with snow.

5. In hot weather the sudden falling of the mercury portends thunder.

6. If the earth continues moist, and the water stands in hollow places, no trust should be put in the clearest sky.

Of all persons, the farmer and the sailor are those who can generally, from constant observation, form the best judgment of the atmospheric indications of the weather; but while to the latter the barometer is of the utmost importance in indicating that a sudden change is at hand, to the former it will be found equally useful, if he is a constant observer of it, by showing him pretty accurately whether or not any particular change of weather is likely to be of some duration.

PROBUS FARMERS' CLUB.

At the meeting of this club on the 30th Oct., a lecture was delivered by Mr. Whitley, on some peculiarities of the climate of the West of England, affecting agriculture; of which we give the following abstract:

The effect of climate on the corn crops of the West, is most obvious from the results produced in the two past years. In 1853 we had a remarkably dry spring, followed by a very wet summer, which continued up to the time of a deficient harvest; the sickly and diseased wheat plant yielded a very thin head and defective grain. The spring of 1854 was of a similarly dry character; the east wind blew continuously for more than a month, covering this land with the dry air of the continent; the rain set in just at the same period as in the previous year, and continued through the summer with a remarkably low temperature, until the crops, abundant in straw, began to quail under its influence; but, when the prospects looked the most gloomy, in opposition to our fears—contrary to the course which nature had taken in the previous year, the sun dispelled the clouds, suddenly raised the summer temperature far above the average, and drew forth from the half-fainting plant a healthy well-filled ear. It would be difficult to estimate the average loss in the wheat crop from the defects of our climate, but it is not perhaps too strong a statement, that if the same skilful husbandry were bestowed on the same soil when the climate is all that can be desired to bring the wheat to perfection, at least one-third more in produce would reward the cultivator. But if there are some defects in our climate injurious to cereal crops, it is on the whole highly favourable to the production of a large amount of human food.

The seasons are free from great extremes of temperature. In central Europe the heat, radiated from a large continent, becomes extreme in summer, and the cold of winter is equally intense. In North America the winter snows cover the ground for months, till, on the return of spring, vegetation rushes into renewed life; the sun, having obtained the mastery appears to glory in his might, and a tropical temperature is felt where shortly before an arctic winter reigned. But with us the summer's sun often leaves the unripe grapes to perish on the vine, and the skater finds no field for his favourite sport. We have also a comparatively slight difference between the temperature of night and day. On the hills of Syria the prophet shepherd said, "the frost consumed one by night, and the drought by day;" but on our coast lands, the air from the sea preserves a uniform temperature. The water of the sea

seldom sinks in the depth of winter below 46 degrees, so that frost can rarely touch the plants on the shore. From this cause the neighbourhood of Penzance, and more particularly the Scilly Isles, is well adapted to the growth of the early potato; and no doubt the same root might be grown at the South Western extremity of Ireland with equal success.

Ours is a country diversified by hill and dale. Not like the marshes of the Danube, where the marsh poison lies on the swampy surface; not like the plains of India, where you must sleep above the fever line or perish; nor like the sandy plains of Africa, the ovens of nature, or the parched lands of Arabia; these are countries where (in the language of the East) the earth is fire and the wind is flame, where the sun is the monarch of the day, and vegetation droops, and animated nature moans beneath his influence. The Afghans have a saying—"Great God, why hast thou made hell, since there is Ghizni?" But from our green hills the minor impurities sink nightly into the valleys below, and leave on the grassy slopes a dry and healthy atmosphere. Gardens and orchards on low ground become filled with cold air, throwing out fog, and so producing moss; gendering hoar-frost, and so cutting off the blossoms. Fruit trees should be on a southern slope, with a hoe ditch on the lower side; and cattle yards and our own dwellings should be placed above the cold night air of the valleys.

Humidity is another characteristic of our climate, resulting from the great evaporation arising from the warm surrounding sea. At this time of the year the struggle between the sea-fog and the warm air on the land may often be observed! the air absorbs the fog, until, in the cool of the evening, it obtains the mastery, and envelopes the land. On the return of day the rising temperature drives it again to sea, when it hangs about the horizon to return at night. The surfaces of trees also condense the vapour, producing moss and fern on the limbs; and the leaves drop water into the cattle ponds, though no rain is falling.

The rain-clouds often pass over the coast lands before they deposit their moisture, and the western inland slopes receive the largest quantity. In 1853 some good wheat was grown on the north coast, whilst it struggled on to a half crop inland.

The effects of climate are seen in the little pimpernel which closes its leaves and hangs its head to avoid the storm; in the sunflower which lifts its petals to receive the rays of light and heat; in the winter coats of the cat, the horse, and the sheep; in the migration of animals and birds; in the noble horse of Arabia, compared with the Shetland dwarf; in the winter torpidity of some animals, and the summer activity of others; and it becomes us to study the causes which produce such effects, and to adapt our culture, our plants and our animals, to the climatic influences they must encounter.

HAPPY HOMES OF THE PEOPLE.—The homes of a people are the landmarks of civilization. They are a standard by which we may measure their moral and social greatness. What is a nation but a large family, possessing rights and privileges? The influence of each member of that family for good or evil is reciprocal. As the shock of electricity vibrates and expands, so the influence of human actions is diffused from the centre to the circumference of human society. The moral power of a people is just in proportion to the combined virtuous influences which exist in the homes of that people. Hence it may be truly said, that our homes are the nurseries of the nation's greatness. Home!—how cold that heart must be which does not beat more quickly at the bare mention of the word! What delightful associations and recollections are

connected with that sacred spot! A happy home gives the mind a foretaste of the immortal state. It is here that the virtues and charities, the blessings and realities of human life are enjoyed. Here the sympathies of the heart, and the affections of the mind are nourished and developed, and all that is good and great in our nature is brought to maturity. But what constitutes a happy home? The pleasures of literature are essential to the happiness of both masters, servants, and children. No table should be without periodicals, suitable for children, as well as adults. A good and substantial library is equally essential, if, indeed, it be not more so. How gratifying it is to see a neat bookcase in a poor man's house, containing the works of the world's greatest thinkers. There are many homes in this country which do not contain this; but their happiness would be much more complete if they did. An assortment of truly valuable books contains more sterling wealth than the gold mines of California. Then let it be the ambition of all who are solicitous to have happy homes, to possess a good library and a collection of useful periodicals. The "feast of reason and the flow of soul" may then be enjoyed after the toil and bustle of the day is over.

THE BEST METHOD OF STORING AND PRESERVING POTATOES DURING THE WINTER.

At the Whitby Farmers' Club, Charles Hudson, Esq., in the Chair, the following most valuable remarks were made in the course of a short discussion on the above subject:—

W. FRANKLAND, Esq., said he considered that very much depends on the state the potatoes are in when taken up. As regards his own, this year, they had been partially attacked with the disease, and he thought at one time they were going to be very bad; but they have turned out much better than he expected. Those diseased he sorts out as he takes them up. He then thinly spreads the good in his outhouses, when they are taken up wet; but this year they are so dry and clear that he has laid them much thicker. He lets them lie ten days or a fortnight to sweat, and then sorts them into three sorts—marketable, for sets, and the bad and small for pigs, &c. In about another fortnight he stores them in pies in the field, as by keeping in the house all the winter they are apt to shrivel, and do not look so blooming in the spring.

Mr. GEO. WELBURN, of Fylingdales, said that he sorts his in the same way as Mr. Frankland, and spreads them accordingly; he has an outhouse on purpose for storing them for the winter, and therefore never makes pies in the field. As soon as he thinks they are fit to put by, he stores them in his potato house, and covers them with straw and dry sods. He takes particular care of his sods from year to year, always preserving them from wet. By these means, living as he does near the fishing town of Robin Hood's Bay, which he supplies all the winter, he can get easily at them at all times, whether frost or snow, which he could not were they in pies in the fields.

Mr. T. WARD, of Bannial Flat, said he does the same as Mr. Frankland as far as he has room in his outhouses; but as he grows a large quantity he cannot take, perhaps, such minute pains and care of them. He causes them all to be sorted as they take them up, and leaves all the diseased and bad ones on the land, and then turns his pigs in to consume them. He first puts the good in small heaps in a field, and covers them with straw, and lets them lie in this way about a fortnight to sweat; he then has them properly sorted, and stores them in pies in the fields for the winter. He thinks Mr. Welburn's plan a good one, where there is a proper storing house.

Mr. E. ORMESTON, of Straggleton, said that he puts all his potatoes in the house the same as Mr. Welburn. He is very particular in sorting them, as he believes that the diseased potatoes infect the good; but in a few weeks after they have been taken up and sweated, they may then be stored for the winter, he having houses for the purpose.

All the other members present concurred in the opinion that potatoes must be allowed time to sweat before they are stored away for the winter, and the diseased regularly sorted from the good, as there is no doubt of the disease being contagious.

TESTIMONIAL TO POLICE CONSTABLE PARTRIDGE.

GENTLEMEN,—I am deputed by the agricultural implement manufacturers to present Jas. Torrington Partridge with the accompanying gold watch, in token of their appreciation of the very efficient manner in which he has uniformly performed the important duties which have devolved upon him as principal police officer at the Royal Agricultural Society's annual exhibition during a period of twelve years.

As it is usual for such testimonials to be presented through your Honourable Board, I have to request on behalf of the agricultural implement makers, that you will kindly permit police officer Partridge to receive this small present.

I have the honour to be, gentlemen,

Your most obedient humble servant,

Whitehall Place.

WILLIAM PIERCE.

METROPOLITAN POLICE OFFICE, WHITEHALL PLACE, Oct. 19th, 1854.—Sir,—The commissioners of police of the metropolis have to acknowledge the receipt of your letter of the 19th instant, and to acquaint you they are highly gratified to hear the conduct of police constable Partridge has been such as to meet the approbation of the agricultural implement manufacturers, and will have much pleasure in handing to him the watch sent by that society.

I am, Sir, your obedient servant,

William Pierce, Esq.

W. BAY.

TO KEEP APPLES.—The most effectual method of preserving both apples and pears, with which I am familiar—and which, of course, I recommend in preference to all others, is the following:—Having selected the best fruit, wipe it perfectly clean and dry with a fine cloth; then take a jar of suitable size, the inside of which is thoroughly coated with cement, and having placed a layer of fine and perfectly dry sand at the bottom, place thereon a layer of the fruit—apples or pears as the case may be—but not so close as to press each other, and then a layer of sand; and in this way proceed till the vessel is full. Over the upper layer of fruit, a thicker stratum of sand may be spread, and lightly pressed down with the hands. In this manner, choice fruit, perfectly ripe, may be kept for almost any length of time, if the jar be placed in a situation free from moisture.—*Germantown Telegraph.*

THE WOOD TRADE.

LONDON, Oct. 20.—We are happy to be able to record a very decided improvement in the tone of the wood trade. The aspect it has assumed has fully realized the prognostications which our readers will remember we ventured to make, in reviewing the condition of the trade during the first half of the present year. We foretold that the extreme point of depression had passed by, and that a tendency to advance would speedily be evident in most articles, but particularly in oak plank, masts, deck deals, and everything connected with ship building. Of staves, moreover, we augured better things, and also a rise in the finer classes of timber.

Though these anticipations have all been realized at last, in a greater or less degree, the expected advance has been materially retarded by circumstances which the trade could easily control, and which its most prominent members should bestir themselves to abolish. We allude to the *brokers' public sales by auction*! These sales have followed each other so rapidly during the last six months that they have utterly paralyzed the trade. They were originally the resort merely of needy holders of goods, who were compelled to turn their merchandize into money in order to keep themselves afloat, and meet their engagements. By degrees, however, the regular customers of the yard-keepers were induced to seek this new, and *apparently* cheaper, source from which to purchase, and thus the merchants themselves have been obliged to place their goods in the brokers' catalogues to catch their old buyers again. But the system is bad. Even if a merchant succeeds in selling *some* of his goods, he deteriorates the value of his remaining stock, and stands worse than he did before. As we have said, the public sale should be held by the trade in discredit as the resort of the needy holder devoid of capital, who has no right to hold at all, since he cannot afford to wait his turn, and sell in the legitimate way. It is against the benumbing influence of this system that the trade has struggled for some months; it is this that has depressed prices, and not any want of demand, or heavy superfluity of stock. From these effects, however, the trade in now beginning to rally. Timber may be quoted 5s. per load higher here, and if foreign houses do not unwisely raise their prices free on board on the other side, they may expect a healthy business in spring, and their goods lying here on consignment will find free vent during the remainder of this season. Best Danzig timber is now worth, in London, 80s. to 85s.; best Memel, 80s. to 85s.; second Danzig, 67s. 6d. to 75s.; second Memel, 70s. to 75s.; fine Stettin, 65s. to 70s. per load. Staves are beginning to look much more healthy, and fine descriptions are moving—for Crown Memel pipe, 135*l.* to 140*l.* per mille. The failure of the vintage has brought many staves of a new class from France to compete with our regular stocks; but it yet remains to be seen whether the wood in question will answer the purposes of brewers. Oak plank and deck deals are still in demand, and masts, in consequence of Government purchases, have become very valuable. Deals are in good demand, and for crown Memel red £20 to £22, and seconds £15 10s. to £16 10s. per standard hundred.

The present state of the wood trade, therefore, may be considered not only healthy, but progressively and steadily improving. There is no fear of lower prices; but a contingency, very far indeed from remote, might raise them indefinitely at any moment. We have alluded before to the contemptible position which vacillation and fear have given Prussia among the nations. The shameful neutrality of the Germans still endures. Among them there is no spirit or freedom. The very first element of greatness and liberty is wanting—a *public voice*,—and the determination to make it heard. The King—at once feeble and dissolute, with the sympathetic yearning towards tyranny which illustrates the old truth that the coward and the bully are identical—is luring his people, who stand infamously supine, to spend their blood and treasure on the side of the Czar.

Though this policy, however, has been pursued so slowly and so craftily that each step of the declension has been scarcely perceptible, it is pretty well understood that our Government will not be duped much longer. Whispers from the best sources are current to the effect that a third fleet (it need not be an armada) will proceed to blockade the Prussian ports next spring, as soon as they are free from ice, unless that Power declares during the winter its adherence to the side of the allies. The immediate result would be the total destruction of Prussian commerce; a French army on the Rhine; Poland re-constituted, harassing the northern ports, such as Memel and Danzig; and Austria, already on our side, despatching its hordes of soldiers to find pay and plunder in the neighbourhood of Berlin. The Czar, who can scarcely hold his own, will be incapacitated from assisting his friend King Cliquot, and where these two worthies will end it is not difficult to conjecture—a Siberian forest, or Leicester-square!

This is the contingency which would possibly affect the wood trade so materially as to render stocks here nearly double their present value. With Russian and Prussian supplies cut off, and Sweden doubtful, only America remains, and of course the merchants across the Atlantic would make their harvest. The solution of these doubts is naturally looked for with the utmost impatience. Before three months are passed, the truth, whatever it be, will probably have declared itself. We hope Prussia will, like Orson in the play, be at last endowed with reason.

The great fire which has reduced two-thirds of the town of Memel to ashes, and destroyed more than half a million sterling of property, happily left the wood stocks almost, if not entirely, untouched. With the exception, however, of the chief firms of Messrs. Moir and Co. and Schultz and Co.—the former of whom lost nothing, and the latter of whom were, we hear, fully insured—most of the houses have been compelled to take or have taken the opportunity to suspend payment, at all events temporarily. Much confusion, therefore, reigns at that port. Hundreds of people are huddled in barns, dependent upon charity for food, shelter, and raiment. The fire is declared to be the work of an incendiary, but the particulars have not yet transpired.

METEOROLOGICAL DIARY.

BAROMETER.			THERMONETER.			WIND AND STATE.		ATMOSPHERE.			WEAT'R.
1854.	8 a.m. in. cts.	10 p.m. in. cts.	8 a.m.	2 p.m.	10 p.m.	Direction.	Force.	8 a.m.	2 p.m.	10 p.m.	
Sept. 21	30.11	30.19	49	63	52	W., W. by N.	fresh	fine	fine	fine	dry
22	30.30	30.30	42	62	58	W. by N.	airy	fine	sun	fine	dry
23	30.23	30.23	46	62	56	N. by W.	airy	cloudy	fine	cloudy	dry
24	30.16	30.09	55	68	58	W. by South	forcible	cloudy	cloudy	fine	rain
25	30.24	30.31	47	65	52	Northerly	gentle	fine	sun	clear	dry
26	30.36	30.34	45	64	55	Southerly	gentle	fine	sun	fine	dry
27	30.33	30.25	47	66	57	S. S. E.	lively	fine	sun	clear	dry
28	30.20	30.10	50	67	50	S. S. E.	lively	fine	sun	clear	dry
29	30.13	30.13	43	69	52	Every way.	calm	haze	haze	fine	dry
30	30.16	30.20	44	69	51	Var., W.N.W.	gentle	haze	sun	fine	dry
Oct. 1	30.24	30.18	47	63	53	Every way	calm	fog	sun	fine	dry
2	30.11	29.88	44	69	54	S. West	gentle	haze	sun	clear	dry
3	29.78	29.91	49	64	47	W. by North	airy	fine	sun	fine	dry
4	29.88	29.72	42	60	58	S. West	lively	cloudy	sun	fine	dry
5	29.63	29.55	57	69	58	W. by South	strong	cloudy	sun	cloudy	showery
6	29.53	29.63	54	57	51	E. by N.	lively	cloudy	cloudy	cloudy	rain
7	29.90	30.05	49	55	52	E. by N.	lively	cloudy	cloudy	fine	dry
8	30.08	29.85	48	60	51	East	lively	fine	sun	cloudy	dry
9	29.71	29.82	55	65	60	Variable	gentle	cloudy	sun	cloudy	dry
10	30.04	30.94	51	64	57	W. by N.	gentle	cloudy	cloudy	fine	dry
11	30.03	30.37	55	60	47	N. N. W.	lively	cloudy	sun	clear	showery
12	30.46	30.46	37	56	42	N. N. W.	fresh	fine	sun	fine	dry
13	30.45	30.32	35	55	44	Variable	calm	fog	sun	cloudy	dry
14	30.30	30.25	42	55	50	Variable	calm	haze	cloudy	cloudy	rain
15	30.21	30.10	49	53½	51	S. by East	gentle	cloudy	cloudy	cloudy	rain
16	30.05	29.70	42	54½	43	W. N. W.	gentle	fine	fine	cloudy	dry
17	29.41	29.27	34½	52	44	Easterly	fresh	cloudy	cloudy	cloudy	rain
18	29.25	29.53	43	50	42	N. by West	brisk	cloudy	cloudy	cloudy	rain
19	29.71	29.67	36	48	45	Westerly	lively	fine	cloudy	cloudy	dry
20	29.41	29.40	43	52	47	N. West	lively	fine	cloudy	cloudy	rain
21	29.56	29.60	44	55	49	N. West	gentle	fine	sun	cloudy	dry

ESTIMATED AVERAGES OF OCTOBER.

Barometer.		Thermometer.		
Highest	Lowest.	High.	Low.	Mean.
30.610	28.74	68	27	48.9

REAL AVERAGE TEMPERATURE OF THE PERIOD.

Highest.	Lowest.	Mean.
62.283	46.13	54.206

WEATHER AND PHENOMENA.

September 21. Fine; low horizontal lightning at 10 p.m. 22. Warm and airy; equinox. 23. Overcast. 24. A mercurial of rain. 25 to the end. A strikingly beautiful period.

LUNATIONS.—New Moon, 22nd day, 8 h. 3 m. afternoon. First quarter, 29th day, 0 h. 38 m. afternoon.

Oct. 1 and 2. Wet, fog; then dry. 3. Attempt at rain. 4. Fine change at hand. 5 and 6. Showers. 7, 8, 9, and 10. Again dry. 11. A shower; high temperature, above average to this day; this

now declined rapidly. 12. Rime on the grass. 13. Dense wet haze; clearing. 14. Attempt at drizzle. 15. Much rain in the night. 16. Overcast. 17. Some rain. 18. Very chilly; some rain. 19. Changeable; curious cloudy masses. 20. Showery. 21. Fine; temperature of the week 4 deg. below the average.

LUNATIONS.—Full Moon, 6th day, 7 h. 36 m. morning. Last quarter, 14th day, 1 h. 41 m. morning. New Moon, 21st day, 9 h. 21 m. afternoon.

REMARKS CONNECTED WITH AGRICULTURE.—Until the showers at length came on, the ground was very and deeply dry, the grass parching, and the roots and cabbages at a stand-still. But the rains, though far from copious, have produced much good, not only to vegetation, but also by bringing the land into capital mellowness for the plough and seeding. It cannot be admitted that the fodder crops—here, at least—have suffered much. To me they appear very fine indeed.

Croydon, Oct. 21.

J. TOWERS.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR OCTOBER.

Harvest work having been brought to a general and we may add most successful close, out-door farm labours, such as ploughing and sowing, have continued to engross the farmer's attention; the more so from the all-important fact that a considerable rise has taken place in the value of wheat and all spring corn, and that we have had a very fine season for most operations. In some quarters, the want of moisture has been complained of; but we believe that the land has worked well; and we may safely conclude that there has been no serious interruption to the progress of the plough. The present high value of grain has induced most of the growers to lay down additional land for wheat this season; and from all the information we can gain on this head, we are of opinion that even more wheat will be sown this year than last, in the event of the weather continuing fine for that purpose. At the present moment, this is a point of great importance; because it is evident that we shall for some considerable period have to contend with extremely high figures, arising from the continuance of the Russian war and the falling off in the yield of grain this year in the United States. Doubtless, our chief dependence must be upon ourselves for a supply of food, although great efforts will be made by speculators to increase the importations. The consuming classes have, we perceive, been loud in their complaints respecting the price of bread, and condemned the farmers for not supplying the markets more liberally. Now the fact is, the sales of English wheats exceed 150,000 quarters per week—an enormous quantity; consequently, there is no withholding grain from market. The flail and thrashing machines are going almost day and night to meet the demand; and yet *consumption has exceeded the supply*. Further, there is now little or no competition between the home and foreign producers; in other words, the arrivals from abroad are on too small a scale to have any depressing influence upon the quotations; there is scarcely any old English wheat to be met with; but fortunately, we have an abundant stock of new, of the finest quality, which is being rapidly worked up to meet consumption. Whether prices have not taken too wide a range, it is not for us to determine; but we may safely venture

to say, that anything approaching a lower range of value cannot be anticipated. The yield of barley is turning out well; but, as yet, only a moderate quantity has been thrashed out. Oats are a good crop; but that of beans and peas is small.

From Ireland and Scotland, our accounts respecting the yield of wheat and spring corn are favourable; yet prices have had a sudden and somewhat expected rise. We understand that the surplus produce for shipment to this country is the largest on record. This circumstance will, no doubt, exercise some influence upon the quotations in England.

We have now to touch upon another important feature, viz., the potato crop. For some time, we have doubted the authenticity of many of the reports on this important subject; and although many of our correspondents differ as to the extent of the growth and the ravages of the disease, we may now safely conclude that a very large quantity has been grown, and that too of very fine quality. Instances are of course to be met with, in which heavy losses have been sustained; but we contend that they are very few in number, consequently will have very little effect upon the aggregate growth of the United Kingdom. To show that farmers have large quantities on hand, we may observe that immense supplies continue to be received almost daily in the metropolis, and that the best Regents are worth only 9s. per ton. In October, last year, they were selling at £9 per ton.

The markets for the sale of live-stock have been brisk, and the quotations have ruled high, owing to the small quantity of meat yielded by the various breeds of beasts, and the falling off in the importations from abroad. Hay and straw have ruled dull, and prices have not been supported. The large quantities of grain thrashed out have been productive of increased supplies of straw, which have sold as low as from 24s. to 30s. per load. The old duty on hops has been declared at very little over £47,000. The trade has, consequently, been brisk, and very high prices have been paid for new hops; but the immense arrivals of hops from the continent (about 6,000 bales), and the present low duty upon them (20s. per cwt.), have produced dulness in the trade, with the prospect of heavy importations during the winter. The present profits to the foreign growers must be enormous.

REVIEW OF THE CATTLE TRADE
DURING THE PAST MONTH.

The supplies of beasts on sale in most of the large consuming markets held during the month have been again large in number, but their general quality has been very inferior. The consequence has been that prime animals have sold briskly on higher terms, whilst the value of other breeds has had an upward tendency. From all parts of the country our accounts agree in stating that really good beasts continue extremely scarce, owing, it is supposed, to the comparative scarcity of grass during the summer months, and the small quantity of good hay secured in 1853; indeed, it appears to be a matter of extreme difficulty to fatten animals up to anything like their usual weight. These features in the trade, combined with the immense consumption going on, have tended to enhance prices; and it is tolerably obvious that any fall in them cannot be anticipated. Some months since, we intimated that beef would continue to improve in value, and the result of the trade so far has fully justified our observations. A Government contract for a large number of beasts per week, weighing 90 stones and upwards, has been taken at prices which have not transpired. We learn that the contractors have met with great difficulties in obtaining the number required, and that the speculation is likely to prove a heavy loss. As yet, about 400 beasts have been purchased in Smithfield at relatively high rates.

Although the turnip and carrot crops have not proved large, there is a fair average supply of food now on hand for winter use; hence, it is possible that we may see the stock improve in condition. There is one change in the system of feeding which we have frequently recommended, and which we yet hope to see carried out, viz., the withholding a certain portion of stock from market until it shall have become riper and more fitted for butchers' purposes. We are quite aware that some animals will never fatten advantageously; yet it is quite clear that the wholesale slaughtering of half-fat stock, when there is a fair chance of materially increasing its weight, must eventually be productive of serious inconvenience to graziers in general. Admitting that present prices are very tempting, and that there is a great amount of speculation going on, the system that we here recommend would considerably enhance the present value of food.

The health of the stock, both beasts and sheep, has been good; and we learn that the large fairs and trysts have proved most remunerative to the breeders. The imports from abroad, as we predicted would be the case some months since, have been considerably less than in the corresponding month, as will be seen by the following returns:—

IMPORTS OF FOREIGN STOCK INTO LONDON.

	Head.
Beasts	6,894
Sheep	16,328
Lambs	40
Calves	1,009
Pigs	1,063

IMPORTS AT CORRESPONDING PERIODS.

Oct.	Beasts.	Sheep.	Calves.	Pigs.
1853	8,190 ..	30,643 ..	1,797 ..	1,585
1852	7,792 ..	26,672 ..	1,350 ..	1,624
1851	5,239 ..	18,688 ..	1,496 ..	1,912
1850	5,929 ..	20,982 ..	1,312 ..	1,702
1849	5,008 ..	16,190 ..	565 ..	243
1848	2,962 ..	10,669 ..	803 ..	116
1847	5,433 ..	17,635 ..	1,225 ..	433

The total number of stock, English and foreign, shown in Smithfield have been:—

	Head.
Beasts	26,456
Cows	510
Sheep	146,048
Calves	1,900
Pigs	3,620

COMPARISON OF SUPPLIES.

	Oct. 1850.	Oct. 1851.	Oct. 1852.	Oct. 1853.
Beasts ..	23,116 ..	22,092 ..	26,134 ..	27,327
Cows ..	440 ..	450 ..	525 ..	545
Sheep ..	138,110 ..	119,050 ..	132,430 ..	145,400
Calves ..	2,130 ..	1,999 ..	2,556 ..	2,517
Pigs ..	3,615 ..	3,470 ..	2,770 ..	3,112

The arrivals of beasts from the northern grazing districts have amounted to 9,900 short-horns; from other parts of England 4,000 of various breeds; and from Scotland 74 Scots. This is the smallest supply from Scotland we almost ever recollect. Beef has sold at from 3s. 2d. to 5s.; mutton, 3s. 2d. to 5s.; veal, 3s. to 4s. 8d.; and pork, 3s. 4d. to 5s. per 8lbs. to sink the offals.

COMPARISON OF SUPPLIES.

	Oct., 1850.				Oct., 1851.		
	s.	d.	s. d.		s.	d.	s. d.
Beef ..from	2	4	to 3 10	....	2	6	to 3 8
Mutton	2	13	4 0	....	2	10	4 2
Veal	2	6	3 8	....	2	8	3 10
Pork	3	0	4 2	....	2	10	3 10
	Oct., 1852.				Oct., 1853.		
	s.	d.	s. d.		s.	d.	s. d.
Beef ..from	2	0	3 10	....	2	6	4 4
Mutton	3	0	4 6	....	2	8	5 0
Veal	2	6	4 0	....	3	6	4 10
Pork	2	10	3 10	....	3	6	4 10

Very extensive supplies of country-killed meat have been on sale in Newgate and Leadenhall, mostly in poor condition. About an average business has been done as follows:—Beef from 3s. to 4s. 6d.; mutton, 3s. 2d. to 4s. 6d.; veal, 2s. 10d. to 4s. 4d.; pork, 3s. 4d. to 5s. 2d. per 8lbs. by the carcass.

LEICESTERSHIRE.

The long drought has had considerable influence on agricultural operations. The beautiful weather in August and September enabled the farmer to secure in a short time and in first-rate condition one of the most productive harvests on record; but rain not falling till the middle of the present month prevented the strong land from being worked, for want of moisture. On all those soils which could be stirred, this long absence of rain was favourable for working them; and the cleansing of stubble ground and that from which root crops have been removed has never been carried on to a greater extent, or with more satisfactory results, than in the present autumn. These soils are in fine condition for receiving the seed, though, on some, wheat-sowing has been delayed on account of their hard and dry state; and we seldom remembered, in the middle of October, less wheat being actually sown; but a large breadth of land lay ready to receive the seed whenever rain came to make it work kindly. About the 15th instant showers became frequent, and have fallen rather heavily since, at intervals. Advantage has been taken of this change in a large degree, and on a great extent of ground the seed is now deposited on a fine bed, and under the most favourable circumstances; still, more rain is required to make it germinate freely, and for breaking up the land under clover ley, and much work of this kind remains to be done. The extended fine weather has been fortunate for taking up all root crops, and the great bulk of potatoes, carrots, and, though less of mangold than of these kinds, a considerable portion of this useful root is safely housed; and from its sensitive nature as regards frost, it will be well for those who have it yet abroad to secure it as soon as possible. We are happy to be able to state, as regards that important root, the potato, the produce is larger than for many past years, the quality excellent, and only a small portion affected by the disease which has prevailed so fatally for many past seasons. Though this fine dry weather has been favourable in the instances before mentioned, there are drawbacks which it has entailed upon the husbandman which we cannot overlook, but they apply more to the grazing department of the farmer's occupation. From the small quantity of rain which has fallen in the present year (not more than half an average in this locality), vegetation was severely checked during the summer; consequently, all grass land has not yielded so large an amount of food for stock as in moister seasons. The cut of both natural and artificial grasses for fodder cannot be estimated at more than one-half the produce of ordinary years; and the grazing pastures have been so scanty of food, that stock has with difficulty obtained enough to keep them in moderate condition. We cannot say that they have done so bad as might have been expected; still, they are considerably below the mark for facing the winter, where alone dependent upon their natural food. Unless the winter should prove of a mild character, we fear great losses in stock are to be apprehended, without great care be taken of them. From this scarcity of grass, all milking beasts have yielded less produce to the dairy by about one-third than in abundant seasons; and the better kind of feeding stock, even on the best grazing land, have not made that progress as to fit them for the butcher by the usual time without the appliance of extraneous food, which being expensive, the grazier will not realize much profit, though meat has fetched a high price. The dry weather has told with bad effect upon green vegetable crops—turnips in particular. They are withered for want of moisture; and swedes have greatly suffered from mildew, which causes the bulbs to be small and of inferior quality. We are glad to observe that they appear refreshed by the late showers, and

are making some progress; but they have received such a check, that they cannot recover sufficiently to yield an average quantity, and they will lack their ordinary nutriment. The rapid and great rise in the value of wheat appears to have taken all parties by surprise; neither the producers, the consumers, the millers, nor the merchants, were prepared for such an event. Nothing having occurred to shake the general opinion of the last harvest being a productive one, especially as regards wheat, this advance appears the more remarkable. The fact appears to us that we are now feeling the effects of the deficient harvest of 1853; and there is little doubt that such deficiency was greatly underrated, and that it was more general in foreign countries than we conceived it to be. In the face of a large crop of wheat and excellent weather to get it in, all parties engaged in the corn trade only bought from hand to mouth, and their stocks were reduced to the lowest possible pitch, and the small quantity of old corn in the hands of the farmers caused the new to be brought into use as soon as harvested. This, combined with the large quantity of wheat required immediately for seed, caused the demand to exceed the supply; consequently, the producers asked higher rates, and the consumers were obliged to accede to their demand, for they must have the article. It was soon evident that foreign supplies came in very scantily, and the principal reliance rested upon our own produce; also the price in other corn-supplying countries rose above our markets, and exportation commenced to some extent. This opened the eyes of dealers, and probably speculators; and they rushed into the market and bought extensively; so that the markets are in an excited state, which, by the bye, is never a healthy one. Now comes the question: what will be the price in future? One thing is certain, that corn will not be sold at a lower price in the English than in the foreign market; and it appears that for some time to come, our scale of prices will be regulated by those in other countries, and *theirs* will not be ruled by *ours* as heretofore; for so long as exportation continues, continental prices will fix those of this country. It will be a curious revulsion of feeling, if we have shortly the free-traders clamouring for a law to prohibit the exportation of corn from this to foreign nations. We certainly do not apprehend that this state of things will long continue, for wheat at 80s. per qr. is a price which, we think, other countries cannot sustain; and, if there be corn to spare abroad, will attract it to our own shores. It remains to be seen if our producers will be free sellers at such a price, and we apprehend they will, for there cannot be any scarcity in this country, and should it be found there are supplies (if not to a very great extent) from others, a reaction will certainly occur as soon as there is time to transport it hither. We, therefore, imagine it is much wiser and safer for the English farmer to secure a good price for his grain than to speculate upon higher rates. The advance in the price of wheat, since the middle of September, may be quoted at 25s. per qr., and the best in our markets has made 80s., but it oscillates between 74s. and 80s.; barley, 35s.; oats, 34s.; beans, 58s. for the best qualities. The price of fat meat continues without much variation; what it loses one week it gains another: both beef and mutton average 6d. per lb., and the prime qualities of each 6½d. Cheese has made a high price at our fairs, ranging from 65s. to 78s. per cwt., according to quality. The wool trade has been quiet and steady; farmers' lots are worth from 28s. to 30s. per tod. Our labourers are well employed at 12s. per week for good hands.—Oct. 27.

SOMERSETSHIRE.

As there is little in the growing crops to report, further than that the rain we have just had will nicely enable us to put

in the winter beans and early wheats, and bring up the vetches, we may proceed to what is uppermost, viz., the rapid advance in the price of wheat. That our yield of wheat is better than last year's as regards the white, and far exceeding with respect to the red wheat, and so of others much greater than last year, may be fairly conceded. As to the large yield of our red samples, many instances have come to the writer's knowledge of the produce per acre exceeding the grower's estimate per acre, and no instance of the reverse. On the face of this there did not appear any likelihood of prices being otherwise than moderate, and it was never our opinion our harvest would have any other effect than preventing corn from getting very high, but decidedly not make it cheap. The effect of fine and wet weather has more influence at Mark Lane than it ought to have during harvest in depressing or raising prices. This year the impression conveyed at that time to the public was considered erroneous, and calculated not only to disappoint, but really, before the end of the year, to send up prices higher than they otherwise would be. There is no doubt that if wheat had not come under 8s. per bush, we should now have better supplies and a larger reserve. To us it was evident that, with our exhausted stocks of old corn, our deliveries of new would not keep pace with the consumption, and that prices under 8s. would not bring the needful supply from abroad. It is now evident that the deficiencies of the harvest of 1853 will be more felt than it hitherto has been. It is very difficult to estimate future prices, but there are circumstances which for the next month is likely to lessen the deliveries of our home-growth; still such sudden advances often cause reaction, unless there be good grounds for the advance. Our red wheat, three weeks since, was rather freely purchased at 7s. 6d., this week 9s. 3d. to 9s. 6d. will scarcely buy it; 10s. has been given for the best white. The red weighs from 61 to 63 lbs. per bush.; nurseries, 64 to 65 lbs.; white, 62 to 64 lbs.; not much of the latter weight. Potatoes are good, realizing from 10s. to 12s. per 240 lbs. At the present price of wheat our best barley will be used for human food: it has advanced from 3s. 4d. to 4s. 3d. and 4s. 6d.; winter beans began at 5s. this week, and in a few instances reached 6s., weighing 66 to 70 lbs. per bush.: a good many have been threshed. Vetches have been very scarce; they began at 8s., went up to 13s., and not enough for the demand; winter oats have been put in instead. 23s. to 26s. is the price of oats; but few threshed. There are some good crops of mangel; but on the whole it is a light one. Swedes are still more deficient; and turnips will afford very little keep before winter—some have been already consumed. Winter fodder has been drawn upon earlier than usual, and our store of grass is less than for many years. Sheep have improved in value lately; poor stock depressed. Middling beef has been rather plentiful and dull, but the prime has maintained its value; and it is not likely we shall have it cheaper before the end of the year, and probably not then. There is a better stand of fat sheep, but we cannot reckon on our supply. Poor pigs are cheap; they will not pay for eating corn, and roots are too scarce to feed much with. The making of cheese has fallen off, and late prices are about maintained. Butter is worth from 11d. to 1s. 4d. per lb.—Oct. 27.

IPSWICH.

We have now the pleasure to submit to you our opinion of the harvest of this district. The weather, subsequently to the 10th of August, was uninterruptedly fine, and our grain crops with the exception of a few early pieces too hastily carried, have all been secured in excellent condition. The bulk of straw, on every description of soil, of both wheat and barley, and es-

pecially the latter, far exceeds anything we ever remember; and although the yield is not in every instance proportionate thereto, there can be no question that the produce of both crops, as a whole, considerably exceeds an average. Wheat occupied probably about as much above as last year was below the average breadth. Assuming this excess at $7\frac{1}{2}$ per cent., the deficiency last season at one-fourth, and the yield of the present crop at 6 bush. per acre above an average, we arrive at the conclusion that the wheat crop this season will give a total produce of about double that of last; in addition to which, it must be remarked that the weight of the grain exceeds that of last year by nearly 2 lbs. per bushel. To what extent this fact may affect our requirements of foreign supplies, having no statistics of the quantity of land under cultivation in the United Kingdom, we have no means of approximately determining. The grain is somewhat irregular in the berry, but bright and mellow and of good meal quality, best runs weighing from 61 to 62 lbs. per bushel, with occasional samples 1 to 2 lbs. heavier. The quality of barley is decidedly superior for malting purposes to the growth of last season, being perfectly sound, sweet, and mellow, but generally rather small in body, and owing to the great bulk of straw a considerable proportion is somewhat coarse and thin—weight from 52 to 54 lbs. per bushel. Beans vary greatly in produce. In some cases the yield is large, in others deficient, the quality and condition very good, and weighing from 64 to 66 lbs. per bushel. Peas are considered a good crop, but not many have yet appeared at market. The stock of old wheat in farmers' hands at harvest was undoubtedly much less than usual, and we have had a free delivery of new; but the demand, owing to the exhausted stocks in millers' hands, has thus far exceeded the supply.—Oct. 24.

CALENDAR OF AGRICULTURE.

All crops being now secured, the attention of the farmer is directed to the manufacture and disposal of these crops, and to the preparation required for those of the ensuing year. Thrash regularly once or twice a-week, which will afford fresh provender for the cattle, and for being cut into chaff. Sell and deliver all grain as thrashed—keeping of grain is seldom profitable in the end. Lay in a granary a quantity of oats for horses' feed, not very long thrashed, as the grain soon contracts a musty smell. Finish the sowing of wheat, if any remains undone from last month. Continue draining on grass lands; on fallow lands the approach will be forbidden, but the drain may be dug to half depth or more.

Attend to feeding cattle in the yards, and sheep in the fields; litter the yards frequently and thinly; remove the sheep from wet to dry lands, and feed amply.

Feed pigs with steamed and raw food, as before directed. Be very kind to young horses; allow a yard and shed to two or three together, and mixed food steamed, as potatoes, grains, and bran. The first winter's treatment has very great effect on the future growth of all young animals. Carrots, raw or steamed, are good feed for horses. The calves of this year also require a kind attention; a dry and

warm bed, ample and regular foddering, and an ample supply of fresh water.

Lay dung and composts on grass lands, and flood water meadows.

Begin to cut underwoods and forest trees; plant every kind of arborescent plants; make new hedges, and repair old ones; repair roads, scour ditches, and gather dung of every kind.

In fine weather fallow the lands for next year's green crops; plough stubbles, and follow with the subsoil plough. Raise turnips for the store pits at the homestead: lay the roots in a longitudinal heap, thatch with straw, and tie down with ropes. Have at least two weeks' supply in store. Give the tops and small roots to the store flocks, as calves in the yards, and ewes in the fields.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

BANBURY FAIR was but thinly attended. Beef and mutton sold for rather higher prices than last fair-day, although many of the animals were of inferior quality. Fat mutton brought 4s. to 4s. 6d. per stone. In store sheep there was little doing, and dealers still complain of a difficulty to sell. There were several droves of Welsh ponies in the market, which were rather dull of sale.

BLYTH FAIR.—The exhibition of sheep was good and in excellent condition; but lower prices were submitted to, realizing 7s. 6d. per stone. The display of beasts was large, particularly drapes; business tolerable, making 7s. 6d. per stone. Pigs were plentiful and of good quality, and those which changed hands fetched higher prices. The horse show was inferior.

CARLISLE FAIR.—The show on the whole was an extensive one, and the quality, with the exception of horses, very good. For Cheviot ewes the advance obtained at Falkirk was fully established, prices ranging from 21s. to 25s. Cheviot lambs and half-breds, or mid-lambs, were a pretty good show, the Cheviots bringing from 10s. to 12s., and the half-breds from 14s. to 19s. Shorthorns, Galloway, and Highland cattle were also a numerous show. The demand for shorthorn bullocks and heifers was very animated; prices realized high, and the market cleared of the best lots at an early hour. For Galloways and Highlanders the demand was also good. Galloway stirks, which at the September market were a slow sale, recovered from the former depression, and sold comparatively well. The same remark applies to the two-year-olds. A few lots of Highlanders, of the best quality, were sold at a remarkably high figure. The show in the horse market was a spirited one, there being a large number, but few of first-rate quality. Good horses, in fact, have not been known to be so scarce and dear during the last forty years. The best were bought up before entering the market, and realized very high sums. Moderate horses brought fair prices, and the "leatherplaters," of which there was an unusually large number, sold as well as could be expected.

DEVIZES FAIR.—There was a fair average supply of stock. Of horned cattle there was about the usual number, but not much fat beef, the price of which was from 10s. to 10s. 6d. a score. The supply of sheep was large, of which, however, the best, which were rather scarce, met a dull sale from want of buyers. On the whole the trade was dull, prices being lower than at Weyhill, though a trifle higher than at Yaroboro' Castle.

DORCHESTER FAIR, notwithstanding the very unfavourable state of the weather, was well supplied with stock, and there was a tolerably good attendance of dealers. For stock of high quality there was a good demand, and an advance in price was realized; but for the ordinary and inferior descriptions business was dull, at about recent quotations. We may

report fat beef at from 10s. to 11s. per score, a few very superior beasts obtaining something more. Fat wether mutton from 6½d. to 7½d. per lb. Some ewes in lamb, of very good quality, fetched as much as 33s. to 34s. per head. Among the extraordinary sheep presented, we must not omit to notice a splendid pen of 4-tooth Down wethers, from the flock of Mr. Thomas Saunders, of Watercombe, valued at £3 per head, and for which 57s. per head was refused, as was 46s. a head for his lot of prime Down ewes. Also a pen of 100 Down wethers, of rare quality, from the flock of Mr. Joseph Saunders, of Muston Farm: price 53s. per head. These pens were greatly admired. In wool a decline.

EARLSTOUN FAIR.—The supply of cattle rather exceeded that of last year, the number being 900. There was a large attendance of buyers, and sales were readily effected for cattle in forward condition, and prices supported the advance in recent markets. For inferior descriptions of cattle the demand was not so good. Two-year-old cattle for turnips brought from £12 to £18; one-year-olds sold at from £8 to £11 10s. There was rather a small show of milch cows, and those fit for the Edinburgh market were in request, and brought good prices. The horse market was thinly supplied, but there were several colts and fillies for draught, the best sorts of which were selling at from £28 to £35, and one or two as high as £40.

GAINSBRO' FAIR.—We had a good show of stock, with plenty of buyers. Strong fresh steers were readily sold at from £12 to £13 10s. each. Prime heifers were in demand at equally high rates. In-calvers were in request. Sheep had heavy sale. One lot of lambs realized 28s. 6d., and another 25s. Fat sold at 6d. per lb.

ISLES FAIR.—The supply of sheep was not very large. There was a fair attendance of dealers. The demand was tolerably good, and nearly the whole were sold at 1s. per head higher than the last fair.

MELTON AUTUMN NEW FAIR.—There was a large show of all kinds of beasts, which sold well at good prices. There were a great number of buyers from Norfolk and other parts. Of sheep there was not so large a show as for the last two or three weeks, still a good trade was done in them. Pigs a large market, but owing to the scarcity of keep not many buyers. Horses a very scanty show, and of an inferior class.

MUIR OF ORD MARKET.—There was a large attendance of farmers and dealers from all parts of the country. The day was dry and favourable, but from the recent rains the stock did not look to advantage. The show of crosses was very small—smaller, indeed, than at any October market for many years. All the good lots were picked up early in the day at remarkably high prices. The sellers seemed to get whatever they asked, there being about a dozen purchasers for every lot exhibited. There was a large show of inferior Highlanders, and also some good lots, which sold readily at high prices. Buyers were most anxious to purchase, and although numbers left the market without the cattle they wanted, any lot that was at all likely to suit was taken at a high figure. There was a good show of sheep upon the stance, but less business was done in them than in cattle, sellers holding out for a larger advance than buyers seemed inclined to give. Some good lots, however, changed hands, and it was expected that few would leave the stance unsold. On the whole, the market may be characterised as a capital one for sellers.

NEWCASTLE OCTOBER FAIR.—On the whole there was a very bad show of horses, and buyers were far from numerous. The demand for army-horses was good, and a large number found purchasers. The principal inquiry was, however, for strong useful cart-horses, which brought almost any price that could, in reason, be asked for them. On Wednesday the show upon the Cow Hill was large, but as usual, on the fair-day, the greater number was of the most worthless description. Good cart-horses, as on the previous days, were quickly bought up. Four and five-year-old animals of this description brought from £30 to £40, and about half a dozen realised the high price of £55. There was a plentiful supply of young carriage-horses, but the demand was poor, and those which found purchasers did so at from £20 to £35. Horses fit for work brought from £50 to £60. This is generally considered the principal fair of the year for the sale of "long-tails," but this year the show was as small as the prices for young cart-horses were high. Two and a half year old strong cart-horses sold at from 28 to 30 guineas each, and a few even exceeded this large price. A lighter description of animal might be had for from £18 to £25. On Wednesday there was

a large show of cattle on the Cow Hill, and very high prices were asked. It ultimately became evident that the jobbers had bought in their stock at higher rates than they were able to realise; a great number was consequently left unsold, the jobbers being unwilling to submit to a reduction, and such as did sell out must have been losers by the transaction. Two and a half and three-year-old bullocks (fit for turnips) brought from £15 to £18 each; and heifers from £10 to £15. Year and a half and approaching two-year-olds, if in pretty good condition, were readily sold at from £9 to £9 10s., being a slight reduction in the prices asked in the early part of the day. Young stirks fetched from £6 to £7 each. There was a large show of kyles, but the principal portion of the heifers shown were about two years old, and consequently unsuitable for buying in to feed off next summer. There were only three or four lots fit for this purpose, but they did not show good blood—the prices asked for them was from £7 10s. to £8 5s. There was a splendid show of kyle bullocks. Three-year-olds were sold at about £8 8s., and some of them brought as much as £12. The Irish stock was large in quantity, and, in general, good in quality, but did not appear to be in great favour. They could be bought at about £4 10s. each. For bacon pigs there was not a very large show—prices 6s. 9d. to 7s. per stone. The show of sheep was less than usual, and they realised nearly the same money as the previous fair, but were from 5s. to 6s. a head lower than at the corresponding fair of last year.

RUGBY FAIR.—There was a very large supply of stock, and the prices realized were satisfactory to buyers and sellers. There was an advance of $\frac{1}{2}$ d. per lb. from the previous fair both in beef and mutton, and a good clearance was effected as under:—Beef $5\frac{1}{2}$ d. to $6\frac{1}{2}$ d., mutton 6d. to 7d. per lb. Store heast brought an advance from last fair, as also did store lambs. Cart foals also brought a remunerative profit, if we may judge from one sold by a Rugby farmer, which made 20l., being 19 weeks old.

SLEAFORD FAIR.—We had a large supply of store heasts and sheep; the former sold readily at very high prices, but sheep were difficult to get rid of, except at a very low figure. Fat beef was scarce, and the price must be quoted at 8s. per stone.

STURMINSTER NEWTON FAIR was tolerably well attended. Of fat stock there was a good supply, which met with a ready sale; but the lean stock did not sell well. There was a large supply of fat sheep, which met with a quick sale, but the sale of stock sheep was dull.

YARM GREAT OCTOBER FAIR.—The new horse fair was well attended by London and local dealers. Good horses were rather scarce; coach, field, and good roadsters met with ready sale; cart horses were in request, many having been sold. There was a smaller show of cattle than during the past years. Shorthorns, fat steers, calving cows, heifers, and grazing cattle were soon sold at high prices. Beef, 7s. to 7s. 6d. per stone. A good supply of rams, of superior quality; an excellent show of fat sheep and shearlings, which were readily sold at 6d. per lb.

IRISH FAIRS.—**GREAT MUNSTER.**—This annual fair, recently established, was held on Thursday and Friday last, in Limerick. The horse and pig fair was held on the previous day. For swine, which were in large supply, there was a very active demand at extremely high prices. The horse fair was not so good as might have been expected. The show was said, by those who came a distance to purchase, to be indifferent, and the quality to be such as not to afford encouragement to buyers. There were no English buyers whatever. "The cattle and sheep fair yesterday," says the *Limerick Reporter*, "was supplied with an enormous quantity of stock—the show was immense; the quality, generally speaking, in prime condition; the demand exceedingly brisk, particularly for fat cattle. The inquiry for sheep was limited to a very partial extent, notwithstanding the large supply; and for cattle not fat there was no particular inquiry."

SALE OF SHORTHORNS IN IRELAND.—The sale of the herd of shorthorned cattle, the property of Mr. Topham, took place at Dowestown, near Navan, Co. Meath, on Thursday, Sept. 28th, under the most favourable circumstances; the day was extremely fine, and the attendance of a numerous and highly respectable company of noblemen and gentlemen must

have been very gratifying to Mr. Topham, in this, his *new home*. Amongst the company we observed, Lord Dunsane, Lord Mayo, Lord Naas, Hon. L. H. K. Harman, Sir Percy Nugent, Col. Taylor; R. Archbold, J. O. G. Pollock, Thos. Lee Norman, Thos. Barnes, R. Chaloner, R. Maxwell, J. P. Tynte, R. Fetherston, H. S. Mc Clintock, R. Holmes, R. Reynell, J. Farrell, sen., J. Farrell, jun., T. Ball, W. Garnett, Esqs.; Messrs. J. Christy, Cooper, Keating, Coddington, Wade, Ratcliffe, Connolly, Murphy, Lambert, &c., &c. The agents of Lord Dufferin, Col. Verner, Hugh Anderson, Esq., Wm. Carr, Esq., H. J. Spearman, Esq., most of whom were purchasers. After having partaken of luncheon, the company adjourned to the sale, which was conducted by Mr. Trafford, of London, who remarked that he had had the pleasure of knowing Mr. Topham for upwards of 20 years, having previously to that time met him at his father's house—a gentleman, he might add, who stood high in the county of Lincoln as a distinguished breeder of stock, and from which county the present herd were recently imported to Ireland; and he (Mr. S.) urged upon the breeders of the sister isle the desirability of paying great attention to the improvement of the various breeds of neat stock, feeling satisfied that they had every inducement to do so, and that, with proper care, they must shine in so doing, noticing the fact of some very good judges from the western states of America having been purchasers of several fine animals* from amongst them last spring. For some of the lots the competition was brisk. The highest-priced cow, Lady Spencer 1st, sold for 105 guineas, to Mr. Anderson, in the county of Antrim; others fetching 52, 46, 45, 43, 40 gs. each. Some young heifers under one year old sold for 63, 50, to 40 gs. each; and for some of the young bulls there was great competition, the total amount of the sale being close upon £2,000.—*From a Correspondent.*

* Since the above remarks were made by Mr. Trafford, we may add that we have learned that one of the animals alluded to—a bull called "New Year's Day," bred by Thos. Lee Norman, Esq., of Corbally Ardee, and mentioned in our report of a shipment in May last, from Liverpool, as having been purchased by Dr. Watts and Mr. Waddle—has recently been sold, at their sale in Ohio, for the highest price of any of the exportation, viz., 3,500 dollars, or 700 gs. of our money—a fact highly complimentary to this most respectable breeder, who has for a long time persevered in the introduction of good stock into Ireland.

SALE OF SHORTHORNS AT WILLESDEN, MIDDLESEX.—On Thursday, Oct. 12, the sale of some choice purebred shorthorned cattle, the property of Wm. Dickinson, Esq., took place at Willesden, under the superintendence of Mr. Trafford, of Euston Square, and was conducted by him with his usual ability. The cattle offered were a portion of a fine lot of animals of this justly fashionable breed, selected by Mr. Dickinson from some noted herds, with the intention of stocking a farm in the New Forest, Hants, which he finds better adapted for sheep; and although many of the cows and heifers were in low condition, their character as to pedigree and other merits seemed to be duly appreciated by several highly respectable breeders who attended the sale, many of them from great distances, as may be inferred when we mention that some of the lots were purchased to go into Ireland, and others were bought by gentlemen residing in the counties of Bedford, Berks, Gloucestershire, Hampshire, Hertford, Huntingdonshire, Kent, Lancashire, Middlesex, Northampton, Sussex, Warwick, Worcester, Wilts, and Yorkshire. The following are amongst the sums realized:—Jilt 60 gs., her calf 19 gs.; Marion 50 gs., her calf 28 gs.; Moss Rose, 50 gs.; Cathleen 45 gs., her calf 28 gs.; Amity, 44 gs.; Lucy 44 gs., her calf 15 gs.; Harriet, 40 gs.; Trickstress, 40 gs.; Borrowby Lass 39 gs., her calf 20 gs.; Rarity, 38 gs.; Splendour 35 gs., her calf 36 gs. A yearling heifer, Coquette (from Jilt), sold for 50 gs.; another, Vixen (from Victress), 48 gs.; the remainder fetching good prices. The result of the sale seemed highly satisfactory to the vendor, who expressed his gratification for the support given.—*From a Correspondent.*

LINKENHOIT MANOR FARM, HANTS.—The sale by auction of the Messrs. Osmond's highly noted flock of Hampshire Downs took place on the above farm, on Friday, Oct. 13, when there was a large assembly of the principal flockmasters of Wilts, Hants, and Berks, who after partaking of an excellent luncheon, under the efficient presidency of Wm. Canning, Esq., of Chiseldon, Wilts, proceeded to the sale ground, and although the weather was very unfavourable, Mr.

Frederick Ellen, of Andover, the auctioneer, was favoured with spirited biddings, as will be seen from the following prices, and every lot was disposed of:—One score of full-mouthed ewes realized 3*l.* 11*s.* 6*d.* per head, and another lot 2*l.* 14*s.*, both of which were purchased by Robert Long, Esq., of Overton, Wilts; a score of six-tooth ewes, bought by John Moore, Esq., of Littlecot, Wilts, fetched 3*l.* 1*s.* per head; the highest price realized for four-tooth ewes was 3*l.* 4*s.* per head, which lot was bought by Pearce Brown, Esq., Burderop,

Wilts; two lots of two-tooth ewes, realizing 2*l.* 6*s.* per head, were bought by Henry Puckridge, Esq., Winterbourne. The ewe lambs were very much admired; one score selling as high as 3*l.*, and another 2*l.* 3*s.* per head, both lots were purchased by James Parker, Esq., Lasham, Alton, Hants. Other lots fetched good prices, which were purchased by J. and S. Wentworth, J. Vaisey, F. Budd, L. Lywood, S. Smith, W. Child, H. Browne, J. Ford, — Osborne, and — Carpenter, Esqrs., and others.

REVIEW OF THE CORN TRADE DURING THE MONTH OF OCTOBER.

A most extraordinary and unlooked-for change has taken place in the position of the grain trade since our last; individuals may no doubt be met with, who pretend that they foresaw what has occurred; but we candidly confess that we were not prepared for so great a rise as that established in the value of all kinds of agricultural produce since harvest.

In speaking of the probable future range of prices of wheat two months ago, we gave it as our opinion that good qualities would rule between 50*s.* and 60*s.* per qr.; and again, referring to the subject at the close of September, we said, "Quotations have, since our last, been below and above the point fixed; but we still think, when matters shall have become more settled, that will be about the average." The result has proved that we, like others, had not made sufficient allowance for the effect of the complete exhaustion of old stocks in almost all parts of the world.

The enormous deficiency in the produce of 1853 caused a complete clearing out of the reserves of former years; and at the time the crops of the year became ready to be gathered, there was perhaps less old corn remaining in Europe than at any former period for years past. This was, however, in a great measure disregarded; the promise of abundance held out by the appearance of the fields distracted attention from the empty granaries, and opinion was almost unanimous as to a year of plenty and low prices. With regard to the estimate of the harvest, there is no reason to believe that any great error has been made as far as Great Britain is concerned; in fact, all that we have heard and seen convinces us that, taking one kind of food with the other, the produce is greatly in excess of good average seasons. Whether this, however, is the case in France and some of the other continental countries, may be questioned; certain it is, that France and Belgium have thus far been unable to obtain sufficient supplies from their own growers to provide for their consump-

tion; and England, as the nearest point where assistance could be obtained, has been called upon to furnish aid. The total quantity of wheat taken by buyers from France and Belgium has been rather considerable, which, with a large home demand, has caused all that the granaries have brought forward to be quickly taken off at rising prices.

The foreign demand has no doubt assisted the upward movement. This was an element which, in our estimate of the future, we did not foresee, as the accounts from France led us to expect that that country would be in a position to export, rather than that she would be compelled to come to England for supplies. This, however, was not the only circumstance calculated to mislead. The advices from America, up to the time of harvest, spoke in the highest terms of the crops there; but just previous to the time at which the Indian corn should have attained maturity, the United States suffered from severe drought, and that crop (almost equal in importance to wheat) sustained great damage, the consequence of which was so important a rise in the value of all kinds of breadstuff, on the other side of the Atlantic, as to put a total stop to shipments to Great Britain. With our warehouses and granaries nearly cleared out, and foreign supplies dwindling down from week to week, it soon became apparent that farmers, however well disposed, could not furnish sufficient wheat to satisfy the demand; and an unlooked-for rise of 25*s.* to 30*s.* per qr. from the lowest point of depression has been the consequence.

After having endeavoured to trace the cause of the upward movement, it may not be amiss to examine into the probable duration of this state of affairs. In undertaking this, we shall refrain from offering our personal opinions, but confine ourselves to laying such information as we possess before our readers, leaving them to draw their own conclusions.

With regard to the yield and quality of the various

crops, we have already stated that the best authorities are agreed. Quite sufficient has now been thrashed to allow of a judgment being given on these important points. The extravagant expectations formed by the most sanguine may not have been altogether realized; but there cannot be a doubt that the acreable yield of wheat, barley, and oats exceeds that of average years probably by a *fifth*, whilst, as far as regards wheat, a further surplus is afforded in consequence of the extra breadth of land under that crop. On the other hand, it may be regarded as certain that, when the new crop became available, stocks of old in farmers' hands were almost exhausted, whereas in the ordinary course of affairs the growers generally retain sufficient on hand at harvest time for one or two months' consumption. It was, however, not alone the farmers who had no reserve at harvest time, but the merchants, millers, bakers, and dealers in all parts of the kingdom were in the same position. London, Liverpool, and one or two other ports had, it is true, some quantity of wheat and flour in store; but the total want of old for mixing in other parts caused the reserve held at the places named to be speedily consumed; and at present the warehouses are everywhere empty. The new wheat having for the most part been harvested in excellent condition, has been used very freely; and there is reason to believe that greater inroads have already been made in the crop of 1854 than is at all usual so soon after harvest. It may be questioned, therefore, whether the United Kingdom is at present in a better position with regard to the amount of food on hand than was the case in October, last year.

We next come to the question of future supplies. In the autumn of 1853 there were good stocks of old wheat in the Baltic, and a very large quantity at the Black Sea ports. America had secured an extraordinary crop, and was by no means without reserves of old. The autumn of this year finds us with little or no old corn of any kind on hand. The war with Russia renders it impossible to obtain supplies from any of the ports east of Gibraltar. In the Baltic, old stocks are exhausted, and supplies of new corn cannot be calculated on with any safety until the spring; whilst America has, owing to the partial failure of the Indian-corn crop, less to spare for export than she had last year. We offer the foregoing simple statement of facts to the consideration of our readers, leaving them to draw their own deductions. In confirmation of the inability of foreign countries to afford us any immediate aid, we may give a statement of the imports into the United Kingdom during the last three months with those of the corresponding months in 1853. These have been as follows:—

Month ending 5th August:

	1854.	1853.
	Qrs.	Qrs.
Wheat	281,950	691,737
Barley	101,679	132,233
Oats	110,817	85,021
Rye	—	11,712
Beans	29,181	40,091
Peas	6,255	4,951
Maize	106,677	288,222
Flour cwts.	250,103	379,249

Month ending 5th September:

	Qrs.	Qrs.
Wheat	198,057	546,924
Barley	96,759	68,721
Oats	125,069	166,231
Rye	441	7,102
Beans	34,490	30,994
Peas	5,079	3,103
Maize	62,847	173,565
Flour cwts.	228,213	381,611

Month ending 10th October:

	Qrs.	Qrs.
Wheat	91,547	468,888
Barley	38,386	56,472
Oats	61,053	158,635
Rye	2,432	7,373
Beans	51,359	35,705
Peas	5,150	4,742
Maize	42,224	126,512
Flour cwts.	90,187	463,545

At present there can be but little on passage either from the Baltic or from the eastern ports; and by the advices from the United States it appears that the total shipments in the month of September for Great Britain were as follows:—

	Sept. 1854.	Sept. 1853
Wheat bush.	—	950,754
Indian corn, „	22,505	250,661
Flour brls.	3,078	154,878

It is, however, right to remark that prices were then falling rapidly; and it is highly probable that when it became known there how great a rise had taken place in the English markets, consignments of wheat and flour would recommence on rather a large scale, and we are certainly disposed to expect arrivals from America to some extent this side of Christmas.

Notwithstanding the numerous calls on the time of the farmer, the thrashing machines have been kept actively at work, and the deliveries of home-grown wheat have been large; this is shown by the return of the sales at the towns furnishing the averages. These have been during the last four weeks:

	1854.	1853.	1852.
	Qrs.	Qrs.	Qrs.
Sept. 30	113,557	101,508	114,961
Oct. 7	150,801	103,932	115,663
do. 14	151,870	95,494	114,838
do. 21	150,277	85,066	117,026

The prices now current cannot be otherwise than tempting to the producers, and there is, consequently, reason to believe that the home supplies

will continue good throughout the winter; whether, however, these and the comparatively small quantities likely to reach us from abroad, including what America may be able to send, will suffice to satisfy the consumptive demand, admits of doubt.

So well pleased have the farmers been with the prices they have made for their wheat, that they show little inclination to thrash spring corn, and the quantity of barley and oats which has been brought forward has been smaller than usual at the same period of the year. Malting barley, the opening price of which was 30s. per qr., has risen to 36s., and in some cases as much as 40s. per qr. has been realized for choice qualities.

Oats have advanced in nearly the same ratio, and are still so scarce in many parts of the kingdom as to cause the necessity of using other articles as substitutes for cattle feeding.

To afford a better idea than the foregoing remarks furnish of the actual rise which has taken place in the different kinds of grain &c. since our last, we shall proceed to give a detailed account of the advance as it has occurred from week to week at Mark Lane.

The supplies of English wheat have throughout been good; in the beginning of the month they were large, and though since more moderate, still taking what has arrived coastwise, together with what has reached us by the different railways, the entire quantity has been above the usual average supply in the month of October, when farmers are generally a good deal occupied with field labours.

Business commenced rather quietly, and on the first Monday in the month, viz., the 2nd inst., a decline of 1s. per qr. had to be submitted to, before a clearance of the Essex and Kent stands could be made. Good runs of Essex and Kent red wheat were then parted with at 55s. to 58s., and the best at 60s. per qr. No material change took place during the succeeding week; but on the following Monday the decline of 1s. per qr. was recovered; and in the course of the following eight days a marked improvement took place in the demand. On the 16th instant the enquiry had become lively, and with a decrease in the quantity offered for sale buyers willingly paid an advance of 4s. to 5s. per qr. During the week the excitement increased, and we had daily rising prices until the 23rd, when good runs of red wheat, such as had a fortnight before sold at about 58s., brought 76s. to 77s. per qr., and picked lots 1s. to 2s. per qr. more. Since then buyers have become more circumspect in their operations, and there appears at present to be a determination to work up what has lately been bought before making further purchases. If this resolution should be strictly adhered to, we may perhaps witness a slight reaction; but any material fall

would probably have the effect of checking supplies from the growers, who will need the temptation of high prices to depart from their usual course, viz., to thrash freely during seed-time. The future range of prices certainly rests with them, as there is little chance of foreign competition for months to come. The arrivals of foreign wheat have been perfectly insignificant—not more than 15,000 qrs. having come to hand during the month: this quantity is materially short of a moderate weekly supply. Meanwhile considerable parcels have from time to time been shipped to the continent, and large quantities have been taken by buyers from different parts of the kingdom; the granaried stocks (previously much reduced) have therefore undergone a further diminution, and fine quantities have become exceedingly scarce. In proportion as the finer descriptions have disappeared, secondary sorts have met with increased attention, and the advance has consequently been nearly as great on the latter as the former. When new English wheat gave way 1s. per qr. in the early part of the month, no such reduction was submitted to by holders of foreign; indeed, the tendency was on that very occasion the other way, and the best sorts, such as Rostock and Danzig, actually rose 1s. per qr. in spite of the decline in the value of English. Since then the advance has been very rapid, and on the 23rd inst. moderately good Lower Baltic red wheat could not be bought below 78s. to 80s., whilst Rostock was held at 84s. to 85s., and Danzig even higher. That the millers should have deemed it prudent to pause ere paying these high prices, is not to be wondered at; but as they cannot manufacture the new of home-growth without at least a moderate mixture of old, and the latter is only to be obtained in London, holders have remained exceedingly firm—showing more disposition to raise than to lower their pretensions. In floating cargoes comparatively little business has been done; this had, however, been owing to the want of offers at reasonable terms rather than to the want of inclination to buy: for Egyptian Saide wheat on passage 50s. per qr., cost, freight, and insurance, is now asked, and a cargo of Behera was lately sold at 44s. per qr. Thus far very few contracts for spring shipment from Baltic ports have been closed, the terms demanded having been deemed too high by purchasers. A few small cargoes of Pomeranian and Mecklenburg wheat, to be delivered in November, might perhaps be picked up at about 64s. to 65s. per qr., free on board; but any large quantity could not be secured at those rates.

The rise in the price of flour has been relatively greater than that established on wheat. The fact appears to be, that the town-millers entered into engagements to deliver flour when matters were a

very different aspect, and being unwilling to take further forward contracts except at such rates as they deemed safe, they have moved up prices somewhat faster than they would otherwise have had to do. At the close of September, the nominal top quotation was 55s. per sack. The first move upwards occurred on the 9th, when a rise of 3s. was agreed to. This failed to check the demand; and finding orders came in faster than they could be executed, a further advance of 2s. per sack was determined on before the close of that week. This, however, was not found sufficient; and with the first impetus which was communicated to the wheat trade on the 16th, it became necessary to keep pace. On the 20th, the top price was advanced to 65s., and on the 23rd to 70s. per sack. Other descriptions of flour have not lagged behind in the upward movement: Norfolk household is now worth 58s. to 60s. per sack; and the finest American, 48s. per barrel. Of Spanish, the market has been completely cleared.

Farmers have been so anxious to send their wheat to market, that they have been unable to afford much time for thrashing spring corn.

The supplies of English barley into the port of London have thus far been very moderate. This grain had already begun to rise in value when we last addressed our readers, and the quantity since received having fallen materially short of what has been needed, prices have moved up day by day. Moderately good malting qualities are now bringing 35s. to 36s., and for picked parcels 38s. to 40s. per qr. has been paid. Foreign barley for grinding has been in lively request, and is quite 5s. per qr. higher than at the close of September. Of Danish, scarcely any remains on the market; hence attention has been directed to Southern barley. Egyptian, which was when we last addressed our readers obtainable at 22s. to 23s., cannot now be bought under 28s. to 29s., indeed the finer sorts are held at 30s. per qr., and even higher.

Malt has, of course, been influenced by the state of the barley trade; fine old may be quoted 73s. to 74s., and even up to 76s. per qr., with a very free sale.

The arrivals of oats have been perfectly insignificant; and notwithstanding the economy in consumption caused by high prices, stocks in granary and in the dealers' hands have been reduced into a very narrow compass; indeed, so small is the quantity remaining in London, that it becomes a matter of doubt whether the stocks will hold out to the time that it may become safe to feed on new alone. The finer descriptions of foreign have nearly disappeared altogether, and we have scarcely any but Archangel left. This description of oats

was worth 23s. to 25s. per qr. at the close of last month, whereas there are now no sellers below 29s. to 30s., and for a cargo of very fine prepared Russian 32s. 6d. per qr. was paid last Monday. New oats of home growth have come forward but sparingly; the quality is generally fine, still they are not fit to be used without being mixed with old. English vary in value from 27s. to 32s., Irish from 29s. to 33s., and Scotch from 30s. to 35s. per qr.

Beans and peas have participated in the general improvement; the rise on each of these articles since we last addressed our readers may be fairly estimated at 5s. per qr. Indian corn has also advanced several shillings per qr., and a purchase is reported to have been made last week at Liverpool for shipment to Italy—an event, we believe, almost unprecedented.

The grain trade abroad has naturally been a good deal influenced by the turn affairs have taken in this country; but even before any advance took place here, prices had already begun to tend upwards at many of the continental markets, the deliveries from the growers having actually fallen short of what had been needed for local consumption. In most of the northern parts of Europe, but little grain is, as a general rule, brought to market until after autumn sowing has been finished; indeed, the plan is in the majority of cases to wait until after a fall of snow has formed sledge-roads, so as to facilitate the transport from the interior to the consuming towns. A high range of prices may, of course, induce individual farmers to adopt other means of bringing their goods forward for sale; but such is the exception to the rule. This being the case, and old stocks having been almost everywhere exhausted, it is tolerably plain that no shipments of moment can be expected to be made from any of the northern ports until the spring of next year; and it may be questioned whether even then the exports will be large, as the reports of the yield of the harvest are throughout northern Europe less favourable than they were previous to the crops having been secured.

The latest advices from Danzig state that very little wheat was arriving there from Poland, the prices obtainable at Warsaw being better than those current at Danzig. The smallness of the quantity on sale, and the fact that a few vessels were completing their cargoes, had enabled sellers to obtain high terms. Middling qualities of new wheat had been sold at 67s. to 68s., and fine at 70s. to 72s. per qr. free on board; but as news of the great advance which has lately taken place here had not then been received, it may be expected that the next accounts from thence will quote higher prices than those named. Some uneasiness was beginning to be felt in Prussia, as to the possibility of the allied

powers interfering with the trade in Russian goods by land carriage, a considerable portion of the produce of the latter country having found its way to the coast, and been shipped off to Great Britain, &c., via Prussian ports. Letters from Danzig, of the 24th inst., state that an active demand for wheat had been experienced there, and nearly the whole of the granaried stock had been bought for shipment to England, Holland, and Belgium. The entire quantities taken for export had amounted to about 10,000 qrs., leaving scarcely anything on hand; the rise in prices from the 8th Sept. had amounted to 15s. to 17s. per qr., and 70s. to 72s. per qr. free on board had been paid for good high-mixed samples.

Scarcely anything was being brought forward by the neighbouring farmers, who had up to that period been too busily engaged in the fields to allow of much leisure for thrashing or sending grain to market. At the Lower Baltic ports absolutely no old wheat remains; and according to the most recent advices, but little new had made its appearance. Some increase in the latter was, however, expected to take place in November, and contracts had been entered into for delivery in that month. At Stettin as much as 66s. per qr. free on board had been paid for 61 lbs. red, and the same price for mixed Polish, whilst fine white had brought 70s. per qr. At Rostock it had been very difficult to secure the small quantity needed to complete the cargoes of the two or three vessels loading, and 65s. 6d. per qr. had been paid for moderate qualities of new wheat. At the near continental ports the rise has been as rapid as with us, and imports could not at present be made with profit from Hamburg, Bremen, or the Danish islands.

The advices from France state that supplies from the growers had, notwithstanding the tempting rates current, been only moderate, and that, with the addition of what had been imported, the quantity offered for sale had scarcely kept pace with what had been needed for consumption. Prices had consequently continued to advance; and though the great rise here must have the effect of stopping further shipments of wheat from Great Britain to France, there is little prospect of the tide turning the other way, and the chances of business being done between the two countries with advantage is therefore at present but slight. At Paris the stock of flour had been reduced into a smaller compass than had been the case on any previous occasion for years; and it was the prevailing opinion that the value of food would rule high throughout the winter. That the reports of the probable result of the harvest were somewhat exaggerated by the French press appears not unlikely; indeed, ac-

counts of an unfavourable nature have been forbidden by the Government to be circulated.

From the Mediterranean we have nothing of interest to report. The Italian Government have deemed it prudent to continue the prohibition of export of grain; but, even if this were not the case, we question whether any supplies could be calculated on from thence, the absence of supplies from the Black Sea being a matter of serious importance, as most of the ports in the Mediterranean are in the habit of receiving a considerable portion of what they consume annually from the Black Sea and Azoff.

In Spain, the harvest has given a very abundant return, and it is probable that Great Britain will receive some quantity of flour from that country. The great drawback to Spain furnishing supplies is the difficulty and expense attending the transit of agricultural produce from the interior to the coast. When this difficulty shall have been overcome, Spain will probably be in a position to export grain and flour largely.

We have accounts of recent dates from the United States, the news having been received there that a decided rally had taken place in prices in the English markets; holders had raised their pretensions, and it is tolerably evident that it would not need much to create excitement in the corn trade in the American markets.

Stocks at the ports on the seaboard were small, and the arrivals from the interior to the ports on the coast had fallen short of expectation. The yield of wheat does not appear to have been so abundant as expected, whilst Indian corn seems to have given a better return than had been reckoned on, the drought having done less mischief than was feared would have been the case.

New York letters of the 14th inst. inform us that after the arrival of the English mail, flour had been held 25 to 37½ cents per barrel higher, which had interfered with the execution of the orders brought out. Hardly anything had been shipped during the month of September; and as the stocks on hand were scarcely sufficient to provide for local wants during the winter, it was the prevailing belief that very little would be exported.

COMPARATIVE PRICES AND QUANTITIES OF CORN.

Averages from last Friday's Gazette.				Averages from the corresponding Gazette in 1853.			
	Qrs.	s.	d.		Qrs.	s.	d.
Wheat....	150,277	..	57 6	Wheat....	85,066	..	63 11
Barley....	47,211	..	31 3	Barley....	67,729	..	40 7
Oats....	16,452	..	25 9	Oats....	12,489	..	24 2
Rye.....	980	..	35 2	Rye.....	275	..	38 4
Beans....	4,974	..	44 10	Beans....	4,587	..	45 7
Peas	1,776	..	40 9	Peas	1,506	..	50 7

CURRENCY PER IMPERIAL MEASURE.

		Shillings per Quarter	
WHEAT, Essex and Kent, white...	71 to 75 extra	77 80	
	Ditto, red.....	66 72	73 74
	Norfolk, Lincoln, & Yorksh., red...	66 68	72
BARLEY, malting, new...	32 33	Chevalier...	35 38
	Distilling ..	—	Grinding.. —
MALT, Essex, Norfolk, and Suffolk, new	70 72	extra	73
	Ditto ditto	old 68	70
	Kingston, Ware, and town made, new	72 74	75
	Ditto ditto	old 70	72
RYE	—	—	40 43
OATS, English feed ..	27 31.....	Potato..	30 32
	Scotch feed, new 30 31, old 32 33 ..	Potato	33 35
	Irish feed, white	28 30	fine 33
	Ditto, black	24 28	fine 30
BEANS, Mazagan.....	44 46	—	48 52
	Ticks.....	46 48	50 54
	Harrow.....	48 50	52 56
	Pigeon	48 54	56 62
PEAS, white boilers	47 51..	Maple 41 43	Grey 38 40
FLOUR, town made, per sack of 280 lbs. —	—	—	65 70
	Households, Town 62s. 64s. Country	—	62 63
	Norfolk and Suffolk, ex-ship	—	58 60

FOREIGN GRAIN.

		Shillings per Quarter	
WHEAT, Dantzic, mixed..	72 to 75 high mixed —	80 extra	85
	Konigsberg.....	70 73	— 78 80
	Rostock, new	74 76 fine	80 85
	American, white.....	72 76 red	70 75
	Pomera, Meckbg., and Uckermk., red	72 75 extra	80
	Silesian.....	—	white —
	Danish and Holstein	68 75	none —
	Rhine and Belgium	—	old —
	Odessa, St. Petersburg and Riga..	63 68 fine	70
BARLEY, grinding 26 31	Distilling..	31 33	
OATS, Dutch, brew, and Polands 29s. 31s. ..	Feed ..	26 28	
	Danish & Swedish feed 30s. to 31s.	Stralsund	31 32
	Russian.....	28 32	French.. none
BEANS, Friesland and Holstein	—	—	42 46
	Konigsberg..	44 48	— Egyptian.. 33 40
PEAS, feeding	42 45	fine boilers	45 50
INDIAN CORN, white.....	42 46	yellow	42 46
FLOUR, French, per sack (none) —	—	—	none —
	American, sour per barrel	36 38	sweet 45 48

IMPERIAL AVERAGES.

FOR THE LAST SIX WEEKS

WEEK ENDING:	Wheat.	Barley.	Oats.	Rye.	Beans	Peas.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Sept. 16, 1854..	52 5	29 2	25 11	36 11	45 10	36 10
Sept. 23, 1854..	53 2	29 2	24 7	34 11	42 9	37 0
Sept. 30, 1854..	55 9	29 2	25 3	35 2	42 11	37 11
Oct. 7, 1854..	56 7	29 11	25 6	34 8	44 0	39 3
Oct. 14, 1854..	57 0	30 6	25 4	34 8	44 4	39 0
Oct. 21, 1854..	57 6	31 3	25 9	35 2	44 10	40 9
Aggregate average of last six weeks	55 5	29 10	25 5	35 3	44 1	38 6
Comparative avge. same time last year	62 4	37 10	22 6	37 9	43 10	44 1
DUTIES	1 0	1 0	1 0	1 0	1 0	1 0

DIAGRAM SHOWING THE FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT DURING THE SIX WEEKS ENDING OCT. 21, 1854.

PRICE.	Sept. 16.	Sept. 23.	Sept. 30.	Oct. 7.	Oct. 14.	Oct. 21.
59s. 4d.
57s. 0d.
59s. 7d.
59s. 9d.
58s. 2d.
52s. 5d.

PRICES OF SEEDS.

The market for Cloverseed and Trefoil continues inactive. The high prices required for foreign seed prevent any transactions for this market. Canaryseed was firm this morning, and fully as dear. In our other seeds we have no variation to note.

BRITISH SEEDS.

Linseed (per qr.).. sowing —s. to 64s.; crushing 56s. to 60s.	
Linseed Cakes (per ton).....	£10 0s. to £10 10s.
Rapeseed (per qr.)	new 66s. to 72s.
Ditto Cake (per ton)	£6 15s. to £7 5s.
Cloverseed (per cwt.).....	(nominal) —s. to —s.
Mustard (per bush.) white 8s. to 9s., ..	brown old 10s. to 13s.
Coriander (per cwt.).....	new —s. to —s., old 20s. to 24s.
Canary (per qr.)	43s. to 53s.
Carraway (per cwt.).....	new —s. to —s., old —s. to —s.
Turnip, white (per bush.) —s. to —s.....	Swede —s. to —s.
Trefoil (per cwt.)	new 20s. to 22s.
Cow Grass (per cwt.)	—s. to —s

HOP MARKET.

BOROUGH, MONDAY, Oct. 30.

Our market is firmer, with a moderate demand for fine qualities at fully the prices of last week. In yearlings and old Hops there is not so much doing.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.

MONDAY, Oct. 30.

The supplies of home-grown Potatoes on sale in these markets are very moderate, but in excellent condition. The imports from abroad have amounted to only 25 bags 4 baskets from Amsterdam, 10 bags from Hambro', 129 baskets from Rotterdam, and 14 hampers from Amsterdam. A steady business is doing, as follows:—Remgers, 80s. to 95s.; Shaws, 75s. to 85s.; Blues, 80s. to 85s. per ton.

PRICES OF BUTTER, CHEESE, HAMS, &c.

Butter, per cwt.	s.	s.	Cheese, per cwt.	s.	s.
Friesland	106 to 108		Cheshire, new.....	66 to 80	
Kid	94 98		Cheddar	68 80	
Dorset	110 112		Double Gloucester 60	70	
Carlou	98 100		Single do	60 70	
Waterford	93 100		Hams, York, new.....	76 84	
Cork, new	84 94		Westmorland	72 82	
Limerick	—		Irish	66 76	
Sligo	—		Bacon	72 74	
Fresh, per doz. 13s. 0d. 14s. 0d.			Waterford	—	

WOOL MARKETS.

ENGLISH WOOL MARKET.

LONDON, Oct. 30.

As the supply of English wool on sale has rather increased, and as the Colonial sales are now in progress, the demand has become very inactive, and in some instances prices may be considered a shade lower than last week.

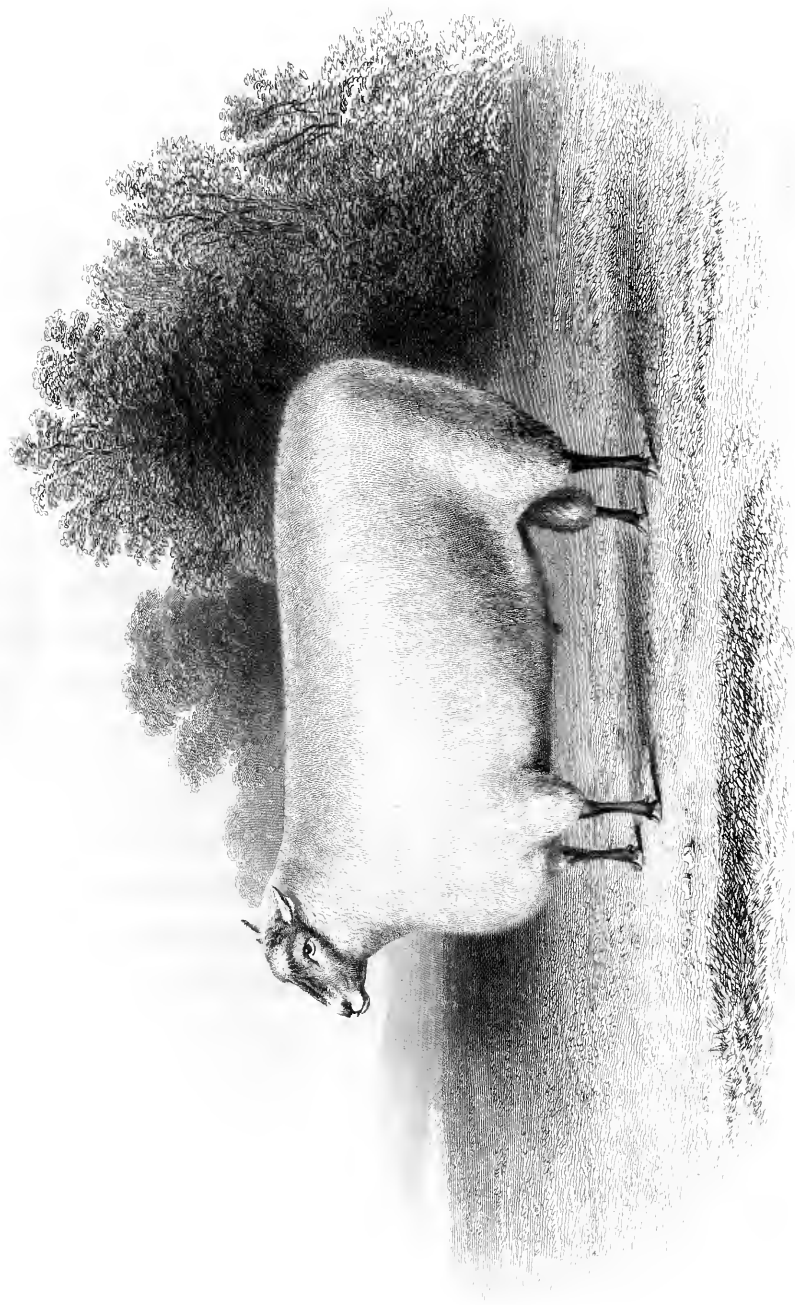
	s.	d.	s.	d.
Down tegs	1 1	—	1 2	
Half-breds	1 1½	—	1 1½	
Ewes, clothing	0 11½	—	1 0½	
Kent Fleeces	1 1	—	1 2	
Combng Skins	1 0	—	1 2	
Flannel Wool	0 11	—	1 1½	
Blanket Wool	0 8½	—	1 1	
Leicester Fleeces	0 11½	—	1 0½	

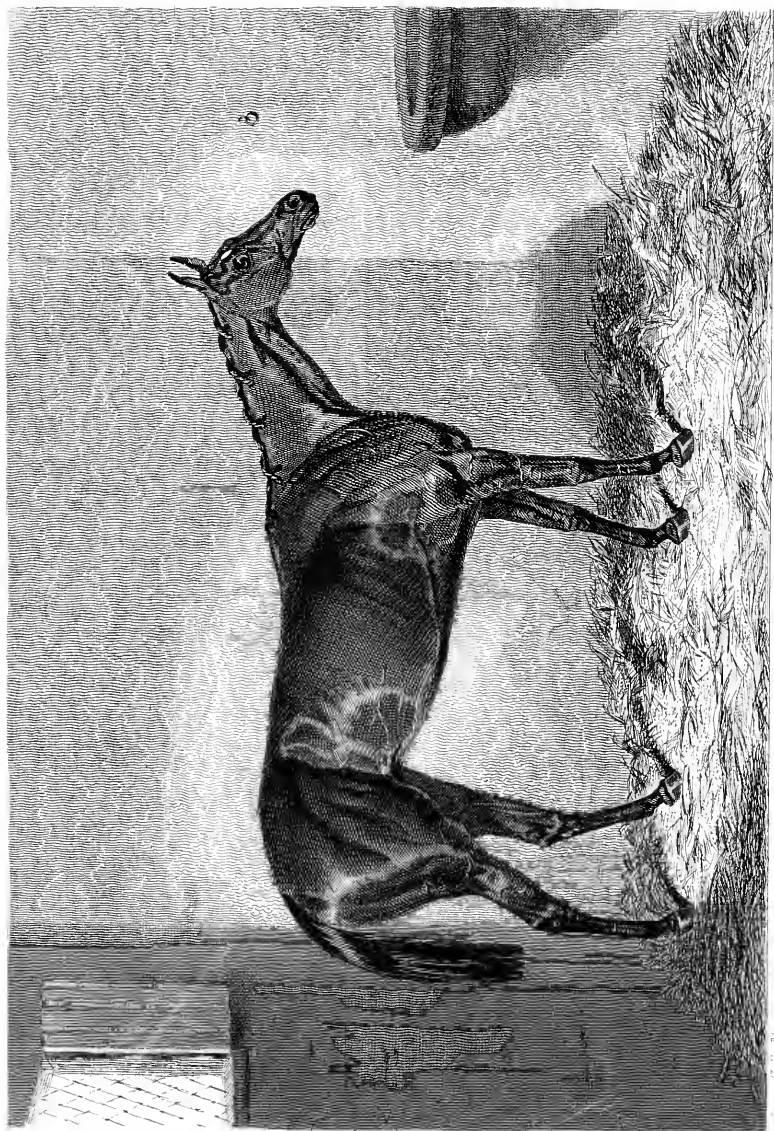
LIVERPOOL WOOL MARKET, Oct. 28.

SCOTCH WOOL.—There is a fair demand for laid Highland, at late rates; white Highland has been less inquired for, but stocks are light. For good crossed and Cheviots there is still a fair demand, but for the heavy and bad-conditioned there is no demand.

	s.	d.	s.	d.
Laid Highland Wool, per 24 lbs.....	9	6 to 10	0	
White Highland do.....	12	0	12	6
Laid Crossed do. unwashed	12	0	13	0
Do. do. washed	12	9	14	0
Laid Cheviot do. unwashed	13	0	14	6
Do. do. washed	16	6	17	8
White Cheviot do. ...do.....	24	0	26	0

FOREIGN WOOL.—The sales in London are progressing very satisfactorily, which has given a better tone to our markets, and the trade keep supplying themselves with more confidence.





George Allen, New York, 1854.

(571172 1111)

Journal of the American Veterinary Association, Vol. 1, No. 1, 1882.

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THE FARMER'S MAGAZINE.

DECEMBER, 1854.

PLATE I.

A SOUTHDOWN RAM.

BRED BY AND THE PROPERTY OF W. SAINSBURY, ESQ., OF WEST LAVINGTON, NEAR DEVIZES,
WILTSHIRE,

For which the First Prize of Thirty Sovereigns in Class 2 was awarded at the Meeting of the Royal Agricultural Society of England held at Lincoln, in July, 1854.

PLATE II.

JOUVENCE; A CELEBRATED FRENCH MARE,

BRED BY M. LUPIN, IN 1850.

Jouvence was got by Sting out of Currency, by St. Patrick; her dam, Oxygen, by Emilius out of Whizgig, by Rubens—Penelope, by Trumpator—Prunella, by Highflyer—Promise, by Snap.

Jouvence is a brown mare, standing fifteen hands two inches high; she has a good though not very handsome head, cleanly set on to a straight, lengthy neck; she has a splendid shoulder, good barrel and back, with strong quarters, and very large gaskins; she is, perhaps, rather light in the bone, but taken altogether is a lengthy, wiry, and good-looking mare. She has the further recommendation of a very quiet and docile temper—a blessing which must have told much for her in all her many travels and trials by land and by water.

STOCK FEEDING.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

A few recently and carefully collected facts upon the feeding of horses and cattle, it is very desirable should attract the farmer's attention. He can hardly spend a winter's evening more profitably than by referring to some of these, for they all tend to the great object of rendering stock keeping more advantageous—a branch of rural economy which I am ever anxious to see improved; for it is, I feel well assured, that section of the English farm produce which, in spite of free trade, will long continue to be the most steadily remunerative.

A valuable prize essay, on the diseases caused by the improper feeding of farm horses, by Mr. J. M'Gillivray, has recently been published (*Trans. High. Soc.*, 1854, p. 357). This gentleman, who is an esteemed veterinary surgeon in Aberdeenshire, when treating upon the diseases carelessly caused by the improper treatment of the horse, alludes also to the functional derangements of cattle. He remarks very truly, that much of the diseases occurring amongst animals is the result of improper or negligent treatment, and might be

avoided by a proper attention to feeding, housing, &c. "To professional men," he continues, "it is well known that the present system of fattening cattle, although well calculated to accomplish the object in view, is decidedly inimical to good health and a sound constitution. Scarcely a single high-fed ox can be found perfectly free from disease of the liver or other viscera, either organic or functional. And although between the system of feeding cattle profitably for the butcher and bringing horses into good condition for work there must be a wide and well-marked difference, yet I meet with many cases in which by far too great a resemblance exists. Doubtless the word 'condition,' as applicable to horses in general, admits of various interpretations, and may refer to different states according to particular breeds, and the nature of the work they may be destined to perform. Condition in the heavy draught, the dray, or farm horse, will imply, with other things, a round, plump, heavy figure, as a ponderous carcass will materially assist in moving heavy loads at a slow rate, especially on streets or common roads. Condition, again, in the race-horse or hunter, implies well-developed, fine, and firm muscle, fitting the animal for quick and agile movements; and this cannot be accomplished by roundness of figure or fatness of carcass."

Mr. M'Gillivray then refers to the cases of acute indigestion, an affection induced most commonly by an animal having eaten too freely of green succulent food, such as grass in the early part of the season, or green tares, &c.; or it will occur at any time, if such food be consumed in too great quantities; large quantities of potatoes, boiled or raw, will have the same effect. A horse suffering from an attack of acute indigestion, induced by any of the above causes, will present the following symptoms:—Paroxysms of intense pain, with heaving at the flanks; at an early stage he lies down, and immediately gets up again; if at liberty to do so, he turns round and round, frequently voids small quantities of dung, makes repeated attempts to urinate, often puts the nose to the side, distension commences, when down he attempts to roll; sometimes a twitching of the subcutaneous muscles is seen, the animal has an agonised look, apoplectic or phrenetic symptoms appear, vulgarly called staggers; this is followed by great debility, and the membranes of the eyes are inflamed. All these symptoms increase in intensity, and if not speedily removed, the animal sinks to rise no more. In the absence of a veterinary surgeon, the chief remedies applied by Mr. M'Gillivray appear to be a drench of tincture of opium and sweet spirit of nitre in a bottle of tepid water.

Another cause of derangement and disease in the digestive system, is the practice of putting

horses to hard work immediately after they have been freely fed. It is well known to professional men, that severe exercise or exertion retards, if it does not altogether stop, digestion. It is no easy matter to experiment on the horse, so as to have proof positive of this doctrine; however, we have proof by direct experiment made on the dog. The practice of allowing horses to drink largely immediately before going to work, is a very dangerous one, even independently of the food. The quantity of water given, and the manner in which horses are allowed to take it, is another important question in stable management well enforced by Mr. M'Gillivray. Horses, he well contends, should be regularly and frequently supplied with water of good quality. A gentleman who keeps horses constantly on the road, observed to me, in speaking of a servant—"That was the best keeper of horses I ever had; none ever had my horses in such good order, and it was just with *water* and *regularity* he did it; he was always giving them a *little water*. There could be no other difference, as my loads are always exactly the same (meal), and my allowance of food is the same." It should be remembered that the stomach of a horse is comparatively small: I believe that of the largest horse would not contain four gallons; and if he is allowed to drink largely soon after feeding, the food will be washed out of the stomach in an undigested state, and will ferment in the large intestines. Colic, or gripes, is a disease, in my opinion, very often the consequence of the state in which the food is supplied to the animal. Fully two-thirds of the cases, it seems, which occur annually in the practice of Mr. M'Gillivray, are between the middle of October and the end of the following December. Moreover, these cases of colic are mostly confined to horses fed with new straw and new corn. He thinks that if horses were supplied with well-seasoned hay and oats during autumn, two-thirds of the cases of colic would disappear. Mr. Cowie, of Halberton Mains, who has tried many experiments on the cooking of food for horses, thus sums up the result of his valuable experience: "I never cook any food for my horses; they are all fed with bruised oats, and straw or hay occasionally in spring. It is a great mistake not to bruise the grain for old horses or greedy feeders, as they eat so much of it without being masticated. The veterinary surgeon to Barclay and Perkins' brewery horses told me that he tested the result of giving horses *unbruised* oats, by making some of them swallow them in a ball, when he found that nearly half of the grain was voided quite sound, and even vegetated on being put under ground."

The remark of Mr. M'Gillivray, as to the often diseased state of the livers of highly-fed cattle, is

One which has often engaged my attention. That diseased livers rather tend to make sheep fatten faster in some cases, was an observation perhaps first made by the celebrated Bakewell. It is a well-known fact that overgrown livers of geese, so highly prized by the German gourmands, are produced by high feeding the animal whilst it is kept in a warm temperature. It is pretty certain, however, that the animals whose livers are diseased do not possess all those properties most essential to the farmer's profit. And as it is known that certain mineral substances, when taken in small doses, materially promote the fattening of animals, it might be well if some careful experiments were made as to the action of these and other chemical substances in preserving the liver from disease. If the circumstances in which a fattening animal is placed has so material an influence upon its health as to render it worthy of the stock-owner's careful attention, equally important to him are the hereditary tendencies and predisposing causes of disease which may be commonly so safely calculated upon by the considerate purchaser. On the hereditary diseases of cattle, a recently published and valuable prize essay, by Mr. Finlay Dun will repay the farmer's perusal (*Jour. R. A. S.*, vol. xv., p. 76). He names, as the more important hereditary diseases of cattle, diarrhœa, rheumatism, scrofula, consumption, dysentery, malignant tumours, and the affections depending on a plethoric state of body. He enumerates the characters which it is desirable for cattle to possess, that they may perpetuate in their offspring a healthy and vigorous constitution. The head small, muzzle fine and tapering, nostrils large and open, the eyes full and lustrous, ears small, and not too thick, the head well set on the neck, the distance between the ears and the angle of the jaw short, but the width behind the ears considerable (no dairy cow should have a short thick neck), the chest wide and deep; the girth, taken immediately behind the shoulder, should closely correspond with the length from behind the ears to the rise of the tail; the carcase of a barrel shape, for a thin, flat-ribbed animal eats largely, thrives badly, and is unusually liable to diarrhœa; there should be little space between the prominence of the hip and the last rib, the quarter large, the measurement from the prominence of the haunch backwards to the rise of the tail, and downwards to the hock, as great as possible; the lower part of the haunch thick and broad, the hide thick and pliant; smallness of bone is a sure indication of early maturity and aptitude for fattening. These, amongst other characters and qualities enumerated by Mr. Dun, indicate the possession of a vigorous and healthy constitution, and freedom from all inherent disease.

The temperature in which an animal is confined must also have a material influence upon the fermentation of the dung with which it is too often surrounded. A high temperature, sufficient to engender disease, must also promote the rapid formation of ammonia—and this, where it is evolved, not only injures the beast, but impoverishes the dung. This is indeed one great drawback to the advantages of the box system. Under the cooler and better ventilation system of a covered homestall, these losses may probably be escaped; for the effect of a lower temperature will be alike advantageous to the progress of the live stock, and the richness of the farm-yard compost.

Lord Kinnaird has during the past year reported upon his farther good experience on covered farm steadings, giving plans, and an estimate of the expense (*Jour. R. A. S.*, vol. xiv., p. 336). The details, he tells us, have not been laid down on any theoretical principle, but are the results of practical experience, and that the increased returns from his farm, and the reduction of expense since the adoption of this plan, afford him undeniable evidence of its efficacy. A steading entirely covered in, he finds, effects, a great saving in farm produce, which must otherwise be exposed to the injurious effects of the weather, while the amount consumed and destroyed by the stock is considerably less. But the most remarkable result of his experience is in the increased value of the manure. In some of his experiments on the action upon potatoes of farm-yard dung prepared in covered and uncovered yards, and upon the following crop of wheat, this last receiving in the spring a top-dressing of 3 cwt. of Peruvian guano per acre, one acre of each produced potatoes in tons, cwt.s., and lbs., wheat in bushels and lbs., and straw in stones of 22 lbs. (*Jour. R. A. S.*, vol. xiv., p. 337)—

	Covered dung.			Uncovered dung.		
Potatoes....	11	17	56.....	7	6	8
"	....	11	12	26.....	7	18 99
Wheat.....	55		5	.....	41	19
"	.....	53	47	.....	42	38
Straw			220	.....		152
"	.....		210	.....		160

These investigations can scarcely be too highly valued: they not only tend to the increase of the stock-owner's profits in stall and shed feeding, but they lead to the great secondary advantage of rendering the manure of the farm-yard more fertilizing, and consequently the soil to which it is applied more productive of food for that stock. We may, then, feel full confidence that very considerable improvements in this great branch of agriculture will yet continue to reward the skill, the science, and the enterprise of England's farmers.

THE NEW METROPOLITAN CATTLE MARKET.

The enclosures and buildings for the new metropolitan cattle market are fast approaching to completion; but although in a sufficiently forward state to admit of the great Christmas sale being held in them, as lately proposed, by selling pigs and calves in the sheep or bullock lairs until their own are finished, the opening of the market has been postponed at the solicitation of the trade until the end of January, when it is hoped the whole works will be finished according to the requirements of the statute, subsequently quoted. In treating our subject, we shall first give a description of the New Market, buildings, &c., with a short account of the old; and second, offer a few observations on how individual interests are likely to be affected by the removal of Smithfield.

In giving a description of this national undertaking we are enabled, through the kindness of Mr. J. B. Bunting, the City Architect, and Mr. Laurie, the Clerk of the Works, to place before our readers the accompanying rude sketch, or ground-plan, which will greatly facilitate our task. The copies we were permitted to take from plans in the architect's office, on tracing-paper, are on a large scale, and in reducing them to a proper size we have been obliged to leave out some details, which, however, will be found separately on a larger scale by themselves. We allude to the diagrams v. s. r.

In juxtaposition with the ground-plan of the new market we give a sketch of the old (Smithfield), taken from Parliamentary Blue Books. They are both drawn to one scale, and at the first glance cannot fail to convince the most thorough-going opponent to change that the former involves improvements of no ordinary magnitude.

The site chosen for the market (Copenhagen Fields) is generally admitted to be the best which could have been made both for sanitary and commercial purposes; for its elevation not only secures for it a pure and healthy atmosphere, but the most effectual means of drainage; while its proximity to the Great Northern and North London railways admits of the whole live-stock being brought within its gates, thus avoiding street-driving in going to market, more so than if it had been further from the centre of the capital. In this respect it presents a singular contrast to Smithfield, which, although situated on rather elevated grounds, is yet surrounded with a confined and impure atmosphere, narrow crowded streets, and almost every inconvenience which it is possible for a fat-stock market to experience. From occupying nearly the entire space between Maiden-lane and Caledonian-road—two great thoroughfares of the northern suburbs—the site also affords equal facilities for the delivery of stock and slaughtered meat to butchers.

There are no fewer than nine entrances to the grounds. From Maiden-lane three, from the Caledonian-road an equal number, and also three on the

south side between the letters F F F F from the North London Railway. The latter three are not yet in a passable state; but the boarding across the former six has only to be removed (a work of a few minutes' time) when they are ready for the ingress and egress of stock. Cattle for the market by the Great Northern Railway will be delivered from the trucks immediately adjoining the north-eastern entrance (x); while those by the London and North Western will, when the works are finished, be brought to the three southern entrances (F F F) by a branch from the North London line. When removed by salesmen to their own private lairs, the delivery from the railways will, of course, be as at present; and the entrance to the market by some one or other of the six approaches from the east and west. The emptying of the market, again, from its now being situated at the circumference of the capital, will be a very different concern from what has been experienced from Smithfield the centre: but butchers' men and drovers will soon find out those streets where the animals will meet with the least obstruction from traffic in reaching their different destinations.

Upwards of 75 acres have been enclosed, by a lofty brick wall, for the purposes of the market. This area, it will be perceived from the plan, is of an irregular form, and has been subdivided as follows, viz.: The market-grounds (A)—properly so called—with the banks and clock-tower in the centre, comprise 15 acres and 4 poles; the ox-lairs (B) to the south of the latter, contain 8 acres and 11 poles; the sheep-lairs (C) to the left, 6 acres and 3 poles; public slaughterhouses (D) below the latter, 5 acres and 31 poles; private slaughterhouses (E) on the opposite side of the bullock-lairs, 3 acres 1 rood and 19 poles; spare-grounds (F F F F) forming the southern boundary, for the enlargement of any of the above branches of the trade, or others which may subsequently be started, 4 acres 2 roods and 27 poles; spare-grounds (G) to the east or right of the market, 10 acres and 32 poles; the north division of spare-grounds (H), extending to within 200 yards of Camden-road, 11 acres 1 rood and 11 poles; and the balance of 11 acres and 19 poles in roads, exclusive of those within the market division (A), but including those within the bullock-lairs (B). For the sake of perspicuity, the whole may be tabulated thus:—

	Acres.	Roods.	Poles.
Market, A.....	15	0	4
Bullock lairs, B.....	8	0	11
Sheep lairs, C.....	6	0	3
Public slaughter-houses, D....	5	0	34
Private ditto, E.....	3	1	19
Roads.....	11	0	19
Spare grounds, F F F F.....	4	2	27
Ditto, ditto, G.....	10	0	32
Ditto, ditto, H.....	11	1	11
	75	0	0

It will thus be seen that upwards of 48 acres have already been appropriated to the present exigencies of the market, and upwards of 26 left for future enlargement as the growth of the metropolis and consequent increase of trade may demand. Objections have been taken to the smallness of this latter area, but the objectors appear to have overlooked more than one fact; for in its present position a daily market can be held without interfering with the general commerce of the capital. In other words, that within the 75 acres some 30,000 bullocks and 240,000 sheep may be weekly disposed of, and that when the consumption exceeds this, more than one market will be required. In short, the above territorial provision for the market is as large as it should be in one place—sufficient, probably, to accommodate all the fat stock which Britain herself may have to dispose of in it—so that the erection of a foreign cattle market somewhere contiguous to the river is a subject which may legitimately be discussed at some future period.

Following in our description the general progress of the works, a vast amount of levelling has been executed in order to place the grounds in their present state for the market. The general surface, for instance, of the market and sheep lairs has been considerably lowered, that of the cattle lairs slightly so; while the grounds for the slaughter-houses, &c., and those under F F F F, have been raised so as to give an uniform inclination to the whole, which, from the banks in the centre of the market, slopes gently to the south. The soil is excellent brick-earth, and in effecting these improvements, part was made into bricks for the walls, and a sufficient quantity burned so as to give a covering of 14 inches in depth to the whole appropriated grounds, including the spare grounds F F F F and G; while 6 inches of this 14 have been formed into an excellent concrete under the market and lairs—the former being paved with granite cubes 5 inches broad by 5 inches deep, and 10 inches long; and the latter with vitrified bricks, exclusive of the calf and pig markets, which will be found to serve the double purpose of markets and lairs; thus securing efficient drainage with the most healthy and durable foundation. The spare grounds (N) remain in their natural state, with the exception of the small portion appropriated to taverns; and were the liquid manure of the market applied, might yield several hundred tons of grass annually for soiling in the lairs during summer until otherwise appropriated.

In draining the grounds, provision has been made for disposing of the sewage of the market and lairs for manure to any party who may wish to farm it, either in a solid or liquid form, or partly both, and for the removal of rain-water and sewage not thus disposed of.

The main sewer discharges its contents beyond the north-eastern entrance of the grounds at x; is 4 feet 6 inches in depth, by 2 feet 9 inches wide; runs along the southern and eastern roads in the direction K, L, N, onwards to x, and is from 11 to 42 feet below the surface. The sub-mains are 4 feet by 2½, and run from M to N, and from o along the west and northern sides of the market, under the roads; the former into M N, and the latter into the principal sewer. Into these, the rain-

water and sewage are conveyed from the different gratings in large pipes: no fewer than ten drains of these intersect the market from north to south, falling into the manurial main-drain described in the next paragraph, and for the lairage and slaughtering departments a corresponding number.

The submain sewer, M N, runs under the centre of the middle road; and to intercept the sewage from the market, for manurial purposes, an additional sewer has been placed under the foot pavement along the north side of that road, which discharges itself into a tank or receptacle proposed to be made in the spare grounds G, where we have described a small circle. Now, the principal main sewer at the point N, being about 40 feet below the surface, and the manurial main drain where it crosses it only 13 feet below the surface, this difference of depth admits of the rain-water and flushings of the market, not fit for manure, being easily turned from the latter into the former by means of a sluice in the bottom. The first flushings of the market may, for instance, be conveyed into the manure tank, and the second into the main sewer by means of this manurial main-drain and sluice.

Water, in ample abundance, for stock, flushing the market, slaughterhouses, and other purposes, has been procured from the New River, cocks being placed at convenient distances throughout the grounds. The whole is lighted with gas, and the necessary provision made of lamps, &c., for this purpose.

Such, with the wires of the two Telegraph Companies, are what may be termed the underground works. In describing those more conspicuous to the eye, we shall commence with the banks and clock-tower in the centre of the market grounds, which may not inaptly be termed the mainspring of the whole.

The clock-tower, represented on the plan by a black square spot in the centre of the bank-buildings, is not yet finished, but will be 150 feet high. The clock itself is to have four illuminated dials, each 13 feet in diameter, and the bell is to weigh about a ton; so that, as a time-piece, it will both be seen and heard a long way beyond the market grounds.

The bank-buildings form a regular polygon of twelve sides, 143 feet in diameter, and present a frontage of 40 feet on each side. Eleven sides are appropriated to as many banks, and the remaining or twelfth side, that fronting the south or bullock-lairs, the entrance to the clock-tower, with two telegraph-offices, one on each side. The buildings are only one storey, are lofty, and have the interior rooms lighted from the roof. They are ventilated by Arnott's ventilators, and in winter heated by gas-stoves. The eleven banking-offices and two telegraph-offices A will be seen only to occupy a very small area of the 75 acres. But within this small area we shall not attempt to describe the busy scene which every market-day will present. Suffice it to say that machinery is here organized which will collect something like the round sum of £8,000,000 annually from the butchers of the metropolis, and hand it over to the British farmer!

The area occupied by roads exceeds twice the whole

area of Smithfield; for that, without the market, is upwards of 11 acres, as we have already seen, while there are several acres within it. The two roads, o x and m n, intersecting the entire grounds from east to west, and also the two, one on the east and the other on the west side of the market running between them, are each 60 feet wide. On each side of these four roads there is a foot-pavement 10 feet broad; thus leaving a clear roadway of 40 feet for cattle. The remaining road (κ λ), running between Maiden-lane and Caledonian-road, is 50 feet wide, the roadway for cattle being 30 feet. The three roads intersecting the bullock-lairs from north to south, are each 40 feet wide, and those in the sheep lairs about the same. The market-ground, again, presents a checkered ramification of roads of three different kinds, or rather for three different purposes: *first*, those for the exclusive use of the banks; *second*, those for cattle, including sheep and pigs; and, *third*, those for the trade (buyers and sellers).

Of the four roads leading to the banks, and intersecting the market-ground into four equal areas, that from the south side, or middle road (m n), is for the exclusive use of the banks, being so constructed that bankers' carriages and cabs shall not interfere with cattle, or cattle with them. It is 40 feet wide, with a foot-pavement 10 feet broad on each side; thus leaving a clear way for carriages of 20 feet. On the opposite, or northern side of the banks, there is also a foot-pavement 10 feet broad, with rails on each side, in the centre of a 40-foot road; thus leaving a 15-foot roadway on each side, the one for oxen, and the other sheep.

The cattle market occupies the eastern half of the whole area, or that between the banks and the road running alongside the spare ground g to n. The sheep market, about two-thirds of the area, on the other side of the banks; and the calf and pig markets (a and b), the remainder on the west side. The whole is surrounded by a ring fence, the brick wall of the calf and pig markets forming the west side, the other three sides being iron-railing, and has some twenty-two entrances leading to the different roads and subdivisions, as will be seen on reference to the plan; thus rendering that confusion experienced in Smithfield on entering and removing stock to and from the market almost impossible, if but the least attention is paid by drovers and butchers' boys to what follows.

In the cattle department, for instance, a road nearly 20 feet wide, for entering and removing stock, surrounds it from the bankers' entrance on the south side to that on the north, closely adjoining the fence. Other two roads, each 20 feet wide, will be seen running the entire length of the market between the first two small entrances on the east side of the bank-road, or principal south and north entrances. Another road, 30 feet wide, for the same purpose, leads from the banks to the east side; while the half-road, 15 feet wide, already referred to, runs from the banks to the north. So that cattle have no fewer than five roads and ten gates for their own exclusive use, of easy access, and so planned that one salesman will not be annoyed with the sales of another in passing him when being removed.

The roads, or rather footpaths, for salesmen and butchers in this department are twenty-four in number, of which four, each 3 feet wide, run the whole length of the market from north to south, passing between the "kicking bars" or "trevices," subsequently explained; and twenty, 6 feet wide, transversely across the last-mentioned four, or from east to west, between the heads of the cattle when tied up to the rails for sale. Gates are placed upon the entrances of these, to prevent cattle getting in during the filling of the market, &c.

The sheep market is divided, by narrow passages crossing each other, into thirty-eight parallelogrammatical or four-sided areas, within which the pens are placed. The passages running north and south are 10 feet wide, with the exception of the half road from the banks to the north gate, which is 15 feet wide; ten of the cross ones are eight feet wide, the one next the north fence 18 feet 10 inches, as in the cattle department; and the middle road leading from the bank 30 feet.

A broad road, 38 feet wide, runs right through, between the two buildings for the calf and pig markets, while a broad footpath runs along the middle of each, and narrower ones branch off to each side between the pens of the latter and rails of the former.

The cattle are to be tied to rails as in Smithfield. The rails are of two different lengths, four rows extending the whole length of the market, being 36 feet 9 inches long; and three rows 55 feet 4 inches. They are made of strong wooden bars, are supported by cast metal posts, at short distances; and, though simple, the whole yet presents a very workman-like and finished appearance. They stand in pairs as it were, 6 feet apart—the distance between the pairs being 30 feet 2½ inches. At each end of a rail there is a "kicking bar" 5 feet long. The diagram r shows 5 rails, b b b b b, with their complement of kicking rails—a a, &c. The animals when on sale stand with their heads at the rails b b, and their tails at the dotted lines c c. The standings have a gentle and equal slope or inclination backwards to the gutters and gratings for the removal of the droppings, between the dotted lines e e, so that we shall have some 6,000 to 7,000 head of cattle exhibiting two rows of heads and two rows of tails alternately, throughout the whole market, with "barons of beef" and "rump steaks" in such a uniform and business-like manner, as cannot fail to have a very imposing appearance when seen from the clock-tower or balconies of the market taverns and public-houses, and no doubt will furnish a fruitful subject to more than our metropolitan artists.

In the sheep department the pens are all 8 feet 3 inches square, as uniform in construction as if they had been made in one mould, so to speak, the mechanical details being in perfect harmony with those of the cattle market. The diagram v represents one of the four-sided rectangular areas in the second row from the pig-market, shewing the manner in which the pens are placed, there being 60 in that division; and the diagram s, a single pen on a larger scale, the manner in which the interior pens are filled and emptied. The first row from the calf and pig markets contains eleven divisions, each 9 pens by 6, or giving 54 pens, and the

twelfth a half-size, or 27 pens. The next row eleven 60-pen divisions and one half-size of 30 pens. The fourth row is divided at the south end into two, making eight small divisions, seven of which contain 24 pens each, and one only 12; and of the remaining divisions on the north side we have four of 54 pens each, one of 27, and another 41—total 1,775. The open space at A (108 feet by 257) is paved and ready for more pens being erected when required; meantime it may be used as sorting ground for butchers collecting their purchases.

The diagram requires explanation. "Necessity is the mother of invention," and the want of space in Smithfield has given rise to ingenuity which our readers in rural districts may never have dreamed of, however hard up they may have been for accommodation to their flocks. The proposition at issue is a pen which will admit of sheep being driven through it in any direction. This is accomplished by one fixed angle, as at *a*, and four gates, *b b* and *c c*. If it is intended, for instance, to drive sheep in the direction *c c*, through the pen *s*, then a drover opens the two gates *c c*, placing them in the direction of the dotted lines *e c*, takes one in each hand, and, standing between them, keeps the sheep behind him in the pen from getting out, or those passing before him from getting in. And before that lot has well passed, perhaps, another drover is shouting to open the gate *b b*, when click go the gates *c c*, and up *b b*, the drover standing between them again, the sheep running past in that direction; and so on during filling and emptying. Drovers are plentiful and cheap, but land scarce and dear; and the practice adapts itself, it will be seen, to both exigencies.

The calf market, *a*, consists of two large covered buildings, each 261 feet long by about 40 feet wide, with a 38-feet road between them. The floors are of granite blocks, as already stated, and raised to a level with the bottom of a cart or wagon; so that, when such vehicles are backed to the entrances, the calves may be walked up to their rails with the least possible inconvenience to themselves, or others already in the market. The rails and furniture, generally, is similar to that of the cattle market; so that they (the calves) stand with heads to heads and tails to tails across the building, with a footpath between heads, and another along the length of the building in the middle. The roof is lofty, being supported on iron columns 17 feet high, circular, and covered with corrugated iron.

The two buildings for the pig market, *b*, are equal in size, and uniform in every respect with those of the calf market just noticed, with the exception that they have pens instead of rails, which are arranged across them, with a foot-passage between every two rows, and another up the middle, longitudinally intersecting each house into two equal divisions, as in the calf market.

Both the above buildings serve the double purpose of markets and lairs, and therefore involve a new principle in the commerce and management of fat stock in the capital, deserving of the most matured consideration. At present, the bullock and sheep lairs, with slaughter-houses also, involve a new feature of management; for, although something of the kind exists at Smithfield, yet

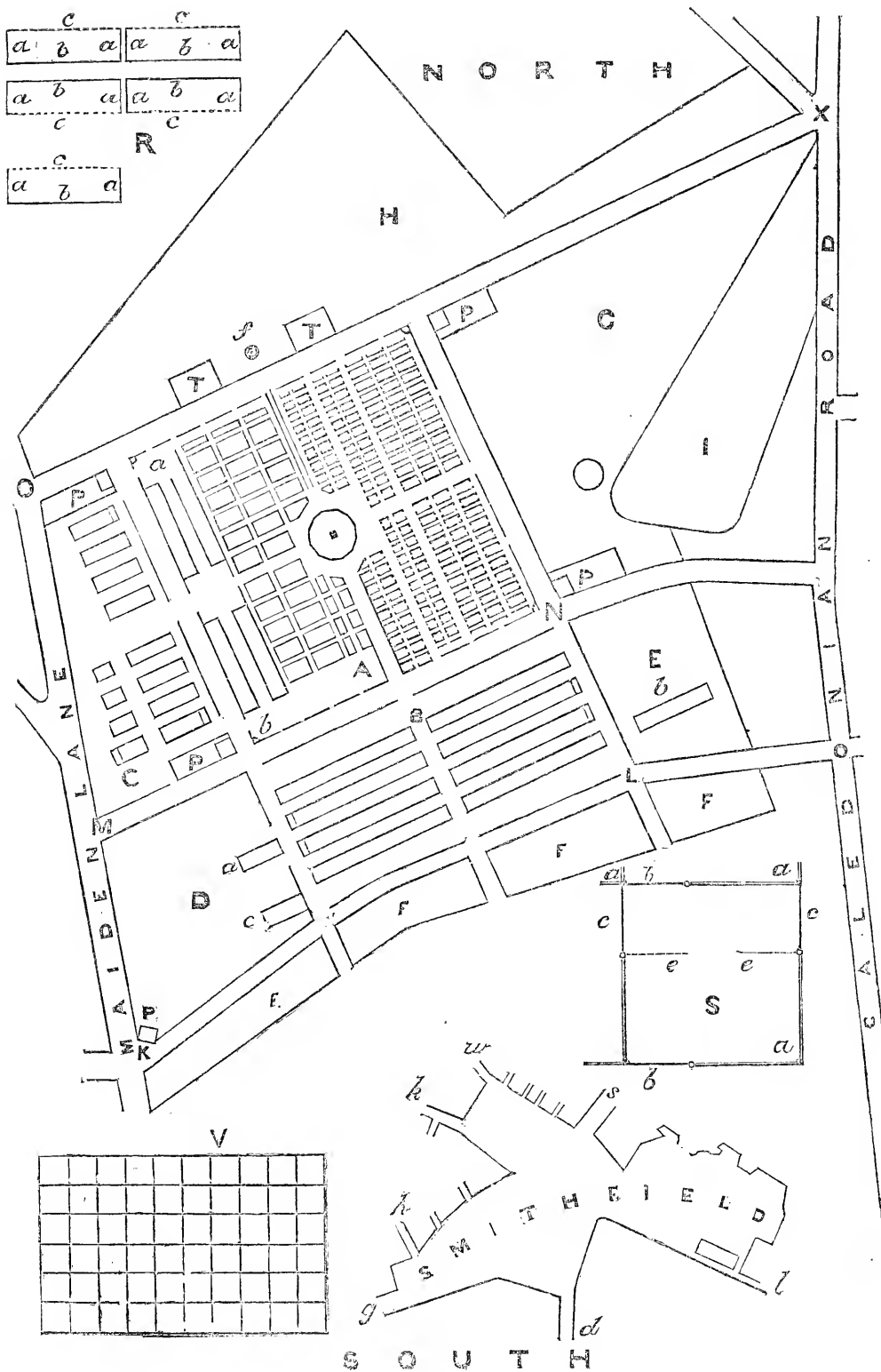
neither lairs nor slaughterhouses there formed part of one concern with the market, as they now do at Copenhagen-fields. Altogether, the improvements here involved are of such a magnitude and character as not to be easily estimated aright; and therefore we do not wonder, though many are apprehensive, that parties may not be prepared to appreciate their real value until too late, owing to the want of experience in them, and the high value they naturally feel disposed to put upon their own theories and practices, until such is acquired. In short, "dear-bought experience" ought always to be avoided; and this is what many are apprehensive will not be done.

Eight large buildings have been erected for bullock-lairs, each 395 feet long by 40 feet wide. They are open sheds, the roofs being supported on iron columns, and are 34 feet apart from each other. The roofs are strongly timbered and stayed, and are covered with felt below the slates, for the purpose of keeping out heat. A brick wall, about as high as the columns, runs down the centre of each building, dividing it into two equal parts, each 20 feet wide. Strong rails, supported by iron posts, as in the market, run across from wall to wall, subdividing each length into six double sheds and yards, or six yards, each about 66 feet long by 34 wide, with an open shed on each side, of the same length, and 20 feet wide. A large manger for hay is placed along each wall, and a watering-trough between every two yards, so that animals on each side can drink out of it; while gates along the centre of the yards admit their ingress and egress, though somewhat awkwardly. The two middle buildings have each a hay-barn, 37 feet by 15 feet, at the end next the slaughterhouses, as shown in the plan. The four outside yards have open spaces in front, where cattle may be watered, sorted, &c., &c.; or an additional shed opposite each may be built when required.

The sheep lairs are similar in construction to the cattle, being open sheds 34 feet apart, 40 feet wide, divided by a wall, and subdivided by railing into yards, the only difference being that instead of a low manger, there are racks along the wall for hay, and three bars instead of two in the railing. Eight of them are of equal lengths, being about 130 feet each, and the remaining four of different lengths. They have three hay barns, one at the north and two at the south.

The ground plan *b* in the private slaughter-yard *n* contains six slaughter-houses, and *a* in the public slaughter-yard *n*. two. The only difference between them worthy of notice is size—the latter being 40 feet by 37, and the former only 16 feet by 17; so that a description of one of the public will serve for all. First, there is a lair 20½ feet by 19, into which the cattle to be slaughtered are placed, with a door leading to the slaughter-house. At the end next this door the necessary apparatus and tackling will be found for slaughtering. From this end to the other, lofty parallel beams extend, on the top of which are railways and travelling cranes. The carcase is raised by the usual crane-machinery, and when dressed is removed to the opposite end by the travelling cranes, to cool. Adjoining the killing

SKETCH OF THE NEW CATTLE MARKET.



PRINCIPAL REFERENCES.

A, Market-ground, with banks in the centre.
 B, Bullock-lairs.
 C, Sheep-lairs.
 D, Public slaughterhouses.
 E, Private slaughterhouses.
 F, G, and H, Spare grounds.
 I, Entrance to tunnel of Great Northern Railway.
 P, Public-houses.

T, Taverns.
 f, Fountain.
 R, Bullock-rails, on a larger scale.
 V, One division of sheep-pens, showing the arrangement.
 S, One sheep-pen, showing gates, &c.
 SMITHFIELD, outline of.
 SOUTH and NORTH, applicable to both markets.

department is another door, leading to the offal department, where there is a boiler, and all the necessary apparatus required in such a place. The other ground plan *c* in the division *D* is that of the dead-meat market. It is not finished, and being rather of an experimental than permanent character, we shall defer details until results are known.

The two taverns (*T T* on the plan) are large buildings, being 110 feet long by 80 feet wide, and six storeys high. They are built and being finished in the first style, and are capable of making up fifty beds each. On the ground-floor of each tavern there are six shops for the sale of articles in connexion with the market, three on each side of the front-entrance to the tavern.

Half-way between the two taverns there is to be a fountain, represented on the plan by the circular figure *f*.

Four of the public-houses *P P P P* opposite the four corners of the market are also large buildings, being 48 by 43 feet, and five storeys high, capable of making up 15 beds each. The other public-house at the south-west entrance is only four storeys, making up 9 beds. Each public-house has a large yard for its accommodation.

In the four corners of the market, opposite the four first-mentioned public-houses, urinals and waterclosets are erected. They are of an octagon form, and enclosed within high brick walls.

The six entrances on the three great roads leading between Maiden-lane and Caledonian-road have gates, which will be open to the public, allowing them the benefit of these great thoroughfares, unless on market days, during which cattle alone will be admitted, and such vehicles as are destined for the banks—calf or pig markets. The area represented on the plan by *i* is the entrance to the tunnel of the Great Northern Railway; and at the east end of the spare grounds, *g*, an entrance direct from the railway might easily be made, so as to save cattle the necessity of crossing the Caledonian-road, which they now do. But "Rome was not built in one day," neither can the cattle-market of the British capital.

Owing to the important acquisition lately got of the three southern entrances from the North London Railway, the residence and offices of the clerk or steward of the market have not been built; and, so far as we have yet heard, the site is not definitely fixed upon. The police station in Caledonian-road will accommodate the police staff of the market.

Many important improvements are in contemplation; but as yet it would be premature, we conceive, to commit them to paper.

The architectural style of all buildings and erections for a cattle market must necessarily be of a plain and

substantial character, or what has technically been termed the "*Bovine order*;" and this is what we find in the new metropolitan cattle market. At the same time, wherever ornament can be judiciously involved it is not wanting. The cast-metal posts or piers of the ring fence of the market, for instance, are not only strong, but advantage is taken of this strength to surmount them in the bullock department with the figures of four bulls' heads; and a coronet of horns; in the sheep department four rams' heads; in the calf department calves' heads, and pig department pigs' heads. The artist, we may observe, has carefully avoided giving the preference to individual breeds, by producing a very successful *architectural cross*; so that farmers who visit the market will not find occasion to complain that notice has not been extended towards their own favourite herd and flock.

The following is, we believe, the architect's original estimate; but we may observe in giving it, that several improvements have since taken place, and that it is impossible to finish such an undertaking at the money:—

Market	£115,521
Bullock lairs	54,000
Sheep lairs	28,000
Roads	25,000
Public-houses	15,000
Taverns.....	11,000
Public slaughter-houses	13,000
Private ditto.....	11,700
Spare grounds	5,500

Total.....£278,721

We conclude this division of our subject with a farewell account of Smithfield. As already stated, the sketch we give of it is drawn to the same scale as that of the new market; and we may just observe to those of our readers who have never seen the old market ground itself, that the outline is somewhat flattering; for the old tottering and dilapidated buildings which surround the greater part of Smithfield are such as almost to defy delineation. The small letters of the diagram show the streets which intersect the market ground: *l*, being Long-lane, for instance, *d*, Duke-street, *g*, Giltspur-street, *h*, Hosier-lane, *k*, King-street, *w*, West-street, and *s*, Smithfield-bars. Duke-street and Giltspur-street lead to and from the cattle department; Long-lane and King-street again separate the cattle from the sheep; and the calves and pigs are at the end next West-street; while the small lanes not marked lead to lairs and slaughter-houses. The whole area is only 6 acres and 15 poles, so that the surprise is, how it was possible to cram some 6,000 cattle and 40,000 sheep within so small a compass.

At this season the task is performed by gas light ; but the *modus operandi*, under the flickering glare of the lamps, contending with "November fogs," is "more easily conceived than described." But for all that, many a good fat bullock and sheep have exchanged hands in it—many a sovereign collected and faithfully remitted to the provinces—and now that its *requiem* is about to be sung, "The Great Globe itself" has not another field of six acres to place in the scales with Smithfield. It will be long before so many historical associations surround the new market in Copenhagen Fields as those which arise with the very mention of its name ; and it is only when some twelve months have passed over the heads of the bankers, salesmen, butchers, and drovers of the capital, that they themselves will be able to place a proper estimate upon the Herculean task here performed, or to appreciate the benefits which they have gained by the change.

INDIVIDUAL INTERESTS — HOW AFFECTED BY REMOVAL OF MARKET.

But although time is necessary to ascertain experimentally the real value of the great national work which we have thus briefly, but imperfectly, described, and how individual interests may be affected by the removal of the market ; yet a prospective glance at the latter may profitably be taken, which forms the second division of our subject. On entering a field so wide, we may remind our readers that our observations must necessarily be very brief ; and, therefore, in order to preserve perspicuity, we shall divide the different branches of the trade into three classes—*first*, sellers and buyers, or farmers, salesmen, and butchers ; *second*, the Corporation and "money-takers ;" and *third*, slaughter-men, butchers'-men, drovers, &c.—noticing individual interests under their respective heads.

The commercial question at issue is simply this, *Will the lairs and slaughter-houses of the new market pay ?* Will it be more advantageous for salesmen and butchers to use them in preference to those now in use ? On the part of the salesman, for instance, the question will stand thus—Can I do my employers (those farmers and graziers who consign their cattle, sheep, or pigs to me) more justice in the market lairs than those which I now use ? And on the part of the butcher, Shall I rent so many lairs yearly, and turn my purchases into them the moment I close a bargain with the salesman, and there let them remain until required for slaughtering, either in the market slaughter-house or in my own, as experience may show to be the best ? or shall I make my purchases, if possible, before the market gates are closed in the morning (supposing that driving cattle in the streets during the business hours of the day will be prohibited by the bye-laws of the Corporation), sending the stock home immediately, and allowing those made after this hour to remain at the market rails or in the pens until the gates are opened in the evening—farther supposing such bye-laws will permit of this latter practice of stock remaining at the rails and in the pens—or otherwise delay my purchases or delivery of stock after the gates

are closed in the morning until they are opened in the evening ?

Such is the manner in which this important question comes home to the salesman, butcher, and farmer ; and it will readily be perceived, from what follows, that there is but one mutual interest involved, and that only permits of one answer being given to the question, whatever may be the bye-laws and practice of the market. It is no doubt possible to frame bye-laws in accordance with the statute (14 & 15 Victoria, cap. 61), such as would almost enforce the observance of the one mutual interest involved ; but in a free country like this, where individual interests are so plainly expressed, it is always prudent to consult them practically, as it were, first before any attempt is made to enforce measures for the public interest in connection with any of the arts which may not have the sanction of experience, although absolutely right, and even manifestly such as will eventually establish themselves. In other words, practical men, such as farmers and butchers, have a right to be practically dealt with ; and, as neither have any experience of the lairage of the New Metropolitan Cattle Market, it consequently follows that an opportunity ought to be afforded both, so far as the public interest will permit, of judging for themselves as to how they shall steer, and such an opportunity each will realize ; for we believe the Corporation are to furnish the market bye-laws, &c., &c., in terms of the 3rd, 4th, 5th, 6th, 7th, 8th, 9th, and 10th sections of the statute, in a manner which neither the Government nor trade can object to.

The public or mutual interest of parties involves the practice which will return the greatest weight and best quality of butcher-meat, creating at the same time the least obstruction to the traffic in the streets ; and that practice is obviously to use the lairage and slaughter-houses of the new market, because it secures each of those important results. In the first place, for instance, it secures the greatest weight, because there is less waste upon the animal organism during marketing ; in the second place, it secures the best quality, because the meat is subjected to less excitement or nervous action prior to slaughtering, and subsequently cooled and set in a purer atmosphere than is experienced under the present practice, generally speaking ; and in the third and last place, from the facilities which we have seen that the different railways afford for bringing stock directly into the market grounds, all obstruction to the growing traffic of the streets is therefore removed.

But in order to show the influence which public interests exercise over those of individuals gradually removing them, until the two (the former and latter) reciprocate together, it will be necessary to enter more into the details of the practice of the new market. The extraordinary increase of the metropolis of late has rendered it impossible for Smithfield any longer to discharge the functions of its cattle market, so to speak. Consequently, the market is about to be removed ; or, for the sake of argument, we may say that Smithfield has been finally closed by public proclamation in the *London Gazette* according to the tenth section of the

statute, and that the market has been removed to the new buildings in Copenhagen Fields, where there is ample space within for improved management, and still greater opportunities without of starting new commercial machinery adjoining it, which could not be done in Smithfield. What influence will such have on my interest? is a question which comes home to every farmer, salesman, and butcher. Choleraic influences and sanitary improvements, again, are creating a brick-and-mortar revolution, as it were, throughout the length and breadth of the capital: churches, once held so sacred, with their whole congregations, submitting to *change* as well as cattle markets and their busy inhabitants. Whole streets are disappearing at the centre, while new ones are rising still faster in every suburban district, as adjoining the new cattle market, already surrounded with a class of buildings so totally different in character as to indicate in an unmistakable manner the irresistible progress of things. *How will such changes affect me?* Am I beyond the influence of such a revolution?

But let us examine the facts of the case a little more closely, still reviewing the interests of parties separately, and reversing the order in which they appear: taking the butcher first, the salesman second, and the farmer and grazier last, as this will exhibit the facts in question in the clearest light, showing to them how they do in reality stand with the public and the march of progression.

1st. The butcher trade of the metropolis must, of necessity, join in the march of improvement; for to stand still in these steam-going times is absolutely impossible. In point of fact, it is now progressing at a rapid pace; and the removal of the cattle market cannot fail to increase its speed. From the perishable character of meat, for instance, and the attention now being paid by their customers to quality—no less in a sanitary than dietetic sense—butchers are necessitated to watch with a degree of anxiety and care, commensurate with the circumstances in which they are placed, every movement calculated to affect the same. Now the removal of the market will affect both the quantity and quality of the meat. We are not here to be understood to say that our principal butchers will not be able to maintain their ground, even supposing that they continue their present practice; but we do mean to affirm that they will have more difficulty in doing so than they have hitherto experienced, and it is here where they will have to watch the progress of things.

In evidence of this, we may observe that consumers are now becoming so well acquainted with the chemistry of animal food as to be able to detect bad meat by other means than smell or colour, while they are also becoming familiar with the causes which produce it. Huntsmen have been familiar, for example, from time immemorial, with the fact that the blood of oxen, sheep, pigs, or other animals, hunted to death will not coagulate, that such animals die badly, and that their meat will not keep. Now consumers are becoming familiar with those things also, while they further know that over-driving fat stock produces a

similar effect, and that this does not arise merely from the over-exertion of the muscles, but principally from the excitement of the nervous system, and the effect which such produces upon both solids and liquids. In other words, the action of the nerves has a greater effect in reducing both the quantity and quality of meat than the mere muscular exercise of walking or running; and consequently, that the nervous excitement experienced by animals in being driven through the crowded streets of the capital, deteriorates both the quantity and quality of meat below that slaughtered in the slaughter-houses of the new market, the animals having been properly cared for in the lairs. They also know that this driving of the animals deranges or rather keeps up the derangement of the stomach and bowels acquired in being forwarded to market, so that the fluids (amounting to 75 per cent. of the meat) are also affected; while this is not the worst view of the picture, for the animal in such a state derives almost no benefit from the small quantity of food which it eats, so that respiration has to be upheld by the carbon of the fat, leaving the oxygen and hydrogen (water) often imperfectly removed under such circumstances. Hence the dropsical and watery appearance of such meat, to say nothing of its flavour, and liability to putrefaction, diffusing around it the *morbid* elements of fever. Again, animals subject to such treatment are more liable to have their meat deteriorated by the miasmatic, fungal, and other influences of the atmosphere, than under what will be experienced in the new market; and it were difficult to convey a just conception, either of the loss here sustained, or the lively apprehension of the public mind at present, on calamities of this kind, and determination to put an end, so far as possible, to all such sources of pestilence.

But consumers are not the only persons now becoming practically familiar with these things, for many butchers are also familiar with them, especially the rising generation, or those starting in business—men who will unquestionably adopt the machinery of the new market, in preference to that of the old; for although they are familiar with the fact that a current of cold air between two doors or in the street *will blow the stench from meat*, they also know that modern science has got a long way beyond such a practice.

As yet it would no doubt be premature to say what the actual machinery of the new market may be, when science is progressing so fast. At the same time, one thing is plain—that butchers commencing business will neither have to erect slaughterhouses nor lairs for stock, as both are provided at the market, and in character far superior to anything now to be found in the metropolis, we may safely say which they themselves would have erected; hence less capital is required, while greater profits will be realized.

But although we cannot describe what is not in existence, yet recent changes have already given rise to machinery, which may of itself exercise a very important influence upon the trade. Look at the facilities, for instance which railways, omnibuses, and steamboats are affording for residing in the suburbs, and yet having the office or shop towards the centre.

Witness again the miles of streets composed entirely of family residences, where butchers' carts may be seen driving about among them from the opposite side of the metropolis. When once a butcher, or his boy, is seated in his cart, he soon drives across some half-dozen miles of suburban streets, taking orders or delivering them. This light spring-cart and van trade is not only thus creating a revolution in the butcher trade, as regards the distribution of meat, but also in every other trade of the capital. Now, what is to hinder butchers, like other tradesmen, residing in the neighbourhood of the market, or railways leading to it, where they may have a season-ticket, so that they could attend to slaughtering, &c., evening and morning, taking a fresh supply of meat every day with them to their shops? Would not private families soon appreciate the soundness of the practice which such an hypothesis involves, and therefore support it? for the family butcher then would be under no obligations to take to his shop anything which did not suit. Even if an ox or sheep did not die well, as is frequently the case, the whole carcase may be disposed of at its legitimate value in the dead-meat market fresh, instead of being either wholly or in part smuggled off, returning to the dead-meat market in a putrid state that which has not thus been disposed of, if not sending it to the knacker's caldron.

An example from another trade will probably better illustrate our proposition than any other line of argument, viz.: A gentleman the other day entered a butter merchant's shop, for the purpose of arranging for a supply of fresh-churned butter. There was a gaudy display in the window; but it was "covered with capric and caproic acid," and therefore did not suit. "Have you got none fresh in, sir?" was the laconic and decisive interrogatory put; and the answer returned in a tone of perturbation, "I can send you some to-morrow morning." "Thank you," was the final reply, followed by the chastising rebuke, "I know where *good butter* only is kept," and away he drove, leaving the merchant and some of his best customers then in the shop to think for themselves as to the progress of the times.

Now, when consumers are becoming thus practically familiar with the butyric, capric, and caproic acids of butter, and the causes which produce them, can we suppose that they are one whit less familiar with the acids of butcher-meat, and the causes which produce them, and that they will not adopt equally effectual means for avoiding the latter as they do the former?

The position of salesmen will be similar to that of butchers; for if they set too little value upon the lairage and other accommodations of the new market, young salesmen starting business may have an advantage over them greater than they may calculate upon. In other words, salesmen who have lairage of their own will not, under the working of the new market, have that advantage over those who have not, as they now possess under the operation of Smithfield, if they do not labour under a serious disadvantage.

At present, generally speaking, there is by far too low an estimate put upon the daily waste of live stock and deterioration of the quality of butcher-meat in

driving to and from lairs by both salesmen and butchers; but if lairs and slaughter-houses are properly managed, a practical solution of the problem at issue may then be obtained, no less to the satisfaction of both than the farmer. If an ox loses upwards of 56 lbs. of meat per day, when labouring under fever, what does he lose under the street-driving fever of the metropolis? is a question, we say, which may find a practical solution.

The interest of the farmer or grazier is identically that of the public, and his position in reference to the question at issue briefly this—whether will the lairs of the new market, or those of the salesman or other private party, return me the highest price for my fat stock, after deducting expenses? Now, with him, experiment will be left to answer a question so important as this. The moment, for example, that he sees the advantages of the lairs of the new market, as formerly described, he will give them a trial. If he already has a salesman who has private lairs of his own, he will not be so new-fangled in his notions as to withdraw his consignations from him, but he will unquestionably divide them for a time, sending so many head to some of the most successful salesmen, who only use the lairs of the new market, regulating his future consignations according to results. Far be it from us to interfere so far with *the trade* as to say that the new lairs will beat the old in the hands of different salesmen; but we should like to hear salesmen themselves answer the question—*Why they should not?* Practice and Duty are two different questions. To the latter, farmers can be at no loss for an answer; and, as it has already been said, they will leave experiment to answer the former.

The removal of the metropolitan cattle market is one of those changes which cannot fail to arouse the most scrutinizing inquiry of farmers, especially the lairage and slaughtering departments of it; because, upon their proper management the value of their stock greatly depends, both as to quantity and quality. It would be unreasonable to expect the contrary of them: for with chemical and mechanical science they are now becoming familiar, and will experience no difficulty in arriving at tangible conclusions as to what is and should be done. In this respect they are now quite a different class of men to what they were a few years back. In short, the facts of the case at issue with the farmer are the quantities and qualities of butcher-meat which he manufactures, and the quantities and qualities which he receives payment for in the London market. If, for example, he drafts out six fat bullocks of uniform weight and quality, registering the live weights of each, slaughters two at home, weighs the carcasses, and consigns them to the dead meat-market; sends other two alive to the lairs of the new market, and the remaining two to those of the old; he will then expect the returns of the three salesmen to tally with each other—such is the line of procedure which he may be expected to adopt.

The second part of our proposition involves the interest of the Corporation and bankers—a division more easily disposed of than that of the other branches of the trade; for the question, Will the fat stock of liquid-manure times require to be sold in their lairs, as is now proposed selling calves and pigs? is one which is easily solved, as it only admits of an affirmative answer. Farmers have long been familiar with the fact that Cattle-dealers who accustom themselves to buy cattle only out-of-doors, as in yards, fields, or open markets, do not like to buy them otherwise, as in stalls and feeding-boxes. Hence the absurd practice, and loss experienced in turning out house-fed stock in the hopes

of effecting a sale; but the loss sustained on such occasions, amounting in many cases to more than a week's keep, is compelling them to teach such dealers to buy within-doors, and the same lesson may yet be successfully taught the buyers of fat stock in the British capital; for, unquestionably, if the fat ox or sheep is placed in a comfortable lair, the practice of removing it, to stand for several hours on a granite pavement, wedged up to a rail, or into a pen, with its back, and hence the best parts of its meat, exposed to the influence of frost in winter, and a scorching sun in summer, merely to suit the experience of buyers and sellers accustomed to the antiquated and anomalous routine of Smithfield, is one subject to revisal, especially where the animal is returned to the same lair for slaughtering, either in the public or private slaughter-houses. For example, Should the fat stock of Baker-street Christmas Show be sold in the Bazaar, or turned out to undergo "martyrdom at the stake, in Smithfield"? Such is the practical question at issue, and its solution, we repeat, "*Sold to best advantage in the Bazaar.*"

But we are not yet altogether under the influence of the house-fed stock of the Smithfield Club; for the vast majority of fat-stock sold in the capital are yet fed in open yards and grass fields, so that for them the lairage of the new cattle market is not liable to the same objection.

But the numbers and weight of house-fed stock, both oxen and sheep, are increasing very fast, retrospectively viewed, while prospectively they will obviously greatly exceed what they do now, and therefore the necessary provision should be made for them in all our fat-stock markets. At present, justice in more respects than one is not being done to this class, in common with the more hardy and out-door fed animals, accustomed to an injurious amount of exercise and inclemency of weather; for they are not only less able to bear the hardships of the present rude mode of marketing, but the quality of their meat suffers more from nervous excitement, while this reduction of quality is erroneously attributed to the mode of feeding; thus throwing a serious barrier in the way of farmers making progress in feeding and producing an increase of the quantity and quality of butcher-meat for the public. The loss thus sustained, both public and private, is far greater than is generally, we fear, imagined. Now the obvious provision which such a state of things requires is fat-stock *cattle bazaars* analogous to what has been provided for horses of the first-class. At one time first-rate horses were sold in Smithfield; but progress in the management of horses has superseded the antiquated practice of Smithfield, and therefore, unless the corporation keeps pace with the progress of the times, by making provision for the first quality of fat-stock, private enterprise may do so, and hence supersede the practice of the new market. For example:—

The present practice of disposing of this quality of fat stock may be superseded either by slaughtering at home and consigning to the dead-meat market; by private salesmen erecting bazaars and slaughter-houses, and supplying the dead-meat market; by retail commission agents, who supply small butchers with their vans; by butchers themselves buying direct from the bazaar; or by a combination of these. Now, every one acquainted with the butcher trade of the capital and the country must be aware that each of these plans is, under certain modifications, in successful operation already, and fast superseding old practices; so that were improved machinery brought to their assistance, the result is obvious. The general testimony of the Blue-books on Smithfield prognosticates that the removal of the market will produce a revolution, which will be no less felt by the Corporation than the trade itself; and it will readily

be perceived that the progress of things is as irresistible in the one case as the other.

Fortunately the malady at issue suggests for itself the specific cure; for as the Market Commissioners have slaughter-houses already, they have only to erect a small bazaar capable of being increased in size with the demand for feeding boxes, and to make the necessary bye-laws for governing this branch of the trade, when farmers and the salesmen who superintend the live sales, management and slaughtering for the dead-meat market, or any new branch of butcher-meat commerce which may arise, would naturally be disposed to prefer such to erecting buildings of their own, especially in starting a comparatively new line of business with so perishable an article as live or dead butcher-meat. No doubt, after this branch was in successful operation, the capital of the Corporation would have no advantage over other capitals, so that it could make no monopolising changes. So much the better. But, nevertheless, it will doubtless be found in this, as in other trades, that small capitals realize longer interest in trade than in buildings. In other words, if the Corporation invests capital judiciously, not only will fair interest be received for it, but advantages of renting feeding-boxes and slaughter-houses enjoyed, greater than the equivalent of market dues from which private bazaars would be exempt.

It may, no doubt, be said, by way of objection, that although feeding-boxes were erected in which the fat ox could be tied up during sale, with an open entrance for buyer and seller, and in which he could be loosed, and the gate closed the moment he is sold, yet the farmer could not afford to pay the rent which such a box would cost, while neither salesman nor butcher would be found to use it. But objections of this kind have only prejudice for their foundation, and are, therefore, easily disposed of; for if feeding-boxes pay the farmer at home, they will obviously pay him better in the capital, because his ox, when he arrives there, is fatigued, and too frequently less or more braised; and therefore has more need of the benefits of a loose, roomy, and well-ventilated box, in which to recover himself. Those who have had similar experience with ourselves in travelling prize cattle to the summer meetings of the Royal Agricultural Society, or fat stock to Baker-street, must have appreciated the benefits of a loose-box, and how much better and sooner cattle recover themselves in them, when they return home, than under any other system. These are facts with which every veterinary surgeon is familiar, and which merit the most serious consideration of the Corporation and trade at present. Moreover, the expense of removal from lairs to market, tying up to rails, loosing and returning to lairs again when sold, would, when we bear in mind the fact that the one is in the centre of an eight-acre field, and the other in the centre of a fifteen-acre field, do far more than cover the extra expense of a feeding-box. And with regard to the trade, we shall grant for the sake of argument that its objection is good, although the contrary is the fact, because it has nothing to do with the question at issue; for we are not finding fault with the conduct of parties, much less dictating what course they should pursue; but only pointing out facts which exist, and which may be embodied into a practice affecting their interests; for the progress of things will neither be guided much by our dictation nor their practice. At the same time, it would be unreasonable to suppose that farmers who use feeding-boxes at home would not prefer them in the capital; and that if our best fat stock were once placed in feeding-boxes, that salesmen and butchers would not be found in the British capital to sell and buy there. But, however absurd it may appear to suppose that a London salesman and butcher would remove a fat ox from a comfortable feed-

ing-box, tie it up to a rail some 200 yards distant in the adjoining open field, and there strike a bargain (!), there is nothing to prevent them doing so, until they discover a more profitable course. Even this itself would be a great improvement of the present management of the class of stock under notice. They cannot be in two places at one and the same time; and consequently neither can the stock they are buying and selling. Changes so great as those in contemplation are obviously a work of time; and what both the trade and corporation have to look after is, that they do not lose the commerce of the best description of fat stock as they have lost that of horses. This is what we have endeavoured to bring under their notice, and hope our observations will not be misconstrued.

Since writing the above, the *Mark Lane Express* of the 13th, containing the discussion of the London Farmers' Club "On Farm Buildings," has just been delivered to us, in which covered homesteads have unanimously been approved of: thus confirming, as it were, the observations we have made; for in principle covered homesteads are but the prototypes of covered cattle markets and lairs; so that this principle, when generally reduced to practice in the one case, must of necessity be so also in the other; for farmers, as a body, will not submit to the loss which individuals of them are now obliged to sustain on their house-fed stock.

The bankers' interest—the next we have to notice—is closely connected with that of the Corporation: hence the reason why the two have fought so closely together throughout the long-protracted parliamentary proceedings against Smithfield: and the prosperity of the one is no less dependent upon the proper management of the lairage and slaughtering departments of the new market than the other. Professionally, their labours are intermediate between those of salesmen and the great bankers of the capital, properly so called, and appear to have had their origin in times of less education than the present, when those who could sell a fat ox or sheep to the best advantage could not so wield the pen. In other words, they perform the more official labours of the salesmen, and those who originally were their bankers. Technically, they are denominated "money-takers;" and this is, strictly speaking, their profession. That it has formed a useful branch in the subdivision of labour, is manifest; but, at the same time, it is one which in modern times is daily becoming more liable to be superseded, owing to the growth of intelligence, the greater facilities for collecting and remitting money, and the possibility of a more judicious abridgment of labour being adopted, as will readily be seen from what follows.

From being thus connected with salesmen and bankers, the interest of money-takers becomes identical with theirs; so that whenever it falls short of this, it is liable to be superseded. Now, it is the interest of the salesman that the price paid by the butcher shall be faithfully collected and remitted to the farmer; but, unfortunately, this is not being done, for a very large portion of the fat stock sent to Smithfield is bought by middlemen at a sweeping profit, taken between the butcher's price and the farmer's remittance; hence the loud complaints which have lately arisen among both butchers and farmers, especially the former, that justice was not being done them; consequently, if a bazaar salesman were to start, and to divide this intermediate profit between farmers and butchers, he would, according to the natural course of things, receive their support. No doubt the possibility of the private bazaar salesman doing so may be queried; but those who only do business one day in seven would do well to take a second thought of the business habits of the times in which they live, and the general and daily struggle every-

where experienced for bread; for the removal of the market lairs and slaughter-houses from the dark and dirty lanes of Smithfield will doubtless throw more daylight, as it were, upon the subject.

The rights of the labouring man are always deserving of pre-eminent consideration in every branch of industry; and from this rule the working classes of Smithfield are, doubtless, not an exception. Having already glanced at the interests of the public, Corporation, bankers, salesmen, butchers, and farmers, let us now briefly notice those of slaughtermen, butchers' men, drovers, policemen, publicans, &c., &c.—interests which embrace the management of live stock, filling and emptying of the market, including the removal of butchers' stock to their own shops, and hence the whole work of slaughtering, whether within the market-grounds, slaughter-houses of regular slaughtermen, or those of butchers themselves. When the slaughtering takes place in the public slaughter-houses, the labours of the drover will be considerably abridged, and also those of butchers' men, when the slaughtering is performed by regular slaughtermen. The most profitable mode of examining the interest of each subdivision separately will, therefore, be to place the work of slaughtering first, and the others following in the order just given.

One general observation, however, will be applicable to all, and therefore may be made here, which is this: that labour, as to quality, in the new market, will be very much elevated above what it is in the old. This is one of those self-evident propositions which require no proof, its character in Smithfield being far beyond any parallel; for all the slaughter-houses which we have examined—and that includes several weeks' close perseverance at the work—are dirty and badly-ventilated hovels, scarcely better, many of them, in the West-end than in Whitechapel itself; hovels totally unfit for working in, while in too many cases the work itself is performed without regard to that degree of personal cleanliness which the extreme delicate nature of butcher-meat obviously requires. The common maxim appears to be, to get cool air to flow into them, but unfortunately without due respect being paid to its quality; for in nine cases out of ten it was so loaded with poisonous gases as to inoculate the meat, setting it at once into a state of decomposition, from which no subsequent treatment could relieve it. Now, it is more easy to imagine than describe the position in which men are placed when slaughtering in such an atmosphere, and under such circumstances; and this conclusion is as applicable to butchers' men who kill as to regular slaughtermen. Again, the poor drover is so bedaubed with dirt every market-day, as not only to be a discredit to Smithfield (if aught could be so), but the British capital. In short, *brute force and devilry* are almost the only terms qualified to convey a just idea of things as regards labour in connection with Smithfield.

The interest of the regular slaughterman, like that of all other artists, is, obviously, to advance his art to a degree of perfection such as to secure for him the greatest amount of employment; and the means which will be placed at his command in the new market are such as to enable him to leave the antiquated systems of Smithfield behind, if he only makes a proper use of them, while a greater prospect will be held out to inventors to bring more improved machinery than yet exists to his assistance. A great many butchers may, no doubt, be unwilling to believe the advantages which slaughtermen will enjoy by a distinct subdivision of labour, with the means of carrying it out to advantage, and act accordingly; but obstacles of this kind will only be experienced for a short time, and ultimately they will go where all prejudice and scepticism of the kind has

hitherto gone, so that intelligence and perseverance have here a promising field before them.

The labours of the young butcher, or butcher's man, are of a very mixed character at present; for, in the first place, he has frequently to attend the market, and assist in collecting and starting purchases, and sometimes in driving them home; in the second place, he has to attend to the feeding of stock, and the daily drafting out and taking to the slaughter-house such as are to be killed; then follows the slaughtering, with the rude and often limited mechanical means at his command; next, the fetching the carcasses to the shop, frequently at some considerable distance; and, lastly, the disposal of them to the public. Of these five subdivisions of labour, the latter—the commerce of butcher-meat—is obviously the most important. Now, it takes no great stretch of vision to perceive that the high standard of dignity, intelligence, and gentlemanly appearance in manner and dress which the commercial division requires, is totally irreconcilable with that of the drover, cowherd or cattleman, and slaughterman; and that to this anomalous state of labour is to be attributed much of that rudeness and devilry so conspicuous among young butchers. Take them as a whole, and where will you find such another race of semi-barbarians? Why should they remain such a proverbial exception from that civilization and order for which the other branches of commerce in the capital are so justly famed? Is not butcher-meat the most delicate of all articles bought and sold in the metropolis, and therefore requiring treatment accordingly?

In this department of the industrial fabric there is much room for progress, and we sincerely trust that the opening of the new market will prove the advent of a more scientific state of things. The age of "Jack-of-all-trades" is gone by; and the butcher who cannot perceive a more perfect and profitable subdivision of labour than that now generally followed in the metropolis, is unworthy of the enlightened one in which he lives. So long as he was tied to the routine of Smithfield, with all its tragical associations, he may doubtless find more than one apology to plead; but the new market once opened, and the minds of intelligent young butchers will doubtless aspire to a more elevated state of things. A daily consumption, for instance, requires a daily supply, daily supply daily slaughtering, and daily slaughtering daily selling; hence we legitimately arrive at a fat-stock bazaar, already noticed. Now, with a bazaar, we should have regular cattle-men, whose duty would be not only to feed so many beasts each, but receive them from railways and hand them over to slaughtermen. Here then it will be observed that we have two of the above five subdivisions of labour economically disposed of, while Donnybrook drovers, including dogs, goads, lassos, "*et hoc genus omne*" are altogether dispensed with, which accounts for a third; two only remain—the conveying of carcasses from the slaughter-house of the market to the shop, and the disposal of them afterwards; both of which, strictly speaking, belong to commerce, and with the aid of machinery to load and unload, the young butcher, with his light cart, could keep his broad cloth as clean as do young grocers, &c. &c., in other branches of trade, presenting the same degree of gentlemanly demeanour in his converse with the public.

One word more on this head, and that is "*the long boots of Smithfield*," the index of the market. If the butchers' boots are very dirty, for instance, and himself literally covered with the droppings of the cattle, it is the sign of a good sale, and if *vice versâ* a bad one (?); but young butchers in the new market may think of cleaner boots than either, for we have had Dukes and even Duchesses, &c. &c., examining fat stock in their feeding boxes, and the same will be seen in Baker-street

during the ensuing show, and we do not see why they should aspire to dirtier shoes and broad cloth than are worn on like occasions. Such, we say, are the first ideas of progress. That young butchers, after having served their apprenticeships, are better qualified to reduce them to practice than we, is plain; and therefore we gladly place them at their disposal.

Of all the many ranks and gradations into which mankind are unhappily divided, that of the Smithfield drover is without a parallel; for the dirtiest wretch in the world is not so dirty as he, or so unworthy of the commerce of the British capital. Few have regular employment, the vast majority being only engaged during the market days; and their appearance and demeanour every Monday furnish a humbling epitome no less of fallen humanity than of the depths of misery and low standard of civilisation to which many are sunk in this over-grown metropolis, and the dirty employments which choice or necessity consequently compels them to follow, in order to obtain a livelihood. That the removal of the market will instantly do away with much of this misery will appear plain from what follows, and we hope at no distant date drovers will be elevated to the regular status of independent cattle-men, performing the duties already described. This is, no doubt, a work of time, but Science and Practice are both progressing together; so that the result is obvious. Of the advantages of regular employment to the labouring man, it would be superfluous to say a word; so that any system devoid of this must inevitably be found wanting.

Drovers are employed, as many of our readers doubtless are aware, by salesmen and butchers. Among themselves, they are divided into drovers and master-drovers. The latter have so much for taking every bullock or score of sheep to market from salesmen, out of which they pay the former according to agreement. In removing stock from the market, the butcher is charged according to distance. The removal of the market will have a tendency to increase the expenses of the butcher in removing live stock, and diminish those of the salesman—more especially after stock is delivered into the market grounds from the Great Northern and North London Railways. Both these alterations will operate conjointly in favour of the new market, and the ultimate elevation of drovers to regular cattlemen and shepherds:

Each salesman, again, has a man or drover, whose duty is to receive consignations at the different railways or the river, take them to lairs and the market, superintend them there, and hand them over to purchasers. When a butcher, for instance, purchases a lot of bullocks, he puts his mark on each animal; and, while doing so, the salesman's drover cuts the hair from their tails, which is his perquisite, and which proves a sure index to the trade that such a lot is sold. When the butcher, again, wishes for delivery, the drover goes to his employer's banker, to see if the beasts are paid for; and if so, then unties them, and hands them over to the butcher's drover or man, as the case may be. Now in all these duties the labours of this class, and those whom they employ to assist them, will be very much ameliorated by the change about to take place; for in the new market every salesman, of any extent, will have a department exclusively for his own stock, into which no other beasts will be allowed to enter, thus securing to man and beast quietude from the disturbances of taking in and out stock; whereas in Smithfield the space behind bullocks not only serves for a road, but standings for loose ring droves; hence the dirty turmoil experienced during the whole time of the market.

The filling of the market may be done in half the time, and at less than one-tenth of the injury and fatigue experienced in Smithfield, owing to the greater accom-

modation of roads and entrances to the market—a provision which will admit of rules and regulations being framed for the entry of stock, such as to render confusion impossible if attended to; and what we have just said of filling the market is applicable to the removal of stock, so that in both cases drovers will gain further benefits.

As we have already said, the mode of entering, tying up, and removing bullocks, is the same as in Smithfield, as also the penning and management of sheep. The latter practice has already been noticed in describing the mode of filling the pens; and to those of our readers who have not attended Smithfield we may briefly follow the lairage and marketing of one lot of bullocks consigned to a salesman, by way of illustration.

Drovers are always in readiness waiting the arrival of trains with stock; and when a consignment arrives before the market-day, as on Saturday or Sunday, to one salesman, his drover either takes home the stock to his own lair, if he has one, or else to the lairs of the market if he has not, where they are immediately fed and their wants attended to, so far as circumstances will admit. Early on Monday morning they will enter the market at the gate nearest the salesman's rails, and then be driven along one of the three main roads running from south to north, a drover going before them, while the other drovers attending to the different areas will keep them from entering among their cattle. When opposite their own standings, the drover in front will turn them inwards to them. The tying-up now commences—a work peculiar to the capital. The animals are driven close up to the rails by the drovers behind, while a drover in the passage in front throws the running noose of a *lasso* (provincially but falsely termed a "*bullock-tye*") over a bullock's head, making the other end fast to the rail. In this manner all the heads he can catch are secured by pulling them home to the rail, when he next goads any bullock standing in a reversed position forward, and the drovers behind goad its head round, forcing it up to the rail, where it is soon made fast. In this way the whole space between two "kicking-bars" is filled as close as bullocks can be wedged up, in which position they stand until untied by the drover attending to their heads in front, for delivery to the butcher as already noticed. If the butcher slaughters at home, his purchases will be collected into one drove as it passes along one or other of the roads running between them to the entrance nearest his own route home, those which cannot be so collected falling into the drove as it crosses the north, south, or middle transverse road at the gate, or as near to it as drovers can. In removing stock one drover frequently takes the purchases of several butchers, delivering each as he passes along. In removing stock from Smithfield they have their routes, which have been used by them and their predecessors from time immemorial. The removal of the market will create some derangement here, but new routes will soon be discovered more favourable than the old. When the bullocks are to be slaughtered in the slaughter-houses of the market, they will be returned to the market lairs as soon after they are bought as butchers can do so, where they will remain until taken to the slaughter-houses lairs.

The market policemen—the next party we have to notice—have much need of a cleaner "beat" and purer atmosphere than they now have, and both will be realized in the new market; and ditto may be said of the steward or clerk of the market. New bye-laws and regulations will be put into their hands, and none are better qualified to carry them out. The new lairs and slaughter-houses may increase the labours of the latter, if not both; but the steward ought to have a bailiff,

well acquainted with the management of fat stock in our provinces, to superintend the lairs; for much of their success will depend upon the proper management of stock. The splendid taverns and public-houses, again, will greatly tend to elevate this department of the new market, adding much to the comfort of the whole.

Such is a very cursory glance at the new cattle market of the capital, and of the interests involved. Recapitulation is unnecessary to show that the former is a national work of the first rank, while the names of the city architect and Mr. Laurie, the clerk of the works, are the best guarantee which could be given that it is being completed in a manner no less creditable to themselves than those they represent.

With regard to interests, the case of the farmer, it will be seen, is a plain one, for if he manufactures an additional 100lbs. of butcher-meat it is no more than reasonable, and even charitable, on his part to expect that salesmen and butchers will not lose sight of them in these times of economy and retrenchment; and with his interest that of the public is parallel. On the other hand, it cannot be denied that the changes about to take place are calculated to place salesmen and butchers in circumstances of a more critical character, at the same time there can be no doubt whatever as to the issue being ultimately in their favour; for the case of each resolves itself into a little honourable competition between stand-still and go-a-head rivals; and we do not hesitate to conclude that both will do their best to render an honest account of the beef, mutton, and pork, to the farmer and the public, and so avoid "dear-bought experience."

It will also be seen how closely allied are the interests of the Corporation and money-takers; and the necessity which both will experience, of keeping pace with agricultural progression in the management of fat-stock in the new cattle-market, is equally plain. The interests of both coincide with those of the grower and consumer; and as the interests of the latter are one, there is consequently but one interest involved; so that if parties pull together, their removal to a better market-site may enable them to retrieve much that has been lost in Smithfield. Salesmen and money-takers may be able, for instance, to exclude from the new market the nefarious trade of intermediate jobbing, faithfully transmitting to the farmer the butcher's price; while the latter may present to the public the farmer's weight of butcher-meat undeteriorated in quality. With means so vastly great, beyond those of Smithfield, it would be unreasonable to suppose that results will not correspond; and therefore we hope the apprehensions of "dear-bought experience" being realized, will meet with a gratifying disappointment. A change so great, however, must necessarily require the greatest circumspection, in order to avoid untoward casualties; and we have accordingly endeavoured to take a cursory though imperfect glance of some of these, and how they may best be disposed of.

And, lastly, it will be seen from the hasty glance which we have taken of the interests of slaughter-men, young butchers or butchers' men, drovers, &c., &c., that the removal of the market will elevate them individually and conjunctly, and that the progress at issue is that of a more perfect subdivision of labour. In the economy of labour, the manufacture and commerce of butcher-meat are no longer to be treated by the metropolis as an exception from the other branches of industry, but openly embraced with as much speed as the circumstances of practical men will judiciously admit of, and the results to be realized are as promising in the one case as they have been overflowing in the other. The quality of labour, from the highest to the lowest subdivision, will be elevated, and the moral and physical *status* of the cattle market of the British Capital placed on a level with her own commercial greatness and magnificence.

ON THE STOCKING OF THE AFTER-MATH, &c., &c.

We have great pleasure in responding to the wishes of "An Amateur Farmer," and Subscriber to the *Mark Lane Express*," by offering a short paper on the stocking and consumption of after-grass by sheep, in seasons like the past.

The weight of after-crops, unless where artificial means are at command, such as irrigation or liquid manuring, is always problematical, and therefore the greatest caution is necessary to be preserved in order to avoid overstocking. In seasons like the past, which at one time promised an abundance of keep, but afterwards gave the reverse, it is hardly possible to avoid such a calamity; so that the farmer is literally placed between the poet's couplet

"Death in the front,
Damnation in the rear;"

being obliged either to sell at a serious sacrifice, or else make provision for his stock by some artificial means or other, not easily found in dear years like the present.

But calamities of this kind must be submitted to; farmers may complain until they acquire for themselves the opprobrious epithet of "a world of grumblers" cursing their misfortunes, so coloured as to appear "black and blue" in their own estimation; but when such are viewed in their proper light, they will be found to involve some of the most important elements of their profession. Indeed, it would be poor times for the practical man, were farming only experienced as "smooth sailing."

In accordance with the familiar old maxim that "prevention is better than cure," we have first to consider the possibility of removing the causes of our calamities, which may either be—an excess of moisture, accompanied with cold; an excess of drought; an injudicious mode of stocking; or a combination of the latter and any of the former.

The remedy in the first case is efficient drainage, with manure when required. Where the lands are wet and undrained, a period of cold rainy weather sometimes does more harm to fat sheep—especially ewes and their followers—than seasons of excessive drought. Indeed, there is nothing which checks the progress of fattening so fast as weather of this kind. Examples of wet-bottomed lands are remarkably liable to vicissitudes of the character in question; and therefore, wherever they exist, the sooner they are drained the better, as this will reduce the amount of evaporation, and hence increase the temperature and growth of grass.

In seasons of drought, water may in many cases be successfully applied by art, so as not only to prevent grass from being burnt up, but to force up an extra growth of it; and by such means a very small field may be made, by soiling, to supply the shortcomings of others beyond the reach of water. If, for example, a farmer has a close of after-math contiguous to a river, or to which river-water can be brought, or land of any kind,

so that a field of Italian rye-grass may be provided to meet emergencies of this kind, then he may very judiciously keep a portable engine for thrashing, and in times of drought bring it to bear upon the liquid manuring of his rye-grass (water being the richest manure during periods of drought). We could point out hundreds of streams and thousands of fields last summer, where portable steam-engines might have been successfully snorting away, straining their iron sinews to the utmost, and producing a vast amount of grass beyond what was grown. In other words, grass lands so watered may be made to yield an excess of grass in summers like the past, sufficient to cover the shortcomings of those not so treated, thus keeping up an uniform supply of food for stock. We could also point out hundreds of fixed thrashing machines where pumping apparatus might be attached, and millions of tons of water (manure) successfully thrown upon grass lands; and in our southern provinces, where there is a less supply of river water, there is no doubt but artesian wells and pipage would pay, in many places. In each of those cases there is a wide and promising field for experiments; and were such judiciously made, there is every reason to believe that an extensive and successful practice would soon be the result, from the percentage of water which grass contains, and the rapidity with which it grows when judiciously watered in dry, warm weather. In all ages and kingdoms of the world which suffer from drought, water has been successfully applied, more especially to grass lands; and why should England, with all her steam-going and mechanical advantages, be an exception from the common rule?

The third cause of over-stocking is a frequent one in plentiful years, as well as in the reverse. As a general rule, where stock is purchased for fattening, large flocks should never be thrown upon the after-math at once. The farmer who goes to market with the notion that his fields, after this season, will grow a certain quantity of grass for the next few months, and therefore fatten so many head of sheep, and purchases accordingly, is not a sound practical man, but a theoretical speculator, who is likely to get his fingers burnt at times. Moreover, grass fields are seldom mown in one day, and as seldom is their after-math of uniform quality, and therefore should be stocked accordingly. Again, when an understock is bought, a sufficiently broad margin being left to buy in more as the season demands, even then it is not a safe or judicious plan to select such of uniform quality, requiring one, two, or three month's feed to fit them for the shambles. Fattening stock, whether wethers, dry ewes, or couples, can never be so successfully kept in one flock, even upon the after-math, as in two or more; and one should always be in a sufficiently forward state to be sold to the butcher, at any time without loss; so that, in the event of drought arising, they can then be disposed of, thus securing ample

provision for the remainder ; for sheep fit for slaughtering, as second-rate quality will generally pay their keep better than those farther back in the process of fattening. On the other hand, if the grass is abundant, they may be kept on until the second lot or a large draft of them is fit for occupying the best grass in their places, when they may be sold, and more purchased, should there be keep. In short, as grass is daily growing, the farmer's maxim should be daily buying and selling, thus manufacturing the raw material (grass) into mutton as fast as it grows, and, like every other intelligent manufacturer, keeping the manufactured article in the shape of stock on hand as short a time as possible, because of its perishable character, or liability to waste. Some such rule as this, or as near to it as possible, is that which every intelligent successful practical farmer endeavours to follow in the stocking of his after-grass.

The fourth cause—an overstock in combination with an excess of drought or moisture—may of course be avoided by a corresponding combination of the above plans, so that on this head we need not say more.

The other side of the question is, where the farmer has been overtaken by some one or other of the above causes. Draining, sinking artesian wells, bringing water to fields in pipes, and permanent works of this kind, legitimately belong to the landlord, and are often beyond his (the farmer's) reach, so that when he is overtaken by drought, as many were last summer, how is he to provide for his stock when the price of corn exceeds that of mutton, and when a sufficiency of water to drink can with great difficulty be had? We have given ground oats, beans, peas, Indian corn, barley, and oil-cake successfully, both to feeding and store sheep, at higher prices than they at present realize in Mark Lane ; but the flock was one of a very superior quality, one sheep having carried off the first prize at the summer meeting of the Royal Agricultural Society, in its class. Fine quality, possessing an aptitude to fatten, will pay for cake and corn if judiciously given, although at a very high price ; but the more ordinary description will not cover present prices of corn (Oct. 23), while inferior quality seldom pay for either cake or corn, and sometimes very little for their grass. These are facts which farmers must always bear in mind in stocking their after-math.

It will thus readily be seen that the malady at issue is one which hardly admits of a successful remedy, unless upon the preventive mode of treatment, buying of stock only which will pay for their *extra corn and cake to supply the deficiency of grass*. If a farmer can purchase or has on his farm a redundancy of cake, corn, and hay, and select a stock which will repay these, then the over-stocking of his after-math ceases to have a reality in practice ; but if, on the other hand, he has not artificial food of this kind within his reach, from which to give an extra supply, and has not made such a selection of stock, then he experiences himself in a very different position ; for under such circumstances there is but one choice left him of adopting alternative measures.

In practice it frequently occurs, where large flocks are bought in for the after-grass, that although the whole

flock will not pay for cake, corn, and hay, to supply the deficiency of natural keep in times of drought, a large portion of it will yet do so ; consequently, when this is the case, the best quality should be carefully drafted from the inferior, and allowed so much artificial food daily in a close by themselves, in preference to the alternative practices about to be noticed, for which the inferior quality only is adapted. In point of fact, successful fattening is almost entirely dependent upon the proper drafting of sheep into separate pens or lots, and feeding them with food natural or artificial, or a mixture of both, according to their respective constitutional qualifications.

Alternative measures will very much depend upon local circumstances, and the peculiar course of husbandry adopted. If a farmer, for instance, is in the habit of buying in a stock of sheep for fattening on his after-grass, and also of purchasing in bullocks or sheep for winter fattening on turnips, then if he fails in summer and autumn in consequence of drought to fatten on grass, it may be his most profitable course to carry forward his first purchase to supply the place of the second, feeding his sheep indoors on turnips, &c. ; and in making the first purchase successful, feeders will generally be found to make suitable provision for such an alternative.

But when the first purchase consists of couples, the lambs may not be fit for fattening during winter, being of a quality requiring a more matured stage of growth, and the farmer may, under such circumstances, have greater difficulty in carrying them forward to the next year's grass on his winter keep. Were other things practicable, for instance, he may not be able to remain so long out of his money ; for this practice, it will be perceived, involves the manufacture of three crops (the after-math, the turnips, and the next year's hay or grass crop) into one sale of mutton. In farming, "turning the penny" is a maxim as applicable as in other arts or trades.

If the farmer is not in the habit of purchasing in winter stock, having reared stock or spring purchases to consume his turnips, hay, and straw on hand, then another alternative must be adopted with aftermath purchases not disposed of. If we suppose, for instance, that he keeps a full stock, and of a second-rate quality, which will not pay for extra corn and cake this year, so as to spare part of their hay, straw, and turnips for his aftermath stock, then he will either have to sell off the latter, they being extra stock, or else part of his own, to make room for them, according as he may find it the most profitable course ; or he may winter his extra stock out, if he is fortunate enough to find a party who has the keep. This latter is generally the most profitable alternative of the two, and it is seldom that the country as a whole is overstocked, but the reverse.

If he has not a full winter stock on hand when he makes his aftermath purchases, then he may wedge in the latter, dividing the keep among them, and giving the whole but a scanty wintering. But the more prudent plan is to draft in part for winter stock, and either sell or winter out the remainder.

If the farmer has no breeding stock on his grass lands during winter, another alternative is, to allow his after-math purchases a run over these with any stubble fields, &c., until they are ploughed, giving them the straw-yard at nights or part of it, or a small yard for themselves, with a little cut straw or chaff, and oilcake at times, to avoid the greatest of two losses.

When ewes are thus kept as store sheep during winter, an early fall of lambs may sometimes be successfully obtained, if the grass lands are dry and afford an early bite; but otherwise, the practice is surrounded with innumerable difficulties, and seldom pays, especially in the hands of parties inexperienced in milk ewes, for in spring they require the greatest care and best of keep with their lambs.

Where stock will repay for cake and corn during winter, they will also pay for it during the drought of summer, and generally in a higher degree, and this is the time when artificial food of this kind should be given, so as to convert what grass there is immediately into mutton. It frequently, however, occurs that this is neglected; for many farmers during times of drought are in the daily expectation of rain, and will prognosticate a thousand changes of the weather before they will put their hands into their pockets to purchase artificial food, or even the aftermath of their nearest neighbour's field. In practice, there is too much of this unfortunately experienced; and when stock of this kind is thrown upon the winter keep, a very few turnips or green food of any kind will fatten them, along with a liberal allowance of cake and corn. Under such circumstances, the farmer will always be able to give the highest figure to those letting their turnips to be eaten off the ground, or yet where they are to be drawn and consumed in the strawyard or grass-fields.

One common error requires notice before concluding, and that is: When farmers find themselves with an extra stock on hand, more than their farms will support, they are always anxious that some compound or substitute should be concocted by wiser folks than themselves,

to make their farms larger, as it were, forgetting that there is but one rule for the economy of food in plentiful years, as in those of scarcity, "wintering ewes" requiring only a less supply than fattening stock; for were a combination of cake, corn, hay, straw, or any other substitute discovered, to supersede the natural produce of the farm as remunerating food for sheep, *then such should always be used.* The line of demarcation between profit and loss in the feeding of sheep on artificial food is a very nice one. That, instead of economy of food, the reverse is often to be found, is but too true; but, before a rule could be given under such circumstances, the facts of the case would require to be known, both as to the quality of the sheep and raw materials for food. Furthermore, that the economy of our best feeders could be greatly improved, is equally plain; but this, again, has nothing to do with the management of extra stock, or number of sheep more than farms are able to support. On this topic we shall endeavour to offer a few observations before the winter is over.

Such is a very imperfect review of this most important subject—the stocking of aftermath with sheep. It will readily have been seen that it is more easy and profitable to provide for the contingencies of the past season on the preventive mode of treatment than on the curative. We have devoted nearly an equal space to each, but have less consolation to give under the latter than the former. At the same time, it is certainly some comfort to think that the country, as a whole, is never overstocked; so that, where the farmer makes the best of his keep, wintering out appears to be the rule. The application of water, so as to make the extra heat of drought produce an extra crop, is a proposition worthy of the notice of our implement-makers. Several thousand engines contending with the weather successfully, is too important a matter to be delayed much longer. What would it cost to reduce it to practice—throw 1,000 tons of water upon an acre of grass, for instance?

THE CHEMISTRY OF MANURES—GUANO.

SIR,—I send you a copy of a letter on guano, which you are welcome to make use of, should you consider the contents likely to be interesting to your readers.

The former part, relative to the supply, &c., is quite new, and diametrically opposite to the accounts given of the Peruvian islands by those who wish to keep up the price. This one, however, I can vouch for being correct.

Yours, &c.,

Nottingham, Nov. 1.

SAMUEL PARR.

Before entering upon the subject of guano as a manure, I will relate to you a few interesting facts respecting it, communicated to me by a friend (Captain Fyfe, brother to the editor of the *Nottinghamshire Guardian*), both as regards the extent of its supply and the sources of its production. Last year Captain Fyfe visited Peru and brought over from the Chincha Islands a cargo of guano. His account of these islands is

totally different from any I have yet seen published; for instead of the guano being exhausted in eight or ten years, which most writers assert, he says that the supply, comparatively speaking, is *inexhaustible*—the beds of guano being in many places more than one hundred feet thick, and two or three of the principal islands being yet untouched.

On climbing the cliffs an innumerable quantity of skeletons of large marine animals were presented to his view, such as those of the seal and walrus, or sea-horse, sticking up out of the surface, in such quantities that the place appeared to be completely white all over; and these account in some measure for the white lumps frequently met with in Peruvian guano, which are no doubt the decomposed vertebrae of these animals.

Passing along over the island, he could scarcely take a step without his foot breaking through into a hole in which the guano bird makes its nest.

These holes extend five or six yards into the bed of guano,

and the birds are continually occupied in fetching fish from the sea to feed their young ones. The number is so immense that the air seems completely alive with them. By this account, on which the most implicit reliance can be placed, you will perceive that guano is not all excrementitious matter, as we have hitherto been led to suppose, but consists of a considerable amount of decomposed animal matter in addition to the excrement of birds. It is evident from this brief sketch that the supply of guano will be at present by no means limited, and therefore it rests with yourselves to petition Government, through your respective members of Parliament, to endeavour to devise means to get it imported into this country at a cheaper rate. I have no doubt that this could be done, if it were set about in good earnest, by some of the more influential of your body; not perhaps so quickly as our gallant fellows crowned the heights of Alma in the late terrible conflict in the East, but nevertheless I think it might be accomplished ere long. Of course, the distance of the period will be in proportion to the extent to which you exert yourselves in the matter.

From a very remote period (about two thousand years) guano has been the chief manure applied to the land on the arid soils of Peru. As the quantity generally used does not exceed 4 cwt. per acre, you will perceive from the analysis below that this could not possibly supply all the alkaline salts which are required by plants. Professor Liebig says, "We can only attribute the different quantities of guano necessary for producing the same results on different soils to the unequal quantities of ingredients necessary to vegetation contained in the soils, and not to those contained in guano. On a soil rich in alkali only a moderate quantity of guano is requisite; but on soils poor in alkalies it would take a large amount of guano to compensate for the want of potash or soda in the soil." The reason why the effects of guano are more uniform than perhaps any other artificial manure, with the exception of bones, is, that it contains a greater variety of the constituents of plants, that portion of it which is excrementitious matter partaking more of the nature and properties of farm-yard manure. Each of these bears a pretty equal resemblance to farm-yard manure, inasmuch as both of them supply phosphoric acid and ammonia, and both are derived, like it, from the vegetable food of animals.

Undoubtedly guano is the most useful manure that has ever yet been imported into this country, and the reason why guano which is found in our own climate is of far less value than the Peruvian is, that the greater part of the soluble portion of that which is produced in this country (in the islands of Scotland for instance) is washed out by the rain. The following is one of the most recent analyses of Peruvian guano:—

Water	14.31
Salts of ammonia	17.00
Organic matter	33.23
Alkaline salts	5.449
Phosphates	25.543
Salts of lime	2.968
Sand, &c.	1.50
	<hr/>
	100.000

The percentage of water in this sample, however, is rather high; I rarely find it to exceed 10 per cent., that of silica 1 per cent.

It would be almost unnecessary to remind you of the immense extent of adulteration which is practised by some of the unprincipled dealers in this article; and, therefore, it is a matter of importance that you should be put in possession of an easy method of detecting these frauds. When guano is

light (as regards the weight) and pretty uniform in colour, generally speaking, you may consider it good; but when you have any suspicion as to its genuineness, the following mode of testing it is not only easy of performance, but will yield you sufficiently accurate results:—Take one hundred grains of the suspected sample, spread it carefully on a piece of writing paper, and lay it on the hob, which must not be so hot as to char the paper. When perfectly dry, weigh it again; the loss of weight is the amount of moisture it contained, with a very small quantity of ammonia, which would be driven off by the heat along with the water. Then take the same dried and weighed sample, place it upon a piece of sheet-iron, and heat it over a bright fire until nothing but a white or grey ash remains; take it off the fire, allow it to cool, sweep it carefully into the scale, and weigh it again; the loss indicates the amount of ammoniacal salts and organic matter. The ash must now be transferred into a teacup, and well mixed with half an ounce of spirits of salts (muriatic acid). If chalk has been mixed with the guano, violent effervescence will take place; if not, the effervescence will be very slight indeed. After this has been allowed to stand on the warm hob for five or ten minutes, the undissolved portion must be well washed with clean water; the eye will then easily be able to detect sand or brick-dust if there be any, which will remain at the bottom of the cup, the acid not being able to dissolve either of these. This residue must be carefully collected, dried, and weighed, which of course will give you the per-centage of sand and rubbish, and the difference in weight will give the amount of the soluble salts (phosphate of lime, magnesia, &c.), minus the ammonia which was driven off by the burning on the iron plate.

To give you some idea of the proportions, 100 grains of good Peruvian guano ought to weigh 90 grains after being dried on the paper, 34 grains after being burnt on the iron plate, and about 1 grain when perfectly dried after being treated with spirits of salts.

It is always well to mix the guano before being applied to the soil with common salt or charcoal, on account of the power which they possess of attracting moisture in dry seasons from the atmosphere. I have seen a mixture of the two of about three times the quantity of these to one part of guano attended with the most important results as regards increase of crop.

As it must ever be an object to economise the use of this valuable and expensive manure, the admixture of it with superphosphate and salt cannot be too strongly recommended; not only does the former of these make the guano go much further, but on account of it fixing the ammonia, both are improved in value. The better plan is to mix them together a few days before they are applied to the soil.

I remain your obedient servant, SAMUEL PARR.

FRENCH FARMERS.—The usual rent of land is about 80 francs per hectare, 33 francs per acre; and the land-tax, amounting to about 13 francs per hectare, is also generally paid by the tenant. The farmers, though well off, are frugal, both as regards dress and living; their wives are "the very impersonations of industry." The French farmer's wife takes a lively interest in the homestead, and is as ready to show a stranger over the whole as the farmer himself, being alike at home among the cattle in the straw-yard as among the poultry. From the number of men boarded in the house, and the female servants being few in number, the farmer's wife has her hands full. "Still she never appears to overlook the toilet being in dress and in manner essentially the well-bred lady."—*N. B. Agriculturist.*

DRY-DRILL v. WATER-DRILL.

SIR,—Curiosity is usually excited when any novelty is introduced to the agricultural world. Various and contradictory opinions are frequently elicited from observers. There are those who are always prepared to pronounce favourably of anything that is new, and to lend it their advocacy, whilst others appear to manifest a natural abhorrence of novelty, and regard every new invention as Utopian; but the great class of practical men are mainly guided in the formation of their opinions by close observation, and the results of successive and repeated experiments.

During the last few years the water-drill has shared no small measure of public attention, and opinions respecting it have been numerous and conflicting. Having witnessed some very successful results from its use in the north of Lincolnshire, I was induced to purchase one of Chandler's last year.

At the London Farmers' Club last April, when Mr. Spooner introduced the following subject for discussion

—viz., "On the Application of Manure in a Liquid State to Roots, Grasses, and Grain Crops"—I stated that I was about to make a series of experiments with mangels, to test the comparative merits of the dry and water-drills, the results of which I promised to publish in the autumn. I now redeem my pledge, and append a table, showing every necessary particular, and giving the produce per acre of each experiment.

The season has been an unfavourable one for making the experiments, as the drought and heat during the months of August and September were so intense as to stop the growth of the mangels in one or two instances entirely, whilst that of the others was greatly impeded. Nos. 4, 5 and 6 were the hottest land, and consequently the crop is a very light one. In No. 7, those sown with the dry drill were a total failure. I am therefore only able to give the produce resulting from the use of the water-drill.

No. of Experiment.	When Sown.	What Drill used	Quantity and Description of Artificial Manure per Acre.	Cost per Acre for Artificial Manure.	Farm-yard Manure per Acre.	When Weighed.	Produce per Acre.
				s. d.			Tons cwt. st. lbs.
1.	April 1st..	Water-drill {	1½ cwt. Lawes' super-phosphate of lime. }	11 3	16 loads. }	Oct. 5th. {	20 16 6 4
		Dry-drill	Ditto	11 3	16 loads. }		15 9 5 2
		Dry-drill	None .....	....	16 loads. }		13 13 4 8
2.	April 3rd..	Water-drill {	1½ cwt. Lawes' super-phosphate of lime. }	11 3	16 loads. }	Oct. 5th. {	20 19 2 4
		Dry-drill	Ditto	11 3	16 loads. }		15 16 6 4
		Dry-drill	None .....	....	16 loads. }		15 0 0 0
3.	April 17th.	Water-drill {	1 cwt. Lawes' super-phosphate of lime. }	7 6	11 loads. }	Oct. 4th. {	17 7 6 12
		Dry-drill	Ditto	7 6	11 loads. }		13 15 2 12
		Dry-drill	None .....	....	11 loads. }		8 15 0 0
4.	April 5th..	Water-drill {	1½ cwt. Lawes' super-phosphate of lime. }	11 3	11 loads. }	Oct. 3rd. {	15 14 5 2
		Dry-drill	Ditto	11 3	11 loads. }		14 14 2 4
		Dry-drill	None .....	....	11 loads. }		11 17 4 0
5.	April 18th.	Water-drill {	1 cwt. Lawes' super-phosphate of lime. }	7 6	13 loads. }	Oct. 4th. {	13 19 2 4
		Dry-drill	Ditto	7 6	13 loads. }		10 8 1 10
		Dry-drill	None .....	....	13 loads. }		6 18 4 8
6.	April 4th..	Water-drill {	1½ cwt. Lawes' super-phosphate of lime. }	11 3	15 loads. }	Oct. 3rd. {	9 18 7 6
		Dry-drill	Ditto	11 3	15 loads. }		8 12 1 2
		Dry-drill	None .....	....	15 loads. }		6 10 0 0
7.	April 20th...	Water-drill {	1 cwt. Lawes' super-phosphate of lime. }	7 6	13 loads ..	Oct. 17th..	27 14 2 4

Apologising for having occupied so much of your space,

I am, very truly yours,

Wenny Road, Chatteris, October 23rd.

ALFRED S. RUSTON.

THE FARMERS' NEWSPAPER.

Among our oldest recollections is that of our grandsire's newspaper. The sight of the venerable old man (a J.P. and ruling Elder in the Parish) wiping his spectacles at his window long before we got nigh him on his pony, is as vivid and fresh as ever. To administer to his comfort and happiness was always a duty no less sacred than gratifying, and few things gave him more satisfaction than the timely delivery of his paper. It was the leading journal of the district (three adjoining counties), and embraced all matters agricultural as well as manufacturing, commercial, and ecclesiastical—in short, all “the news of the day” worthy of noticing; had a wide circulation; was sound in principle, connecting itself with no party; and generally looked up to as a standard authority on all the above topics; was published every (weekly market-day) Friday, and as duly as Saturday morning's post passed the village church, as regularly did some youthful member of the family perform the never-to-be-forgotten errand of “going for the newspaper.” Neither the hurry of seed-time, nor the more harassing labours of harvest, were ever allowed to stand in the way. Angry Winter might blow his worst, or the floods of Summer sweep bridges and everything else before them, but “*paper day*” never failed to deliver the week's news at the appointed hour by some means or other; and to us, when on a visit, the worse the weather the more honourable the task.

Grandfather's newspaper had many a parallel in the district; whilst the district itself was, and still is, far from an exception to the general rule. *The farmer's newspaper*, generally speaking, were its history faithfully told, will be found to possess many characteristics peculiar to itself—even to this very day, when steam, the railway, and telegraph are fast breaking down those bulwarks which have so long stood as an insurmountable barrier between our rural and urban communities and interests.

Among the more prominent of these is the academical mission which it performs. It is literally the school-master abroad—for instance, teaching successfully when no one else would be heard; for the Press is well known to possess a sort of “second-sight” besides the facilities it enjoys for acquiring information, so that there is nothing which it ought not to know, and seldom much but its harrow drags to the surface sooner or later. Now, such being the facts of the case, it will readily be perceived why the farmer will listen to his newspaper when neither his landlord, nearest neighbour, or even the minister of the parish can reach his ear.

But the singularly appropriate instruction afforded by the farmer's newspaper is deserving of more detailed illustration, for it not only brings a view of the whole world weekly to the secluded retirement of his fireside, but it also condenses and arranges the same, so as to present a special column to every member of the family. We have first, for example, the review of the corn,

cattle, and money markets of the metropolis, which regulate those of the provinces, with the leading articles more particularly interesting to the farmer himself. Next, deaths, marriages, and births, with other domestic events of a similar nature. These are events which never fail to excite the heartfelt emotions of the Mrs.' half of the fireside; and it is often remarkable with what rapidity and volubility the mind of woman is able to discharge its duties, under circumstances so diversified; shifting from the highest pinnacle of connubial bliss to the lowest level of sadness and commiseration to which fallen humanity is heir to, as fast as the reader can shift from one paragraph to another. And besides news of this kind, the reports of the butter and provision markets, with sugar, tea, &c., are topics of peculiar interest to many a farmer's wife, and daughters aspiring to be so; topics with which they are soon familiar; the moment the paper enters the door, discussing the ups and downs of the market, with as much confidence and propriety as if they were members of Newgate, Leadenhall, or Mincing Lane. Then we have advertisements and reports of the general and local exhibitions of live-stock and implements, ploughing matches, tug shows, sales of improved breeds of cattle, and of farm-stock at the expiry of leases; farms to let, new discoveries in chemistry and mechanics; the prosperity of manufactures and commerce, which so many farmers' sons prefer to agriculture. These, and many other things of this kind engross the particular attention of farmers' sons, and more than they; and lastly, the doings of our beloved sovereign, and the “Big-House” (Parliament) who take off taxes, and put them on just as the exigencies of the nation demand. Our army and navy, again, defending unto death the many sacred liberties we enjoy, and the undermining spirit of despotic governments seeking to overthrow our blood-bought constitution and commercial greatness, with our boundless colonial empire, and its hidden treasures, come home to every rural fireside with a general interest, which it would be in vain to attempt to describe. In short, when the different columns of the farmer's newspaper are faithfully scanned, an amount of information is at once perceptible, whose value the long winter evenings of the country alone can estimate.

Another peculiarity of the farmer's newspaper is its itinerant character, carrying the news of the week from farm-house to farm-house, with a singleness of heart and purpose, so to speak, never to be forgotten. Many tenants are so circumstanced, between rent, rates, and taxes, that they can only spare some 5s. yearly for a newspaper; while it costs more than five times the money—hence a subscription company of so many members is formed, with one as the principal, who orders the paper and collects the cash, each member generally having a night; and we may just add, that the news to the last are as fresh and full of interest as to the first; such

is the quietude of rural retirement. At market or the like, no doubt so-and-so may have been heard; but hearsay news never has that official stamp of credibility about it, which the columns of one's newspaper possess.

This conjunct system of "raising the wind," we may further observe, gives rise to some interesting scenes at times, such as when any important agricultural measure is producing a protracted and animated debate in parliament. We have seen, for instance, when the corn law, tenant-right, and malt-tax questions were before the house, the whole company assembled in the principal member's house, to hear results; on which occasions the subject at issue was redebated with a degree of magnanimity befitting a far more elevated position of life, the debate sometimes being adjourned to the second and third night. Farmers thus united, again, although they may frequently differ on many points, yet fraternize, as it were, upon the whole; so that when anything extraordinary occurs either in the agricultural or political world, consultations are frequent, in order to arrive at satisfactory conclusions, and sometimes to draw up an appeal to head-quarters for a little more editorial daylight on the subject. Further, the limitation of one night to each member, the last excepted, makes that a more than ordinary one of the week; so that absence from home on "paper night," or any similar casualty, necessarily produces disappointment—a change of night, or a visit to another member's house, to hear the newspaper read to the family, which it also necessitates, as there is not time for each member of the family perusing it for themselves. These and many other interesting circumstances of a kindred character are the result of this calculating mode of "raising the wind," to cover a sixpenny weekly expenditure.

The go-ahead, fail-me-never perseverance in the discharge of its duty is another very conspicuous characteristic of the farmer's newspaper, which ought not to be overlooked. Bad weather puts an end to the operations of the field. Servants require strict looking after, and often, when done, allow the work to fall behind; teams refuse to pull, or grow old and die; even the farmer's own head grows grey: but his newspaper renews its age like the eagle, exercising its official rod of circumspection with the greater firmness, "caring neither for gentle nor simple." Good weather and bad have no influence whatever upon its columns; for the frosty winds of winter and scorching suns of summer rather add to than diminish their lustre.

Such are some of the more distinguishing features of the farmer's newspaper, retrospectively viewed. Our observations, however, although principally confined to times bygone, are yet applicable to much that is present; for there are many who can only yet afford some five shillings yearly for their newspaper, although it is otherwise with the majority, who now feel the necessity of more attention being paid to scientific information than their forefathers experienced. In other words:

The farmer's newspaper, in modern times, is becoming a more important member of the agricultural system, so to speak—a *sine qua non* in every establishment, an indispensable division of farm stock. In the

good olden time, the landlord afforded a plough and team which served a whole district; and as it was with the plough, so was it with the newspaper—one served a whole district also. But those times are gone; for every farmer now must have his own plough and newspaper for his own exclusive use, and one plough and newspaper are not enough for the practical demands of the age, for, on the one hand, he must not only have ploughs of different kinds, but implements unheard of in the patriarchal days of our forefathers, such as "patent forking or digging machines," grubbers, scarifiers, sub-soil pulverizers, &c., all to facilitate, abridge, and improve the antiquated and imperfect labours of the plough; and, for a similar reason, he must also have, an equally full stock of agricultural periodicals, including half-yearly, quarterly, monthly, and weekly publications, besides the local paper of the district, and a library, before he can keep pace with the progress of things. In short,

Practice and science now form the farmer's team; and the soil must pay for both. In other words, the investment of the requisite amount of capital in agricultural education, periodicals, and standard works, is as absolutely necessary to successful husbandry, as the investment of the requisite amount of capital in improved implements, live stock, and artificial manures. The one can never be allowed to fall behind the other, or the result will be a bad-going team; but both must go steadily together, to produce the greatest result: and according to equity, their claims upon the produce of the soil will also be equal, and obviously inferior to none.

At present, the investment of capital in scientific agriculture is too little dwelt upon by both landlord and tenant. Scientific information is now accessible to all, so that neither has any excuse for being ignorant.

The problem which either party has to solve is briefly this, *will knowledge pay?* Will it pay the tenant, for instance, to invest some £10 annually in agricultural periodicals, besides £100 in a small select library, and save £200 more than he now does in education, so as to enable him to profit by what he does read, and apply improved machinery and manures in the most profitable manner to the soil? Many will, no doubt, feel disposed to answer that "few farmers have got such sums to spare for such a purpose—live stock, seed, labour, and implements, requiring more than they can command;" but, unfortunately for them, the problem is a long way past this mode of solution; for the circulation of agricultural periodicals and works proves beyond a doubt that capital so invested will pay, while the opposite will not, and that unless young farmers can bring capital thus to bear upon agriculture, they must of necessity be surpassed by others.

The position of landlords in reference to the investment of capital in the scientific management of their estates is one of extreme anxiety at present; for they are not merely personally involved themselves, but they are also involved by their tenants. They not only run the risk, for instance, of being swept from their estates

by neglecting to educate themselves, and keep pace with agricultural science afterwards; but they run a still greater risk of being so, if their tenants are found in such a position. In other words, they must not only make themselves masters of the science and practice of agriculture, keeping pace with their progress by annual investments, but they must also see that their tenants do so.

On this head, we may briefly observe that justice is hardly being done to some landlords who are now exerting themselves to procure a better education for the sons of their tenantry; for many are apprehensive that their motives for doing so is an advance of rent. Now, nothing can be more groundless than prejudices of this kind; for it is only out of ignorant tenants that any avaricious landlord can rationally hope to screw more than his own, while by giving them a better education he is obviously qualifying them for taking better care of themselves.

On the part of the landlord, the greatest barrier appears to be the long period between the time he finishes an imperfect education and that when he succeeds to the patrimonial inheritance, during which he is all but alienated from the soil! In other branches, the moment that the heir apparent receives his education he enters upon his apprenticeship; and much of this latter period, as well as the former, is spent in acquiring a thorough knowledge of his profession; but during the former period the young landlord is too frequently taught to believe that all topics connected with agriculture legitimately belong to agents and their bailiffs, only appreciating their value when he is placed

under the painful alternative of either submitting the entire management of his property to them, or else paying sweetly for his own apprentice-fee. It is far from our wish to say a word against the management of landed estates by agents; but upwards of thirty years' experience in connexion with land compels us honestly to confess, that the sooner landlords are qualified to manage their own affairs, so much the better for themselves and their tenantry: and such a qualification ought obviously to be obtained prior to their succession. Up to this period, it certainly would not be much for them to invest £100 in agricultural works, and £10 per annum afterwards in periodicals, so as to make themselves entirely masters of the most ennobling of all professions: and yet how few of them have invested this small sum!

On the part of the tenant, a want of will and capital to commence with, is obviously the greatest barrier in the way of investments as proposed. The former will, obviously disappear on the rising generation reaching maturity, as they are now receiving a better education. No doubt a large number of farmers' sons are beyond the reach of the agricultural schools where such is received; but self-tuition during the long winter evenings and leisure hours of summer is within their reach; and it is here where agricultural works and periodicals are performing an important mission, and where they are destined to do ten-fold more than they are even now doing. The farmer's newspaper is fast removing prejudices to science, and also pointing out how by a proper revival of our land-laws a sufficiency of capital for all useful purposes may always be had for investing in books as well as in draining.

TRUNK DRAINAGE.

The prize essay on Trunk Drainage, in the last number of the Journal of the Royal Agricultural Society of England, by Mr. Algernon Clarke, is a valuable contribution to our agricultural literature, the value of which is greatly enhanced by its being the work of one holding the highest rank among practical farmers. He may well be allowed to speak of the too frequently prevalent unbusiness-like style of husbandry, which neglects the internal ditches of a farm, and allows them to be choked with "a semi-aquatic, semi-sylvan growth of weeds, brambles, and underwood." He may speak of "adventurous tenants, or landlords complaisantly liberal, burying pipes beneath overflowed lands." He may denounce the now obsolete prejudices of the Bedford Level farmers, which were "practised" in their day, in favour of moderately overflowed land, and against any attempt to improve it. He may ridicule the "predilections engendered by habit or ancestral usage of the wet-vale farmer, in favour of his green-sward." Such expressions from him pass unnoticed,

when they might raise a whole country side in arms, however true they might be, if they fell from the lips of an "apron farmer." Our present concern, however, is solely with trunk or arterial drainage, and Mr. Clarke's prize essay thereon. It is an essay which we would commend to the serious attention of those landowners in Ireland who are dissatisfied with the arterial drainage of the Board of Works. They will learn from it the superiority of individual enterprise and combined exertion over undertakings executed on Government responsibility. They will see how our drainage works have hitherto been carried out, and the improvements which are proposed in our present system, for the prevention of mismanagement from local jobbing on the one hand, and from over centralisation on the other.

Mr. Clarke's object, he tells us, is to show, chiefly by precedent and example, that the improvement of our main lines of drainage is necessary to a more effective husbandry in our

present over-watered districts; and that it is compatible with better navigation and increased water-power. He treats his subject under the different heads prescribed by the society: The effect of rivers and brooks in benefiting contiguous grasslands, by occasional winter flooding, and injuring it by too great protraction of flood; injury from summer flooding; injury of flooding on arable land; and injury by the stoppage or prevention of under-draining. He then treats of the existing difficulties in the application of a remedy arising from claims of mills, navigation, &c.; the best and cheapest modes of dealing with such claims; the best mode of correcting existing evils, with due regard to the preservation of the requisite moisture of subsoil in existing meadows and irrigation. In discussing the physical and moral impediments to the improvement of trunk drainage, he traces its history from the first co-operative enterprises of our Saxon ancestors, in the marshes of Kent and Sussex, the fens of Lincolnshire and Cambridgeshire, and the moors of Somersetshire. He shews how, from the ancient usage or common law of the realm, arose the local Commissions of Sewers, which were from time to time appointed to conserve the public drains and works in various counties, and the statute law enacted for the maintenance of works of drainage and embankment, the construction of new works, the removal of obstructions arising from mills and fishing weirs, and the apportionment of the cost of these improvements on the lands which were benefited by them. To provide a remedy for the inefficiency of these local commissions, the General Drainage Act of the 43rd of Elizabeth was enacted, which included all the lowland districts of England: it sanctioned the employment of "undertakers," who would drain the flooded wastes and commons for a portion of the lands improved. Out of this arose the jobbing schemes which became so numerous and fashionable among the large landowners and courtiers, and excited so much disturbance and hostility among the fen-men and commoners in the reigns of James and Charles, and during the Commonwealth.

The largest undertaking of this kind—the Bedford Level, which is the greatest field on which arterial drainage works have received their cultivation and principal development—is pointed out by Mr. Clarke as furnishing in its machinery, for government as at present constituted, an example both of what should be followed and what should be avoided in the constitution of future commissions for the reclaiming of our river valleys or maritime deltas now waiting for improvement. For them he considers local acts to be necessary. It appears, he says, even from the fact of an essay prize being offered on this

topic, that we are still in much the same dilemma with regard to general and trunk draining that our ancestors were in, two centuries ago. Extensive drownings take place in many localities, too frequently to be consistent with agricultural economy or the welfare of the community at large. Public determination is declaring for a remedy; and yet the inactivity of those districts, or their rampant hostility to alteration, debars the needed improvement. However, from our fen experience, we know better than to allow the same series of misdirected efforts of sewers, follies of "undertakers," and muddlings of petty private drainages, to be acted over again in our upland valleys. As the fen-commons, navigations, fishings, decoys, turbaries, all yielded to the public drainage schemes, under more or less of compensation, so must water-mills, canals, meadows, &c., give way to our approaching river improvements; and each of our *principal river valleys* treated as a district complete in itself, and requiring nothing short of a comprehensive design, embracing its estuary delta, its marginal meadows, its navigation, its mills—all properties bound in one general plan—may muster, perhaps, sufficient forces to obtain for itself an Act of Parliament for effectual amelioration. But how are the innumerable small streams, which are the tributaries of the main lines of drainage, to be dealt with? On their improvement by the removal of natural or artificial impediments, more than on the improvement of main lines, depends the successful under-draining of many an upland district—of most, in fact, of our improvable arable land. Are such districts to await the result of the long contest which must be maintained between the progressive and stationary interests which abound in our principal valleys, before such an act may be passed? or can any more summary and expeditious machinery be devised by which the tributary lines of drainage may be first improved, and thus render more necessary the removal of obstructions on the main line, in consequence of the greater quantity of water which will be poured into them, and the greater rapidity with which it will come down? Are they to be independent of the improvement of the main line, or in what proportion shall they contribute to it? and how shall a cheap and a trustworthy tribunal be established for assessing the proportion in which the uplands shall contribute to the improvement of the main line and its low-lands? These are questions which Mr. Clarke has discussed; they are questions which have acquired additional interest from the controversy which has arisen in Ireland, between the landowners and the Board of Works, as the planner and executor of such undertakings there; but their consideration we must postpone for the present.

THE PROSPECTIVE PRICE OF WHEAT.

It may perchance savour somewhat of presumption in a plain practical farmer stepping out of his regular and well-beaten track for the purpose of attempting a word of caution or advice to his fellow-farmers upon this subject. My great aim has ever been to do them good; and in putting a few facts and thoughts before them, I shall leave the consideration thereof, and the probable future course, to themselves, satisfying myself with having humbly tried to lead them to form a correct judgment.

The corn trade has for the past few weeks been in a most irregular and exciting state: merchants, millers, and farmers have been alike equally ignorant and perplexed: no one appeared to be even tolerably acquainted with the actual position of the trade. It was not till the publication of the Corn Returns, October 10th, that any great light was thrown around the question: it then became evident that our supplies were falling off in a surprising ratio, and the exports nigh to outstripping the imports. This, of course, could not go on without producing a great and speedy reaction; hence the unexampled and unexpected advance which has taken place in wheat and wheat-flour.

We cannot avoid reiterating for the hundredth time our extreme sorrow that so much ignorant uncertainty should exist relative to the corn trade. We are amongst those who think that "Government" could have derived earlier information as to the probable imports, even at this period; and the publication of this information would not only have prevented our exportations, but would, on the contrary, have induced importations from the rise in price here, and, as a necessary consequence, preventing much loss to the early sellers, to be again repaid with considerable additions to the future importers, and by which a most variable and speculative trade is kept up, at all times injurious to the common weal. Nor are we at all prepared with any reasonable data as to our future supplies. Who can tell the amount of our own farm produce? It was generally thought at the close of harvest that our wheat crop was an unusually productive one: it is not thought so now. I could give many instances in proof of this; but of what value are individual assertions, however well sustained by isolated facts, compared with a well-authenticated knowledge of the produce of the whole kingdom as ascertained by a well regulated system for the collection of these facts? Why, none whatever. One district may counter-check the other continually, and no satisfactory result be obtained.

The fiat has gone forth from the agriculturists of this country relative to agricultural statistics: they must and will ultimately have them. I am not going into that question now; nothing more need or can be said upon it than has already been said; it is now merely a question of time and means. One thing, however, I will say, and it is highly important too—namely, that the positions of the different countries of the world being so peculiar at the present time, rendering it extremely doubtful relative to their being able to send any adequate supply for the British market, it behoves the "Government" to institute an inquiry as to our actual state and prospects with regard to breadstuffs. It could be done silently, and without excitement, through the Boards of Guardians, so as to come to a fair estimate, if not strictly correct; and it could do no harm, as the country has for some years been preparing for it: it would have the effect of placing the corn trade on a better and sounder footing for the time being, and possibly prevent much foolish speculation, as also great fluctuations, followed by much individual suffering. It may be of some service to call more attention to this part of the question. I will therefore give a few facts with a view to show our present position. From the corn returns published in the *Gazette* up to Oct. 10th, it may be seen that we imported last year 505,347 qrs. of wheat and 138,811 cwt. of wheat flour less than in the preceding year ending Oct. 10th, 1853. The very remarkable fact in connection with this return is, that at the close of the September return, the year's receipts were in excess to the amount of 25,534 qrs. of wheat and 399,685 cwt. of wheat flour; so that the deficiency of import, as compared with the past year, arises between the 10th of September and the 10th of October, and is, as above, 505,347 qrs. of wheat and 138,811 cwt. of wheat flour. This tends much to show our future prospects; but, pursuing the returns further, and taking them weekly, we shall find that in the fourteen weeks ending Oct. 10th, 1854, we imported in wheat and wheat flour, as reduced into quarters, 759,674 qrs., but in the corresponding period of 1853 (*i. e.* fourteen weeks) the quantity imported amounted to 2,003,184 qrs.; the reduction in the fourteen weeks ending Oct. 10th, 1854, is astonishingly great, being no less than 1,243,510 qrs. This in such a short time, and at a period in the year when the importations have usually been on a large scale. It also exceeds one-fourth of the average importations of the past eight

years, the years which have elapsed since the abolition of protective duties. This is unquestionably a most telling fact, and must soon insure very grave and serious consideration. If such is the falling off in the fourteen weeks immediately preceding Oct. 10th, what may we not look for throughout the ensuing winter months?

I will now give a few facts which will tend to make the probabilities of this falling off still more apparent. The annual imports of wheat and wheat flour imported since the abolition of protective duties have been as follows, and as reduced into quarters:—

1847..	4,464,757 qrs.	1851..	5,330,412 qrs.
1848..	3,082,230 „	1852..	4,180,338 „
1849..	4,835,280 „	1853..	6,235,860 „
1850..	4,856,039 „	1854..	5,684,044 „

being an average of 4,833,620 qrs. annually, and which may therefore be taken as our yearly requirements of wheat and wheat flour (though the two last years show a much higher average, *i. e.* about 6,000,000 qrs.). To this we must add the annual importation of Indian corn, which now averages rather more than 1,500,000 qrs., so that it is very evident that our annual importations of what is usually termed “bread stuffs” much exceed 6,000,000 qrs. to make up the deficiency of our own growth to supply the wants, or for the consumption of this country.

Our requirements, then, have reached the enormous quantity of 6,000,000 to 7,000,000 qrs. of bread stuffs, to provide for the yearly consumption of this country. The great question arises, From whence is this supply, under existing circumstances, to come? Where is it to be found? It cannot come from those countries with which we are at war, or those immediately bordering upon the seat of war, to any great extent. It cannot come from France, Belgium, Silesia, and many of the Germanic States, nor to any extent from Prussia or the United States. This, however, will best appear, if I show whence our principal supplies are usually drawn.

The following summary, taken in round numbers, includes the total supplies of all sorts of grain, and the names of the principal countries from which they are obtained, and I think will be found to be a fair return for the past eight years. We have in grain of all sorts annually, from—

	Qrs.		Qrs.
Russia	about 1,250,000	Naples	about 75,000
Turkey	350,000	France	1,250,000
Wallachia & Moldavia	400,000	United States	1,100,000
Egypt	750,000	Belgium	120,000
Denmark	900,000	Holland	200,000
Prussia	1,000,000	Hanover	180,000
Sweden, &c.	125,000	Hanseatic Towns	250,000
Austria, &c.	125,000	Canada	150,000
		Other countries ..	775,000
Total	9,000,000		

The average importations of all sorts of grain being about 9,000,000, it will be found that about 3,750,000 qrs. has been in wheat only, which, together with wheat-flour, will bring the average importation up to 4,800,000 qrs., or nearly 5,000,000 qrs. of wheat, which, for the past two years, it has greatly exceeded, as being respectively, for 1853, 6,235,860 qrs., and for 1854, 5,684,044 qrs.; whence, then, is this large importation to be derived, or how is this great deficiency to be provided for in the present year? Russia is completely shut against us. Turkey, owing to the war in her territory, cannot export much. The United States have a short crop of wheat, and nearly a failure of the Indian corn crop, from drought. Prussia and the Germanic countries will have but little surplus: all the old stocks having been worked up, they will require a larger stock at home, and this is universally the case elsewhere; so that prices in most of the world's markets have not only kept up with our own; but in several countries they have exceeded us in price. To what source are we then to look for aid. The principal countries are the Canadas, Denmark, Spain, Egypt, Syria, some of the Italian States, Sweden, and Norway, and some unimportant parts, as Malta, Brazil, Greece, Ionian Islands, &c. On referring to the figures above and other returns, we find that the Canadas contribute about 150,000 qrs., Denmark about 900,000 qrs., Spain and Portugal 70,000 qrs., Egypt 750,000 qrs., Syria 50,000 qrs., Papal and Italian States about 150,000 qrs., Sweden and Norway 100,000 qrs., Greece 3,000 qrs., Brazil 2,000 qrs., Malta 40,000 qrs., Ionian Islands 5,000 qrs., and from other small sources about 40,000 qrs.—total, about 2,260,000 qrs.; and in addition to this, we may calculate on receiving from the United States about 500,000 qrs., Turkish Provinces about 300,000 qrs., Prussia and Baltic Ports 500,000 qrs.—total, 3,560,000 qrs. of grain of all sorts. I believe this approximates to the true state of the case. We have, then, 3,560,000 qrs. to deduct from 9,000,000 qrs., as above; which leaves a deficiency amounting to 5,440,000 qrs. in our total average imports; the proportion of which, in wheat, will exceed 2,000,000 qrs., to which if we add wheat-flour, which has borne a relative proportion exceeding a third of the quarters of wheat imported, or 1,000,000 qrs., we have in wheat and wheat-flour alone a deficiency of at least 3,000,000 qrs., which is certainly an important defalcation, and demanding out strictest attention and the most rigid economy in every department connected with the management of breadstuffs.

I am, however, by no means an alarmist; but it becomes every man to look his difficulties in the face, and having, I think, shown what

is most probably our actual position—*i. e.*, that we have to face a *deficiency of imports* in “bread-stuffs” alone amounting to the enormous quantity of 3,000,000 qrs.—I shall now endeavour to show what available means we have to meet it; and in doing so, I shall confine myself to wheat alone, as I am desirous to show what is “the prospective price of wheat,” as a guide to the farmer’s *future* sales.

The number of acres annually sown with wheat in the United Kingdom is as follows: England, according to M’Culloch, 3,000,000 acres; Scotland, 350,000 acres; Ireland, 400,000 acres; and the total produce he estimates at 13,627,000 qrs. This estimate, I feel confident, is too low, both in quantity of land and produce, for this year. Spackman estimates the produce of the three kingdoms at 22,000,000 qrs.—*i. e.*, England, 18,000,000 qrs.; Scotland, 1,750,000 qrs.; and Ireland, 2,250,000 qrs. As a plain man of business, I have, according to my means of information, given the subject my best attention, and in consequence beg to assert that both are in error, and that the truth lies somewhere between the two estimates. We have fortunately one fact before us—*i. e.*, Irish statistics of agriculture. In 1853, the number of acres sown with wheat was 326,896; in 1854, 411,423 acres; increase, 84,527 acres. Apply this example to England and Scotland, and we shall find it give a large increase in breadth sown. I must say that I think, on investigation, the estimates I give below will be found to approach nearer the truth than either that named above, or any others more recently offered us. I repeat, for the present year, it is well known that a larger breadth has been sown with wheat than usual. I therefore estimate the number of acres and the number of bushels as below:

	Acres.	Qrs.
England..	4,000,000, at 28 bushels, or $3\frac{1}{2}$ qrs...	14,000,000
Scotland..	375,000, at 28 bushels, or $3\frac{1}{2}$ qrs...	1,312,500
Ireland ..	411,423, at 24 bushels, or 3 qrs...	1,234,269

Total produce of the United Kingdom.. 16,546,769

I consider Mr. Spackman’s estimate far beyond the truth, and can see no reason for placing it so high, as all the estimates lately given are based upon Mr. Couling’s report of his survey in 1827 as to the acreage of the kingdom, and its appropriation as to crop. Assuming Mr. M’Culloch’s estimate to be a fair one—*i. e.*, 13,627,000 qrs.—I shall then have a surplus produce over him amounting to 2,919,769 qrs. Now this I take to be somewhere near the true state of the ways and means for the future supply of the country at this time.

I am afraid my manner of stating these matters is by no means clear; but, taking into consideration the vast improvements that have been going

on in culture, in the selection of seed, and in the order or rotation of cropping, and the large extra breadth of land sown with wheat last season, and which the farmers found it impossible to sow in the previous year, owing to the excessive rains, I am fully justified in giving my estimate as to this year’s produce, and which I believe exceeds that of last year by something like the quantity named above, or nearly 3,000,000 qrs., and of an ordinary year by from 8 to 10 per cent.

I would further say that I see no great reason for apprehension or alarm. I wish to put the whole subject fairly forward. We have a good and abundant harvest of well-grown grain—we have now a scale of prices which will induce speculators to provide us such imports as are, or may be, made available for the British market; and, without this scale is kept up, their efforts will be in vain. We have France, Belgium, and some other countries competing with us in the world’s markets, and of these many of them are shut from us; others, from prudential motives on the part of their governments, forbidden to supply us. These, and causes like these, cannot fail to keep up prices; but, on the other hand, our own almost unexamined harvest, our improved potato crop, and the present surpassing season, by which much food is saved both in seed and from waste, will tend to prevent prices running exorbitantly high. Without extending my remarks further (and I am trespassing far beyond my accustomed bounds), I would say, that we may confidently look for a continuance of prices quite equal to that at present obtained, and probably they may go a little higher; but we must not forget that ours is a favoured country, and if aught is to be spared from any part of the whole world, it will find its way here. The price also will lead to the adoption of other kinds of food, such as rice, which is selling at a relatively lower price than wheat, and is now extensively used in Belgium. High prices are not good for the community, and are generally the result of wild speculations, partly from ignorance, but generally from sordid selfishness. My aim has been to show that, with care, timely economy, and a steady business-like course, we have no cause to fear the result; we shall be able to provide in a far greater degree than usual for the wants of the public, and at a rate of prices remunerative to ourselves as the growers, without being unbearably oppressive to them as the consumers.

P. F.

FOOD STATISTICS.—From a recent Parliamentary return, it appears that in the year 1853 there were imported into the United Kingdom 56,220 oxen and bulls, 38,328 cows, 30,705 calves, 249,446 sheep, 9,974 lambs, and 12,757 swine. There were also imported 183,286 cwt. of salted or fresh beef,

152,731 cwt. of salted or fresh pork, and 190,134 cwt. of bacon. The average price of beef during the year 1853 was 3s. per stone for inferior, 3s. 7d. per stone for second class, 4s. 1d. for third class (large prime), and 4s. 4½d. for fourth class (Scots). The average price of mutton was 3s. 8½d. per stone inferior. 4s. 2¾d. second class, 4s. 8¾d. third class (long coarse-woolled), and 5s. 0¼d. fourth class (Southdowns). Lamb averaged 5s. 7½d. per stone large hogs 3s. 7½d. per stone, and small neat porkers 4s. 6½d. Veal averaged 3s. 9½d. per stone for coarse, and 4s. 9¾d. small prime. 403,289 cwt. of butter were imported into the United Kingdom in the year, of which 396,759 were for home consumption; and 396,515 cwt. of cheese were imported, of which 380,461 were for home consumption.

PRODUCE AND CONSUMPTION OF CORN IN THE UNITED KINGDOM.

Mr. McCulloch has given, in the new edition of the *Encyclopædia Britannica*, the following details with respect to the production and consumption of the different varieties of corn in the United Kingdom in ordinary years:—

ESTIMATE OF THE EXTENT OF LAND IN THE UNITED KINGDOM UNDER THE PRINCIPAL DESCRIPTIONS OF CROPS IN 1850-54; THE AVERAGE PRODUCE PER ACRE; THE TOTAL PRODUCE; THE PRODUCE UNDER DEDUCTION OF SEED; AND THE AVERAGE TOTAL VALUE OF SUCH PRODUCE.

Crops.	Acres in Crop.	Produce per Acre.	Total Produce.
ENGLAND.			
		Quarters.	Quarters.
Wheat	3,000,000	3¾	11,250,000
Barley	1,000,000	4½	5,400,000
Oats and rye ..	2,000,000	4½	9,000,000
Beans and peas .	500,000	3¾	1,875,000
Potatoes, turnips, and rape	2,500,000	£7 per acre.	—
Clover	1,300,000		
Fallow	800,000		
Hops	50,000	£15 per acre.	—
Gardens	250,000	£15 per acre.	—
Total	11,400,000		27,525,000
SCOTLAND.			
Wheat	350,000	3¾	1,137,500
Barley	450,000	4	1,800,000
Oats	1,200,000	5	6,000,000
Beans and peas .	50,000	3	150,000
Fallow	100,000	£7 per acre.	—
Potatoes	200,000		
Turnips	450,000		
Clover	450,000	£15 per acre.	—
Flax	5,000		
Gardens	35,000	£15 per acre.	—
Total	3,290,000		9,087,500
IRELAND.			
Wheat	400,000	3	1,200,000
Barley	320,000	3½	1,120,000
Oats	2,200,000	5	11,000,000
Potatoes	1,400,000	£8 per acre.	—
Fallow	300,000	£15 per acre.	—
Flax	140,000		
Gardens	25,000	£12 per acre.	—
Total	4,785,000		13,320,000
Grand Total	19,475,000		49,932,500

Crops.	Produce under deduction of Seed.	Average per Quarter.	Total Value.
ENGLAND.			
	Quarters.		£ s.
Wheat	9,642,857	45s.	20,696,428 5
Barley	4,628,572	27s.	6,248,572 4
Oats and rye ..	7,714,286	20s.	7,714,286 0
Beans and peas .	1,607,143	28s.	2,250,000 4
Potatoes, turnips, and rape }	—	—	26,000,000 0
Clover	—	—	—
Fallow	—	—	—
Hops	—	—	780,000 0
Gardens	—	—	3,750,000 0
Total	23,592,858		67,439,286 13
SCOTLAND.			
Wheat	947,917	43s.	2,038,021 11
Barley	1,500,000	26s.	1,950,000 0
Oats	5,000,000	20s.	5,000,000 0
Beans and peas .	125,000	28s.	175,000 0
Fallow	—	—	—
Potatoes	—	—	—
Turnips	—	—	7,700,000 0
Clover	—	—	—
Flax	—	—	75,000 0
Gardens	—	—	525,000 0
Total	7,572,917		17,463,021 11
IRELAND.			
Wheat	1,000,000	40s.	2,000,000 0
Barley	933,334	24s.	1,119,999 12
Oats	9,166,667	20s.	9,166,667 0
Potatoes	—	—	11,200,000 0
Fallow	—	—	—
Flax	—	—	2,100,000 0
Gardens	—	—	300,000 0
Total	11,100,001		25,886,666 12
Grand Total	42,265,776		£110,788,974 16

Mr. McCulloch estimates the consumption as follows; viz. :—

1. Consumed by man :—	Qrs.	Total Qrs.
Wheat	15,500,000	
Oats, rye, and maslin (a mixture of rye and wheat)	10,650,000	
Barley for malting, food, &c....	6,000,000	
Beans and peas as meal	700,000	
		32,850,000
2. Consumed by the lower animals :—		
Corn (principally oats used in the feeding of horses and other animals, in distillation, manufactories, &c.....)		16,350,000
Total consumed by man and the lower animals, &c.		49,200,000
It is seen from the former estimate that the corn produced in the United Kingdom applicable to consumption, amounts to only..... Qrs. 42,265,770		
But to this has to be added—		
Foreign corn annually entered for consumption at an average of the seven years ending with 1852, viz. :—		
Wheat and wheat flour Qrs. 4,231,185		
Barley	870,786	
Oats and oatmeal	1,162,546	
Rye	99,510	
Peas and beans.....	565,759	
		6,929,786
Total consumption.....		49,195,556

We believe that these estimates are very nearly accurate; but perhaps the breadth of land under wheat, and its production, are a little overrated.

THE WHEAT CROP OF 1854.

The *Times* laboured incessantly since the termination of the late harvest to make it appear that the crop of wheat was so abundant that it would more than compensate the anticipated expenditure of the war, and would not only pay all the increased taxation, but fill the pockets of every producer into the bargain; and such was the effect of these extravagant prophecies of not only that, but of similar organs of the press, that a panic seized the mercantile classes, importation altogether ceased, and speculation became dormant to such an extent that wheat suddenly fell from 80s. to 60s. per qr., and even lower, under the reiterated assertions of these *destructionists* of the agricultural community.

Suddenly, however, it was found that the yield was not so great as was anticipated at home, and the anticipated supplies from abroad had failed altogether; indeed, such had been the effect of these *fusillades* upon our prices, that wheat had become cheaper in Mark-lane than in any other kingdom in Europe, and was eagerly bought up by French and Belgian agents for exportation. The merchants, millers, and factors became alarmed, and prices suddenly recovered the point from which they had receded—more rapidly than they had fallen in the first instance. The *Times*, however, never stops at its post; it had determined that wheat should be cheaper in England than in any other market in the world; and true to its purpose, it has from the moment it announced the Corn Law League as “a great fact,” libelled the agriculturists of this country with the fiercest invective and the most unrelenting abuse; and true to its purpose, by its “own commissioners” and their published statements vilified the landlords and farmers of England, not only in the counties respectively, but throughout the whole extent of the land. Not yet content, it still by its machinery is endeavouring to convince the people of this country that the supplies of grain of home-growth are so abundant that the whole amount of foreign importation hitherto annually introduced is more than compensated by the produce of the late harvest; and notwithstanding the absence of old stock of grain of the previous year, and that of foreign supply also, this country “is in a safer position in regard to its supply of corn than it was at this time last year.”

The latter quotation, allow me to state, is from the pen of Mr. James Caird, in a letter to the “Editor of the *Times*” in the impression of that paper of Friday last. Whatever weight such a communication may have as coming from such an authority, I must leave the agricultural community to estimate—attached to the *Times* as its “commissioner,” the farmers of England will easily discover that his *agricultural reputation* does not so far conceal him from their view as to allow them to mistake the object which he is seeking to attain; for one who so deliberately on many occasions has made statements of such mischievous import and sarcastic tendency upon their proceedings, cannot be supposed to entertain any

other feelings than those injurious to their class. As the *Times*, however, speaks to the *world*, and although its thunder may be little regarded, still with the weak and credulous, as well as of “a bread-eating community,” it has weight, and its vituperation of the farmers by its accusing them of endeavouring to raise the price of wheat by withholding their produce from the market, when it is notorious that the quantity supplied exceeds that of former precedents, must have been obvious to every one who has had opportunities of observing the excessive amount of steam-power applied to the thrashing-out the last crop of wheat. In the immediate district in which I reside upwards of eleven six to eight horse portable steam-engines have been so constantly employed, that no opportunity offers of obtaining the services of one myself, unless by waiting my turn after ten or twelve days from an application; and I have no hesitation in asserting that upwards of one-third of the wheat produce in this large wheat-growing country has already found its way to market, and has been manufactured into flour. So much in contradiction of this unfounded assertion.

I will now offer a few remarks upon the letter before referred to as coming from Mr. Caird. In the first place, he assumes the average wheat-crop of the kingdom at thirteen million five hundred quarters. The average estimate at which I have, in conjunction with many other writers, put it, is eighteen to twenty millions of quarters. In this I am corroborated by Mr. Burgess, the late editor of the *Bankers' Circular*, and other distinguished writers upon statistics. But the increased production by extra cultivation and importation of guano, and the introduction of artificial manures, gives twenty millions of quarters as the nearest approximation to truth; to this add the average quantity imported at four million five hundred thousand quarters, it will give about eight bushels per head as the consumption of the population of this kingdom and for the manufacture of starch and all other purposes.

It was my intention to substantiate these statements by proof; but as the time allowed does not permit me to do so, with your permission I will return to the subject in your future publications—my object by the present letter being entirely to disprove the statements of Mr. Caird, and to show how little they can be depended upon in almost any of those matters upon which he attempts to edify the public mind.

I have no doubt whatever that Mr. Caird's statement may, as to the final results, be less favourable than mine own; but, based as it is upon false *data*, it becomes worthless. It so struck me that it was only a duty to myself and others of my class to deny such statements as most fallacious and untrue; for, coming from such an authority as the *Times* by one of “its own commissioners,” it must be obvious that such a state-

ment might otherwise carry conviction to those who do not trouble themselves to look beyond the surface.

I am only surprised that Mr. Caird should not have considered the subject more closely before he committed it to press. Assume the average wheat crop of the kingdom to be, as he states, 13,500,000 qrs., and the average annual imports 4,500,000 qrs., it gives 18,000,000 qrs. as the average quantity consumed. The last census was 21 millions for Great Britain; this alone, without any application of wheat beyond that for the manufacture of flour or exportation, would be less by 3,000,000 of quarters than one quarter per head to each person, and 7,500,000 quarters less than the country produces to meet this demand. Leaving this question, and assuming that we have a full average crop—and I fearlessly assert, from the inves-

tigations I have made, and the information I have obtained from persons practically engaged in the production and disposal of grain, that it is all we can calculate upon having—it must be recollected that at the commencement of harvest scarcely any old corn remained on hand either of British or foreign production; that in fact we had only the present crop to depend upon. Assuming, therefore, that it is a full average crop, we shall require 4,500,000 quarters to meet the average consumption. But take the most liberal view of the subject, and supposing that, upon Mr. Caird's statement, we do grow 3,000,000 quarters beyond an average crop, we shall then require 1,000,000 quarters to meet the average requirement, by importation, for the current year only.—I am, sir, your obedient servant,

November 11.

VINDEX.

CORN VERSUS CATTLE.

Under this title we propose glancing at the relative values of the animal and vegetable kingdoms in connexion with agriculture, principally with the view of examining their respective claims upon public support, and how far these are responded to by the agricultural interest. At the summer meetings of the Royal Agricultural Society, for instance, and also those of Ireland and Scotland, it has oftener than once occurred to us that the claims of the former absorbed almost the whole attention of the public, while those of the latter were entirely neglected, or nearly so. At the Smithfield Club Show, again fast approaching for the present season, we shall have "mountains of beef, mutton, and pork," with gold medals, silver medals, and money prizes in abundance; but not even an empty "commendation" for the vegetable kingdom! While even this itself is not the most unfavourable view of the question; for how many of late have been driven by the force of free-trade doctrines to the absurd conclusion that England ought not to grow corn at all, as she can import her annual consumption cheaper than she can grow it herself!

The last two crops of 1853 and 1854 have, we hope, convinced every rational mind of the impropriety of an exclusive dependence upon foreign corn; for the national balance as profit and loss gained in favour of the latter year will amount, at the lowest calculation, to from £20,000,000 to £30,000,000 on bread-corn alone, even at ordinary prices, and much more than this should prices rule high. No doubt the loss last year was greatly reduced by old stocks on hand; but where should we have been both years in the absence of the English farmer, and with our whole consumption foreign corn? With such facts before them, the supporters of even a one-sided free-trade system will not dream for the future of converting our teeming provinces into a deer park.

But it may be safely concluded that a greater profit than this natural result on the last two crops may be annually obtained by art, for a greater difference already exists between good and bad management. Were the

individual success of some farmers generally exemplified, for instance, the result would be an increase of produce exceeding twenty-five per cent., making every allowance for diversity of soil, climate, and other circumstances involved. Now, the annual value of vegetable produce in the United Kingdom greatly exceeds four times £30,000,000 or £120,000,000; hence the soundness of our proposition.

Analogous to this has been the increase of the animal kingdom of late years. During the past half-century, for example, no one will question the truth of the statement that a very important increase in the weight and quality of butcher-meat and dairy produce, has been obtained. In the absence of statistical data, it would be difficult to give an approximate estimate of the actual amount, but certainly twenty-five per cent. of the produce of the preceding century rather falls under than above the mark. In other words, the produce of animal food has been increased twenty-five per cent. during the last fifty years—a result which speaks volumes for the progress we are making in the improvement of our breeds of cattle, both for the shambles and the pail.

Now it will readily be admitted that our agricultural societies, with their prizes and medals, have had considerable influence on this success, not less by stimulating the exertions of individual breeders, than by bringing their successful example under the notice of others, naturally disposed, it may be, to remain in rustic complacency and contentment, under systems which had yielded their forefathers many a day's solid satisfaction and happiness, although now no longer capable of doing so; thus arousing them from unconscious slumbers to a just sense of their best interests. Even in Lincolnshire herself, where the general practice of the county has so long been exemplary, it will not be denied that the meeting of last summer took more than one practical man by surprise, startling him into the timely conviction of the expediency, if not necessity, of joining heart and soul, by some means or other, in the march of progress. The Royal Agricultural Society, from its itinerant character, is thus fast

subduing every province from antiquated practices, farmer annually becoming more and more willing to take a new and more comprehensive view of things; indeed, the work is no longer one of conquest, for at Lincoln, farmers as a body manifested a greater desire to take the lead than linger behind.

Another, and perhaps still more successful and legitimate means of progress, is to be found in our annual tup shows and sales of breeding stock—a system established just a century ago, by Bakewell, on a solid foundation, and effecting the object it has in view in a twofold manner: *first*, by the distribution of improved stock; and *second*, by the collection of farmers together from all corners of the kingdom, to judge for themselves as to the management, profit, and adoption of such improved breeds.

In practice it were difficult to say which of those latter two means has been the most effective; for many would never have rented tups or purchased improved breeds unless they had first examined their management, and thus satisfied themselves as to profit. We ourselves have always been connected with stock of this quality, and, looking back over an experience of nearly half a century, arrive at the conclusion that, without the latter, the improvement of stock would not have attained its present level by more than the one-half. But, be this as it may, one thing is plain, that “seeing is believing” with the practical man; and that unless this maxim is religiously observed, progress in any department *in corn, as in cattle*, becomes next to an absolute impossibility.

“Buying a pig in a sack” is a proverb too well known to require more than its mere recital; and while it justly condemns the buying, selling, eulogising, or condemning of a thing, in the absence of the thing itself, it also, in no less forcible a manner, illustrates the advantages of personal examination on the part of the buyer, for such relieves the seller of the principal obligations he otherwise would lie under in the transaction. There is no doubt a certain class of faults subject to warranty, but these are exceptions upon the whole; so that the farmer who makes a bad bargain under such circumstances has only himself to blame. The auctioneer may even call a black sheep a white one—a declaration which would rather procure for him the approbation and applause of his audience than its displeasure; but it would be otherwise in the absence of the sheep, were he to make such a statement.

“Similar causes produce similar effects” we are told; so that, in accordance with such, we ought also to have gold medals, silver medals, money-prizes, and commendations of every degree for the best products of the vegetable kingdom, with annual sales of seed on the ground where it is cultivated, so as to enable farmers to examine and judge for themselves. In the selection of his own seed, for instance, no practical man would think of taking it from the field, stack-yard, barn, or granary at random. Instead of this, the sample is carefully examined while growing, harvested and thrashed by itself. And why should it be otherwise with seed bought from a neighbour or a distant province, or even

a seedsman? We have, no doubt, oftener than once bought excellent seed from a corn factor, judging from the quality of the sample only; but generally speaking have always bought more willingly and successfully when either familiar with the grower and his stocks, or else when an opportunity of examining the growing crop was afforded—invariably giving a much higher price at the same time. And we have no doubt the experience of the majority of our readers will harmonize with our own.

There can be no question, therefore, as to the soundness and efficiency of what has been suggested; but at the same time the vegetable kingdom differs so widely from the animal, as to give rise to important considerations in the reduction of such a proposition to general practice, no less on the part of seed-growers and seedmen, than on that of buyers and the public, each of whose interests requires special notice in order to illustrate both sides of the question.

On the part of the seed-grower, the first practical question for solution is, Will it pay? It is not every farm that is adapted for growing seed of any kind, while others may grow special products, as turnip-seeds, grass-seeds, or potatoes; but even where a suitable soil, climate, and situation are enjoyed, still the important problem, *will it pay?* must first be solved before any practical man can safely involve himself in such a speculation as growing seed for the public obviously would be.

That farmers so circumstanced ought to be able to grow seed profitably, there cannot be two opinions, provided those who are unable thus to grow proper seed for themselves would become purchasers, because then the extra price received would do more than cover the extra expense of advertising and exhibiting growing crops in the manner proposed; but so long as the vast majority of farmers remain practically ignorant of the benefits to be gained by a proper change of seeds, sowing their own or any stuff they can lay hold on for little money, the practice, we fear, must be attended in the outset with some degree of risk. This was experienced by Mr. Bakewell and others in the animal kingdom, but has been surmounted, and would, in all probability, be so in the vegetable. The facilities which railroads now afford for travelling, with the practice of thin sowing, are fast removing many of the greatest barriers which the former experienced, as farmers are now annually becoming more and more disposed to look around them, making themselves acquainted with the different provinces and their practices.

The practical question at issue on the part of purchasers is the increase of produce and quality, consequent on a proper change of seed. The question, strictly speaking, comes home to every farmer in the kingdom; and were each to return a practical answer, we may safely affirm, without fear of contradiction, that more noise would be heard in the columns of the agricultural press (so to speak) about the advantages of changing seed than is now heard about ram shows and sales of improved stock, and a much greater profit generally realized—great as have been the profits in the

animal kingdom; for the examination of successful experiments would soon pave the way for general practice, by inducing the most timid and cautious to try similar ones on a small scale, while the successful results of such in harvest would invariably carry conviction with them.

At present, the loss sustained from the sowing of bad seeds is incalculable, merely because farmers will not take the trouble of making themselves acquainted with the facts of the case. They unanimously admit—aye, assert—that good seed is invaluable, not from experience, but tradition!—a tradition handed down to them by their forefathers from the days of the Romans, who were just as familiar with the facts of the case as they themselves. They give themselves out for practical men, who are entirely guided by Experience; while in reality they are the greatest theorists of any, shunning experiments of the kind in question in a manner not easily reconciled with the best interests. In short, the conduct of those who purchase inferior qualities of seed at the cheap market is about as far from sound and profitable practice as can well be imagined. Experiment ought to be the motto of every practical man, and not the *theory* of his forefathers, in this as in every other agricultural enterprise.

The interest of the seedsman, again, would be analogous to that of the grower; and although he would not be in a position to exhibit to his customers his stocks while growing, so as to afford them a knowledge of the yield per acre, quantity and quality of the straw, &c., &c., by personal examination, yet he himself would be necessitated to make such an examination for them. There would always be a large class of purchasers, for example, who, from diffidence in their own judgment, too great a distance from the peculiar climate and soil producing the best seed for them, bad health, peculiar engagements at home, or some such incidental conditions as these, would prefer giving their orders to the regular trader, who, under such circumstances, and the working of the practice at issue, would be obliged to exercise his best skill on their behalf. There would, no doubt, be left many open backdoors to practise deception, such as the mixing of old seeds or inferior samples

with fine new purchases; but transactions of this kind would always find a timely and salutary check from the experiments of others in the neighbourhood who had procured their seed-corn and other seeds direct from the grower. No seedsman could long abuse the trust thus confided in him, without smarting for the consequences, under the efficient working of an experimental system, if we may so call it, such as that proposed.

At present one almost shrinks to make mention of the many difficulties with which the seed trade is surrounded, for all sorts of trash having a saleable appearance are thrown into the market for little money, and eagerly purchased on the same terms—and *such terms only*; while many even go to a cheaper market still, such as the ostler's perquisite, the sweepings of hay-lofts and barns, and the accumulations of old musty remainders of turnip seeds, &c., left by their neighbours, both of which we have frequently seen bought and sown!

The interest of the public is that of the purchaser—the increase in the quantity and quality of produce, which an improved description of seed would effect. That a very high national benefit would be gained is manifest; but our limits will not allow us to estimate profits of this kind at present beyond the bare mention that they must exceed several millions annually.

The key to the whole question, it will thus be perceived, is *the increase of produce from the best seed*. Where, for example, should I procure seed wheat, barley, oats, &c., for my plastic clays of Surrey, so as to procure the greatest return in harvest?—from climates east, west, south, or north of my farm? and from what descriptions of soil? How would different seasons, cropping and management, effect results, &c.? These and many similar questions come home to every farmer in the kingdom, demanding experimental solution; and it has often occurred to us, we repeat, that something might successfully be done by means of medals and prizes at our summer and winter exhibitions, to stimulate exertions in the prosecution of a work of so much promise to the public generally—to say nothing of the individual profits involved.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A MONTHLY COUNCIL was held at the Society's house in Hanover-square on Wednesday, the 1st of November: present Mr. MILES (of Leigh Court), M.P., President, in the Chair; Lord Southampton, Sir John Villiers Shelley, Bart., M.P.; Sir Watkin Williams Wynn, Bart., M.P.; Sir Archibald Keppel Macdonald, Bart.; Sir Robert Price, Bart., M.P.; Mr. Raymond Barker, Mr. Barnett, Mr. Barthropp, Mr. Cavendish, Colonel Challoner, Mr. Garrett, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Chandos Wren Hoskyns, Mr. Jonas, Professor Symonds, and Professor Way.

FINANCES.—Mr. Raymond Barker, chairman of the Finance Committee, presented the report on the accounts, along with the usual quarterly balance-sheet under each

head. The current cash-balance in the hands of the Bankers was £471. Mr. Fisher Hobbs having called the attention of the Council to the amount of unpaid subscriptions, it was ordered, on the motion of Sir John Shelley, that lists of all the members in arrear should be prepared, and suspended in the Council-room.

LINCOLN MEETING.—On the recommendation of the Finance Committee, a vote of thanks was unanimously passed to Messrs. Smith, Ellison, and Co., of the Old Bank, Lincoln, for the accuracy and courtesy with which they had acted as the local bankers of the Society during the period of the Lincoln Meeting. Mr. Raymond Barker, as Steward of Admissions and Receipts at the Show-yard during the Lincoln Meeting, made a

very satisfactory report of the operations of that department, in which occurs the following passage, bearing testimony to the admirable conduct of Inspector Teddy, of the A division of Metropolitan Police, and the men under his charge, sent to the Lincoln Meeting by the Commissioners of Police, by direction of Viscount Palmerston, on the representation of the Society—

"To the unwearied attention and exertions of Inspector Teddy, the head of the Police establishment alone, was the steward indebted for the continuous and rapid interchange of cash which afforded all requisite accommodation to the public, whilst it successfully obviated all grounds for complaint or delay; when it is considered that during several portions of the principal day the influx through the barriers was at the rate of quite 30 per minute, much credit must be allowed to the police for the vigilance and good temper with which they discharged their arduous duties."

On the motion of Mr. Fisher Hobbs, it was ordered "That a complete balance-sheet of the Country Meeting of each year shall in future appear in the last Journal of the Society for the same year."—Mr. Barnett, as senior steward of cattle at the Lincoln Meeting, made the first report of that department, which was adopted by the Council.

CARLISLE MEETING.—The agreement entered into by the Secretary with the authorities of Carlisle was laid before the Council, who ordered the great seal of the Society to be affixed to it.—Mr. Fisher Hobbs, as senior steward of implements for the Carlisle Meeting, reported that instructions had been duly given to the Local Committee in reference to the preparation of the land for the trial of implements next year. Suggestions from the local committee for special prizes to be offered for particular breeds of cattle at the Carlisle Meeting were referred to the special Council on the 7th of December, when the Stock Prize List for 1855 would be taken into consideration.

MEMBER OF COUNCIL.—On the motion of Mr. Raymond Barker, seconded by Mr. Fisher Hobbs, the Earl of Darnley, of Cobham Park, Kent, was unanimously elected a member of the Council, to supply the vacancy occasioned by the decease of Mr. French Burke.

The President reported to the Council the steps he had taken during the recess, in reference to important communications received by the Society from Viscount Palmerston, as well as to various letters addressed to him from abroad. He also called their attention to the great mass of evidence which the Earl of Clarendon had so kindly been the means of obtaining for the Society, in reference to the occurrence of guano and the nitrates in tropical regions, and which the President had no doubt would eventually lead to important results of a commercial, as well as of an agricultural character.—A splendid collection of agricultural works, published in France under the inspection of the minister of that department, was received by the Council as a present to the Society from the French Government, and an unanimous vote of the best thanks of the Council ordered to be returned in acknowledgment.—A present of agricultural works was also received through the Smithsonian Institute of the United States, from that body and indi-

vidual authors, for which the best thanks of the Council were ordered.—Miss Banister, of Steyning, transmitted a large collection of specimens and models, with explanations, connected with Grass cultivation and products, cottages, &c., which were ordered to lie on the table for the inspection of the members.—Professor Solly had leave to exhibit at the Trade Museum, for a certain period, the Society's collection of German wools, presented to it by the Mecklenburg growers.—Mr. Farmer, of West Canada, applied for information on the question of standard points of excellence in prize cattle.—Mr. Ruck and Mr. Lawrence transmitted communications on the subject of selecting judges for Cotswold sheep, which were ordered to be reserved until the date when the Council would take the question of the selection of judges for the Carlisle meeting into consideration.—The Ledbury Society addressed the Council on disputed "points" in adjudicating prizes for live stock.—Various communications were received connected with the subject of offering foreign threshing-machines for trial in England without expense to the farmer, placing manure-steeps and syrops for seed-grain at the disposal of farmers for trial, and establishing in this country and in France large manufactories of fish-offal manure.—Col. Warrington submitted a claim of reward for his new guano.—Col. Clinton suggested a prize for a machine for separating the ears of corn.—The Hull Chamber of Commerce requested information on the best means of "treating the refuse of the Hemp-plant, in order to fit it for the soil again, apart from the usual farm-yard process."—Mr. Roch presented, for adoption by the Society, a new form of journalizing farm accounts under required heads, in the most simple and intelligent manner.—Adjourned to Dec. 6.

A SUBSTITUTE FOR GUANO, IN ORDER TO CLAIM THE ROYAL AGRICULTURAL SOCIETY'S PRIZE OF £1,000.—A new patent substitute for guano, consisting of decomposed and concentrate sea-weed, is about to be introduced by Mr. Longmaid, with the view of claiming the prize of £1,000 offered by the Royal Agricultural Society. The material is reduced to a powder, and rendered suitable to be applied by the drill. Many experiments with regard to its fertilizing powers are said to have been made during the past year, and the subjoined analysis of a sample has been furnished by Professor Way. The process is stated to be simple; the price is estimated at £5 per ton or under; and it is contemplated to establish manufactories at various stations on the coast.

	Per-centage composition of the dry manure.
Organic matter—	
Soluble 48.13 }	65.92
Insoluble 17.79 }	
Sand, &c.	3.18
Alumina, with a little peroxide of iron ....	.40
Phosphate of lime.....	.74
Sulphate of lime	2.05
Chloride of calcium	1.22
Chloride of magnesium.....	2.02
Chloride of sodium	5.12
Sulphate of potash.....	5.70
Soda	13.65
	100.00
Nitrogen	3.23
Equal to ammonia	3.92

THE ECONOMY OF FARM BUILDINGS.

The little lady, who being pressed by her governess to explain what political economy really meant, replied at length with a sob that "she didn't know, and she didn't believe that anybody else did," would find many to sympathise with her hapless condition. There are certainly few words more difficult to define, or that at least invite more extended discussion, than this said economy—be it of whatsoever kind it may. Every man is almost sure to have his own peculiar reading of the term. With some it degenerates into but another name for parsimony, admitting only the least possible expenditure on which an existence or a pursuit can be maintained. Others, again, lean to a more liberal interpretation, and put economy to its best uses, when it is made to direct, rather than to forbid, the outlay of our means.

The members of the London Farmers' Club have opened their winter session with a few rounds at this game of Definitions. They circumscribed the economy of farming, on this occasion, to the economy of farm buildings, and without arriving at any very decided conclusions, the discussion generally may, we think, be read with advantage. As the introducer of the subject remarked, the theme is by no means a new one; but it is at the same time one of those important matters that can scarcely be too often considered. Beyond this, it is a feature of improved agriculture, in which the London Club is unusually strong. It is just one of those topics on which the farmer and the agent should meet to talk over, as one upon which they cannot come to too clear or too quick an understanding, as to what aid they have to expect from each other. The more than mere sprinkling, then, of the representatives of the landlords, whatever be urged to the contrary, may not, after all, be an anomaly, as not without advantage in the proceedings of a Farmers' Club.

The London Club, we repeat, has already shown itself strong in this, the very foundation as it were of all improved farming. It has long since, and over and over again, discussed the subject of buildings, and always with effect. It numbers too, amongst its members, some whose homesteads are generally acknowledged as examples for others. Such, for instance, as those of Mr. George Parsons, at West Lambrook, in Somersetshire, which were the object of many an edifying visit; or again of Mr. Cooke, at Semer, in Suffolk, so frequently referred to at the meeting on Monday. Later still we are told of the admirable range his Grace the Duke

of Bedford has erected for Mr. Thomas, at Liddington. The working farmer members of the Club have had the opportunity of seeing something in practical illustration of the economy of farm-buildings. It is but fair to add, that the agents included in the list of members have on many occasions evinced quite as hearty a disposition to take their share in the good work. Foremost, perhaps, amongst these stands Mr. Beadel, who two or three years since read a paper, which speedily obtained the authority it so well merited. It has long enjoyed a popularity far beyond the limit of any one particular set, or Society. Mr. Oakley, Mr. Cheffins, and others have also done their best towards the thorough realization of this grand essential to the better cultivation of the country. Rarely has the experience of any two classes been combined with more mutual benefit or satisfaction.

Unlike, then, the confession of the school-girl, who ingeniously associated her own ignorance with that of others, and knew nothing at all about economy, the members of the Farmers' Club could scarcely fail to have some previous notion of that particular branch they came to consider. Without, it will be seen, confining themselves very strictly to the word itself, nearly all the speakers were inclined to take a liberal view of the question. As a literal matter of pounds, shillings and pence, this might no doubt have been argued somewhat closer. At the same time it is difficult, in discussing a topic so manifestly susceptible of so many different applications, to go far beyond the general principles to be advised on. The principle here is patent enough—the best and most economical plan of farm-buildings to be recommended to landed proprietors is the erection of *good* buildings. If they are not good in design and structure—if they are not, that is to say, made as suitable as possible to the advanced practice of agriculture—if they do not, in a word, *encourage* this, they are *not* economical. It is for this we have to press. There may be, no doubt, exceptional cases, where landlords over-build themselves; but these are very exceptional indeed, and are generally to be found on the *home* farm, rather than that of the tenant. The rule, however, is the other way. The want of economy in farm premises is, that they are not half what they should be; that more outlay must be made upon them; and that, as a principle, it is the duty of the landlord to do this, or to get it done for him. The true economy of farm buildings is

such buildings as the farmer requires; and we think that the Farmers' Club (we will not say in this present discussion alone), is strong enough to define in what this economy consists.

It will be found that even on this occasion the question of expense was by no means passed over, but that the most modern systems of housing may be tried on the most moderate terms. Take, for example, Mr. Wood's plan for box-feeding. We should prefer, however, to consider buildings rather a permanent than a temporary improvement, and

so not to be devoted to a bonfire, to celebrate the expiration of a term. Acting on a custom which it strikes us might occasionally be as honoured in the breach as the observance, the meeting closed with the passing of a resolution—perhaps as good as it could be well arrived at, considering “the different circumstances of requirements, &c.” It is, however, to the discussion itself we would refer for information, which has all the authority of experience and judgment to recommend its perusal by both landlord and tenant.

LONDON, OR CENTRAL FARMERS' CLUB.

“THE BEST AND MOST ECONOMICAL PLAN OF FARM BUILDINGS THAT CAN BE RECOMMENDED TO LANDED PROPRIETORS.”

The first monthly meeting of the Club, after the usual autumnal recess, was held on Monday evening, Nov. 6, at the Club-House, New Bridge-street, Blackfriars; Mr. R. Baker in the chair. The subject for discussion was, “The best and most economical plan of farm buildings, that can be recommended to landed proprietors;” this having been substituted for another question which had been announced in the programme of the year, for introduction on this occasion, by the late Mr. Cheetham. The present subject was introduced by Mr. Bullock Webster, of Malvern.

The CHAIRMAN, in opening the proceedings, said he would take that opportunity of expressing his sense of the great loss which the Club had sustained by the death of so valuable a member as the late Mr. Cheetham (Hear, hear). Their lamented friend had prepared a subject on that evening; he was unfortunately no more, and another subject had been substituted for it, which would be introduced by Mr. Webster. The subject about to be brought forward was one which had engaged a large amount of public attention. The construction of farm homesteads in the most economical and beneficial manner was a question of great interest to agriculturists, and especially to tenant farmers; and he should now leave the subject in the hands of Mr. Webster, with the full conviction that he would do it ample justice. He regretted to say that Mr. Pain, their excellent chairman for the year, who would under other circumstances have presided, was detained at home by a family calamity.

Mr. WEBSTER, who exhibited a model to illustrate certain portions of his address, spoke as follows:—Mr. Chairman and Gentlemen, the subject proposed for this evening's discussion is not new, but one that has been introduced both here and in the pages of the *Journal of the Royal Agricultural Society*, from time to time, with more or less of success, but on the whole in a manner which does infinite credit to the two societies which I may describe as the nursing parents of agriculture; indeed, so much has been said and written on this subject, and so well, that it may ap-

pear at first sight that nothing is left to be treated of or desired. And such, in fact, might be the case, if we had only to consider the subject as applicable to large estates, and large farms; for we have in print, in the *Journal of the Royal Agricultural Society*, and in that of the Highland Society, elaborate and detailed descriptions of farm buildings of high architectural character, and in most counties specimens of the same, which speak highly for the spirit, energy, and perseverance of English agriculturists. But, in the very excess of our resources, as at present developed, lies our difficulty—that of choosing between so many conflicting plans. If a landed proprietor be applied to, at present, to erect a farmery, he has no alternative but to choose from one of these, or rush into the uncertain expense of surveys and plans for himself, this first item in the catalogue being sufficient to deter many smaller proprietors from entering into it at all; and differences of opinion between landlord and tenant, as to what should be the amount of outlay in cases which are most usual, where the tenant has to pay either a percentage or an increased rent, militate very much against that increased accommodation on small holdings, which, more than anything besides, would place our general farming on a fair footing. Assuming, then, that we may safely leave the large landed proprietor and the amateur to such a choice as I have before alluded to, there does appear to me to be a blank which it is the peculiar province of this association, as the nursing parent of the working farmer, to fill up; I allude to the want of some plain and inexpensive plan of buildings, which shall be, as nearly as possible, generally applicable to the wants of our farming community. My present object and desire, in opening this discussion, is to elicit some such plan, founded on one general principle, on this subject, which, should we be fortunate enough to agree upon it, may go forth as the recommendation of this association of practical men, and exercise, as I have no doubt it will, a very beneficial influence by showing, both to landlord and tenant, that the expense of the erection of farm buildings may be re-

duced to a certainty, and that whilst economy is studied, efficiency may be insured; that there is approved ground, on which they may meet, without the one being thought to ask too much, or the other to grant too little; and a scale of adjustment by which the interest of both may be most fully consulted. Confining myself, then, strictly to the terms of the discussion—"the best and most economical plan of farm buildings that can be recommended to landed proprietors"—I will not enter into the merits of any of the various systems of farming and modes of management, but, taking them as I find them, endeavour to show that there is a plan of farm buildings which may be applied to the most approved of these systems—a plan which, in the plainest mode of carrying it out, is as inexpensive as possible, and which is yet capable of elaboration to a very considerable extent, all of which will be best understood through the models. After having visited nearly all the best farm buildings in England, Ireland, and Scotland, and noted the requirements of farmers in different localities, I have come to the conclusion that partially closed sheds, 18 feet wide in the clear, and not less than 8 feet in height of walls, are capable of being made available for all the purposes, except that of the barn, for which farm buildings are required under the various systems of farming now pursued.—[Mr. Webster here referred to his models in explanation of his views.]—Take, for instance, model No. 1, and suppose it required for milch cows, fatting stock, or young cattle. You have a space of 3 feet for the feeding passage, 2 feet for the feeding trough, 6 feet for the animal, 1 foot for the drain, and a 6-feet passage behind, with say 4 feet in width for each animal, as the case may be. Again, should Mr. Warnes' system of box-feeding be pursued, this arrangement is equally well adapted to it, the only difference being in the interior fittings. The same holds good if Mr. Mechi's system of gratings for sheep be pursued; and in this case the interior fittings might be moveable, to allow of the conversion of this room for other purposes when not wanted for sheep. In fact, in most cases the interior fittings should be moveable, for the sake of convenience. For stabling, you have but to partition off 6 feet for each horse, or, what might be better, to take in 24 feet of shed; and, making your stables crossways, get 6 feet for each of four horses, and a good harness room across the end. For pigsties the plan is equally applicable, through a different arrangement of the fittings. And it will easily be understood that portions of these sheds partitioned off, or erections of the same dimensions, will answer well for carpenters' and blacksmiths' shops, straw and root houses, gig-house for bailiff, &c.; whilst for shelter for young cattle in the straw-yard the interior wall would be done away with, and posts substituted; and for carts and implements posts substituted in the same manner for the outward wall. I will not attempt to lay down any general rule as to the mode of arranging these eighteen-foot sheds, as it ought to depend in a great measure upon situation, kind of stock kept, and various local circumstances; but where these make it desirable, I think it will be found practically that three or four eighteen-foot sheds placed together

will form as convenient and economical a covered home-stall as any other kind of erection. One or two remarks, however, I may be allowed to make, which, though trite here, may not be inopportune elsewhere. The square or oblong form is nearly always advantageous. Straw, hay, and roots should be near the cattle, the cart and implement shed near the stable, the pig-gery near the dairy and boiling-house, the cow-house near the dairy; and there should be but one entrance, which should be near the bailiff's cottage or the farmhouse, so that persons going to and fro may be seen. But, though the exact form of the homestead may be a matter of indifference, or may depend on circumstances, the question as to covered or open homesteads cannot, I take it, be looked upon in that light; for whether we consider the comfort of the animals, and therein their condition for fatting faster and cheaper, or the greater value of unwashed manure, we must, I think, discard in a great measure the idea of the open homestead. For my own part, I decidedly object to covered homesteads open at the sides, as precluding the proper regulation of the temperature. Any one who has stood under our open railway stations on a cold day may have experienced some of the sensations to which cattle are subject under these *intended-to-be-comfortable* home-stalls. As the arrangement of the homestead may vary according to circumstances, so also may the materials of which it is composed. Brick or stone will do equally well for the walls, and may be used according to the custom of the neighbourhood. In Norfolk clay-lumps might be substituted; and in districts where there are copper and iron works we shall soon have a valuable building material made from the slag, which, it is expected, will be brought to such perfection that, in addition to its substitution for brick or stone, it will probably be worked thin enough to supersede slate for roofing. In other districts the roofing may be of slates, or the improved kind of tiles, which latter are warmer in winter and cooler in summer; but I would not recommend the plan of a hollow brick roof, in consequence of the difficulty which there is at present in making it waterproof: though no doubt we shall see improvements in this also. In some districts the iron roofing may be more desirable. Again, the timber may be either of foreign or of home growth; and here I wish it to be particularly noticed, that one of the greatest advantages to the landlord of establishing this eighteen-foot system of building would be this—that in felling and sawing his timber directions might be given that anything which would cut into rafters wall plates, &c., say for 18 feet sheds, should be put on one side, and always be ready for the use of the farms on the estate. The saving here effected will be obvious to every one. For floorings for the sheds, I doubt if anything can be found to answer better than hard bricks; I am now using some—there is a specimen on the table—which are as hard as stone, perfectly impervious to moisture, and so moulded as to prevent the animals from slipping upon them. There are many other matters of detail, which I do not think it necessary to enter into on this occasion; the main point now, as I conceive, being to decide on some mode of building, to be recommended

to landlords and tenants generally: the details will easily be filled up. I have, however, thought it might be desirable to give a rough estimate of the cost of 18 feet sheds, as far as the shell, *i.e.* the walls, and roofing; and I caused one to be prepared, showing what would be the cost for 100 feet of shed at the present price of timber, slates, and bricks in the London market; but, upon going more fully into the matter, and getting estimates for tiles, slates, and iron-roofs, in various localities, I find that with walls of bricks and stone, if you take any agricultural district, the expenses per foot in length of these sheds, including windows and doors, will not exceed twenty-five shillings per foot. In most places it will not be more than 20s., and where stone or bricks are found for the walls and rough timber for other purposes, it will be only from 12s. to 14s. In addition, I have only to notice the barn; and as far as my experience goes, I would never build one more than sufficiently large to hold one rick of the size usually made in the locality, with space for the barn-machinery and straw. This may be placed at the end or centre of the sheds, as seems best. Thus it would appear, that we have in these 18 feet sheds a plan of farm buildings adapted for the improved systems of farming of the present day; equally good for any other that may be adopted, whether on a large or small scale; capable of expansion to any extent; easily constructed from the various materials to be found in different localities; as inexpensive as possible, in a plain form, and yet capable of great ornament and finish; above all, a plan which if approved by this Club and established would do more to facilitate the erection of proper homesteads than anything which has yet occurred, by reducing the hitherto uncertain cost to a certainty, and establishing approved ground, on which both landlord and tenant might meet. It should be understood that if 25 more beasts were kept 100 feet more shedding would be required, costing £100, if 4 more horses, then 24 feet more shedding, and so on; thus leaving no doubt on the score of requirement and expense, the uncertainty of which has, I believe, hitherto deterred hundreds of well-meaning and liberal-minded landlords from building and rebuilding on their estates. With these observations, I will now leave the subject in the hands of the Club, believing that most of the members will agree with me that it is high time, that something should be done by way of advice and encouragement, to get rid of those straggling, unthrifty, and unsightly farm buildings, which are a disgrace to the age in which we live (cheers).

Mr. MECHI thought there ought to be some established principles of action in regard to the construction of farm buildings. He agreed with Mr. Webster, that it must be laid down as a rule that the cattle on the farm should be sheltered, and that open yards like those which had hitherto prevailed could no longer be tolerated, as they were evidently unprofitable. One suggestion which he would venture to make was, that all farm buildings should have a steam engine, fixed or moveable, in connection with them. The present tendency was, he thought, rather to give up portable engines, and to substitute for them fixed ones, as being the most economical.

Then came the question, whether the manure was to be removed daily, or to remain under the animals in covered yards, straw being added. He believed the latter practice to be sound, provided there were sufficient ventilation. As regarded the health of animals, he believed the same principles applied to animals that applied to human beings. He believed it to be quite possible to guard against such mischievous influences. It was the mischief which arose from bad ventilation that led farmers in Essex to keep their horses in open yards; and it was well known that where sheds and open yards were combined, there was scarcely any doctor's bill. Ventilation was a point in which he felt very great interest, as he sold off his farm annually meat to the value of £2,500. His losses of late had been little more than nominal, and this he attributed to the circumstance that there was ample ventilation. As regarded the best method of securing ventilation, he must remark that he thought ventilation ought to be obtained from the bottom rather than the top of a building. He would tell them why he was of that opinion: in his sheds, the floors of which were boarded, he had on a level with the ground a number of six-inch pipes, placed within nine inches or a foot from the floor; and it was a singular fact, that while there were large openings above, the smell issued from the lower far more than from the upper part of the building. The inference was quite unmistakable; and he considered it, therefore, highly important that in stables and cattle sheds, especially such as were made of brick, and therefore were impervious to the air, an opening should be made below as well as above, in order that the circulation of air might be complete. Another point for consideration was the question of the construction of boarded floors as part of an improved system of farm buildings. He confessed that he had always entertained a very great dislike to boarded floors as far as comfort and appearance were concerned; but after eight years' experience, and making every allowance for the disadvantages which attended that system as well as every other, he thought the balance was decidedly in favour of boarded floors (Hear, hear). He could assure them, from his own experience, that if they divided a lot of bullocks, keeping one-half on boards and the other half on straw, the butcher, when he came to make his selection, would go first to the bullocks on the boards. His butcher had remarked to him that day that he should always give the preference to sheep fed on boards, as the mutton was of a superior quality. A friend of his, who had been obliged to keep some animals on straw instead of boarded floors, said his butcher had complained that the meat was not so good as under the latter system. As regarded both sheep and pigs, he (Mr. Mechi) was fully convinced that boarded floors were the best. When he put down his boarded floors, he certainly did not do so with reference to irrigation; but having commenced irrigating, he found that he would have been obliged to adopt boarded floors if he had not done so previously, because the manure which fell to-day was, under the boarded system, washed out to-morrow and distributed over the land, so as to enter deeply into the growth of plants. He maintained that upon heavy clay lands, if they kept a large quantity of stock, it was

absolutely necessary that there should be a good covering for the animals during the long winter nights, and that the providing of adequate shelter would repay both landlord and tenant. They all knew that, in unfavourable weather, sheep which were exposed to its influence made no mutton, however much they might consume (Hear, hear). When they were out, with nothing but wet clay to lie upon, all the carbon of the food went to replace the heat which had been lost through this state of the weather. He agreed with Mr. Webster, that barns should not be used for the future as they had been. In his opinion they should be used chiefly to keep a certain quantity of straw in a dry state, to be cut up as food for animals. He was glad to perceive that they were rapidly approaching a period when the system of cutting up food for animals was likely to be almost universally adopted; and if the great bulk of the straw were consumed together with cake and roots, it would, he thought, be found a most valuable addition to the feeding powers of the farm (Hear, hear). With regard to the amount per acre which it was necessary to have invested in farm buildings, he thought the evidence on the subject was to the effect that for the general purposes of farming, about five pounds per acre would suffice for the purpose. There might, indeed, be some advance on that amount, now that the cost of labour and materials was so greatly increased; but a great deal would of course depend on the peculiar circumstances of different localities.

Mr. NESBIT agreed with Mr. Mechi, that ventilation was one of the most important points that farmers had to consider with reference to the welfare of cattle.

Mr. WOOD did not entirely concur in Mr. Webster's theory as to an eighteen-feet building comprising all that was necessary for the accommodation and welfare of cattle, but fully agreed with Mr. Mechi, that ventilation had a great deal to do with the matter. After a good deal of experience and observation, he was of opinion that Mr. Warnes' plan of feeding cattle was the best that had been devised. For his own part, however, he did not see the advantage of putting up smart buildings. He had himself begun by making an excavation of about two feet, and then sticking posts in the ground. He afterwards employed a carpenter at 2s. a-day (Oh, oh!), after which he got a few rails, and put on the plates and the roof; and when he had tied the whole strongly together he found that it answered his purpose just as well as though he had gone more expensively to work (laughter). He could build boxes to any extent for about six or seven pounds each. They would last for a fourteen years' lease, and the total cost was not more than the interest of the money laid out in constructing expensive buildings; while at the end of the fourteen years he would be in a position to set fire to the buildings and erect others, without being more out of pocket than those who built a box at a cost of £15, which was to last for ever (laughter). He had, too, the advantage of good ventilation, through not putting up brick walls. On one occasion, indeed, he did erect a four-inch brick wall; but he found that the animals kept inside were not so healthy as they otherwise would have been. There was not that escape

of effluvia which he considered necessary to keep them in good condition. His plan was to put up bushes, and there could be no more complete ventilation than these afforded (Hear, hear). It was a well-known axiom in Sussex, that if a gust of wind once got into a bush-faggot, it never came out again (laughter). This was, in fact, a most wholesome system of ventilation, and, leaving expense out of the question, he considered the kind of building which he had just described preferable to the most substantial one that could be erected. He had twenty bullocks in boxes of that description during the whole of last summer. If the box system was to be carried out they must have ventilation, and in no other way could they get such perfect ventilation as was secured by putting up bushes. As regarded expense, they were aware that though surveyors and clever men might make what appeared reasonable estimates for buildings, there were often many things left out of their calculation, as those who had to pay discovered to their cost. There were, for instance, the charges for making shoots and roads, and for providing sheds for horses, carriages, and so on; with reference to which there was perhaps no more convenient plan than that of having a shed, or a number of sheds, 18 feet in the clear. He did not approve of putting sheep in sheds: he had tried it, and found that it did not answer. He himself farmed in the Weald of Sussex, seven miles from Brighton. The great advantage of feeding sheep on the land, instead of under the cover, was that the manure was left where it was required, and the expense of carrying it was avoided. As to the flockfarmers of Hampshire and Wiltshire housing all their sheep, it would be useless to attempt it. He thought it desirable that the buildings which already existed on farms should as far as possible be turned to account (Hear, hear). He had endeavoured to turn his own to account by putting shoots round them. It was doubtful whether in many cases in which large buildings were erected the tenants would be able to pay the interest of the money expended. (Hear, hear). As to barns, it was to be remembered that farmers were now nearly all thrashing with steam-engines, and he believed that practice would become still more extensive, and that barns would therefore be less needed for thrashing purposes. The system of carrying to barns would, he thought, soon be almost discontinued.

Mr. TRETHEWY could not help expressing his surprise and disappointment at the tone which the discussion had taken. To him they appeared to have been discussing anything but the subject before them. They had been talking of ventilation, and of the relative merits of feeding cattle under sheds and in the open air, the subject on the card being "the best and most economical plan of farm buildings that can be recommended to landed proprietors." (Hear, hear). It would have been more satisfactory if Mr. Webster had given them some idea of the total expense of such a building as that of which he exhibited a model. He had spoken, indeed, of a pound or five-and-twenty shillings per foot; but there were a number of sheds combined in the model, and he (Mr. Trethewy) would like to know the entire cost of the structure. What were its dimensions?

Mr. WEBSTER said the shed which he recommended for general adoption was one 18 feet in the clear ; as to the expense, 100 feet would cost £100.

Mr. TRETHEWY would suppose the case of a farm of 300 acres. Would Mr. Webster be good enough to state what area of buildings would be required in that case ?

Mr. WEBSTER could only repeat that sheds 18 feet in the clear would answer every purpose.

A desultory discussion ensued with regard to the model, in which it was elicited that it represented a set of farm buildings built by Mr. Webster, in Hertfordshire, for a gentleman who had an income of about £10,000 a year ; Mr. Webster stating that he had no wish to bind any one to follow that particular model, and repeating several times that his sole object was to get the Club to express its approval of sheds 18 feet in the clear. He further stated that, under his plan, the accommodation for a bullock would cost £4, and that for a horse about £6, and that he contemplated the covering being of slate or tiles, according to the nature of the locality.

Mr. TRETHEWY said he perceived that Mr. Webster's model allowed only one barn. He (Mr. Trethewy) was no advocate for having a great deal of barn space, but he thought that one single barn in the case of a farm of two or three hundred acres would not be sufficient (Hear, hear). Again, as regarded height, he thought that the lowest elevation of farm buildings should be 8 feet. He entirely agreed to the adaptation or renovation, as it were, of old buildings, and thought that in many cases it would be much more desirable, and much easier, to take advantage of existing buildings, and to turn them to account in the best manner practicable, rather than to erect new homesteads. In conclusion, he could not help reiterating his doubts as to whether the accommodation spoken of by Mr. Webster could be provided for the sum stated.

Mr. CHEFFINS wished to confirm the statement of Mr. Webster, that sheds 18 feet in the clear, with slate or tile roofs, might be put up in almost any part of England at a cost of from 20s. to 25s. per foot ; and, from his experience in different parts of the country, he was convinced that sheds of that description would prove very efficient farm buildings. With regard to the question of the comparative eligibility of different systems, he believed it was impossible to lay down any general rule ; every district might require peculiar arrangements.

Mr. SIDNEY had had an opportunity lately of seeing various farm building in three or four counties in England, and his conviction was that it was absolutely necessary to consider well how capital might be invested in future with the greatest advantage to agriculture. In Kent, Hertfordshire, and Surrey he had seen the most miserable buildings that could be conceived—buildings which were not, like those mentioned by Mr. Wood, even suited to the purposes of agriculture. There was also another class of buildings which did perhaps as much harm in another way. A landlord who knew little about the business of farming sent for an architect who knew less ; and the result was, that a building soon rose from the ground, which was quite a

Palatial affair, and which the landlord afterwards considered to form a very good excuse for his never doing anything. Happening to be on the estate of a member of the present Administration, he there met with an architect who was erecting a beautiful Gothic edifice, with very beautiful cow-houses and other appurtenances. He asked what kind of farm there was going to be ? The belief was that it was to be a dairy-farm. He then asked how much the farm buildings were to cost, and it appeared the amount could not be stated within a thousand pounds. In short, so far as he could judge, no one concerned had any idea with regard to this building beyond that of raising a structure which would be pretty and ornamental. There were at the present moment a vast number of both landlords and farmers who were really anxious to do what was right, and were waiting to be told how to do it. At present they were, for the most part, in the hands of theorists who led them astray, or of ingenious lawyers who appeared to think themselves entitled to the proceeds of the largest part of the estate.

Mr. OAKLEY felt there was nothing so costly to the landlord as the reparation or renovation of old buildings and the erection of new ones, and at the same time nothing so beneficial to the tenant as the having suitable places to shelter and feed his animals. He had had a great deal to do of late years with the alteration of old buildings, so far as they were available, and the erection of new ones where it was necessary, and for that purpose had been entrusted with the spending of a great deal of other people's money. As most of them were aware, he had adopted the plan of Mr. Beadel for the erection of covered homesteads. The idea of doing so first came into his mind through his intercourse with friends in the Weald of Sussex, who discovered in their box-feeding, that the manure thus obtained, which they applied in their hop-cultivation, was much more beneficial than manure which the water of heaven had been falling upon. His object had been to keep all the animals covered, under one roof, while at the same time he made due provision for ventilation. As the discussion of that evening turned upon the question of economy in relation to farm buildings, he wished to remark that his experience led him to this conclusion—that, taking the price of timber at what it was in '51 and '52, in the case of a farm of 300 acres of mixed land, such land as abounded in Herefordshire and Worcestershire, suitable farm buildings might be erected for a thousand guineas, which was as nearly as possible £3 10s. per acre. His views on the subject were published in the *Journal* of the Royal Agricultural Society of last Christmas. He had entertained a hope that Mr. Webster would go more minutely than he had done into the question of costs, especially as the question for discussion was, What was the most economical plan of farm buildings that could be recommended to landed proprietors ? As regarded the species of building he himself had mentioned, he would observe that one of the best farmers in the country, a practical man farming his own land, and who looked at pounds, shillings, and pence as much as any one with whom he was acquainted, having had one such set of buildings erected, was so satisfied with the result that he had ordered another set, which

was now being gone on with. He had forgot to mention that the thousand guineas included the erection of a barn.

The CHAIRMAN wished to make one or two observations on what had passed that evening. Mr. Cook, of Semer, Suffolk, had some very excellent covered farm buildings, and was, he believed, the first person who erected such buildings in this country to any considerable extent. He proceeded in the most economical manner, and his buildings were better adapted to the purpose than any others which he (Mr. Baker) had seen. It happened that in all the buildings of this description which he had visited there was some defect. Some were built too high; and he had himself observed a driving wind and rain beating across half the building; others were too low, and there was not that amount of ventilation which was requisite for the health of the animals. They must always take nature for their guide. All the lower animals were destined to live in the open air, and it was only through the assistance of man that they could obtain shelter in severe weather. The grand point was so to shelter animals at particular seasons as to secure the best quality of food. With this view buildings had been contrived, which to a great extent met the necessities of the case, and he hoped to see their number increased. The question was a very important one in relation to manure. Mr. Mechi had specially directed his attention to that subject. He was very glad to find their friend becoming more and more practical. (Hear, hear.) He thought that in some respects he had shown himself more practical than some of the other speakers; it was matter for congratulation to find that in all cases where science studied practice or practice availed itself of science, mutual benefit was the result. (Hear, hear.) If Mr. Mechi had spoken of the effluvia which issued from the pipes in his building, he (Mr. Baker) must observe that a current of air in a building was almost as objectionable as air which remained heated, because it rendered animals liable to take cold. On this account, it was, in his opinion, desirable that in every covered yard there should be arches to admit the air directly from below to the open spaces where the cattle were kept; and as the air thus admitted would ascend, there should be a shaft in the upper part of the building for its emission. As to the question on the card, namely, "The best and economical plan of farm-buildings," he would observe that it was a question which could never be determined except with reference to the special circumstances of different localities, and the facilities which they afforded for building. (Hear, hear.) For example, he had visited farms in Gloucestershire, where the very stones which were removed to get the foundation were used to erect the building: he had been upon other farms again where there was sufficient wood for that purpose. On most farms there were already some buildings; and the great point was how they could be best adapted for the use of the tenant. Mr. Cook, of Semer, had made nearly all the buildings already erected serve for sides to his covered yards, and he would recommend those persons who wished to improve their farm-buildings to go and inspect those of Mr. Cook. On a considerable farm in Essex—a farm of four or five hundred acres—of which he was en-

trusted with the management, the buildings were not long since all burnt down. They were insured for £1,000; and the owner of the farm having placed that amount in his hands, requested him to erect with it such farm-buildings as were required, telling him at the same time that he should not pay any more. With that sum he (Mr. Baker) erected an excellent homestead. The sheds were 160 feet in length and 40 feet in width, and included two large barns, a large building for a steam-engine, and ample accommodation for cattle and horses; while the height in front was seven feet clear. He took every precaution to have the work done well, and believed the sheds were well adapted to their several purposes. What he would recommend to landed proprietors who were desirous of improving their farm-buildings was, that they should take the advice of some person who was competent to give advice, and to point out to them the best method, whether of converting buildings which already existed, or of setting about the erection of new buildings, and not to proceed without knowing either what was required or what expense was likely to be incurred.

Mr. B. WEBSTER having replied, the following resolution, on the motion of Mr. MECHT, seconded by Mr. TRETHEWY, was adopted:—

"This Club is of opinion that covered homesteads are strongly to be recommended, whenever they can be introduced with advantage; but it is further of opinion that no settled plan of farm buildings can be laid down, as different circumstances of obtaining materials, adaptation of present buildings, and the actual requirements of the farm, must at all times call for a different application."

The proceedings terminated with votes of thanks to Mr. Webster for his paper, and to Mr. Baker as Chairman of the meeting.

CORN STATISTICS IN FRANCE.—We read in the *Siecle*:—"According to the latest statistical returns, the crops of every kind of corn in an average year in France now amount to about 180,000,000 of hectolitres. In wheat our country produces 60,000,000 of hectolitres; rye 26,000,000; barley 19,000,000; *metiel* (a mixture of wheat and rye), 11,500,000; oats 46,000,000; buckwheat, 8,000,000; maize and millet 7,000,000; small grain, pulse &c., 2,500,000. The crop of wheat is, therefore, in the proportion of 60 to 180; that of oats 30 to 180; and that of rye 23 to 180; that is to say, these three descriptions of corn, compared with all the others, are in the proportion of 103 to 77 only. This quantity of 180,000,000 of hectolitres of corn is not all consumed; deducting a seventh part, or 25,700,000 hectolitres, for seed, there remain 154,300,000 for the general consumption. As, however, oats, the net production of which is 39,250,000 hectolitres, cannot be reckoned as human food, we find that the quantity remaining for the food of the people is 115,050,000 hectolitres. If we now take the different crops by weight, which is the best manner of estimating the nutritive value of each, it may be said that the average weight of wheat is 75 kilogrammes per hectolitre, that of rye 65 kilogrammes, barley 60 kilogrammes, *metiel* 70 kilogrammes, buckwheat 60 kilogrammes, maize 78 kilogrammes, and dry pulse 80 kilogrammes. It follows, therefore, from these bases, that with 51,500,000 hectolitres of wheat, weighing 3 milliards of kilogrammes,

and the other quantities of corn in proportion, we have a total weight of 8,046,800,000 kilogrammes of corn fit for the consumption of man. It has been calculated that on an average, including women, children, and old people, it requires 220 kilogrammes of corn per year for the food of one person. This would therefore be for France, where the population is reckoned at 36,000,000, a total of 7,920,000,000 kilogrammes. If, therefore, from the 8,046,800,000 kilo-

grammes calculated, as above stated, for human consumption, there be deducted the 7,920,000,000 which suffice for the consumption of France, the following result, which must be satisfactory to every one, is come to—namely, that France, in an average year, has a crop of 127,000,000 kilogrammes of corn beyond the wants of the people, and that she could still feed 600,000 inhabitants more than the present number of her population."

THE LEADING TOPICS AT OUR AGRICULTURAL MEETINGS.

The many agricultural gatherings just now, or but lately, held throughout the country, continue to afford equally satisfactory evidence as to the commendable course their supporters are pursuing. We have already had occasion to remark this season how almost invariably these proceedings have been kept to their proper object—the safe and consistent advance of British agriculture. Little, indeed, has been the exception here; the dissensions, in fact, which have occurred are more personal matters than anything else, and such as in no way threaten to endanger "the harmony" existing amongst the members of other societies. Unhappy Mr. Colville, for instance, has no one to associate with himself in a display of bad taste and presumption, but duly punished by the terrible gibbeting he has already received. The disturbance at Leominster, again, offers us little for imitation. Tracing its origin to what was said to be a personal matter between Lord Bateman and his tenants, it was ultimately allowed to completely negative the purpose for which the agriculturists of the district had met together. However wrong Lord Bateman may be—whatever his tenantry may have to urge against him, we find but little excuse for turning the Leominster Society's festival into a mere bear-garden, by a succession of interruptions out of all order, decency, and good sense.

Let us turn to more profitable matter. One of the most interesting topics, then, just now engaging not alone the attention of the agriculturist, is that of the statistics of agriculture. The remarkable turn taken in the corn market has naturally induced all classes to look to some such source of information, for a key to that they cannot otherwise profess to understand. The farmers, generally, appear to be amongst the most anxious of these; the only doubt being whether the Government has as yet gone the proper way to work to obtain what may be relied on. In Worcestershire, for example, one of the counties selected for a more extended trial of the experiment, Mr. Curtler thought

"The object was fair and legitimate, but the Government had not set about obtaining it in the right way. He had heard great deal about this in the market, and he did not think

many farmers would be disposed to afford the relieving officers of the Unions any information upon these subjects, or any other local persons employed by the Boards of Guardians. He thought the farmers themselves would feel suspicion upon the subject—suspicion which might fairly be excused, however ill-founded it might be. The information required was fair and reasonable, and should be yielded if asked for in a manner which would show the farmers that it would be impossible that any person's position should be exposed. It would be great presumption in him to say in what particular way these statistics could be procured in a correct form, but if circulars were sent—(sent through the Board of Guardians or in any other way), and the farmers were informed of the impossibility of the returns being exposed to the neighbourhood in which they lived, or any other mode were adopted by which the published return would be that of a union—a county if they pleased—or any other district, the farmers would be the last men to resist so reasonable a request. If it were worth while to do this, it would be worth while to do it well, and to go to some expense about it; but the Government appeared to wish to do it at very little expense to itself, and would certainly not attain its end by such means. Although Boards of Guardians and individual farmers might express willingness to assist in giving the required information, he would ask whether Government could expect to get a correct return under present circumstances without compulsion—such a return as would be of any use to the country at large? They might depend upon it, the Government had not taken the right course. He would rather see the Government come forward boldly, and make it compulsory on the farmers to make their returns to some office in London; the thing would then be done well."

Mr. Haywood, too, one of the judges of stock at a meeting in a neighbouring county, Hereford, clearly leans to the above view of the matter:—

"From conversation which he had had with several practical farmers, he found the importance of the thing was fully appreciated, but there was a want of information as to how it was to be carried out. Was it to be done by persons appointed in the neighbourhood, or by proper officers sent down by the Government? He would much prefer the latter plan to having a person connected with the locality to ascertain what his produce was per acre. Moreover they had never been informed as to the precise information which was required. He fully agreed that, if we could arrive at an accurate knowledge as to the quantity of corn produced in this county in any particular year, the farmers would be able to form an idea of the prices which would be realized."

It is but right to say that Mr. Curtler by no means carried the meeting with him at Worcester. Mr. Guest, "trusting for the sake of the county that

the return would be made, it would be a disgrace to shrink from it." While the Reverend Mr. Pearson "could not understand any better mode of attaining the required object than that proposed by Government, namely, by seeking the information from the agriculturists themselves, through their Boards of Guardians." Mr. H. Hudson, on the other hand, seemed to think the Government was not doing enough; and many, we believe, are inclined to go with him: still his plan, we must say, as so far developed, reads somewhat loosely, and with no great promise of reaching much practical success. If farmers have an antipathy, it is to "the stranger-gentleman," who goes round, note-book in hand, "collecting information." However, Mr. Hudson is of opinion that

"If a man of honour and respectability were selected, it might be done well enough by his going through the different villages of a county, collecting the information from the leading farmers, and then looked over the parishes himself, by which means he might obtain the averages, make up the sum total, and send them to the government. What the government wanted was the average quantity, and not the details of so many bushels grown by one person or another. But it was evident the thing was not yet complete: no doubt next year there would be an additional column in the tables, requesting them to state the average growth per acre. If any return were made, it ought to be well and completely done."

Reference was naturally enough made to our friends over the Border, in evidence of how complete and satisfactory the returns can be made, even under the present system. In Scotland, in short, it appears already to be a settled question. The Government ask for the agricultural statistics of that country, and they shall have them. With the preliminary lectures of Mr. Hall Maxwell, the discussion has ended. None there would seem to care to dispute the advantages that must arise from the supply of such necessary information, and so they all agree to give it, and pass on to something else. They are just at present busy on the merits of the reaping machine, which during this last harvest has had a most sifting and practical trial. The subject was appropriately taken up at a late meeting of the Haddington Agricultural Club—appropriately, from our being assured there are more reapers in that county than in any given area of the United Kingdom. The tone of this discussion, then, still ranks the reaping-machine as one of promise. Almost every speaker, however, had to instance some further improvement which was absolutely necessary before it would take its place amongst the common implements of husbandry. From the experience of Mr. John Hope, of South Elphinstone, as given at the meeting, we take the following pertinent question, and its answer:—

"What position is this machine to hold amongst agri-

cultural implements, and especially in its legitimate work in cutting down our crops? I am almost unwilling to touch upon its faults and short-comings. With the irritating annoyances and multiplied griefs and vexations of a first trial fresh in recollection, one is very apt to indulge in undue colouring or exaggeration. Besides, it is to be feared that we anticipated more from the reaper than we had just grounds to expect, and it is more than likely that the many mischances of a first trial had their origin more in our ignorance and unskilfulness than in any positive defect of the machine. Still the question recurs, and it is one which ought to receive a plain answer, what relative position is this reaper to hold amongst our harvest implements? Is it to supersede them, or simply to act as an assistant to the others? In my opinion, in its present shape, it can merely be viewed as an assistant, and that of a minor description. When out of gear at the land-ends or travelling, it is rather clumsy and unmanageable, the reel is unsatisfactorily loose, the weight altogether in excess, and I am afraid if the land was the least wet or soft, that its operating power would be instantly stopped. The temper of the machine, however, being consulted, and placed under favourable circumstances, I admit the beauty of its work; but what I principally and chiefly complain of is, that in the ordinary condition of our crop it can do so little. The radical defect of the machine is the number of the conditions which it demands before it can be profitably employed. If the grain is laid, it cannot cut even; if it is laid at an inferior angle, it may work, but only in one direction, which almost precludes its profitable use. I could not get it to cut grass, from its liability to choke; and although I got it to cut beans, yet from some inexplicable reason the canvass would not act as a delivery. Its sphere of usefulness is thus comparatively limited. Its practical operation is essentially confined to corn standing erect, and as in these days such crops bear a small proportion to those that are laid, I do not think that I have erroneously designated this machine simply as an assistant in our harvest reaping, and that in a very minor degree, and this position it only takes in the majority of cases after various parts were strengthened and improved at the expense of the purchaser."

The machine more immediately under consideration here was Crosskill's improved Bell; and a resolution was ultimately agreed to, in favour of it, especially in economy, and "trusting soon to be able without reservation to recommend its general adoption." Every desire, in fact, was evinced to give Mr. Crosskill credit for what has already been done, though at the same time it is very clear there is still more to be attained, before it can be recorded as having reached that standard of perfection we are now taught to look for in our implements of husbandry.

With another word, as "appropriate" to the occasion, we must here for this week stay our extracts. It embraces three of the most interesting topics we could, perhaps, just now combine: the war—the high price of corn—and the future position of the farmer. Sir Bulwer Lytton is our authority: neither as dramatist, novelist, nor poet, but as a plain country gentleman, and Member for Hertfordshire:

"When I am touching on the war, I must say there are

few questions that can more interest the farmer and affect his calculations, perhaps almost as much as the weather and the seasons, than the continuance of war. My friend, Mr. Puller, has shouted, somewhat prematurely, as I think, in triumph over our friend Mr. Dering. He reminded us that some three years ago Mr. Dering thought the game was nearly up with agriculture; but he forgets there were two things which Mr. Dering had no right to anticipate. One was the discovery of Californian and Australian gold, and the other the war. Mr. Puller will bear me out when I say that all political economists of any authority are agreed that war in itself is a more stringent mode of effecting what was once called Protection to agriculture than anything which Parliamentary wisdom could devise. War in itself restricts foreign competition; war raises home prices; and I most heartily agree with him, therefore, in this—that the prudent agriculturist will do well to husband all the savings which a continuance of the war may enable him to accumulate, so as to be fully prepared against that inevitable reaction which, according to the uniform experience of history, may follow the return of peace (cheers). You all remember the great depression that followed the peace of 1815; in fact, the exorbitant rise of protective duties at that time was only an expedient of Parliament to replace that degree of protection which had been the natural and necessary consequence of the war; and the severest test of that new political and commercial system which we have adopted may probably be found in a year or two after the peace; and therefore you cannot do better now than to make all diligent use of all the improvements in agricultural science, and of whatever aids machinery may afford you, in order that English agricultural skill may hereafter be fully and adequately prepared to meet increased competition, and, if necessary, a fall of prices.”

At a meeting of the Poulton (Lancashire) Agricultural Society, at which John Wilson Patten, Esq., M.P., presided, in the course of the evening the Hon. Chairman gave his experience on cheese making; in the course of the speech, in which he proposed “Success to the Fylde Agricultural Society” he said—

He was not one of those who entertained an exaggerated opinion of the harvest. He did not believe that it had been so prolific as had been represented in the public papers. It had certainly been rather more than an average one, and they had the greatest reason to be thankful. If it were not so, we would have been in a very different position to what we are now, for there was a good prospect for next year (loud cheers). He believed the farming classes were not given to be sanguine in matters generally, but he thought that they had reason to look forward at present with considerable hope [a voice: “What about cheese?”]. The hon. gentleman then intimated that some time ago he had been induced to make some experiments in the making of cheese from seeing farmers in his own locality get so much larger prices for their cheese than they did in that neighbourhood. He determined, therefore, to make some experiments with a view to ascertain if cheese could be made profitably here on the Cheshire fashion. He had been making those experiments during the last three years. He had in his hand a paper showing the results of those experiments, but before giving them he must express his regret at not being able to test the plan as he could desire by matching the cheese thus made against the cheese made on some other farm in the Lancashire fashion. He had endeavoured to get some farmer to come and show him what was

the price he got for his cheese, and what was the return he got from his cow. All he could, therefore, do was to place his own experience in the hands of the public. The paper he held in his hand gave the general results, and every farmer must judge for himself whether it was a better or worse mode than his own. It was not because he had made those experiments that therefore the Cheshire mode of making cheese was the best; but he (Mr. Patten) did not express any opinion on the point. His belief was, that he did not make so much by the experiments as a Lancashire farmer would have done. He had been told that a Lancashire farmer would have made more. The honourable gentleman then read the following account, which was the one he had referred to:—

PRODUCE OF FIFTY-FOUR COWS AT GIFT HALL FARM, WINMARLEIGH, 1853.						
	£	s.	d.	£	s.	d.
Spring and autumn cheese, 42 cwt.						
3 qrs., at 60s. per cwt.	128	5	0			
Grass cheese, 142 cwt. 2 qrs., at 72s. per cwt.	512	16	0			
				641	1	0
Butter, calves, &c.				118	9	7
				£759	10	7

AVERAGE PRODUCE PER COW.						
	£	s.	d.	£	s.	d.
Cheese, 3 cwt. 48lbs.	11	17	7			
Butter, calves, &c.	2	2	0			
				<hr/>	£13	19 7

Now he must tell them that he had calculated the butter, calves, &c., in this manner:—Butter at the price at which it was then sold in the market, and the calves too. He had taken some pigs which had been fed entirely on whey, but had expressly excluded any pig that had been fed upon milk at all. Every farmer might form his own judgment upon the paper read, and make his own comments, his (Mr. Patten's) object being to put before them the *bona fide* weight of cheese which had been produced from the 54 cows. The farmers might judge for themselves whether that proportion was less or more than was made by themselves. The hon. gentleman then advised farmers generally to make such experiments yearly as he had made, and to put them fairly before the public, and alluded to the desirability of having agricultural statistics—to the great discrepancies existing in weights and measures in various parts of the kingdom, which operated prejudicially to the interests of the farmers, in preventing them from accurately ascertaining the price of their produce; and concluded by expressing his intention of bringing ere long the subject of an alteration in weights and measures before parliament.

At a late meeting of the Radnorshire, Knighton, and Teme-side Agricultural Society, the Right Hon. Sir T. F. Lewis, M.P., in returning thanks, said:—

He was sitting between two worthy and excellent men, to one of whom (Mr. Banks) he had last week the pleasure of presenting a well-deserved testimonial in recognition of the benefit which that gentleman had conferred upon those amongst whom he lives, which reminded him that there are persons who try to divide society into classes and schools. He often heard respectable friends of his talking about the Manchester school, and of “going into fields covered with Manchester umbrellas.” Good heavens! could there ever be anything so absurd? As if the interests of this country, manufacturing, commercial, and agricultural, are antagonistic to each other! The people of Manchester, Liverpool, Leeds, &c., are the farmers’ best customers; and could the latter wish

but that they should prosper? Would the agriculturists best thrive with poor or with rich customers? The manufacturer has no interest which jars or is incompatible with that of the farmer. The mighty Maker of this universe has so arranged our reciprocal interests, that the prosperity of one man, so far as it influences that of another, has a tendency to increase it. If this be so of individuals and communities, it is equally true of nations. He well remembered the time when the philosophy of commerce taught that to enrich England was to impoverish France, and to enrich France was to impoverish England. This was as false as that a man who, with the sun staring him in the face, should declare it to be a dark night. God did not so constitute society. Let us then hear no more about the nonsense of the Manchester school: it is rubbish (cheers). Was there any man present who would wish that young persons brought up and educated at Knighton should have their energies confined within its limits? Was it not gratifying to think that persons like their excellent Chairman, springing from the soil of Radnorshire, could sit at the head of these festive boards, assist those around them with the light of their experience, by the application of their accumulated wealth, and by forming living examples of what may be done by good conduct and by the exercise of the intellect and energy with which they are endowed? (Hear, hear). Do not facts like these teach us the mighty principles on which the interests of great empires are founded? Do not they cast to the winds all the narrow-minded, detestable rubbish which supposes that one man's wealth is necessarily an injury to another? (Hear, hear). Do not believe it, for it is false and without foundation. So long as a person does not infringe the laws of the community to which he belongs, he ought to be free to put forth his exertions in any direction, provided it be done without injury to his neighbour. In Great Britain we have attained in this respect a very high position, and we ought to understand and appreciate the value of the privilege which we enjoy. We should not then set the interests of one class against those of another, but all would feel that the prosperity of the country depends on the well-being of the whole (applause). The position of the agriculturist in this country is one which confers as much happiness as it is in the nature of the human frame to enjoy. If they do not live entirely amongst flowers and roses, they reside in a country where the fields are cultivated like gardens; the occupation in which they are engaged is peaceful and tranquillising, with sufficient exertion to keep the mind from growing rusty, and sufficient communication with one another to render association agreeable (Hear, hear).

He afterwards made some admirable remarks in respect to the mania for broad wheels in waggons. He said—

He had a very strong impression, as he had stated on former occasions, that there is a great waste of team labour in this county. He happened to live near a road over which a large quantity of lime is driven, and nothing was so common as to see four horses attached to a wretched waggon, the axletrees of which are as thick as his thigh, and the friction thereby occasioned sufficient in itself to fatigue at least two of the horses. Did the farmers of this county never think of the advantage of small axles? Would it have been possible for the old stage coaches to have travelled ten miles an hour with axles like those used by our agriculturists? If the axle of a donkey cart were much thicker than his thumb the animal would be unable to move; and this would give some idea of the great waste of horse labour which is tolerated at the present day. (Hear, hear.) Then as to the position of the horses:

when he met a waggon coming down a hill the usual practice was to find the man asleep in the waggon, the boy leading the fore horse, the horse in the shafts with its two hind legs scraping on the ground to prevent the waggon running on it, and the three others pulling as hard as they were able. (Hear, hear.) Now he had understood from his earliest days as a principle that action and counteraction was not an advisable mode of proceeding; and to put three horses to pull against one was an equal absurdity. The same thing was observable in Herefordshire, Shropshire, and in the southern parts of England, to perhaps even a greater extent than in Radnorshire. In Ireland and Scotland there was no such thing to be seen as a waggon. How they managed he did not exactly know, but certain it was that the system there adopted effected great economy of horse labour. Agriculturists would find this subject well worthy of their consideration. Another absurd system had been introduced on the advice of a Cornish gentleman, named Gilbert, who thought that rolling roads with broad wheels would do them good. (Hear, hear.) Wheels of twelve inches broad were tried, but finding they would not answer they were reduced to nine, and even then he noticed that the outer tier never touched the ground. A wheel weighing, he hardly knew what, a ton and a half perhaps, could be of no earthly benefit to any human creature, and he was happy to say they had been nearly knocked off the road. A road made with good stone may be rolled upon by any wheels, but if it should be injured by the use of those of a narrower or lighter description, more stone must be put on; but do let the farmers exert themselves to get rid of the detestable fallacy about broad wheels. The system was no doubt perpetuated by the premium offered for these heavy wheels, in the shape of reduced tolls. This did not apply to South Wales, for there they had happily no preference about broad wheels; but Radnorshire being on the borders of English counties, where the absurd distinction is made, farmers were induced to continue the practice. (Hear, hear.)

Captain Mynors, in reference to the broad wheel question, said—

With reference to what had fallen from the hon. Baronet, he (Capt. Mynors) observed that he had some time ago taken great trouble to procure light carts with small axles such as had been recommended. A waggon of this description, a few weeks since, he loaded with four tons of bark, which he sent down to Hereford, but was perfectly dismayed when his waggoner returned and informed him that he had been fined 30s. for sending four tons upon one waggon. He really thought the Hereford Turnpike Trust had a somewhat singular mode of extracting money from the pockets of the public, and without attempting to throw out any suggestion to the Right Hon. Bart. as to the mode by which this could be remedied, he really thought such impositions ought not to be tolerated in the present day. He did not believe that his waggon did more harm to the roads than one carrying only two tons, and such extortions were enough to preclude improvement in this direction. (Hear, hear.)

At the annual meeting of the East Surrey Agricultural Society, held at Croydon, the Rev. E. F. Benyon said—

That the society aimed at the improvement of agriculture, and the elevation of the character of the labourer, by the recognition and application of the two great principles, that "Knowledge is power, and union is strength." But knowledge might be turned to a bad purpose, and the power

emanating from such knowledge would be evil; the power of knowledge could only be good when it was made to subserve some good end. In the present instance knowledge through this society was made to subserve a good end, therefore its power was good. If we looked at what knowledge had effected in the earth, there seemed no limits to its power or its triumphs. What changes had it effected in almost every portion of the world! If we looked at what knowledge had done—whether at the railroads, electric telegraph, or other scientific discoveries—we must be struck with the changes it had effected on society. Those changes were altogether favourable, and productive of good; and when we looked at the vast and extraordinary inventions in the manufacturing districts, we could only wonder at what knowledge had done, and pay a high tribute to its power. But knowledge, as applied to inventions for agriculture, was equally gratifying and equally wonderful. If we compared the ploughs which we had now with those of the olden time, we must be made sensible of the progress which had been made in this respect. Nor must we fancy, amidst all this general progress, that we might now stand still. We must not suppose that the advancement in machinery had reached its end, and there was nothing more to do; and although some might regard as chimerical the steam cultivator, and prognosticate that it would never take effect, who, on proper consideration of what had been done already, could say that some discovery will not take place even of a steam cultivator that shall effect the three great points—the desiderata of the agriculturists, the inversion, the comminution, and the aëration of the soil. So much with respect to machinery: and, now, with regard to physiology. We were eating mutton 12 months old, and beef 15 or 20 months, while a short time ago four or five years were thought necessary to bring our sheep and beasts to maturity; and although an epicure might consider meat of a more advanced age to be better eating, we must all admire this early maturity as a great point in political economy. We saw great improvement in the breeds of our animals, not only with regard to their structure and shape, but also their

constitution. We had very much improved our breed of cattle and our breed of sheep, and all this had been effected by a knowledge of physiology. Chemistry, too, had done a great deal. It had taught the farmer the constituent parts of which the soil he had to work upon was composed, and how to apply the necessary ingredients to produce the crop he wanted. By chemistry we might produce great effects. The sewage of our towns might yet be converted into valuable manure, and be spread over our lands, increasing their fertility and developing abundance. He did think it was much to be regretted that the farmer should be going to distant lands to purchase a manure, which, if chemistry could disclose some means by which the ammonia—which was the valuable part of that manure—could be fixed, might be obtained from the sewage of our towns. A remark was made by a gentleman at the last meeting, that it was knowledge that was wanted—knowledge to all classes—not merely to the labourer, but also the landlord and tenant farmer. The more enlightened all these became, the better it would be for them all, and society generally. He did not believe, as some supposed, that if the landlord knew all the particulars of what the soil produced, and the expense of its production, they would want to raise their rents; he rather held with Mr. Mechi, that when they looked at the wonderful way in which nature carried on its operations, the more liberal would he be in the covenants of his lease, because he must see that agricultural productions were not, after all, under human control. The farmer might have used his best skill and industry in his calling—using in the cultivation of land all the means science and experience had placed at his command, employing the most labour and the best machines—applying, with no niggard hand, the most perfect manures—and the storm and tempest, the mildew and the blight might come to mock his toil and destroy his hopes. A full knowledge of all this must induce liberality on the part of the landlord. And the more knowledge a tenant farmer had, the less likely would he be deluded by the *ignis fatuus* schemes too often appearing under the name of improvement, but which only lead to useless expenditure.”

LABOURERS' FRIEND SOCIETIES.

There is nothing so effective or so direct in the lesson it would convey, as the force of example. In every condition and pursuit of life we are continually acknowledging this. The distinction we award to the good man is no more an act of justice to himself than it is an example for his fellows. The very principles, in fact, of order and society depend, more or less, on some such basis. The history of the good and faithful servant cannot be written for himself alone. The career of such a one, if only duly appreciated, should be a common good. Whether we find him in the senate, the camp, or in the closet—or, say, even that we seek him in a far humbler sphere—can we presage anything but advantage following that tribute to his worth, which he has so ably earned, and that we so gladly offer?

Let us seek him now in that humbler sphere; and, happily, in doing so, we go nowhere alone or

unassisted. It is almost impossible, just at this season, to take up a provincial contemporary without noticing how, in all parts of the kingdom, this desire to do honour to the upright man is being something more than merely expressed or approved. The stamp and test of time have put their seal upon these intentions. It is significant, at least, to find that of all the associations connected with agriculture none last so long, while few advance so steadily, as those directed to the well-doing of the Labourer. Agricultural societies, whether started for one especial object, or even with a more extended field for their operations, are proverbial for the uncertainty of their tenure. Farmers' clubs, as we have again to regret, are but too frequently yet more ephemeral—blazing out, and then dying away all within a few anniversaries of their formation. The Labourers' Friend Societies, however, the most systematically abused and ridiculed of all

public institutions, perhaps, ever promoted, yet continue to exist, and continue to prosper. There is scarcely a class within the real boundaries of their operation but cheerfully offers its aid to their support. The owner of the soil, the occupier, the clergyman of the parish, the country-tradesman, and the labourer himself—all bear testimony to the usefulness of their object, and the happy influence of their proceedings.

And yet there must be something radically wrong about the principle of such societies, or they could never come in for that hard word, which in certain quarters so constantly awaits the celebration of their festivals. To be sure, in almost every other grade of society we do admit the argument as legitimate enough. We do deem it right to offer our reward, however inadequate it may be, to good conduct, and we do try to work some further good by the force of example. For the scholar, whose genius and diligence have raised him above his fellows, we have something prepared to note this distinction. It is maybe a medal, or, harsh as it may sound, it is often enough hard cash. The soldier, too, wears *his* medal with equal or greater pride. It speaks to long service and good conduct. Nay; we even go beyond this, and have some such significant reward ready—some such holding up as an example to others—for him, who, acting only on the natural impulse of the moment, has endangered his own life to save another's. We are too practical a people for merely empty praise—at least, with only one solitary exception, and that one is the labouring man. It is an insult to offer him any reward for ability and diligence—it is an insult to hold him up as an example for his fellows—it is an insult to pay any tangible tribute to his good conduct. Empty praise is enough for him; or, as the humbug Professor says in one of Jerrold's comedies, "you are a very honest man; and—I wish you good morning."

But then, the very amount of these premiums carries with them their own condemnation. Is a prize of thirty shillings or two pounds an equivalent to a twenty or thirty years' service? Is it not *worth* more than that? As soon might you ask, as it was well put by one of the speakers at a meeting in Suffolk the other day, if a medal for saving a man's life is what you estimate the life at? We offer it in voluntary appreciation of gallant conduct; and in thus appreciating it, we hold it out as an example to others. These Labourers' Friend Societies, however, have another covert design beyond making men merely good, able citizens. They want to keep them from being paupers; they want to keep them from parish relief! Could they have a higher aim, or could they profess one for which the labourer himself would

feel more really thankful? They say to John Jones: "Jones, by good conduct and honest industry you have managed to maintain and bring up a family without ever subjecting them to the enervating influence or reflection of the workhouse or parish relief. You know as well as we do, John Jones, that, had you so chosen, you might have all come on the parish together. Some good friends of yours, John Jones, who will put it in this way, will tell you that by acting as you have, you have saved our rates; but what we tell you is that you have saved *your character*. It is for this, John Jones, we make bold to honour you, and to offer some little testimonial to your worth. It is for this, John Jones, we would hold you up as an example to your younger neighbours, confident as we are, that you will not misconstrue the feeling we have towards you. You might have been a pauper, an idler, a drunkard, or even worse—all these courses, eligible, independent, and agreeable, no doubt, as they are, were at your disposal! You have, however, spared your parish this expense, yourself this reproach, and offered to all your neighbours a better example. In the name of them all we venture to thank you."

We have been called upon repeatedly of late to instance individually the good these Labourers' Friend Societies are doing, and have done. The landlord, the farmer, and the clergyman are all alike earnest in their approval. In answer to these applications, our space will only allow us to refer generally to the number of such societies now in existence, the length of time many of them have been in operation, and the character they bear in their several districts. It is in these facts we shall find the best answer to the vague and too often absurd objections urged against them—objections, we must repeat, to principles for which precedents might be found amongst almost all other classes of the State, and that with these other classes can do no more than tend to the direct encouragement of that good, they so directly tend to in this.

The proceedings of the Labourers' Friend Societies have within this week been rendered more than generally remarkable by the presence of a very remarkable man at one of them. This was Lord Palmerston, at Romsey, in Hampshire, where, in the course of many very excellent observations, his Lordship has rather startled some of us by the doctrine "that all children are born good." We should prefer ourselves the reading of one of his Lordship's critics, and say, "they are born neither good nor bad;" in other words, that they are born eminently susceptible to the force of example. If you inculcate—and you can best do this by example and association—that it is knowing and clever to be paupers and poachers and drunkards,

paupers and poachers and drunkards most likely they will be. If you wish for something better, you must find some better example; and whether it be ploughing a furrow, thatching a rick, maintaining a family, or keeping a character, we can refer you to no more useful authority than the much-maligned Labourers' Friend Societies of this kingdom.

LORD PALMERSTON AT ROMSEY.

The annual meeting of the Romsey District Labourers' Encouragement Association, was held at the White Horse Inn, Romsey, Hampshire, on Tuesday, when various prizes for good conduct were awarded. On the distribution of these, Lord Palmerston, who presided, addressed the prizemen as follows: I have very great pleasure in being President of this useful Institution, and it has afforded me infinite gratification to see so many of the labourers here having by their good conduct in every possible way earned the rewards which have now been bestowed upon them. It is unnecessary, in addressing those who have distinguished themselves as you have by your good conduct, to say anything touching that course of conduct which is calculated to secure personal comfort and respectability, and to call down upon man the approbation of his neighbours. But, nevertheless, it is always well that people should bear in mind general principles, though in addressing you, whom Providence has placed in the labouring classes, it may not be out of place to remind you that the distribution of wealth and poverty—the arrangement by which there are comparatively few rich and comparatively many poor, is the condition of the world in which we live, and that no human institution can alter this arrangement (Hear) can make all the poor rich. It might be possible to make all the rich poor, but the condition of comparative poverty is a condition which by the arrangement of this world which we inhabit must inevitably be the lot of a great portion of the human race. But, although it has been the pleasure of our Maker, in a world which is a world of trial and transition, and not the ultimate destiny of mankind—though it has been the pleasure of our Maker thus to subject a great portion of the human race to trials and to privations, to enable them to qualify themselves for that future state which awaits them, yet Providence has not been niggardly in those qualities which are calculated to secure to man that happiness which awaits those who well conduct themselves here, for all the good qualities of human nature—all the qualities of mind, all the qualities of intellect, all the qualities of heart—everything that tends to dignify human nature, and to enable men to distinguish themselves in the condition in which they have been placed—these qualities have been sown broadcast over the human race, and are as abundantly dispersed among the humblest as they are among the highest classes of mankind. You will find that all children are born good (Hear). It is bad education, or bad associations in early life, that corrupt the minds of men (Hear, hear). It is true that there are now and then exceptions to general rules; there are men who are born with clubbed feet—there are men who are born blind—there are men who are born with personal defects, and so also now and then it will be found that children are born with defective dispositions, but these are rare exceptions; and be persuaded of this, that the mind and heart of man are naturally good, and that it depends upon training and education whether that goodness which is implanted at birth shall con-

tinue and improve, or whether, by neglect or bad education or bad associations, it shall be corrupted and spoiled. Now, therefore, the first thing you would naturally infer from this is, that it is the duty of all parents to see that their children are well and properly educated; that they are early instructed, not merely in what is called book-learning—in reading and writing, and things of that kind; but that they are instructed in the precepts of right and wrong; that they are taught the principles of their religion, and their duties towards God and man. Now, the way in which that can be done is by the father and mother building up their course upon that which is the foundation of all goodness in social life—I mean a happy home. Now no home can be happy if the husband is not a kind and affectionate husband to his wife, and a good father to his children (hear). For that purpose he must avoid two great rocks upon which many men in the humbler classes of life make shipwreck. I mean the tobacco-shop, and the beershop and public-house. The tobacco-shop ruins his health, disorders his stomach, and leads to all kinds of diseases. Well, if he was a man living in a desert island, dependent upon himself alone, it would be his own look-out. A man then might ruin himself just as he pleased; but the labouring classes must recollect that their health and strength is the wealth of their family; and if they ruin their health and strength by intemperance of any kind, they are not merely injuring themselves, but doing irreparable damage to those who are dependent upon them. So much for that great use of tobacco in which some men, unfortunately to their detriment, indulge. But the beer shop and the public house go much further in their bad consequences, because the habits there contracted not only lead to the degradation of the individual, and the impoverishment of his family, but lead also to offences and crimes which in their result tend to place a man in the condition of a felon and a convict. No man who indulges in drink can fail to feel degraded when he recovers from his intoxication, and that sense of degradation leads him again to drown his care in renewed intoxication, and from step to step he falls to the lowest possible condition in which a man can be. Don't imagine, when I am saying these things, I am not perfectly aware they affect not those I have the pleasure of addressing. No man would have come here to-day to receive the reward of good conduct who had not been perfectly free from these things. You are entitled by your good conduct, and the position in which you have placed yourselves, to give good advice to your neighbours who have not been so fortunate as you have been—not so alive as you have been to your duties to yourselves, your families, and your country. It is gratifying to see so many men who have in the various pursuits of agricultural industry entitled themselves to these rewards; but there is one circumstance connected with the list of prize-men which I confess is peculiarly gratifying to me to think of. I mean that among you there are a certain number who have lived so long in the employment of particular masters; that you have shown that not only those who have so lived must be most deserving men, and, therefore, have done honour to the class to which they belong; but the fact of their having lived so long with particular masters does equal honour to the masters with whom those labourers have so long remained. His lordship here selected eight instances from the list of prizes which had been read, and continued: These eight servants have, on an average, lived 33 years with respective employers—a fact which does the highest honour both to the employer and the employed—which speaks volumes in favour of the farmers who have engaged them, and the men by whom they have been served (cheers). I trust that next year we shall have even a larger assembly of prizemen than on the present occasion—

that the example of these prizemen, who go forth to the world with the honourable marks of the approbation of the Committee of this Institution, will serve as an inducement to other to imitate their example—that the good conduct of the labourers will more and more entitle them to the respect and consideration of the farmers who employ them, and thus the two classes, who so mutually and necessarily de-

pend on each other, will find their relations more and more cemented by mutual consideration and respect—a state of things most important and beneficial to the interests of the nation at large. Let me, in conclusion, propose as a toast: “Success and prosperity to the labourers of Hampshire.”

The toast was received with three hearty cheers, and three more having been given for his lordship, the company separated.

THE AGRICULTURAL GEOLOGY OF ENGLAND AND WALES.

BY JOHN DONALDSON.

(Continued from page 17, vol. xxxix.)

LIMESTONE,

In a very hard state, is placed as a primary rock, and affords the statuary marbles. As a transition rock, it affords the materials of ornamental sculpture, being more variegated in colour, and containing some organic remains, not very extensively distributed, but often abundantly accumulated in particular situations. In either condition, the limestone never supports any soil of cultivation, nor does any other rock of the transition class besides those mentioned. The Wenlock Limestone of Murchison would be termed a transition rock; it supports a good sharp loam where it has been used. The transition rocks show the declining aspects of the primary formations, attended with some passages into the following strata, to which we have now advanced:

SECONDARY ROCKS

Form the valuable series of strata to which Great Britain owes much of her commercial prosperity. The development is most complete in Britain, but irregular over the basin of Europe.

The most important formation is the New Red Sandstone, which contains the grand depositary of the salt mines, and of coals. The rock is formed of angular or roundish grains of different minerals, connected together by means of a basis or ground, or immediately joined without any basis. When the grains are not larger than a hazel nut, the compound is simply named “sandstone” but when larger, they are denominated “conglomerate” if the masses are roundish, but “breccia” if angular. Sandstone is divided into three kinds—silicious, argillaceous, marly or calcareous. In the silicious kind, the particles are connected by a ground or basis of quartz; in the argillaceous, by a basis of clay, which is sometimes highly impregnated with red oxide of iron, and gives a red cast to the whole rock; and the particles in the marly or calcareous kind are set in a marly or calcareous basis.

The common New Red Sandstone is the Variegated Sandstone of Jamieson, and the “new red” of

Buckland. It rests upon, and alternates with the magnesian limestone, and is covered by the oolites. The texture is small granular, with an argillaceous or marly basis. The colour varies extremely, in bands or zones, of red, grey, brown, green, and yellow; and hence the name of “variegated,” given it by Werner. The different states of the oxidation of iron gives the colour, which varies in the inside and outside, according to exposure. It is much mixed with masses of clay or marl of various colours, which contribute much to the decomposition. The upper part is mostly clay, which is dry and marly, and constitutes the valuable soils which lie upon the New Red Sandstone.

Sand-stones are found in various formations, which differ in colour, and somewhat in composition. The deposit occupies much space in England, in the wide central plain, with branches to the north and south. Almost universally it fills a low and level country, out of which arise insulated groups and short ranges of mountains of older strata, or pyrogenous rocks. Its highest point in England does not much exceed 800 feet above the sea. The rock occupies nearly the whole of Cheshire, and the low district of Cumberland; the southern part of Derbyshire is wholly occupied by it, but often covered by gravel and alluvial deposits. It appears partially in Devonshire, and in Dorsetshire, and rather largely in the county of Durham. Much of Lancashire is occupied by it, in the valley of the Mersey, and in the neighbourhood of Manchester; in many places it is covered by clays, marls, and peat mosses. It is largely developed in Leicestershire, and occupies a strip of the county of Monmouth. It appears in different parts of Northumberland, chiefly along the Tweed; the vale of Trent in the county of Nottingham is occupied by it; and the forest of Sherwood lies upon a sandstone of the conglomerated form. The whole northern parts of Shropshire are occupied by the saliferous marls of the Red strata, containing the coal measures and the salt rock. It occupies the valley of the Avon, in Somersetshire,

and nearly the whole county of Stafford. The counties of Warwick and Westmoreland are partly on the red rock; and much of Worcestershire, in the valley of the Severn, with all the N.E. portion of the county. It appears in Yorkshire, on the western side of the vale of York, and about Ripon and Boroughbridge. In Wales, the New Red Sandstone occupies a part of the coast on the north-side of the county of Denbigh, and much along the river Dee, and near the village of Chirk; there is a large extent of it in the county of Flint, much about Cardiff, in Glamorganshire, and a small corner in Montgomeryshire.

The N.W. corner of Lincolnshire has the red sandstone; but it is wholly covered by alluvium. The soils that are recumbent on the variegated sandstone fall under the denomination of loams, and will be described under that head. Everywhere the rock forms a sound substratum for arable lands, whether the soil lies in the immediate contiguity of the stratum, or when a bed of sand, clay, or gravel, be interposed as a tertiary deposit. It confers a salubrious effect on the superimposed mass, which is conveyed upwards to the cultivable stratum. Very generally, and mostly in South Derbyshire, the subsoil is a red marl, which has been derived from the decomposition of the upper argillaceous marly quality of the higher part of the rock, as was before mentioned. It forms perhaps the best subsoil that is known.

The continued action of long standing water in the marine form had softened the rock to a considerable depth, and by gradually withdrawing had deposited the sedimentary mass on the place where it was procured. In other cases, a disturbance of the tranquil operations has introduced deposits of an extraneous nature, which had been collected by similar causes of interruption, and deposited in the situations of accidental location. In most cases, diluvial beds overlie the rock; but everywhere the character of the subsoil is very superior.

LIMESTONE

In the flat formation, rests upon the Old Red Sandstone in the regular order of succession. The first variety is the "mountain limestone," or the first Secondary Limestone of Jamieson; is grey, blue, or black in colour, in very distinct strata, that are often undulated and contorted. It abounds in the north of England; in the eastern high grounds of Cumberland; in Derbyshire, Wales, and Gloucestershire. It appears in the Isle of Anglesey, of the hardness of marble; and in Carnarvonshire, and in Flintshire, and in the county of Glamorgan. The counties of Merioneth and Pembroke contain a small quantity, which attends the Old Red Sandstone and the coal formation. There is much of

it in Derbyshire, and in the county of Durham; and the county of Leicester has some gentle hills of the mountain limestone. Near Chepstow there is carboniferous limestone, and also in the higher parts of Northumberland, and in some parts of Somersetshire, as on the declivities of the Mendip-hills. The eastern moorlands of Staffordshire are occupied by the mountain limestone, with the millstone grit, in the central and western portion. The north part of the county of Westmoreland contains mountain limestone; and there is much of it in Yorkshire, but placed high, and above the range of cultivation.

Mountain limestone does not support many cultivated soils, and these mostly in the county of Durham, where the land is good, and the herbage very sweet. Where cultivated, the soil is composed of fragments of the rock, mixed with some portion of vegetable loam. Bone manure gets a choice bed for its action, and turnips grow admirably among the rocky fragments, with average crops of barley and artificial grasses; but the land is of secondary quality, being wanting in the base of clay or strong earth to support much fertility. In the course of cropping, the lands are placed with the loams of the second degree, as are afterwards detailed.

General opinion ascribes to limestone an oceanic origin, as being the earth of fishes or marine animals, though some writers reckon it a peculiar formation of the silicious and aluminous earths. Recent chemical investigation designates it as the oxide of "calcium," one of the newly discovered terrigenous metals, with the nature of which we are very imperfectly acquainted, and the idea seems too refined for common entertainment. The composition being calcareous or residual, there is a general sweetening quality attached to all the varieties, which has a very favourable effect on vegetation. It is held together by fixed air, which is expelled by a strong heat, and the earthly mass falls to powder by the application of water. The effect as a manure may as much arise from the phlogiston of the fuel that adheres, as from any inherent quality of the alkaline formation itself.

Magnesian limestone is the second Secondary Limestone of Jamieson, rests upon the coal formation, and is covered by the New Red Sandstone; the colours are yellow, brown, and grey, and it contains about 20 per cent. of the carbonate of magnesia. It abounds in several parts of England—as from Sunderland to Nottingham; the coal formation near Whitehaven lies under it, and the same is the case in Derbyshire. The rock does not very often rise to the surface; but where it does appear, the herbage is meagre, and the land is more adapted for arable cultivation than for pasturage. The magnesian quality is said to be

hurtful to vegetation, and the lime from the solid rock is shunned as being deleterious. But this imputed property may be doubted from experience, except on some very hot limestone gravels. Where these soils do occur, as about Doncaster, in Yorkshire, good crops of turnips are raised with bone manure, and the barley and clovers grow well, with wheat on the best lands. But the intermediate beds of earthy concreted gravel destroy the hurtful influence on the soil of the magnesian rock, if it does possess that quality. On good loamy clays, and all soils of good constitution, it has been most decidedly proved that magnesian lime is not at all hurtful, but very highly beneficial. The limestone soils are cropped as turnip leams.

THE OOLITE ROCKS

Form the third Secondary Limestone of Jamieson, and got the name from the concretionary texture resembling the roe of fishes, and derived from a Greek word signifying an egg. The formation rests on the New Red Sandstone, and is covered the third sandstone, or the "green and iron sands." The oolite series is a great and diversified group of limestones, sandstones, grits, and clay, extending across our island from Dorsetshire to Yorkshire. The rock is seen in Bedfordshire, and occupies the N.W. part of the county of Bucks. A large part of the counties of Gloucester and Oxford is occupied by the oolites in the three varieties of the formation; viz., the upper, middle, and lower, and form table lands of very considerable extent. The county of Dorset shows the tail or outlyers of the roestone; and in Lincolnshire, the wolds are partly formed from it. The northern and central parts, and the N.W. of the county of Northampton, are occupied by the lower oolites, which very much descend into calcareous sand-stones. The county of Rutland is included in the formation of the Great Oolitic Series, where the E. and N.E. sides of the county are formed of the table lands of the oolitic hills. In Somersetshire, the roestone, in the order of the Great Oolite, affords building stone, as at Bath and other places. The Lower Oolite is seen in Warwickshire, and the Middle Oolites in Wiltshire, and also in Worcestershire. It forms a large range of country in Yorkshire, forming tabular hills from Scarborough to Hambleton, and southward to Walton and Acklam. The surfaces are poor heaths, as the rock is silicious rather than calcareous, and contains very little carbonate of lime.

The oolite hills yield the soils called "stonebrash or cornbrash," and the "coralline or coral rag." The "cornbrash" lands lie on the surface of the Lower Oolites, of which they form the upper beds, and are of a chalky or pasty consistency. They are found chiefly in Oxfordshire and Wiltshire,

and some in Huntingdon and Dorset. The coral-line soils lie on the Middle Oolite, which forms an elevated platform near Oxford, and runs into the western side of Berkshire. The bed varies in depth from 100 to 200 feet, and calcareous in the upper part, and silicious in the lower. The chief situation is in the counties of Wilts and Oxford, and some in Dorset. The general character is a loose rubbly limestones, and often almost entirely made up of a congeries of several species of aggregated and branching madrepores, and hence the name of "coral rag." The outer slope towards the escarpment of the hills being occupied by the calcareous grit, affords a light sandy soil. Their surface and back, where the substratum is the coral rag, presents a loose stone-brash soil, of a dry and medium quality.

Digging for water on these rifts and porous lands must penetrate to the junction with the subjacent clay; whence the springs sink into the rifts, are concealed in them, and are again thrown out by the clay, as may be seen at Headington, near Oxford.

The "cornbrash" lands are formed of loose rubbly limestone, of a grey or bluish colour, on the exterior brown and earthy: it rises in flattish masses, rarely more than six inches thick. The beds of clay and sand intervene at little distances, and mix the quality of the stratum. The general name of the lands is "stonebrash," and the varieties are called "cornbrash and coral rag."

Every species of limestone affords a dry subsoil, where draining is not required, and produces a very suitable bed for sheep. Accordingly the above-named lands are adapted for turnips and sheep farming, the crop being raised by artificial manures, and consumed on the land by sheep. Barley follows, with three years of pasture formed with the natural grasses. The better cornbrash lands will admit wheat on the lea of the pasture, or on the turnip fallow that is enriched by the feeding of the sheep. Neither soil reaches the medium quality of lands: the cornbrash is the best, from the mixture of the calcareous, argillaceous, and arenaceous beds.

CHALK

Constitutes the fourth Secondary Limestone of Jamieson, and is the most recent formation of the carbonate of lime. It rests on the highest sandstone, constitutes the uppermost stratified rock, and finishes the regular ascending series of the graduated stratification of the component parts of the globe. The development of chalk is very large in England, extending from Dorsetshire to Yorkshire, and in most of the intermediate counties. It appears in Bedfordshire, and very largely in Berkshire; in Bucks, it forms the range of Chiltern-hills, and occupies nearly the whole extent of Cambridgeshire.

The downs of Dorsetshire are extensive, and the chalk is seen in some parts of Essex, and in the N.W. parts of Hertfordshire. In the county of Lincoln there are extensive wolds of chalk-hills, lower placed than the oolitic ranges, and in Norfolk the chalk downs occupy much extent. The Chiltern chalk runs into the county of Oxford, and the formation occupies some part of the county of Suffolk. High ranges of chalk hills traverse the counties of Surrey, Sussex, and Kent, and rise nearly 1000 feet high.

The white chalk downs of Salisbury extend widely in Wiltshire. The wolds of Yorkshire are 560 feet thick of the chalk formation.

Where the chalk rock immediately supports the cultivated soil, the land barely reaches mediocrity, the quality is meagre and gritty, too absorbent of moisture, and deficient in depth and firmness of texture. The highest parts rise to utter barrenness. Neither animals nor vegetables are fond of residing on chalk, and hence the exuvie are wanting, which form the chief richness of lands. The best qualities fall under the denomination of loams, and will be mentioned under that head.

TERTIARY SYSTEM.

The vast assemblage of heterogeneous matters which overlies the chalk in a loose unstratified order, consisting of clays, sands, and gravels, in a great variety of conditions and modifications, is distinguished by many appellations, as the Tertiary system, Diluvial detritus, Drift, Erratic boulder system, and Alluvium. These names have arisen from the different views of geologists as to the cause of the formation of the various materials which form the assemblage that is so very tumultuously disposed. The Tertiary system has been made to comprehend the whole deposit above the chalk, and has been divided into four periods or divisions, distinguished by the varying proportions of existing species of shells contained in them. In the oldest, which lies next the chalk, we have the dawn of existing species, not amounting to more than 5 per cent.; in the second, they still constitute the minority; in the third, more than two-thirds of the shells belong to existing species; and in the newer or Upper Tertiary, these amount to from 90 to 99 per cent. To the latter succeeded the modern period of forming the peat-bogs of Ireland, and the alluvial tracts of England; in the Romsey Marsh, Pevensey Level, and the Lincolnshire Fens. Some alluvials have been formed since the time of the Romans. The modern period contains remains of existing quadruped species, known in tradition, or now living in the neighbourhood. The newer tertiary evinces by the physical characters and the fossil contents the temporary pre-

valence of an arctic climate as low as the fortieth or fiftieth parallels of latitude.

In other arrangements, the Tertiary formation is confined to a collection of mixed sea and land materials in rocks, clays, and gravels, which are found in the basin of Paris, the Isle of Wight, and in a patch of Hampshire: fresh-water materials appear, which mark a progressive step to the present state of the globe. Over it is placed the "diluvium," or the relics of the present zoological period, both in animals and vegetables; and then the "alluvium," or the most recent and evenly laid subaërial deposit. Some reckon all the materials to be alluvial that lie above the chalk, and so far simplify the arrangement; others call it drift, erratic detritus, and the remnants of glaciers. The first appearance of organism is in the Silurian system, being invertebrate marine life; the Devonian, or Old Red Sandstone follows, showing locally the same life, and a rich and progressively varied assemblage of fishes. Traces of land plants also appear, showing a progression to terrestrial vegetation, and a habitable state of the globe. In the secondary rocks, a large progression is traced in the number and variety of the animals and vegetables—birds appear, but no mammalia. The era above the chalk most clearly marks the commencement of the present zoological period, and all the present organisms come progressively into existence. It forms by far the most important epoch in geology, and becomes the more interesting as it discloses the connection of the ancient and modern world. Life had been gradually progressing from the very lowest organism through many gradations, till it reached the present existences on the face of the earth.

Conybeare divides the alluvial deposits into marine and fresh-water formations, distinguishing them from each other according to the organic remnants which they contain, as being of a marine or fresh-water origin. This division forms a very convenient arrangement, and differs not much from the marine and fresh-water distinctions of the tertiary system and the diluvium, or between the quiet state of the retired sea and the fixed position of the elevated land. But it has the advantage over the old imperfect distinction between diluvium and alluvium, as it traces more distinctly, and places in a clearer view, the depositions after the present causes of operation had been established. For this reason, we shall adopt it in the following notice of the tertiary system.

The variations of the Upper Alluvium mainly depend upon an aqueous deposit of some kind or other, which was formed at the close of the Diluvial or Erratic Block period, or when the agency of marine water had ceased, and that of fresh water had supervened. The terrestrial surface, gradually

submerged, was acted upon by the operations of water; and upon the gradual re-elevation, the various quantities and qualities appeared of the earthly deposits, regulated by the denudations that were performed by the peculiar agencies which characterize and distinguish that period of the existence of the globe. The amount of this denudation, and the subsequent removal and location of it by the agency of water, has fixed the depth of the various beds of deposit. The denudation of the older rocks had been progressing through many gradations, and the detritus had been placed at the Diluvial period, and subsequently covered by the finer alluvium. Diluvium and alluvium are very much confounded, and under many names embody the discordant opinions of geologists respecting the origin of the deposited beds. The former understands the settling of a previous destruction by some very tumultuous agency, and the commencement of a new period of life; and the latter marks the production of a new agency, more orderly and settled, and less violent in the power and operation.

The whole mass above the chalk is placed under four heads or divisions—clay, sand, moss, and gravel.

CLAY

Is the earth of marine water, and on that account has been placed in some systems of geology, as a tertiary formation, and deposited in a more loose form immediately over the stratified chalk. The general character is sordid, viscid, slippery to the touch, and without regular shape. It becomes plastic and ductile by the application of water, and friable when dry, hardens by ignition, and is not fusible by the greatest degree of heat. No substance appears in greater variety than clay; the modifications are as numerous as the geognostic positions, and the materials compounded with the exterior objects of contract and assimilation. By reckoning clay a marine production, we conclude that the waters have formed the argillaceous sediment by the denudation of rocky formations, and have dropped it as the lighter solution, and this before the recess took place of the sea waters from the face of the earth. For otherwise there is no satisfaction how the clays have been placed on high grounds, and beyond the power of any alluvial agency to raise the deposit to the elevated locality. The viscid quality, salts and acids, that are found in the clay, may have proceeded from the sea water, and hence combined with the aluminous earthy base by means of some general affinity; and the proportions would be varied by the different agencies and influences of exposure. The quality would be affected by the quickness or slow process of the deposition; by the time the water remained

upon it after the location was effected, and the temperature to which the new formation was exposed on the water being withdrawn. And the quality might be affected by the previously deposited body on which it was made to rest, and by the subsequent power of inundations and convulsions.

Another theory, and comparatively a new one, designates clay to be the argillaceous detritus of glaciers, which covered the globe at a period of most intense cold, and retreated to the sea, as the earth became warmer, and which tore open and scooped the valleys in the melting progress to the ocean, by means of the huge mass of congregated ice. The clay was formed by the continued contact of the ice and the earthy rocks, and the salt ingredients proceeded from the water dissolved from the glaciers, and stagnant upon the mixed deposition. The detritus was deposited most sparingly on the flanks of the glaciers, or on the tops and sides of hills and high grounds, and deepest in the valleys, along which the glaciers moved in a slow progress to the ocean. And the deepest deposition being found near the sea, is thought to proceed from the glaciers remaining there, and dissolving totally away, and leaving the collected dregs of a long existence.

But this theory hardly accounts for the deposits of clay on high grounds, and none in the valleys, unless we allow a subsequent inundation to have superimposed an alluvial deposit, and covered the clay of the glaciers. Again, the very different qualities and appearances of the clayey deposits at short distances apart, would seem to require a wide latitude of acting causes, much beyond our power to imagine or arrange. There may have been different agents in different states of the globe, and the results would be regulated by the primary cause, and the influences of control. There are seen the most viscid and obdurate clays in the driest climates of Britain, and clay lands of an easily manageable quality in the most humid atmospheres. These circumstances go far to induce the supposition that each locality has possessed some predisposing influence in directing the qualified formation of clay. And though these influences cannot be deduced from any appearances that are now seen, still the existence and exertion of their power are not thereby at all impaired.

The clays of England and Wales may be divided as follows:—1, Plastic clay, or the deposit next the chalk; 2, London clay, which overlies the plastic formation; 3, Lias clay, the lowest member or base of the Oolitic series of deposits; 4, Oxford, clunch, forest or fen clay, a member of the Middle Oolites; 5, Kimmeridge clay, a member of the Upper Oolites; 6, Gault or golt, an argillaceous deposit, that divides the iron and green sands; 7, Wealden clay; 8,

Alluvial or valley clay; 9, Arid clays, which lie on various strata, and of very diversified quality.

PLASTIC CLAY

Rests in a bed immediately over the chalk, is unctuous, tenacious, and variously coloured, employed by potters, and has been named by Brougniart, "Plastic clay." It contains little chalk; but is frequently intermixed with sand, particularly towards its upper part; sometimes this sand is divided into two beds. It varies in thickness, in some points not exceeding a few inches, in others being many fathoms. It contains few shells, and these are marine.

This deposit forms the lowermost bed of the series of formations in the tertiary system of England, or the first alluvial deposit from the agency of sea or fresh water, since the great revolution by which the relative level of land and sea has been changed. The group is seen to be very irregular and confused, and marks a turbulent period, and varying velocities of water. The under part contains green sands, often associated with flints and pebbles, and occasionally full of oyster shells, sharks' teeth, &c. The middle part contains blue clay or marl, shells, alternating with sands, with or without shells. The upper part contains coloured sands and coloured clays, with beds of lignite, and occasionally layers of flints.

The marine tertiary deposit is held in three groups: 1, Upper group, or crag, generally arenaceous; 2, middle group, or London clay, mostly argillaceous; 3, lower group, or plastic clay, clays and sands.

A curious question has been raised: "Whence came the sands of the lower group?" Mr. Lyell supposes the uplifted Weald of Kent and Sussex to have yielded the materials of the whole of the marine tertiaries to the north and south; and that waste of the sandy districts of the Weald furnished the plastic clays and sands, and the Weald clays contributed the argillaceous sediments. This speculation can neither be advocated nor opposed except by trains of argument involving too many assumptions to be admissible in inductive geology; but the probability is great that some uplifted green-sand ranges contributed materials to the plastic clay formation.

This clay being associated with the chalk, is found only in the south of England, where that formation abounds. It is found overlying the chalk in the London basin, and skirts for the most part the whole district occupied by the London clay, beneath which the deposit is seen to lie. The highest point rises at Hadleigh, in Essex, and borders the clay to Braintree, including Halstead and Coggleshall, and the intermediate tract. From

Ware, in Hertfordshire, it extends to Edmonton, Enfield, St. Albans, Uxbridge, and Beaconsfield, to the banks of the Thames, and along the valley of the Colne. From Reading, where it again appears, it ranges to Hungerford, Marlborough, Basingstoke, and Guildford, thence south of Croydon to Farnborough, and Chatham, and by Milton to Whitstable, and in other directions to Canterbury and Sandwich. It occupies the eastern part of the county of Dorset, and has a very undulating surface. The plastic and London clays are much confounded in the county of Essex. The deposit occupies the part of Kent next the Thames, and in Sussex, the appearance of it is very partial. The general breadth varies from 1 to 8 miles, and the depth from 100 to 120 feet. The surface of the formation is flat in the general character; on the north east of London, remarkably so. In Hertfordshire, it rises to a considerable elevation, and in other places to gentle eminences.

The plastic clay covers the chalk hills at Addington, Croydon, Epsom, and Barnstead Downs. It covers the tops and sides of the chalk hills; London clay overlies the valleys, and is bounded on the south by the iron sand, the rocky escarpment of which looks over the Wealden formation of clay. The quality of the soil differs most essentially from the clay of Hertfordshire and Essex, the viscidness is most extreme over the chalk, but nearly altogether lost on the North side of the Thames. An opinion has been pronounced that the very viscid quality is produced by an extremely minute mixture of the chalk with the argillaceous base, and the special quality being confined to the chalk district, seems to favour that opinion. On the lower grounds the land is equally stubborn; but much less viscid and waxy than on the tops and sides of the chalk-hills, where they are often very thickly mixed with imbedded flints.

These lands are the most stubborn in Britain for the purposes of cultivation, requiring a plough of a most peculiar shape, called the Kentish turnwrest, and much animal strength, not less than four, and often six horses of powerful draught. The most obdurate in the nature, and the poorest in quality, are most advantageously used in permanent grass; but they require very frequent top-dressings with rich composts, after being completely dried by frequent draining. The wettest quality requires the frequency of drains in the distance of four yards, and filled in the usual way. Farm-yard dung is the only manure that can act on the stubborn soil, and is applied on the bare surface of the summer fallowed land, which may be cropped thus: 1st year, fallow; 2nd year, wheat; 3rd year, hay; 4th year, pasture; 5th year, oats.

The soil does not admit the drilling of beans;

but they may be introduced in broad-cast in the place of the pasture or oats.

The modification of the plastic clay, as seen in the counties of Hertford and Essex, admits a more varied and improved cultivation. Beans can be dibbled on the furrow-slice from the winter ploughing, and barley and vetches are used successfully in many places. The summer fallow is still necessary, and the frequent draining of the land. The drains may be more distant than on the waxy lands of clay, about 5 or 6 yards apart, and 2½ feet deep. Farm-yard dung is the only manure appreciable, or other putrescent substances. The best system of cropping may be recommended in—1st year, fallow; 2nd year, barley; 3rd year, hay or grass; 4th year, grass in pasture; 5th year, oats; 6th year, beans; 7th year, wheat.

The fineness of the barley tilth obviates the objection of the stale bed for the grass seeds on the winter wheat bed; two years in grass produces a vegetable sward for the nutriment of oats, and the lime is very conveniently and advantageously applied on the scarified bean grattan to be sown with wheat. The course includes every useful plant, and deserves very much consideration.

LONDON CLAY

Is the second marine formation above the chalk, and overlies the plastic deposit. It occupies the basin of London, and has been bored to the depth of 700 feet, in the corners where it joins the Bagshot sands at Wimbledon. The colour is blue, or lead-grey; but in the lower parts, brown and red clays occur. Green grains are seen in it. Sandy layers occur, and are often indurated into considerable rocks, usually containing green sand. It often lies on other clays, and contains a vast number, beauty, and variety of organic remains. It forms many insulated hills, resting on sands and clays, and affords many mineral springs; it possesses all the characters of a very quiet and continuous deposit, and not far from shore, since a few considerable remains of land and littoral productions occur in it, as wood, turtles, and crocodiles; but no pebbles, nor coarse sands. Shells of the most delicate and fragile forms are perfectly uninjured in this clay, except in the rare case of its being laminated. This clay forms a finer sediment than the plastic clays on which it rests, which have proceeded from some temporary turbulence of the marine aqueous sedimentary vehicle, or the irregular melting of the glaciers.

The county of Middlesex is mostly occupied by the London clay, covered in many places of the low grounds by alluvial deposits. Towards the edges of the London basin, the clay forms the surface of the ground, ascends the river to Staines,

and downwards it comprehends the county of Herts, and is much mixed with the plastic clays in Essex. It appears in Kent, and occupies the portion of Surrey that is contiguous to the Thames, though much covered by alluvium. Some small part is seen in the county of Sussex.

The London clay is poor in the vegetable quality, and most obdurate in the cultivable purposes. Any aration requires the power of four horses, and the use of the strong and heavy turnwrest plough. It is equally intractable in the dry and wet state, being waxy and hard, and in both conditions admitting no mechanical operation. Farm-yard dung, and similar putrescent substances, are the only available manures, the very repulsive constitution of the soil denying the reciprocal action of any quick elastic matters. Summer fallowing and the sowing with wheat is the only practicable system of cropping, and the beans must be raised broadcast, as the land will not allow drilling of any kind at no season of the year. The draining must be very frequent in 4 or 5 yards apart, placed in the furrows of the ridges, which are kept in the same position during the continuous fallowings, for the purpose of retaining the furrows over the drains.

These lands are most advantageously used in grass, which requires the contiguity to some large town, whence to procure an adequate supply of putrescent manure. The herbage deteriorates on these unkindly surfaces, and requires very frequent and heavy top-dressings in order to refresh and uphold the grassy surfaces. The meadows near London have been converted into a rich hot bed by the top dressings of manure.

LIAS CLAY

(Lig, ligas, *v.* lias, Ger. flames, as the clay is sulphureous, and has been burnt for alum), is the lowest member of the Oolite series of deposits, and overlies the new red sand-stone. The beds are of clay or marl, bluish grey in colour, and slaty, containing thin deposits of a blue, grey, or white argillaceous limestone, which has the very peculiar property of setting as a firm cement under water. It contains various petrifications, mostly reptiles, and hence called the reptile period of the globe, and remains of crocodiles have been found in it near Lyme, in Dorsetshire. The formation stretches from that place, passing under the unconformable green-sand of Blackdown, and surrounding the irregular elevations of carboniferous limestone in Somersetshire, and ranges uninterruptedly by Bath, Gloucester, Leicester, Newark, and Gainsborough, to the Humber. The breadth of the formation is often reduced to a few yards; but in general it occupies a broad vale of 5 or 6 miles at

the foot of the escarpments of oolite, and terminating towards the red marl by a very connected range of uniform low hills. A considerable portion of the steep slope of the Oolite escarpments is occupied by the Lias; and in the midland counties particularly, owing to the action of currents of water, detached portions of oolite crown the summits of many insulated masses of the Upper Lias shales.

The lias occupies, in the county of Devon, the valley of the Axe, above Axminster, and the upper part of the valley of the Yort, and it is seen in the western extremity of the county of Dorset. It occupies much of the eastern side of the county of Leicester, skirting the valley of the Soar, and in Lincolnshire it has much extent. It begins at the Humber in the width of three miles, proceeds due south of Lincoln, and to the west side of the county, all which it pervades. The E. and S.E. parts of the county of Nottingham are occupied by the lias, and also much of the vale of Belvoir, in Rutlandshire. In the county of Oxford, the lias covers the vale of Charnwell, and some extent near Chipping Norton; but the space is inconsiderable. In Shropshire, the lias extends ten miles between Whitechurch and Market Drayton, and in a breadth of 3 or 4 miles; it is an outlier distant 60 miles from the great lias formation of Warwickshire and Worcestershire, which are supposed by Murchison to have been at one time connected. Nearly the whole of Worcestershire is occupied by the lias, and in Warwickshire it possesses the valleys of the Stour, and of the Redhorse, and many ranges of high ground, and overspreads most of the S.E. part of the county. The blue lias appears in the south part of Glamorganshire, in the lowest part of the valley of Ogmore, and is found filling up the valleys of depression.

The lias clay, like all other argillaceous deposits, forms broad and level plains, which constitute low tracts of ground, more from having presented less resistance to the denuding causes which modified the inequalities of the surface, than to anything connected with their original formation. These plains are often diversified with low ridges, and a slight escarpment may often be traced following the lower limit of the formation. This escarpment is most conspicuous on the borders of Nottinghamshire and Leicestershire, where it forms a well-marked range distinguished by the name of the Wold-hills. Near the Mendips, the lias sometimes occurs on the brow of tolerably steep escarpments; but its maximum elevation probably falls short of 500 feet above the level of the sea. The average thickness in the midland counties is reckoned between 400 and 500 feet.

The surface of the Lias clay forms a soil that is

generally cold, wet, stiff, and tenacious; much of it is in pasture, for which it is well adapted, and the ground is seen to lie in highly raised ridges, in order to procure a surface drainage in the days of former cultivation. In sheltered situations, it is favourable to the growth of wood, and in Glamorganshire good crops of wheat are grown on the lias; and the marl of the Rag, or Grey Lias, is esteemed the richest mineral manure in the country. Water is scarce in the Lias tract of country, and that because of the abundance of pyrites, that are often sulphureous or ferruginous, or impregnated with purgative salts, as sulphate of soda.

The limestones of the Lias formation have a general tendency to an argillaceous type, and its clays more frequently exhibit a schistose structure than the other clays of the Oolitic system. Layers and masses of jet are frequent; pyrites is an abundant production in connection with shells, and sulphur is in some parts so prevalent as to furnish a valuable manufacture of alum. Many fruitless trials for coal have been made along the line of the Lias clays.

The lands of this clay cannot be used for green crops, but require the process of bare summer fallowing for wheat. The crops of any kind are not large; but the pasturage is very sound, when the land is in grass. The draining is done as before described. The system of the present cultivation would be much improved by the use of natural grasses in two or three years of pasturage; and the fore-mentioned course of seven years is much recommended for the lias as well as plastic clays of the modified descriptions.

OXFORD CLAY,

Or clunch, or fen, or forest clay, is a member of the series of the Middle Oolite deposits, and gets the name from the county of Oxford, where it is most abundantly developed, and that of "clunch," from the layers of whitish stones called "clunches," that are met with in digging through the clay, and which are not much harder than chalk, containing within them pieces of rotten wood, and small bi-valve shells. The appellation of "fen or forest clay," is derived from its situation in the eastern fens of England, which are supposed to have been forests in some former ages of the world. The colour is bluish-grey, and it includes hard and large septaria. It lies on the cornbrash rock, which is a soft, earthy, yellow limestone, and often blue and sandy.

The Oxford clay forms the Vale of Bedford, which is mostly in pasture; it is there made into bricks. In the county of Bucks, the clay extends from the vale of Aylesbury, to the town of Buckingham, and to the N.W. of Stony-Stratford and Newport Pagnell. It appears in the county of

Dorset; and in Essex it is much mixed with the Plastic formation. It lies deeply in Huntingdonshire; and in that county, the "clunches," or lumps of the Oolitic rocks, are found in the clay in the greatest abundance, and in the clearest form. The position of the beds of clay are nearly horizontal, and 500 to 700 feet in depth. In the county of Lincoln, it is seen 3 miles wide at the Humber, 15 east of Lincoln, and 25 between Sleaford and Spilsby; the elevation is not above that of the fens, and the depth is about 550 feet. The low district of the clay forms a valley separating the chalk of the wolds from the oolitic higher grounds, and when it meets the fens, it disappears below the vast alluvium. It occupies the eastern border of the county of Northampton, placed between the middle and lower oolites, and in the county of Oxford the middle parts are wholly occupied by the clay, which forms the valley of the Thames above Oxford. The surface is low and flat. It separates the Coral-rag from the Lower Oolite, and crops out from beneath the former, showing its position as the lowest member of the Middle Oolitic group. There is some Oxford clay in the northern border of Wiltshire: it is seen in the valleys of the Thames and Avon, and in gentle eminences by Cricklade and Malmesbury, Melksham and Trowbridge. In Yorkshire, the Oxford clay appears on the steep slope of the escarpment of the tabular-hills under the "Nab's End;" the fossils belong rather to the calcareous grit, than to the clunch clay of the south of England.

The Oxford clay in the whole range south of the Humber is a pale blue colour, turning to yellow on the surface, with many fossils, and some layers of chocolate-coloured shale. In Yorkshire it is less tough and more generally laminated, gradually changing in quality to the shell or rag rock below, and the calcareous grit above. The continuity is very remarkably connected from the north side of the Dorsetshire Downs to the Vale of Bedford, Huntingdon, and the western borders of the fens, to the banks of the Humber. The moist valleys of Oxford clay lie between the dry ranges of the Middle Oolite hills, while the vales of Kimmeridge clay are overlooked by the higher rocks of the Upper Oolite. The denudating power of former floods is proved by the exposure thus made of the hills overlying the clay, and by the occasional covering of insulated hills of the subjacent clay of the oolites and sand-stone. The connection with the rock is most apparent from the clunches or detached stones found in the clay, and the shells of the stratified deposit. The location of the Oolitic system may have been less continued than the Chalk deposit, which may account for the softness of the latter rock, and the more viscous

quality of the superimposed waxy clay, both conditions arising from the longer continuance of the agency of sea water. The denudation of the Oolitic system has been effected in much less time than of the Chalk formation; the waters were sooner removed, and have left fewer and less distinctively imprinted marks of their peculiar quality and power. Accordingly, the now-mentioned clays wholly differ from the waxy and viscous character; they receive moisture more freely, and give it off with less obstinacy. Still they retain the obdurate nature of clay in a very hardened coherence, and an obstinate resistance to mechanical power.

The quality of the Oxford clay for arable purposes is of the medium sort, being dry and hard, and the general character is rather below mediocrity. The ploughing of the stiffest kind is beyond the power of two horses, and the implement must be proportionally strong. The culture of root crops is not admitted, and the bare summer fallowing must be adopted. Wheat and beans are the principal crops, and are produced in fair abundance. The clovers thrive where the upper soil tends to loam, or where a fine pulverization can be effected of the clayey surface. The draining of these lands is done as before recommended. Putrescent matters *only* suit as manures, and the rotation of cropping is best as before mentioned.

In the eastern fens, the clay is mostly covered by a more recent alluvium, which falls under a separate description. Where the clay forms the surface ground, the quality is of the nature mentioned above, varied by the situation, and other physical causes. The precisely same character does not attend the clay as it is seen in Oxfordshire and in the fens: the latter may have been affected and modified by the stagnant or covering matters which deposited the vast beds of alluvium, and have rendered the consistence more greasy and soapy, and the temper somewhat more friable. The Oolite formation is less prevalent on the eastern side of Britain, and does not occur so exclusively as in the south-western counties of the island. The materials are more varied, and the depositions would be more mixed, and partake a heterogenous character; but the general description is everywhere to be recognised.

OXFORDSHIRE UNITED AGRICULTURAL SOCIETY.—At the last meeting of the Banbury Agricultural Society the following resolution was adopted:—"That this society embraces with much pleasure the opportunity afforded by the Oxfordshire Agricultural Society of making propositions for the union of the two societies for the show of stock; that this society proposes to offer a sum not exceeding £50, as premiums for stock, and that the two societies shall enjoy all the privileges granted to each committee for the offering and distribution of such premiums, the chairman of each society

retaining his position alternately; that the shows of stock be held alternately at Oxford and Banbury, and that the annual meetings for fixing the prizes, and transacting other business, be held at each town alternately; that the respective societies shall not interfere with each other in reference to the show of implements, roots, ploughing, rewarding of labourers and servants, nor in any other way whatever; that the chairman and the following gentlemen, members of this society, be deputed to attend the meeting of the Oxfordshire Society, to be held on Saturday next at the Star Hotel, Oxford; and that the said deputation be empowered to make all such terms with the Oxfordshire Society as it may be deemed fit and proper, so that the same may be in accordance with the spirit of this resolution." The following were the deputation appointed:—The Chairman, Messrs. A. Bull, W. Cother, J. Gardner, J. W.

Godson, S. Smith, R. Goffe, W. Rusher, and W. Munton. A special meeting of the Oxfordshire Society has since been held to receive this deputation, when, on the proposal of Mr. Wing, seconded by Mr. Druce, sen., it was resolved unanimously that the Oxfordshire Society should accept the Banbury share offered, and the following nine names were elected a sub-committee of the old society, to meet nine members of the younger, to arrange details for the time for the show, and determine the premiums to be offered. Right Hon. J. W. Henley, M.P., Waterperry; Mr. G. Davey, Dorchester; Mr. J. Druce, Mr. S. Druce, Eynsham; Mr. E. L. Franklin, Ascott; Mr. W. Gillett, Southleigh; Mr. Middleton, Cutslow; Mr. Miller, Water Eaton; Mr. Wing, Steeple Aston. We congratulate the members of both associations on this union of strength.

SUPPLIES OF BREADSTUFFS.

Without any wish to create unnecessary alarm, we are forced to look on this subject as one of much importance. The prohibition of exports, by almost all the continental nations, and the avidity of foreigners to purchase in our markets, when they admit of such an operation, warn us that we shall be more dependent on our own supplies during the coming year than we have heretofore been. Our production of corn has been gradually diminishing, as we find that the corn sold in the market towns of England and Wales, and reported in the official returns, indicates great diminution in production. The returns are as follows:—

	WHEAT. Qrs.	OATS. Qrs.	BARLEY. Qrs.
1844	5,456,307	1,989,730	2,834,407
1845	6,666,240	2,000,952	2,468,489
1846	5,958,963	1,970,443	2,338,398
1851	4,487,041	940,006	2,333,719
1852	4,854,513	947,550	2,389,487
1853	4,560,914	880,408	2,474,205

It will be seen at once that our production of grain has very seriously diminished, and that an increase has taken place in our imports from foreign countries. This import has been very much affected by two causes: the war in the first instance, and the deficient crops on the Continent and in America, in the second. Our imports have been—

	WHEAT. Qrs.	OATS. Qrs.	BARLEY. Qrs.
1844	1,037,963	303,126	1,023,416
1845	844,536	586,860	267,854
1846	1,437,336	724,840	371,157
1851	3,131,838	1,209,844	834,491
1852	3,068,892	995,479	626,137
1853	4,949,314	1,035,072	929,633

But in addition to these imports of foreign grain we have also imported a large quantity of flour and Indian corn. The imports of flour were—

In 1844.	1845.	1846.
937,774 cwt.	924,256 cwt.	3,363,810 cwt.
In 1851.	1852.	1853.
5,363,578 cwt.	3,921,634 cwt.	4,662,898 cwt.

We are aware that such an array of figures will appear formidable to some of our readers; but they clearly show the vast alteration that has taken place in the English growth of cereal crops, and while there is a diminution in the growth of corn at home, a consequent increase has occurred in our imports from abroad. In Ireland a perceptible change has also taken place. The quantity of land under cereal crops in Ireland was—

	WHEAT. Acres.	OATS. Acres.	BARLEY. Acres.
1847	743,171	2,209,170	532,655
1848	565,749	1,922,406	243,235
1849	687,546	2,061,185	290,960
1850	604,867	2,142,566	263,350
1851	504,348	2,189,755	282,617
1852	553,536	2,283,449	249,476
1853	326,896	2,157,849	*248,612
1854	411,922	2,043,466	*200,000

We have before us a return of the quantity of grain shipped from Ireland to England previous to the famine, and subsequent thereto, which shews the great change that has taken place in our position as a granary for Great Britain. In 1845, we sent to England 371,000 qrs. of wheat, and 1,421,000 cwt. of flour; in 1853, we only sent 12,600 qrs. of wheat, and 192,500 cwt. of flour. The falling off in oats and oatmeal was not in the same ratio.

The money value of the Irish cereal crops in 1847 was about £20,431,000; in 1850, from the reduced price of grain, the value of Irish cereal crops would only be £14,205,000, being a loss to the farming interest of six-and-a-quarter millions. It is true that in 1850 there were about 150,000 acres less cereals than in 1847; but the value of these would not exceed three-quarters of a million, and they would leave the Irish farmers losers on the 3,149,556 acres of land under grain, to the extent of five millions and a-half sterling, or nearly £2 per acre. The change that has taken place in prices is so great that the average prices for the year 1853 are higher than were received for the crop of 1847. And although the land under corn in Ireland is diminished more than half a million of acres, yet the Irish farmers will have received for the produce of 2,722,387 acres under corn in 1853 nearly as much as they obtained for the produce of 3,313,579 acres in 1847. The average price of wheat for the year 1850 was only 38s. 7d. per qr., while for 1853 it was 53s. per qr., and the average for the past week was 60s. 7d. per qr.

In laying these statements before our readers, we need only remark that enhanced prices will secure increased cultivation, and thus tend to supply future wants. Under a fair range of prices we should have had 600,000 acres of land in Ireland under grain, which is this year under grass, and this land would have yielded about two and half millions of quarters of grain for our present consumption instead of depending on foreign supplies.

* These are only approximate, as the returns for these two years include Bere, Rye, Beans, Peas.

AGRICULTURAL RETURNS (IRELAND).

The returns of agricultural produce in Ireland for the year 1853 have just been issued.

The following passages are selected from the prefatory report of the registrar-general, which contains a very complete account of the agricultural condition of Ireland in the year 1853, compared with the returns of previous years :

In reviewing the more prominent facts contained in these tables, the first point of interest which presents itself is the alterations in the number of holdings.

Between 1852 and 1853 the decrease has been much less than for several years past, being only 4,859, or 0.88 per cent. on holdings exceeding one acre in extent; the reduction between 1851 and 1852 was 2.79 per cent.; between 1850 and 1851 it was 3.8 per cent.; and between 1849 and 1850 it was 4.22 per cent. The number of holdings for the period referred to is as follows:—In 1849, 619,027; in 1850, 592,896; in 1851, 570,338; in 1852, 554,413; in 1853, 549,554. The decrease between 1849 and 1850 was 26,131; between 1850 and 1851, 22,558; between 1851 and 1852, 15,925; and between 1852 and 1853, 4,859.

The counties in which the largest decrease has taken place between 1852 and 1853, in proportion to the total number of holdings, are Kilkenny, Tipperary, Louth, Wicklow, Meath, and Waterford.

It appears that in the counties of Carlow, Dublin, Kildare, Westmeath, Clare, Fermanagh, and Leitrim the decrease has been small; whilst in the four Connaught counties of Galway, Mayo, Roscommon, and Sligo, and also in the counties of Kerry and Wexford, a slight increase in the number of holdings has taken place.

The classes of holdings in the numbers of which these changes have taken place possess considerable interest. Between the years 1852 and 1853, as between 1851 and 1852, there was a decrease in all the classes "above 1 and not exceeding 30 acres;" in the next class, "above 30 to 50 acres," there was a decrease of 14 holdings between 1851 and 1852; whilst between 1852 and 1853 there was an increase of 218 holdings. In all the higher classes, however, an increase is shown to have taken place, viz., in the holdings from "50 to 100" acres, 375; in those from "100 to 200" acres, 338; in those from "200 to 500" acres, 73; and 159 in holdings of "500 acres and upwards." The total number of cottier tenements or holdings which do not exceed one acre in extent, have increased by 737 between 1852 and 1853. This increase is principally owing to a more accurate classification of several tenements throughout the country.

It may be necessary to remark that many of the farms now returned as "above 500 acres," have been raised to this class since 1852, not by the union of farms of a smaller class, but by the addition of tracts of land hitherto returned as untenanted "bog and waste;" and as the process of adding mountain tracts to farms goes forward—encroaching on the present system of grazing in common—the class of large farms may gradually increase without causing much diminution in the number of smaller holdings.

As this country seems to be approaching a period when the extraordinary changes in the division of land which have been in progress for several years past are likely to cease to a large extent, it may be interesting to carry back our comparison, so far as the previous returns will admit—the highest classification adopted previous to 1851 being "above 30 acres."

Since 1849, the holdings "above 1 and not exceeding 5 acres" in extent, have decreased 18,761; those "above 5 to 15 acres," 35,196; those "above 15 to 30 acres," 11,256; and those "above 30 acres," 4,389, making together a total decrease of 69,602 holdings within 5 years. In the class of "1 acre and under," there has been an increase within the same period of 3,806 holdings.

The entire breadth of land under crops in 1853 was 5,696,951 acres, which is less by 42,263 acres than that in 1852; and the extent in 1852 was less by 119,737 acres than in 1851.

In 1852 the counties of Clare, Donegal, King's and Londonderry, showed an increase in the extent of cultivation; in 1853 they exhibit a decrease. Clare, between 1851 and 1852, increased 4 per cent., and decreased 3.3 per cent. between 1852 and 1853. Donegal showed an increase between 1851 and 1852 of 4.1 per cent.; and between 1852 and 1853 a decrease of 0.3 per cent. In the King's County the extent of cultivation in 1851 and 1852 was very nearly the same; but in 1853 it was less by 5 per cent. than in 1852. The counties of Antrim and Londonderry show a singular steadiness of condition in this respect: in 1851 the extent of tillage in Londonderry was 175,134 acres; in 1852 it was 175,785; and in 1853 it was 174,837. In Antrim the extent in 1851 was 236,147 acres; in 1852 it was 236,377; and in 1853 it was 236,510.

It is deserving of observation that the counties in which cultivation has decreased comprise every county in the province of Leinster, four out of the six counties in Munster, but not one of Connaught, and only three out of nine in Ulster.

The following statement shows the extent of the increase or decrease in each description of crop in 1853, when compared with 1852:—

Increase: Barley and bere, 10,615 acres; beans, 239 acres; potatoes, 22,201 acres; turnips, 42,587 acres; mangel wurzel, 2,453 acres; flax, 37,571 acres; meadow, 29 acres; total, 115,695 acres. Decrease: Wheat, 26,670 acres; oats, 125,600 acres; rye, 617 acres; peas, 1,186 acres; other green crops, 532 acres; rape, 3,353 acres. Total, 157,958 acres; making a total decrease of 42,263 acres.

The general tendency since 1847 has been to reduce the extent of cereal crops, and to increase that of green crops. In 1847, when these agricultural inquiries commenced, and in which there were only 284,116 acres of potatoes cultivated in Ireland, the proportion of cereal to green crops was $4\frac{1}{2}$ acres to 1, whereas in 1853 it was, according to the returns, about 2 to 1.

It will be found that the extent of the corn crops was less in 1853 than in 1852 in all the counties, with the exception of Galway, Mayo, and Sligo; potatoes increased in every county with the exception of Down, Cork, and Waterford, and the counties of Carlow, Dublin, Kildare, Kilkenny, Louth, Meath, Queen's, Wexford, and Wicklow; it is remarkable that the counties which show a diminished breadth of potatoes have all increased the extent of turnips; and the counties of Longford, Tipperary, Limerick, Armagh, Cavan, Donegal, Londonderry, Monaghan, Tyrone, Galway, Roscommon, and Mayo, have also extended the cultivation of turnips as well as potatoes. No change of importance has taken place in the extent of "other green crops." The increase in the flax crop is principally confined to the province of Ulster.

It will be seen that the greatest extent of land is in the hands of farmers holding between 50 and 100 acres; the total

area of this class being 3,855,960 acres, which is thus divided:—29.3 per cent. is under tillage, 51.2 in grass, 0.6 in fallow, 1.1 under wood, and 17.8 is bog, or waste. The class next in extent comprises the landholders of between 100 and 200 acres, who together occupy 3,197,239 acres; in this class the proportion of tillage is 21.5 per cent.; the grass is 52.5 per cent.; and the bog or waste is 23.4 per cent.; the proportion of grass land in this class is above that in any other—the relative extent of which has increased in each ascending class to this; but in the two next higher it decreases, in consequence of the great extent of “bog or waste” which enters into the classes of farms “above 200 to 500 acres,” and “above 500 acres;” in the former this is 35 per cent., and in the latter it is 61.3 of the entire area belonging to each class.

The total area of Ireland, as taken from the Ordnance maps, is 20,808,271 acres, which includes 630,825 acres of water; this being deducted from the foregoing total, reduces the land area to 20,177,446 acres. The total area given in the above table of holdings is 20,189,984 acres, differing only 12,538 acres from the true area, which will be admitted to be a very close approximation, when it is considered that the entire area accounted for in these tables is the combined result of information furnished voluntarily by 585,313 occupiers of land in this country, and collected by 3,875 enumerators; and it may be remarked, that this excess ought to be reduced by the number of acres contained in the “intakes” at Lough Swilly and Lough Foyle, and on the coast of Wexford—these spaces having been reclaimed from the sea since the publication of the Ordnance maps, but are now included in these returns.

The gross amount of produce of wheat was 34,639 barrels less in 1853 than in 1852; oats decreased 1,634,530 barrels within the same period; and bere and barley increased 135,457 barrels. Upon the entire of the cereal crops there was a decrease in the produce, between 1852 and 1853, of 134,942 tons; in potatoes there was an increase of 106,138 tons.

In considering the comparative state of agricultural produce in the several counties the lamentable extent to which the growth of weeds and the shedding of their seed is permitted in Ireland, not only in the fields, but also on the sides of the highways, railways, and canals, which must painfully strike every observant person, suggested the idea that some good might arise if public attention were drawn to the degree of comparative care or negligence prevailing in this respect in the different districts of Ireland; and a form of return, classified under four heads, was accordingly prepared, for procuring information on this subject, in as uniform a manner as possible.

It is worthy of remark, that of the six counties which present the largest amount of produce in proportion to their inhabitants, four rank amongst those most free from weeds, viz., Louth, Kildare, Wexford, and Meath, but Kilkenny and Carlow are exceptions to this rule. And it is also remarkable that of the six counties lowest in produce, five are also in the lowest class as regards weeds, viz., Clare, Leitrim, Sligo, Mayo, and Kerry.

The condition of the roadsides as to weeds does not differ considerably from that of the farms in the several counties. Fermanagh, Antrim, Cork, and Waterford are creditable exceptions, being only 14, 15, 19, and 20, in the farm list, whilst they rank 4, 5, 6, and 8 in respect to the roadsides. On the other hand, Wexford, Tipperary, Westmeath, and Monaghan, which stand 5, 10, 13, and 18 as respects farms, sink down to 19, 25, 26, and 32 in the roadside list.

Under the head “Remarks,” much interesting though painful information has been given, telling of utter neglect and carelessness, and this not only by farmers, but by some of those whose duty it is, as public servants, to see that such injurious nuisances are not permitted to exist upon any of the roads entrusted to their care and superintendence; the indolent farmer, as an apology for his neglect, declaring, and not without some degree of justice, that it is useless for him to clean his land whilst his fields are poisoned by the seeds of thistles, docks, and ragweed, &c., nurtured upon the adjoining farms and highways. It is to be hoped that public opinion and self-interest will ere long excite a war of extermination against “weeds” of every kind in Ireland.

The extent of land under flax in 1853 was 174,579 acres; the quantity grown was 43,862 tons, computed according to the returns of produce, upon an average rate of 40 2-10ths stones per acre.

The quantity of flax grown out of Ulster is yet of very limited extent; and although there was, on the whole of the provinces of Leinster, Munster, and Connaught, an increase of 2,438 acres over 1852, yet it will be observed that eight counties of these provinces exhibit a decrease, and that the cultivation of this crop in them was less by 858 acres than in 1851.

The number of scutching mills in Ireland in 1852 was 956; in 1853, it had increased to 1,056. The principal increase was, as might be expected, in the province of Ulster. Decreases occurred in the counties of Louth, Westmeath, Wexford, Tipperary, and Sligo.

The returns for the year 1853 show a larger increase in the quantity of stock over those of 1852 than has occurred in any previous year, when compared with that preceding, since these inquiries commenced.

The total increase in horses was 14,697, that in the number under one year old being 8,955. Cattle increased 288,242, a very large proportion of which (121,784) was also in those under one year old. The increase in sheep was 528,713; pigs, 72,287; goats, 17,738; and poultry, 484,834.

In drawing attention to the great increase in the quantity of stock in Ireland between 1852 and 1853, it is necessary to observe that the returns for 1853 were taken nearly eight weeks earlier than those for 1852; and there is no doubt that during the months of August and September (the period referred to) in 1853 a large reduction took place in the quantity of stock, owing to the ordinary consumption and the exportation to England; we ought, therefore, to know what that reduction was, in order satisfactorily to adjust the comparison between the stock at the respective periods; and though it is most desirable to complete the returns at as early a period of the year as possible, these facts show that it is of the next degree of importance that they should be collected as nearly about the same date as circumstances will permit. Another result of making the inquiries at uncertain periods is, that a quantity of the stock is found in different localities; for, as winter approaches, much of that on grazing farms is gradually removed into the dairy-yards in towns, and is thus transferred from the farming to what may be termed the “cottier class,” and there is little doubt but that the diminished value of stock in the hands of this class in 1853, when compared with 1852, is to a great extent owing to the inquiries of 1852 not having been authorized by the Government to be undertaken until a later period of the year.

It will be gratifying to observe that these returns contain abundant evidence to show satisfactorily that the condition of the agriculturists in this country is steadily improving, and

also to indicate the comparative annual rate at which this improvement has progressed. The total value of the stock in 1849 was £25,692,616; in 1850, £26,951,959; in 1851, £27,737,393; in 1852, £29,154,229; and in 1853, £31,844,718; which gives an increase per cent. per annum as follows:—In 1849 it was 3·5 per cent. over that in 1847; in 1850, 4·8 over that in 1849; in 1851, 3 per cent. over that in 1850; in 1852 5·2 per cent. over that in 1851; and in 1853, 9·2 per cent. over that in 1852—facts which cannot fail to be most gratifying, and to afford deep cause of thankfulness to every well-wisher of the country, more especially when we reflect upon the gloomy seasons of distress and suffering from which, owing to the merciful dispensations of an omnipotent Providence, the interests, not only of the agricultural, but of almost every class in Ireland, have so recently emerged.

SOUTH DEVON AGRICULTURAL ASSOCIATION.

SOUTH HAMPS CATTLE AND DEVON AND CORNWALL POULTRY SHOWS.

The annual meeting and shows of the above associations were held on Friday, November 3, at Plympton, when, as the weather was fine, the combined efforts of the societies were crowned with unusual success. The numbers attracted to Plympton on this occasion exceeded what we have witnessed at any former annual meetings of any mere local societies. The three o'clock train from Plymouth especially brought hundreds to swell the already numerous assemblage in the cattle-yard and poultry tents; and it is gratifying to record that the character of the shows generally was such as to repay the curious as well as those who for more practical purposes visited the collections.

It has been customary for the shows of the South Devon Agricultural Society, the South Hamps Cattle Show, and the Devon and Cornwall Poultry Show, to be held distinctly; their being united on this occasion proved another instance of the value and importance of mutual aid.

The object of the first of those societies is to encourage good farming by offering premiums for the best-kept farms, for ploughing, and for improved agricultural implements; together with rewards to industrious farm labourers. Evidently there is nothing showy and everything practical characterising it. The promoters of the South Hamps Cattle Show have in view the improvement of stock, and although they have had many difficulties to contend with, they brought together at this meeting a creditable show of South Hamps cattle, after a season that has been unfavourable to the appearance of stock generally. The number of entries in this class was nearly 80, and several of them were fine specimens of their class, and received judicious mention in the awards by the judges. The show of horses was extensive, but was confined chiefly to cart and hack horses. The pens of sheep were very good, but the class of greatest merit was that of the pigs, in which it is but natural to expect Devonshire breeders to excel at home, since they do so often when they exhibit out of the county. The show was held in a field near the Borringdon Hotel, Plympton Station, and the implement yard was in a field adjoining it. The implements were more numerous than we have seen at former exhibitions of the South Devon Agricultural Society, and amongst the persons who won prizes, was Mr. Geo. Bond, a farmer who made his own plough, and, with greater honour still, knows so well how

to handle it, that he also carried off a prize at the skirting and ploughing match. This match was held in a field near the Borringdon Mine, and was a capital exhibition of the ability of the ploughmen of the district. In the implement yard was exhibited, under a spacious marquee, the collection of Messrs. Wm. E. Rendle and Co., seed and manure merchants, of Plymouth, under the management of Mr. G. Lamoureux, which comprised some very superior bulbs grown around the immediate neighbourhood. We noticed some fine specimens of Morton's yellow globe mangel wurtzel, green-top swedes, and green-top Scotch yellow, sent from Hall Tors, the well-known farm of Mr. Ford. Fine roots also of long red mangel wurtzel and yellow globe, from Mr. Parnell, of Bowden. E. Tolcher, Esq., of Ridgway, presented some roots of purple and green-top Scotch turnips; and from W. Fox, Esq., Elfordleigh, very fine specimens of the yellow tankards. Mr. Widdicombe, of Hay, near Ugborough, as usual, sent some splendid specimens, especially the long red mangel and long yellow, also yellow globe, with some fine roots of white globe turnips; also, some handsome bulbs of Rendle's improved swede, of considerable weight—as for quality, we think it would be difficult to meet with a sounder or better swede; some roots of Chivas's orange jelly turnip. Messrs. Rendle also exhibited a collection of various kinds of grasses, selected for their value in producing fine meadow and pasture, and renovating grasses, permanent lawn grass, Italian rye, Dickinson's Italian rye, clovers of all kinds, including the hybrid and Bokhara varieties; swedes, common and hybrid turnips, of the best sorts; cattle beet, parsnips, large white Belgian and yellow Belgian carrots, cabbages, field varieties; winter prolific beans, field peas, lucerne, trefoil, lentils, Buck wheat, oil-cake, &c., &c.; also a collection of all the leading manures—Peruvian and Bolivian guanos; Lawes' patent superphosphate of lime, nitrate of soda, bone dust, &c.

The poultry exhibition took place in a tent adjoining the cattle yard. There was a large show of various classes, and several pens contained birds of first-rate order. The Dorkings Malays, ducks, and pigeons were more particularly noticeable, although the show in every particular fully equalled the anticipation of the committee. A great number of persons visited the exhibition throughout the day, and it may be classed as one of the most interesting features in the day's proceedings. There were upwards of 150 pens, and many purchases were made.

The dinner was held in a spacious tent erected at the back of the Borringdon Hotel, decorated with flags of the allied nations, and a transparency of Lord Morley's arms over the presidential seat. At four o'clock the chair was taken by the Right Hon. Earl Morley, and upwards of four hundred persons sat down to a most substantial dinner. The usual loyal and patriotic toasts were given with the utmost enthusiasm.

THE MALT, BARLEY, AND HOP TRADE.—From a Parliamentary paper recently issued, it appears that in the year ending July 5, 1854, there were 34,003,266 bushels of malt made and charged with duty in England and Wales, 3,785,728 bushels in Scotland, and 1,722,226 in Ireland. In the same period 655,706 quarters of foreign barley were imported into the United Kingdom. The average price of barley during the year was 40s. per imperial quarter. 54,885 cwt. of foreign hops were imported into the United Kingdom in the year ending July 5, 1854, of which 5,830 cwt. 1 qr. 11 lb. were re-exported in the year, and 10,604 cwt. remained in bond on the 5th of July. 791,422 lb. of English hops were exported in the year.

FARM SCHOOLS.

THE CHILDREN OF LONDON STREETS.

[The following paper has been forwarded to us by an old correspondent, with a request that we will give it in our columns, although it has already appeared in those of one of our respected contemporaries.]

SIR,—I have read your pamphlet, "London Shadows, a Glance at the Homes of the Thousands," wherein you describe with so much good feeling and truth the dreadful scenes which may be found by any who will take the trouble to see for themselves.

No doubt it is a fact that thousands of children in London and other places are in the greatest misery and destitution, with the prospect that a large proportion of them will, if unaided, be tempted to dishonesty and crime from their positive inability to find for themselves the means "to learn and labour truly" to get their "own living" by honest industry. At present there are two great evils; the one alluded to above, the other a decided and increasing scarcity of agricultural labourers and working mechanics, which may, if unchecked, greatly affect the value of property. The important problem is, how we can best make one of these evils a means of counteracting the other, and so provide a remedy for both.

All classes are likely to ask, "What can we do" to abate the evils alluded to? And most of them have the power and will to do something. I shall take the liberty of giving them a few hints. Other editors and their correspondents may, and no doubt they will, assist you by giving publicity to any suggestion that seems likely to be valuable. As this is no mere party question, we may hope for a full and fair discussion of whatever seems feasible. As a very imperfect plan is better than none, if it leads to a full discussion and the adoption of a good one that might not otherwise have been thought of, the following is offered for consideration:—To appoint honorary local trustees to visit and superintend small farms taken for orphan, and destitute, but honest children, to cultivate in fine and suitable weather.

The children could not only cultivate their own garden farm, but do work for others, by contract, as a means of increasing their income. Agricultural tools are generally much heavier than is necessary; but all useless weight is mere waste of strength, as it diminishes the capability of doing useful work. By making tools of the lightest and best materials, children might be made much more useful. The Royal Agricultural Society have already awarded a medal for improved forks and spades, and will be glad to promote the improvement of all agricultural tools and implements. When the weather was not suitable for "out-door-work," the children could not only learn to read, write, and keep accounts (especially such accounts as would bear on their own farm and their present and prospective employment), but they could learn to do "indoor-work."

If all details were carried out in the best possible manner for making their labour productive, it is probable that, under favourable circumstances, such as where labour is dear and land cheap, children seven years of age might be kept and partly educated from that time for three years without costing £6 more than they had earned; and such sum, if advanced to them as a friendly loan, which they were to repay as soon as they could, would in many cases be returned; as all would be taught that whether it was returned or not would constitute a

part of their character, and prove whether they had deserved the friendly assistance of others. It would not be prudent to dismiss the children (except for bad conduct) before they were likely to obtain other employment; but after ten years of age they might be so useful on their garden farm as to earn all they cost.

The conduct and qualities of each child should be registered in a book, so that visitors who had the means of promoting the welfare of the deserving might, on inspecting the register of each school, be able to see at once what the character of each child was stated to be. The walls of the school-room might be usefully covered with lists of children who wanted employment, and employers who had work for young persons. By judicious and systematic training the children might become the best workmen of this country, and the best class of emigrants for the colonies; and by a good system of registration they might have agents in every part of her Majesty's dominions. There should be local management for each school, but the great central societies would be glad to become useful correspondents.

To do all this some funds are necessary; and where are they? it may be asked. My answer is, that although this is not to be considered a mere charitable institution, it probably would be, in many cases, judicious to lend any old charity funds now unemployed, or that are available; and that many new funds might be made available, as probably there would be, by such means, as large a proportion of real good done for the money so lent and expended, as by any other that has hitherto been tried. Perhaps part of the income of "Smith's Charity," and several others, would be available; and it may be a question whether that part of the funds of the "Patriotic" Society which will be devoted to the orphans would not be most serviceable in some such form as this. If it was clear that an orphan child could have a fair chance of earning its own living at a small risk of £6, many friends would be willing to advance that, who at present merely consider such cases hopeless.

To render such institutions popular, it would be essential to take care that those who had in equity and strict justice the first claim for admission, should in all cases be the first to share the advantages to be derived from them; and by this rule the orphans of the neighbourhood would be entitled to a preference, except in very peculiar cases.

I have thrown out these suggestions, not with the idea that they are the best that can be adopted, but that others may improve on them.

If each farmers' club appointed a committee to report on this subject, they would be able to inform us what work could be found for the children, and what they would be likely to cost, in any particular locality, beyond what their income would be from their farm and labour.

The society for promoting the amendment of the law might have a committee to inform us what alterations, if any, are necessary to be made in the law before any such system can be fully carried out, and what charitable funds are, or might be made, available for lending for such objects.

The Society for Improving the Condition of the Working Classes would be able to give much useful information; and the officers of that and similar institutions might assist in col

lecting and circulating information likely to promote the objects in view.

Mr. Wolrych Whitmore and others have tried plans to a certain extent with a similar object: probably they will all be happy to supply any advice their experience may suggest.

It would be of great importance to have suitable masters to superintend the children. To save expense, they should generally be selected from those who have some income from other sources, which, added to this employment, would render them independent, whilst they would have the satisfaction of being useful members of the community.

In some cases, the wounded "sappers and miners," if possessing the requisite experience and knowledge of agriculture, and other matters, would be peculiarly suitable, from their professional knowledge, and from their habits of regularity, discipline, and order.

It is proverbial that a fresh job is almost as good as a rest, and this is particularly true with children; so they should not in any case be too long engaged at the same work, but their work should be judiciously blended with amusement, and this amusement should be instructive; and all should be consistent with giving health, strength, activity of body and mind, so as to give instruction in all things likely to be useful, amusing, and creditable to the children.

Probably nearly all the interesting accomplishments of the boys in the Duke of York's military school in London might be profitably attained as amusement for children in industrial country schools.

If in lieu of the present child's-play "at soldiers," they were taught to fence, and march in military order to their work and to church; if on two or three nights a week they learned military and sacred music, and practised the latter especially on Sundays, they would not be less able to work at other times; but these exercises would not only keep them out of mischief, but be attractive of the attention of the gentry of the neighbourhood, who, in return, might be invited to suggest any new means of usefully and profitably employing the time of such children.

If with the ready and zealous assistance of the press, and the co-operation of all such societies as are alluded to above, any one large land-owner will take up the question in earnest, and get two or three of his most intelligent tenants to assist him all apparent difficulties will soon vanish; but as it is important, to prevent mistakes in the first experiment, every step should be well considered before it is taken.

By mutual co-operation, such as is here suggested, surely it is possible for a "practical people," such as we are said to be, to arrange some general plan, by which the whole body of children now exposed to useless wretchedness may have a fair chance of earning their own living, and by that means not only supply the present deficiency of good labourers, but also greatly contribute to the power and wealth of their country.

BARUGH ALMACK.

LINCOLNSHIRE RAMS.

SIR,—I have this season seen many Lincolnshire rams, and I find the breeders of them are making great improvements in their fore-quarters; the most enlightened men are aiming to get them wider between their fore-legs, with large full-of-flesh bosoms; not, they say, large bosoms with wool left on them when clipped which grew the year before. The Lincolnshire men shear their sheep close to the skin; they can grow, say they, plenty of wool in one year, without leaving part of two years' wool to make them appear to have more wool than they really grow, which is a mockery, a delusion, and a snare. The

Lincolnshire breeders will not swallow old wool left upon sheep. Some of the breeders of Lincoln are trying hard to produce large lean necks and docks—not fat necks and docks—with large full thighs, wide chins, broad shoulders, with the Bakewell barrel form, clipped from the rump end all through the back and shoulders; the head fine, long, clean, and thin, with a lively eye; wide in the loin, and carrying the head so high that the nose is perpendicular with the large breast, and flat clean from wool; leg-bones with flanks like ripe oxen, yet not too much garbage: a large flank denotes a strong stamina.

The following is a specimen of the best kind of Lincolnshire sheep:—"Mr. Clarke, of Long Sutton, Lincolnshire, exhibited at the Newcastle meeting a Lincolnshire ewe, which was slaughtered, and weighed 65½ lbs. per quarter."—*Farmers' Magazine*, September, 1854.

The great wether sheep of the Lincolnshire breed, slaughtered at Brigg, about 15 years back, weighed 76½ lbs. per quarter, and weighed publicly. The late Mr. Israel Brice bred many sheep, both for wool and mutton, and took many prizes in this county. He sold, last year, at home, five sheep at 170*l.*; and his son, Mr. Edward Brice, sold, this year, the same number for 150*l.*, which, coupled with Mr. Kirkham's high prices at Peterborough fair, show in what high estimation the long-wooled Lincolns are held. Taking the Lincolnshire sheep for weight of wool and mutton per acre, or for profit, where turnips and clover can be produced, they are perhaps unequalled. S. A.

Risby House, October 28th, 1854.

SUPPOSED ANTIDOTE AGAINST THE POTATO DISEASE.

SIR,—The result of every inquiry or experiment tending to throw light on the mysterious failure of the potato, is worthy of attention; and whether the cause is atmospheric, or whether the disease arises from the want of some element in the earth to promote its growth, are points for investigation.

Acting upon the latter theory, and knowing that where we found the potato diseased the stalks have generally gone prematurely to decay, I was induced to try the following experiment with a view to stimulate the growth of the stalk. Having a small plot of land, I grew potatoes on it for three years in succession, and the last year (1853) two-thirds of the potatoes were diseased. In the spring of this year, I planted half the same land with potatoes, manured as usual; the other half I planted in a similar way with the addition of silicate of potash, which was neither more nor less than *clinkers*, or half vitrified residuum of coal, adhering to the grate of furnaces. This I caused to be ground very fine, and placed in the rows with the manure. The produce which I have now got is all right; the stalks remaining green and strong up to the time the potatoes were taken up, while in the other half plot of land the stalks decayed early and the potatoes were very much diseased. For the information of the agriculturist, the article can be got in almost any quantity for merely carrying it away; the only expense will be the grinding, and it requires to be ground as fine as possible. I have to add, that I consider the *clinkers* superior to ashes for this purpose, inasmuch as ashes produced from wood (potashes) require siliceous earth to be added and fused with them; coal, on the other hand, contains a considerable quantity of silicious earth and alumina or clay, which only chemically combines when melted or vitrified. In this neighbourhood the *clinkers* are always rejected by the agriculturists, and when used at all, it is only for repairing public roads.

I have the honour to be, Sir, your very obedient servant,
Hunslet, near Leeds. T. B.

MR. TELFER'S FARM.

At the last meeting of the Royal Agricultural Improvement Society of Ireland, Mr. C. W. Hamilton gave his experiences of a late tour in Scotland, in the course of which he made it his business to visit some of the more celebrated of our northern friends. Without intending in any way to re-open a controversy that may very well rest where it is, we think the following description, after what has been said, will be not without interest to our readers. We may first observe as regards the sheep question, that our frequently expressed wish was to get to the truth of Mr. Caird's *facts*. He stated that twenty-five tons of hay was made, whereas the fifty sheep was merely an opinion that, as Mr. Hamilton himself shows, was hardly worth while going into:—

"Let us now turn to Mr. Telfer's, of Cunning Park, close to the town of Ayr; it is to this farm that I think we shall probably be indebted for the most accurate and reliable information. Mr. Telfer seems anxious to weigh, measure, and record accurately, and to have truth as his object; and it is deeply to be regretted that so much mischief has been done by Mr. Caird's assertions—made without any foundation, except his careless adoption of Mr. Telfer's naturally sanguine calculations as to what might be possible, as if they were founded on actual measurement.* I shall not take up your time by alluding to the leading articles and letters on this subject in the *Mark Lane Express*; they all bear upon the question of how much hay may be supposed to represent a certain weight of fresh-cut soil, and this hypothetical quantity is taken as the exponent of the productive powers of the crops. It appears to me that the number of animals fed, or meat and milk produced, is a better exponent, until more accurate information is attainable. But the *Mark Lane Express* has not referred to what I think by far the most unsupported part of Mr. Caird's statement, namely, that it involved the question of supporting 50, instead of 5 sheep to the acre. When I come to show how little the 50 sheep would be dependent upon the rented acre, and how much upon bought food, you will see that it would be as rational to say that the man who, on some great occasion, summoned caterers from afar to supply an ample feast for 50 guests, instead of 5 usual members of his family, had found a source for indefinite hospitality, and was, moreover, on the highway towards the accumulation of wealth. If Mr. Caird had taken the pains to make some inquiry from Mr. Telfer as to the grounds of what he really put forward as only an hypothesis, he would have found him perfectly candid, and anxious to search out the truth.

"Cunning Park contains only 40 Scotch acres, of which 20 are under pipe, and 11 under Italian rye-grass; it is a flat, level surface, and consists of poor, sandy soil, worth very little in its natural state; but the tiller of rich, heavy loams must

not imagine that, therefore, Mr. Telfer is working at a disadvantage. On the contrary, a porous soil seems to be the first condition for ensuring success; every gardener who aims at the production of fibrous roots and luxuriant foliage in his forcing-houses seeks for pure sand and the lightest of vegetable matters as the medium for supplying the roots with water.

"The system of distribution is the same on all the farms visited, and one hydrant to about six acres.

"Mr. Telfer's is strictly a dairy establishment, and, from being within a few minutes' walk of the flourishing town of Ayr, must, under any circumstances, be very profitable. No description can give an idea of the perfect order and cleanliness that pervades the whole establishment. The cow-house contains 48 cows in a double row, two to each stall; the floor is entirely of white flags, kept as scrupulously clean as the kitchen of an English house; the drain behind the cattle is fitted with an iron perforated plate which lets the liquid pass off at once into the tank, while a shovel, made to fit exactly into the rectangular portion above the iron plate, carries away all the solid manure, which is also conveyed into the tank. There is no litter used, but the fore part of the stalls is covered with thick cocoa-nut mats, which cost 10s. each, supplying two cows; and, as some which had been down for three years seemed little the worse for wear, the expense of this substitute for litter is very trifling. The side-walls are skirted with large slates, as more easily cleaned; and there are many windows, both in the sides and roof, which open to give air, and have also blinds of cocoa-nut fibre, so ingeniously arranged that pulling a slight cord enables the cow-herd to darken the house whenever flies become troublesome.

"There is an air channel underneath the floor, by which fresh air is introduced as it is usually in churches. The food is brought in by the centre passage in a large box with three wheels, which runs over the flags with the greatest ease. There is no provision for supplying water to the troughs, and I believe that the expenditure upon contrivances to give water to cattle by pipes, as at Mr. Littledale's, near Birkenhead, and Mr. Lawson's, at Burntuck, is not in any way to be recommended, for the small quantity that cattle living on green food drink can be easily brought in in buckets.

"The steam-engine, with its connected appliances for chaffing, steaming food, pumping water from the river, and again forcing the liquid manure through the pipes, is placed at one end of the byre and the tank, which is open* and surrounded by a high wall, is at the other; the weighing machine very conveniently placed at one side, so that every cart must pass over it. The dairy is connected with the building, and without the ornamental expenditure upon marble and painted glass, which gives Mr. Littledale's dairy the stamp of wealth seeking an outlet, has all the beauty of perfect fitness in every part, everything that is necessary for cleanliness and the regulation of temperature, and nothing that is not useful. Mr. Telfer gets the highest price for his fresh butter from a Jermyn-street dealer who supplies the nobility in that part of London, and this sufficiently shows its quality.

"Now, let us try to calculate what the purchase of Italian ryegrass may have been. The stock kept on the farm is 48

* Mr. Caird: "It was not obtained at one, but at three cuttings; and he took somewhat about 100 tons of green grass. This was a fact. They might wonder and be astonished, for it involved a question of from 5 to 50 sheep, and 5 to 25 tons of hay, as compared with the soil in this country."

* In these open tanks there was no visible disengagement of gas, and no smell of ammonia; there had been some accumulation of vegetable matter, which Mr. Telfer used sulphuric acid to reduce.

cows and two horses, which we may consider as equivalent to 50 head; his statement to me was that the cows get 4 stones of soil per diem, and 30lbs. cabbage per diem in summer, with one feed of compound 4lbs. to 8lbs.—say, average 6lbs.—of chaffed hay; 1lb. to 3lbs.—say, 2lbs.—of oilcake; the oilcake all made into flour, and steamed with the chaff.

"In winter, grated mangels, fresh and not fermented, are substituted for the soil; the winter supply of hay is bought, and, as the little hay that was made from the Italian ryegrass was chiefly consumed before October, I think it safe, in the absence of more correct measurement, to include the summer hay in the produce of the eleven acres, at one stone and a-half per diem to each; total consumption, five stones and a-half would be only 33 tons per acre. If 74 tons had been realized per acre, each animal must have consumed, at least, fourteen stones per diem, independent of oilcake, on the supposition that the supply lasted six months, which it scarcely does.

"At Mr. Rolston's, of Dunduff, near Carrick, the dwelling-house and homestead are on a hill, and water is supplied from a still higher level. The tank is an open one, and surrounded by a wall, and cost about £30; and fifty acres are watered by the force of gravitation, which, as they are at a very much lower level, distributes the liquid-manure from the hydrants with great power. The drawback is the expense of carrying the soil home, which is probably about five times that of Mr. Tel-

fer's. Mr. Rolston has this year kept six Ayrshire dry cows, of about 5 to 6 cwt. to the acre, all the summer. Now, if each animal consumed six stones daily*, and the supply lasted six months, the acreable quantity would be about forty tons.

"I think it proved that by the constant application of liquid manure at least from 25 to 30 tons of green Italian ryegrass may be raised from the statute acre, equivalent to from about 7 to 9 tons of hay. Now, assuming $8\frac{3}{4}$ tons of rye-grass = $2\frac{1}{2}$ ton of hay to be a good crop under ordinary circumstances, we have a gain of $6\frac{1}{2}$ tons of hay, at the outside, to the production of which Mr. Telfer has expended

1 ton guano—say.....	£11	0	0
8 cwt. of the share per acre and oil-			
cake consumed, at 10s.....	4	0	0
	—————15 0 0		

and, if hay is valued at £4 per ton, he has made a profit of £11, a very considerable sum, but not involving the question of 50 instead of 5 sheep.

"I have no doubt that Mr. Telfer and Mr. Kennedy have weighed and measured fairly what they undertook, but suspect that the small sample taken was the *best*; and compare their general returns with those of the Royal Dublin Society, who placard mangel crop 110 tons to the acre, which, if every root was equal to the prize, might be *just possible*."

ON FEEDING OFF MILDEWED GREEN CROPS.

I have never known such a general attack of mildew upon the turnip crop as this season presents. It is equally bad upon the coleseed (rape-seed) crop. Some fields of the latter, within my observation, have become valueless. One instance I name, in particular: it was a field, fairly grown, containing much green food: the whole, with a few trivial exceptions, was so virulently attacked as to gradually droop and decay. Many others are nearly as far gone; and the whole crop, so far as I have seen it, is most injuriously affected. The turnip crop is more varied. Some fields have escaped without serious damage; as a whole, however, the crop is generally injured. The early swedes and common turnips suffered most.

The disease is so well known, I need not describe it, nor its effects upon these crops, further than to say that it greatly retards their growth, prevents the acquirement of those constituents in the bulb of the turnip which gives to it its nutritive qualities, and in its top or leaves, as also in the coleseed plant, causes them to become woody and fibrous; and therefore comparatively indigestible. Moreover, nearly all the lower leaves and branches are decayed, and most of them dead and rotten.

With the view of preventing great losses in our flocks from the consumption of this unwholesome food, I have called attention to it. I regret to say that little has at any time been recorded by our writers on sheep husbandry upon this subject; in-

deed, not much scientific attention has yet been given to the diseases of sheep in general, the past few years excepted, and the acquired knowledge of these years is not widely diffused. I have searched, in vain, for useful information upon this point; all I can gather is this (and it is well known to every one) — that the feeding-off, for any lengthened time, any unwholesome or indigestible food, will produce inflammatory symptoms, which, if not speedily stopped, will cause death. Now this tendency to create inflammation we want to counteract, to overcome.

I wish some of our talented veterinary surgeons would take up the question, as being one of great importance in a season like the present, when almost every crop in every part of the country is suffering from it. I think they would be able to point out some preventive treatment or useful remedy against its injurious effects. I confess I see reasons for serious apprehension as to the healthiness of our flocks during the ensuing winter, and I earnestly beg all flockmasters to look well to them, to keep a watchful eye upon their progress, and if that is not satisfactory, by all means resort immediately to the usual course of change of food, or the addition of those invaluable aids to the consumption

* 2lbs meadow hay = 120lbs. turnips; and, according to Mr. Telfer's calculation, of 3.5,

6 stones soil = 10 stones turnips, or

= 8 stones turnips, and 27 lbs. of wheat straw.

—Johnston, p. 1,020.

of green crops—cake, corn in nearly all its varieties, malt-comb, chaff, hay, and even plenty of good straw, both to eat and for lair. Common salt is an excellent condiment. Rock salt is good, and twice during the winter the sheep should have a diuretic drench. It should be remembered that nearly all flocks have had a very trying summer: the

drought caused great scarcity both of food and water, consequently they are not so well prepared for wintering, even if the winter food was never so good and nutritious; but to put ill-conditioned flocks upon unpalatable indigestible food is sure to be followed by great loss, unless timely foreseen and provided for.

ON THE MANUFACTURE OF FISH-MANURE.

At the last sitting of the Imperial and Central Agricultural Society, Messrs Payen and Pommier presented their report of the examination made by them, on behalf of the Society, of the works at Concarneau, where Messrs. De Molon and Thurneysen have established a manufacture of fish manure, on the same principle as that formed by them three years since on the Island of Newfoundland. We extract from that report, presented by M. Pommier, the following passages, which appear to us deserving of the serious consideration of agriculturists and others, interested in the largest possible development of our agricultural capabilities.

"As soon as his younger brother was established at Newfoundland, M. de Molon, who had secured the co-operation of M. Thurneysen, was desirous of having, in France also, a similar manufacture, which, under his immediate inspection, might enable him to give greater efficiency to the means of manufacture, and to afford to all, a practical confirmation of facts, the importance of which has for a long period been the settled conviction of his mind. He therefore established a factory at Concarneau (Finistère), between L'Orient and Brest.

"At your sitting of the 3rd of July, you appointed M. Payen and myself to visit this factory, and I now present to you the results of our investigation.

"Concarneau is the chief place of the Canton, situated about 24 kilometres from Quimper. This place is easy of access from many points of the high road from Nantes to Brest, by good local roads, made about ten years since.

"This little city, which scarcely contains 2,000 inhabitants, is situated on a rock in the middle of a bay formed by the ocean, in which it has a good port. Formerly the only access to it was by a ferry-boat; but now on the north side there is a bridge, whilst on the south side, it is still accessible only by the ferry or other boats.

"The population of Concarneau are almost entirely fishermen, and from 300 to 400 boats are annually employed in the Sardine fishery. The curing of the fish is almost the only employment of the people.

"M. de Molon has fixed his establishment at the bottom of the port, and the boats load and unload under the very walls of the factory. When in full work it can manufacture 5,000 kilogrammes (upwards of four tons) of fish-manure per day, in a perfectly dry state. This quantity represents about from 16,000 to 20,000 kilogrammes of fish, or refuse of fish in a fresh state.

"M. de Molon obtains for it all the refuse of the fish-curing establishments of Concarneau, as well as those of L'Orient; besides all those coarser kinds of fish which were formerly thrown again into the sea, or left upon the quays and beach of Concarneau, to the detriment of the public health.

"The factory building is constructed entirely of poplar boards, in the most economical way; and the following is the apparatus contained in it for the manufacture of the fish-manure:—

"A steam-engine of ten-horse power, and a steam-boiler of eighteen-horse power; two double coppers, for cooking the fish by heat, and hung on gudgeons; twenty-four lever presses, to press the fish after cooking; a rasp, similar to those used in the beet-sugar manufactories; a large stove, heated by one of Chaussenot's calorifiers; a conic mill, similar to a coffee or gypsum mill.

"The following are the details of the different operations in which these utensils are employed:—

"The fish or refuse, is first put into the inner receptacle of the boiler, which contains about 500 kilogrammes*. The charge being completed, and the copper hermetically closed, a jet of steam is introduced between the outer and inner sides, heated to about $3\frac{1}{2}$ atmospheres. The steam circulates between the two sides of the boilers, which are only about two inches apart, and into a tube about eight inches diameter, placed upright in the inner boiler. An hour suffices to complete the cooking; when, by an easy movement, the copper is made to turn upon the gudgeons, the steam escapes, and the cover being removed, the cooked fish falls on the floor, and is immediately conveyed by the workmen in baskets to the presses, which are placed near the coppers.

"Considerable difficulty was experienced, at first, in contriving to submit the cooked materials to the action of the presses, without losing the most valuable parts; but this difficulty has been overcome in the following manner:—

"Under each press is placed a cylinder of iron, about 16 inches high and 12 in diameter. This cylinder, strengthened by four small iron hoops, is pierced full of very fine holes. The cooked fish is put into this cylinder, which is placed over a wooden plate adjusted

* One of the coppers would hold from 800 to 1,000 kilogrammes.

to its interior circumference. The cylinder being filled to the top, another wooden plate is placed upon it. A weight or two are put upon the plate; and when all the cylinders are charged, one of the workmen turns alternately the screw of each press. In proportion as the pressure takes effect, the water and oil contained in the fish are seen to drain from the holes in the cylinder. These liquids flow through troughs placed beneath, into a common reservoir, under which are casks, so arranged that the overflow of one is received into the next, and so on till the whole are filled, without any other trouble. After remaining some time, the oil swims at top, and is collected into barrels, and placed in the vaults. The average quantity of fish-oil thus extracted, amounts to nearly $2\frac{1}{2}$ per cent. the weight of the fresh fish.

"When the cooked fish is pressed sufficiently, the presses are loosened, the cylinders raised and turned upside down, in order to draw off the liquids that may have accumulated on the surface. Then, by striking the lower wooden plate, the pressed fish drops from the cylinder in the form of two compact cakes, each about four inches in thickness. These cakes are then taken and placed in the hopper of the rasp, which, being worked by the steam-engine, soon reduces them to a pulp. This is conveyed by children to the stove, which occupies the first storey, and is about 60 feet long and 16 feet wide. It is divided into five compartments of about three feet wide each. Along these are placed 20 boxes, 39 inches long by 34 wide, with a bottom of coarse cloth. On these are piled four other boxes to each, making in each compartment 100 boxes, or 500 for the whole stove.

"An opening, closed with a moveable board, at each extremity of the stove, corresponds with each of the five storeys of the compartment, and in the interior of the stove each series of boxes is placed upon boards. When one of these boxes is charged with the cooked fish, it is placed in the stove at the opening referred to above. A second drives it forward, the third the second, and so on until the whole 20 are placed in the compartment. A board is then put over the whole, and a second tier is driven in, in like manner; then the third, fourth, and fifth; when the compartment is closed. This operation of charging the whole stove occupies about two hours.

"A current of air, heated to about 60° or 70° from Chaussonot's calorifier, and drawn by a draught chimney, circulates through these five compartments, in proportion as each of them is charged with the boxes of fish. As soon as the last tier is inserted, the first, which is then dried, is withdrawn, and fresh tiers are placed. The operation is very simple. A child, placed at the upper end of the stove, places the newly-filled box, which pushes, without any great effort, the whole series of boxes placed seriatim on the plank, and drives out at the lower end, the first of the 20 boxes of dried matter, which is received by another child. Another box is then introduced, which performs the same operation, and so on until the whole of the dried boxes are removed and replaced by the fresh; the workmen or children being protected from the heat, which is confined to the interior of the stove, and being able at the same time to

communicate with each other respecting the work by means of the compartments, which serve to convey the voice.

"This stove is worthy of all your attention, as forming one of the most important branches of the system of M. de Molon. It dries quick, and with regularity, expending comparatively but little fuel, 100 kilogrammes of charcoal per day, being sufficient for heating the calorifier. The putting in and withdrawing the materials, subjected to the action of the heat being all exterior, the workmen suffer nothing from the operation; and we have shown you with what ease the continuous use of the stove is rendered available.

"As the dried matter is withdrawn from the compartments, it is laid on one side upon a floor, from whence a child, by means of a shovel, throws it into the hopper of the mill, by which it is reduced to powder perfectly dry and fine. The specimen of this powder now presented to you, was taken from under the mill.

"From the mill, it is put into sacks or barrels for sending away at the instant, in order that no opportunity may occur for introducing extraneous matters. The proportion of dry and pulverized manure obtained, is equal to 22 per cent. of the fresh fish.

"For all the processes, they employ in the establishment of Concarneau only six men, at 1*fr.* 25*c.* each per day, and ten children, who are paid from 50*c.* to 60*c.* per day. With these, without any night work, the manufactory can turn out from 4,000 to 5,000 kilogrammes (nearly five tons) of dry manure, which represents nearly 18,000 to 20,000 kilogrammes of fish, or refuse of fish, in the natural state.

"By working at night, which will take place next season, after a more regular and complete arrangement for obtaining the fish, the establishment will produce in 24 hours, from 8,000 to 10,000 kilogrammes of manure. M. de Molon estimates the number of working-days at from 200 to 230, during which the fishermen can work in the course of the year. If we reckon only 200 days, the establishment of Concarneau would, therefore, produce 1,600 to 2,000 tons of manure per annum. This would be sufficient to dress from 5,000 to 6,000 hectares (or from 12,500 to 15,000 acres) of land, at the rate of 300 to 400 kilogrammes per hectare. This quantity, according to the return in dry manure, of 22 per cent. of the weight of green fish, represents an annual fishery of from 9,000 to 10,000 tons of fish.

"The Sardine fishery, and the refuse of the manufactories formerly thrown away, may furnish nearly half this quantity; but M. de Molon suggests a means which affords a certainty of obtaining, at Concarneau, still greater quantities of fish than are stated above.

"At the time of the wars of the Empire, during the blockade, cod-fish was extremely scarce in France. There was then caught on the coast of Bretagne a fish called a "merlue," a species of cod, which was dressed and salted, and sold in immense quantities for the use of the peasantry. There are periods when these fish are met with in shoals, but at present the fishermen do not go after them, because they have no sale for them :

but Providence directs us thither now, that we may take the fish and make use of them in another manner.

"The establishment at Concarneau, with the means of fishing that Messrs. de Molon and Thurneysen intend to procure (namely, 60 or 70 well-equipped boats) might, therefore, by doubling his present apparatus, (which has been foreseen and provided), quadruple the quantity of dry manure that is now produced, by working only ten hours per day.

"We have stated above, that the *personnel* of the establishment consist of six men and ten children; we should add, that the consumption of coals is 230 kilogrammes (rather above 4 cwt.) per day. Of this, 130 kilogrammes are consumed by the steam-engine, and 100 kilogrammes by the Chaussonot Calorifier, which heats the stove. We should also add, that the fish oil extracted by the presses, is in the proportion of 2½ per cent. of the live weight, and that it sells readily at from 80c. to 1f. per kilogramme (or from 4d. to 5d. per lb.). Lastly, the manure sells at 20f. per 100 kilogrammes (or about 9s. per cwt.) at the port of shipment. We have also ascertained by analysis, that the fish-manure contains 12 per cent. of azote, and 22 per cent. of phosphate.

"The most competent authorities in England, estimate that the cultivator ought not to pay more for azote, than 5½d. the English pound, or 1f. 26c. per kilogramme; and for phosphates, not more than 1d. per lb., or 23c. per kilogramme; for phosphoric acid 3d. per lb., or 69c. per kilogramme. Let us now take these prices and apply them to the fish-manure, and we shall obtain the following result of 100 kilogrammes:—

	Fr.	Cent.
12 kilogrammes of azote at 1f. 26c.	12	12
22 ,, phosphates at 23c....	5	06
Value.....	20	18

You have seen above, that M. de Molon had fixed the price of the fish-manure at 20f. the 100 kilogrammes. On the same principle the price of guano might be ascertained thus:—

	Fr.	Cent.
10 per cent. of azote at 1f. 26c.....	12	60
14 ,, phosphate at 23c.	3	22
Value.....	15	82

"According to this, 100 kilogrammes of guano is worth 4f. 36c. less than 100 kilogrammes of fish manure, and is sold at from 8f. to 10f. more—that is to say, at 28f. to 30f.—at Havre. In other words, the fish manure will produce the azote to the farmer at 1f. 26c. the kilogramme, and the phosphate at 23c. the kilogramme; whilst, in the form of guano, the azote costs 2f. 20c. the kilogramme, and the phosphates 50c. the kilogramme. This shows the importance to the farmer of the introduction of fish manure.

"The details of the factory, as taken from the books of the establishment, have convinced us that the manufacture of fish manure is an industrial operation which must yield great profits upon the capital engaged in it—a circumstance which we refer to, only because it im-

parts an incontestable character of permanence to an enterprise, which must necessarily bestow immense advantages upon agriculture, whose interests always occupy the first place in the sympathies of the Imperial and Central Society.

"As we have stated above, the factory at Concarneau was founded by Messrs. de Molon and Thurneysen only as a type of those which they may establish, not only on other points of the French coast, but also abroad. Already, Messrs. de Molon have, at Newfoundland, a manufacture which can, in its present condition, furnish annually, from eight to ten thousand tons of manure; but they propose, as well on that coast, as upon others in the North Seas, to form large establishments, which may, according to their estimates, supply to our agriculture, a quantity of fish-manure at least equal to that which is extracted from the Peruvian Isles in the form of guano—that is to say, from 300,000 to 350,000 tons per annum.

"The quantities of fish which are enclosed in certain seas, at different periods of the year, are so great, that they dare not state the amount for fear of being accused of exaggeration; and yet the imagination, in dwelling upon the immensity of the ocean, may readily figure to itself the innumerable quantities of animals which it encloses, and which Providence, as we have already remarked, has placed within our reach, to afford us the means of satisfying the ever-increasing wants of humanity.*

"The Committee whom the Society has deputed to examine the memoir of M. De Molon, will tell you, gentlemen, what amount of azote and phosphate can be furnished by the quantity of fish-manure, which they propose to manufacture and introduce into France. Our object here, is to give you an account of what we have seen and learned, in the visit you have directed us to pay to the factory at Concarneau.

"There we have been able to verify, that the facts advanced by M. De Molon were perfectly correct, that the agricultural population of the country, who have made trial of the manure, see in it, on their part, the

* "The produce of the cod-fishery of Newfoundland, reckoning the fresh fish, amounts annually to 1,400,000 tons, of which about 700,000 tons are made use of, and 700,000 tons cast, in pure loss, into the sea, or left on the shore. If these 700,000 tons of refuse of the fish, were collected, pressed, dried, and pulverized, they would produce more than 150,000 tons of a powder, containing all the properties of the best Peruvian guano.

"Copy of a correspondence from the United States:—

"All the south portion of the State of Connecticut being bounded by the Long Island Strait, the agricultural interests of that portion of the territory are prodigiously favoured, in consequence of the rich manure procured by the immense quantity of fish which are annually caught in the Strait during the month of May. The nets used in this fishery, are so large, that they contain at once half a million of fish called "white fish." This fish weighs from one to two pounds each. I have sometimes even seen 800,000 taken at one single draught of the net. This fish commonly sells from 50 to 75 cents the thousand. 5,000 fish are the load of a cart drawn by a bullock. It is sold upon the spot to the farmers, who come for them, and convey them for many miles round, to be made use of immediately. Still more frequently, they make a compost of them, with turf or peat, and straw. This compost is used in several kinds of culture."

prospect of an immense progress in the production of their fields; and that the maritime population find in it also, a source of employment and of comfort, hitherto unknown in those countries, where the fisherman has, until now, had only one season, the Sardine fishery, for the employment of his industry.

"You will also, like ourselves, be struck with the projects of Messrs. De Molon and Thurneysen, in a maritime point of view; the coast-fishery, and that, above all, of the North Seas, being the best nursery for our naval marine.

"On these several accounts, it appears to us, that the Imperial and Central Society ought to take into very high consideration, the facts which have been brought before them on the subject of fish-manure; and it is as an instruction which ought to be used in that examination, that we pray you to send the present report to the Special Commission, which is to make a general report to you, upon the important works of Messrs. De Molon and Thurneysen*."

CHAINED DOGS.

Why is hydrophobia rare among dogs that are in a wild state? Why among those thousands of native scavengers which swarm in the sultry streets of southern cities is this dreadful disease unknown? Why in this country is it almost invariably the case that a chained dog is the *first* to suffer, break his chain, and communicate his malady to an indefinite number and extent? The scourge of hydrophobia, we firmly believe, among many other affections, is attributable to the ignorance and cruelty of man. This boon—this blessing—this friend and most faithful of all dependents, the dog, which the Creator in his mercy has bestowed on us, we treat with ingratitude and ignorance beyond credibility. We too often (but this wickedness is, let us hope, of rare occurrence) repay his fidelity with blows. We heap diseases upon him; for distemper, mange, and hydrophobia man perpetuates, by assuming modes of treatment at variance with the dictates of nature.

Heat of the dog-days, as the cause of hydrophobia, is a chimera; the weather is hotter in the east. No; the cause is thwarting the instinct and habits of the dog. No one can be ignorant of the fact, that dogs frequently eat grass; but few persons have either reasoned upon the subject, or given themselves the trouble to procure for a chained dog the vegetable condiment which nature has rendered necessary for him. Dr. Darwin has enumerated among his "fifty signs of rain," that dogs

"Leave mutton bones, on grass to feast."

* "M. De Molon has united to his manure-manufacture, that of Sardine oil, according to the Appert process. We mention this fact to you only as an accessory, and to make you aware upon what a vast scale Messrs. De Molon and Thurneysen have developed their useful enterprise."

People read and know this, but there the subject terminates. They have no sympathy with the noble animal—the mighty guardian of his property; chained for months perchance, and quite unable to obey the dictates of his nature. Who can say how a devouring yearning to obtain that which his system may require, with a sense of total inability to procure it, may act upon his frame?

We were led to pity and assist all canine prisoners by a circumstance which occurred within our own ken. A dog showed stringent symptoms of uneasiness while chained; and, anxious to discover the cause, we let him loose, when, instead of leaping and fawning upon us as he had been accustomed to do, he darted away into a field, and began eagerly to devour the leaves of couch grass; nor would he cease and notice his master for a considerable time. Since then our garden, which used to abound in that troublesome weed, is clear; it has totally disappeared, the dog having by degrees eaten the whole of it. Cats, too, will seek it very frequently.

We earnestly entreat that all owners of dogs will allow them liberty, if but for the space of one hour daily. And we further advise that those animals in particular which are restricted from taking regular and sufficient exercise should not be fed upon animal substances exclusively; biscuits, pollard, potatoes, &c., ought to form a large proportion of their food: the former is too gross, heating, and exciting, unless the animals have constant hard running in the open air.

DAMAGE DONE BY GAME NOT RECOVERABLE AT LAW.

TO THE EDITOR OF BELL'S LIFE IN LONDON.

MR. EDITOR,—Knowing how many abuses you expose, I forward you this piece of information, which I know the farmers are not yet acquainted with. At the Sheriffs' Court, London, a plaint was returned on Saturday, October 28th, 1854, when the judge, Mr. Russell Gurney, said, 'There was no law for the recovery of damage done by game, whether many or few, whether one or a thousand.' Now, as I know one third of the crop referred to in the plaint was destroyed by rabbits and hares, I want to know how the poor are to be protected from these incursions upon their bread? One-third less crop, occasioned by preserves, is charging the poor man threepence more upon every loaf. Surely, sir, I think if there be not a law, there ought to be one, whereby farmers should recover damages done by game and rabbits. Efforts are made in France to preserve corn exclusively for bread; ought we to waste our corn wantonly, through these times of war? I should be very happy to think it an oversight of the legislature; and believing the attention of the legislators can best be called to this fact by its being noticed in your journal, I send this notice for publication.—Yours, &c.,

JOHN GROSSMITH, Farmer.

Banstead Downs, Surrey, Nov, 6th, 1854.

THE PRESENT SEASON.

WHEAT SOWING.—The present season has its peculiarities; to take advantage of it on the one hand, and to avoid its disadvantages on the other, should claim the attention of every farmer. The unprecedented drought has placed the majority of soils in such a state as to lead to great difficulty in determining the best course to be pursued in conducting the wheat seeding. This autumn is the best ever known for the facilities it has given for the working and cleansing of the land; immense breadths have been broken up, and it has undergone such a thorough pulverisation as to make it more like a turnip fallow than a prepared seed-bed for the wheat crop.

We pointed out, in our last, one or two courses to be adopted with the view of taking some advantage of the season; we wish now to direct attention to certain points to be avoided, or this beautiful autumn may prove disadvantageous, and the crop be irretrievably ruined.

The soil, to be properly prepared to receive the seed-wheat, should be broken up to the depth of at least five inches, and, if possible, it should be so managed as to make a partially consolidated bottom with a well pulverised and friable surface to the depth of at least three inches. Observe, the bottom should possess such a degree of firmness as will permit the rootlets to take a fast hold of it, and thus retain the plant through the winter, but not so firm as to prevent this. If the soil is loose and open, light and mouldy, great danger will result. The plant will become on some soils winter-proud; on others it will "heave itself out," and expose the roots; and on some be lost altogether. Now the farmer's best judgment must be exercised to correct this. No one can tell what is best to be done without seeing the precise field, and noting its state, as also the means and appliances to be adapted to the season and the object in view. If the season continue dry, the roller of course is the proper implement for attaining this desideratum, followed by sharp-toothed harrows; if wet to any extent ensues, it is best to wait this really natural consolidation, and sow when the surface is in a satisfactory state for that purpose. It is seldom that much loss arises from a reasonable exercise of patience; but every one knows the contrary is the case from unreasonable haste. It is of far greater importance to put the seed in properly, than to persist in putting it in when land is not in a fit state to receive it. Thus far, this season has been so propitious as to make it unpardonable to complete the sowing in an improper

or slovenly manner; if it is ever to be put in right, surely this is the very season to do it—it merely requires the farmer's attention and corresponding effort.

We have said the surface should be friable to the depth of three inches. This is, in our opinion, about the proper depth to deposit the seed on nearly all soils; on heavy clays or loams a trifle shallower, on land liable to lose plant a trifle deeper; but on no account would we deposit it much deeper than three inches, not only because it is too long in making its appearance, and then looking sickly, but rather because it expends too much strength in the soil against the period about which it takes its coronal shoots. To produce the most luxuriant plant, and to yield the most satisfactory crop, it should not receive any serious check from the time it is put in to the time it is ripe for harvest. In this there is ample scope for the judgment of the cultivator: he should possess an accurate estimate of the fertility or richness of the soil to be sown, and should provide accordingly for every eventuality. It is a very common error to sow land which is in too high condition for the wheat crop, and many absurd regulations yet exist between landlord and tenant relative to courses of management which prevent the adoption of a better course: such rich fertility should be reduced by a potato crop, or a seed or pulse crop. We would say once for all, that wherever a farmer cultivates so highly, he is entitled to take whatever crops he may desire to reap.

To obviate difficulties of this kind, *i. e.*, the production of too much straw, many modes of prevention are resorted to. The principal one, and the only one we shall now notice, is the variety of seed and seeding.

On all rich soils we would sow the best short-strawed variety of *red wheat* we could procure on all infertile soils the long-strawed varieties are better: on all lands liable to mildew clean-strawed *red wheat* should also be sown. Red wheats are more hardy and less liable to injuries than the white varieties, and are most to be preferred for any unusual course—such as late sowing, &c. The white varieties may be advantageously sown on all lands likely to produce the grain of beautiful quality; but in all other cases the red varieties are to be preferred.

The quantity of seed to be sown per acre is a very important point: much, of course, must depend upon the state of the land, the period of sowing, and variety of wheat. Wheat subject to much tillering

may be sown thinner than other varieties; taking, however, all things to be fair and right for seeding, it will be found that six pecks of good wheat will be a sufficient seeding per acre before the middle of November; and after that time, it should be increased till it amounts to eight pecks, and a little more or less, according to the weather and the state of the land, and the various probabilities attending a protracted season. Thick sowing is not only a waste of seed, but it prevents the due development of the wheat plant: better to have a moderate number of fine full ears than a larger number of small thin ones. If the plant is not too thick, it will more readily keep up through every vicissitude; if thick, the

plants are weak and are soon laid. In all cases it is best to sow good grain, and the more bounding in flour the better.

In procuring seed, as a general rule, it is best to select from a cold to a genial climate, from a chalky to a loamy soil, from clay to sand, from peat to any soil, and *vice versa*. A change of seed of approved stock is generally beneficial, and may often be made without great cost: from hill to valley, and *vice versa*, is good. This is a change of climate often to be made on the same farm; and so in other cases, attention is merely required to these details in business, and for which the farmer will be amply repaid.

UPON THE ECONOMISING OF FEEDING SUBSTANCES.

Economy in the consumption of feeding substances in the maintaining and fattening of the domesticated animals is a question bearing directly upon the profits of both arable and pastoral husbandry. Upon arable farms the feeding of animals is now deemed equally important with the raising of grain—the latter being greatly dependent upon the producing of a liberal supply of manures, either by fattening animals, or by purchasing manures. The first consideration, however, in the fattening of animals should be the profits derived directly from the food they consume, and not the profits derived indirectly from the manure through the increase of corn. Both are elements to be taken into the estimate; but as the latter is necessarily less certain or appreciable, and has moreover been unduly exaggerated, the farmer should keep always steadily in view the profits derived from feeding. Were less reliance placed upon the manure, the principles of feeding would be more carefully studied. The vague idea entertained by many farmers, that “what is lost in the feeding will be got back again in the manure,” obviously tends to the continuance of errors which militate against the progress of sound practice. The defections of animals always bear a relation to the nature of the food which they consume. That which is assimilated by the animal cannot appear again in the manure. What is not assimilated or consumed in maintaining the animal heat will doubtless be found in the defections; but it certainly is not the object intended, in feeding animals, that they should be made conduits for the conveying of substances to the manure heap, containing more or less the elements of fertility. What they feed upon should go to the building up of muscles and fat; and to effect this at the least waste of the feeding stuffs is

gain, and consequently should be the aim of the feeder.

To accomplish this, it is important that, besides a judicious selection of the substances employed in feeding, they should be furnished to the animal in a condition most easily assimilated. Hitherto farmers have generally contented themselves giving the food in a raw state; and beyond the turnips or breaking the cake into small pieces, no other preparation is attempted. Colonel M'Douall, of Logan, found that by giving a cooked mess of 3lbs. of oat-straw cut, boiled with 3lbs. of bean-meal, he reduced the quantity of Swede turnip consumed by one-third; 80 to 100lbs. of turnip per day being, along with this, found sufficient for ordinary-sized Galloway oxen. The average consumption of turnip by ordinary-sized cattle is known to be at the rate of fully 150lbs. per day.

In France, we found that a practice lately adopted there, and in Belgium, was coming rapidly into favour, viz., grating down roots such as the beet, and mixing them with cut straw and hay, and allowing the whole to set up an incipient fermentation for two or three days. The animals receiving such food make much greater progress than when the same proportion of food and cut in the same manner is given fresh to feeding stock. It is found advantageous to exclude the air as much as possible from the mass after it is mixed. The change which the grated roots and the straw and hay undergo is believed to be chemical, the saccharine principle being partially developed by the fermentation. If this French and Belgian practice is ascertained by experiments here to be founded on a sound basis, it will go to modify the Scottish system of feeding, in giving turnips with *raw ad libitum*.

The practice of cutting fodder has been somewhat unaccountably neglected in Scotland. Many farmers are of opinion that straw contains no feeding qualities, and that beyond correcting the laxative tendency of turnips, the less the cattle eat of it the better, and that cattle cannot consume too many turnips per day to hasten the process of fattening. Now there can be no greater mistake than to suppose that straw does not contain the elements which go to form muscle and fat. Boussingault, the highest scientific authority on feeding, has found that the fattening qualities of straw are as follow. The estimate is given in two forms, in one of which nitrogen is taken as the most essential principle, the other, the fatty matter contained in the straw, taking meadow hay as the standard.

Water. Nitrogen. Equivalents.

Meadow hay ..	18.	1.35	1.00
Wheat straw ..	29.	.36	4.00
Barley do ..	21.	.30	4.00
Oat do ..	21.	.36	2.50
Swedish turnip ..	92.	1.83	3.00
Turnip ..	92.	1.70	4.00
Beet ..	87.	1.70	3.00
Beans ..	15.	5.50	.40
Linseed cake ..	18.	6.00	.31
Colza cake (rape)	13.	5.50	.23

Of fatty matter the following are the proportions:—In oats, 5.5; bran, 5; hay, 3; wheat straw, 2; oat straw, 5; beans, 2; oilcake, 9. It will be seen from the last form of estimate that the fatty matter contained in oat straw is more than one-half of that contained in oilcake, and is equal to the quantity contained in the oat itself. In wheat straw, the fatty matter is about one-fourth of oilcake. There can be no doubt, therefore, but that straw does contain the elements of nutrition in a considerable degree. It is because these are not so concentrated as to admit of animals obtaining enough in the quantity they can consume for their structural formation, that renders straw only useful as an adjunct. It will be seen that the quantity of water in the turnip is so great that it may be in many cases advantageous to increase the per-centage of dry food, to counteract the effect of such a quantity of cold water being supplied to the digestive organs. Cattle kept upon turnips, particularly the white varieties, and without any other feeding stuffs but ordinary straw, have generally the dejections so relaxed that a low form of diarrhoea is induced, which generally continues for some weeks, till a change to yellow or Swede, or to grain in part, takes place. Now this can neither be in accordance with a high state of health in the animal, nor in extracting the largest amount of the nutrition of the food obtainable by the system.

It would therefore appear that an entire change, or at least a modification of the present system of

fattening cattle in this country, will, with an advance of knowledge, take place. At present the most approved practice appears to be, to give a supply of highly concentrated food, such as cake and corn, along with roots, rather than to take means to render the more bulky and less valued substances, turnip and straw, more available. The high price, however, at which grain now stands, and also the price of linseed cake, from £10 to £12, demand caution in the use of cake and corn this season in fattening animals, and will probably induce more attention among farmers to the preparation of turnip and straw.

Rape-cakes which generally sell at one-half the price of linseed-cakes, contain by analysis the same amount of the nutritious elements; indeed, generally the balance is in favour of rape-cakes, from containing more oil. Notwithstanding this fact, from the evident dislike which animals once accustomed to linseed cakes, or which have not had rape-cake when calves, evince to rape-cake, farmers have a decided prejudice against employing it as a feeding substance. The dislike of cattle arises from a particular bitter extract which all rape-cake more or less possesses. If rape-cake therefore could be rendered more palatable, there is no reason why it should not sell at the same price, as a feeding stuff, as linseed cake. This can be effected, in part, by two methods—by grinding the rape-cake into meal, and mixing it with about one-half of bean, oat, barley, or maize meal, or bran, which indeed contains nearly the same amount of nutriment as oats—viz., 5 per cent. of fatty matter. This compound, given to the cattle as meal, at the rate of 5lbs. per day, will generally repay the outlay. A still better practice, however, is to make it into a jelly, and mix it with chopped straw, and afterwards given to the stock. Those adopting this latter method require only the erection of a boiler of malleable iron, of ordinary dimensions, and with the expenditure of no great amount on coals and wages for the attendant, a valuable auxiliary for turnip can be obtained.

In feeding sheep, no such preparation is necessary to induce them to eat rapecake. It is now several years since Mr. Pusey called the attention of the agricultural world, through the columns of the English Journal, to his success in substituting rape-cake for linseed-cake in the feeding of sheep. The practice has taken hold in England, but appears not to have recommended itself to Scottish agriculturists. Any of our readers who would undertake an experiment with a lot of sheep, divided into equal portions, and folded upon the same fields of turnips, and the two cakes, linseed and rape, employed as an auxiliary at the rate of 1lb. per day per head, would confer a favour on agriculturists,

and, we believe, would obtain information which they in future would find profitably available in their own practice. There can be no doubt that if the dislike to rape cake can be got over, its feeding properties, weight for weight, are equal to linseed-

cake, and we repeat, as the present price is only half of linseed-cake, beef and mutton can be manufactured by the use of rape cake at a lower rate than by that of linseed-cake.—North British Agriculturist.

ON THE USE OF TOWN SEWAGE AS MANURE.

The importance, both in a sanitary and agricultural point of view, of the sewage question, and the amount of misconception which prevails respecting it, render unnecessary any apology for attempting to diffuse, as much as in our power, sound chemical knowledge of the subject, by continuing our abstract of Professor Way's paper on the use of town sewage as manure.

Having shown the futility of attempts to separate a good manure from it, by filtration of the small quantity of solid matter which it holds in suspension, he proceeds to discuss the various schemes which have been proposed for obtaining, by chemical treatment, the much larger and much more valuable amount of manuring matter which it contains in a state of solution; such as ammonia, potash, and phosphoric acid. The substances which it has been proposed to employ for this purpose are the various forms of charcoal, also lime, gypsum, clay, both burnt and unburnt, salts of zinc, iron, and magnesia, in some cases separately, in others in combination.

Of charcoal, there are several kinds; the most important of which are bone or animal charcoal (made by burning bones in a close retort), peat charcoal, and wood charcoal. Bone charcoal is a valuable deodorising substance; but the supply is limited, the demand for it in certain manufacturing processes considerable, and the price as high as £10 and £12 per ton. Peat charcoal is also a good deodoriser, and much cheaper, costing only £3 or £4 per ton. Wood charcoal is more expensive, and a less effective deodoriser than that made from peat, and it appears to have been employed but little in practice for that purpose.

Charcoal absorbs ammonia and other gases, by virtue of its porosity, in consequence of that surface attraction which all solids exert upon gases, and which, in the case of charcoal, is increased by the extended surface which its numerous pores present. But water also possesses this attractive property in a very high degree, more particularly over those gases which it is capable of dissolving largely. Consequently, when water comes in contact with charcoal saturated with ammoniacal gas, its superior attraction transfers the ammonia from the charcoal to the water. It is, therefore, a mistake to suppose

that charcoal will separate ammonia and its salts from water, because it has the power of absorbing ammonia from the atmosphere. Charcoal, it is true, separates some organic matters from solution. The colouring matter of sugar, for instance, is removed by animal charcoal in the process of refining; but this power is very limited, and only applies to a small class of substances. The most valuable organic matter in sewage, supposing it be fresh, would be urea; but it is useless to think of removing this by means of charcoal because charcoal is used to free coloured solutions of urea from the colouring matter which they contain: it removes this, but leaves the urea in solution. There are two ways of employing charcoal in the preparation of manure from sewage—either by forming it into a filter bed, through which the sewage is passed, or by mixing it in tanks with sewage, unfiltered, or filtered through wire-gauze, perforated zinc, or coarse cloth, and then drying the pulpy faecal mass. In whatever way it is used, it removes nothing of importance from actual solution: it only separates and renders portable the solid matters in suspension. It is a deodoriser, a drier, and a carrier; but nothing more.

Professor Way next treats of the uses of lime in the preparation of solid manure from sewage water. Sewage, as it comes from the London sewers, filters with difficulty. Lime is used to coagulate it, and to promote the separation of the liquid and solid parts, after the manner in which beer or coffee is fined with isinglass. Lime promotes this coagulation in sewage water, chiefly, we may suppose, by neutralising the carbonic acid with which it abounds, and which holds in solution carbonate and phosphate of lime, and other salts. Lime will, therefore, separate from sewage water all the substances contained in it, which are dissolved in acids: it will precipitate phosphate of lime, and separate phosphoric acid from its soluble combinations: it also separates certain organic matters, with which it forms compounds. Here then, we appear to have the very substance required to enable us to reduce to the solid form the valuable manuring substances which sewage water holds in solution. These advantages, however, are neutralised by the large amount of carbonate of lime which is contained in

manure thus prepared. In analyzing some samples, Professor Way found them to contain from 30 to 60 per cent. of carbonate of lime. The farmer, therefore, who purchases it, is buying, at a dear rate, a manure, nearly one-half of which is no better than chalk, with a small proportion of phosphate of lime, of alkalies, and organic matters. These results do not arise from the employment of too large a proportion of lime; they are a necessary consequence of the use of lime at all, even in the form of clear lime-water. The carbonic acid thus neutralized is not only that which is produced from the animal matter of the sewage during decomposition: the water with which most towns are supplied holds in solution, before it passes into the sewers, a very large proportion of lime, in the form of the bicarbonate. In London it amounts to as much as 15 grains of carbonate of lime in the imperial gallon. This quantity is increased to 30 grains by the addition of lime water. Now the $437\frac{1}{2}$ grains of solid excrement, produced daily by each individual, is diffused, in London, through 20 gallons of water, which, when treated with a solution of lime, will yield 600 grains of chalk. In other words, the chalk *must* amount to nearly 60 per cent. of the manure.

Gypsum is another substance used in the preparation of manure from sewage, with as much misconception of its properties as prevails with regard to charcoal. Sulphate of lime decomposes carbonate of ammonia in the atmosphere, by formation of carbonate of lime and sulphate of ammonia, the latter a less soluble salt than the carbonate. It is therefore said to be a fixer of ammonia when used in this way. But sulphate of ammonia is a salt just as soluble in water as the carbonate. Therefore, by filtering sewage water through gypsum, we merely convert one soluble salt of ammonia into another: we fix nothing. Gypsum is a good deodorizer of the ultimate manure; but, in attempting to take ammoniacal compounds from a state of solution by the use of it, we let them slip through our fingers. Added to sewage water, it decomposes the phosphates of soda and ammonia, and precipitates the phosphoric acid in combination with lime. The large quantity of carbonic acid, however, present in the sewage must prevent any great precipitate of phosphate of lime.

The researches conducted by Professor Way, on the power which clay possesses, of removing from solution ammonia and almost every substance of manuring value, have led to the proposal of employing clays, burnt and unburnt, as filters for sewage. He repudiates, however, any participation in the plan; as being founded on misconception—that misconception being one of quantity. The most favourable results of his experiments on the power of clay to separate ammonia, gave three grains of

ammonia to 1000 grains of soil, or just 3-10ths per cent. In nature, where hundreds of tons of soil are employed to retain a few hundred pounds of manure, this power is all important; and a soil charged with such ingredients, to the utmost limit of its power of absorption, would be highly fertile; but as a manure it must be laid on in such quantities—20 or 30 tons to the acre—as would be a bar to its use. Such are the effects of clay on the soluble matter of sewage. As a mere mechanical filter, it may answer for purposes strictly local, the manure and the clay being both upon the spot, where the manure is to be used; but for converting the sewage of towns into manure, to be used at a distance, where it is of most value, *le jeu ne vaut pas la lumiere*. The carriage of the clay from the country to the town, and from the town to the country, would cost more than the value of the manure which it had taken up.

We come now to the salts of alumina, which it has been proposed to employ in preparing manure from sewage. They act, like lime, by promoting coagulation of the liquid, and rendering it more easy of filtration. If to a quantity of London sewage a small portion of lime be first added, and then a small quantity of sulphate of alumina, a flocculent precipitate is formed, which speedily subsides, carrying down with it all suspended matters, and leaving the liquid bright and clear. As an adjunct to filtration, Professor Way regards the salts of alumina as the best that have hitherto been proposed; but they perform no other office: they separate from a state of solution neither ammonia nor any other fertilizing matter.

The consideration of the other substances which are either used or proposed to be used in the preparation of solid manure must be postponed to a future opportunity.

STATISTICS OF MUSCULAR POWER.—Man has the power of imitating every motion but that of flight. To effect this he has, in maturity and health, 63 bones in his head, 60 in his thighs and legs, 62 in his arms and hands, and 67 in his trunk. He has also 434 muscles. His heart makes 64 pulsations in a minute; and therefore 3,740 in an hour, 92,160 in a day. There are also three complete circulations of his blood in the short space of an hour. In respect to the comparative speed of animated beings and of impelled bodies, it may be remarked that size and construction seem to have little influence, nor has comparative strength, though one body giving any quantity of motion to another is said to lose so much of its own. The sloth is by no means a small animal, and yet it can travel only fifty paces a day; a worm crawls only five inches in fifty seconds, but a ladybird can fly twenty million times its own length in less than an hour. An elk can run a mile and a half in seven minutes; an antelope a mile in a minute; the wild mule of Tartary has a speed even greater than that; an eagle can fly eighteen leagues in an hour; a Canary falcon can even reach 250 leagues in the short space of sixteen hours. A violent wind travels sixty miles in an hour; sound, 1,142 English feet in a second.

FALKIRK TRYST.

The following most interesting and truthful account of the celebrated northern market will be read with much pleasure by our readers. It is from a work entitled "Essays on Agriculture, by the late Thomas Gisborne, of Yoxall Lodge, Staffordshire":—

Having carried our readers to the Highlands, we must, at the risk of being somewhat episodal, request that on their return south they will accompany us to Falkirk Moor on the second Monday or Tuesday in either September or October. They will there witness a scene to which certainly Great Britain, perhaps even the whole world, does not afford a parallel. On the Monday morning they will see the arrival on this flat and open moor, of flock after flock, to perhaps the average number of 1,000 in each, of sheep—some black-faced with horns, some white-faced and polled—the individuals of each flock being, however, remarkably uniform in size and character. They will probably observe that the flocks arrive in parts, the first being a draft of wethers, and the second of ewes from the same farm. Each flock will be attended by two or three men, and at least as many dogs. They take up their respective stations on the moor without confusion, and stand in perfect quietude in little round clumps, which are separated from each other by only a few yards. The dogs are the main guardians, and though they are generally lying down and licking their travel-worn feet, no unruly animal who breaks the ranks escapes their vigilance, but is instantly recovered. Among the shepherds, friendly recognitions are taking place; the hand and the mull are freely offered and accepted, and the news from Ben Nevis, Dunvegan, Brahan, Jura, John o' Groat's, and The Lewis is communicated in a singularly soft language, strange to southern ears. We doubt whether we do not much underrate the whole number of sheep thus collected at 100,000. Mr. Paterson, Mr. Seliers, Mr. Kennedy, and Mr. Cameron, of Corachollie will each have several thousands on the ground. We have heard that this last patriarch has 50,000 head of cattle and sheep on his several farms. The greater part of the sheep are in the hands of their respective breeders, though no inconsiderable number have been purchased, without being seen, at the Inverness wool fair, by dealers who are perfectly acquainted with the qualities of every large flock. Soon after the groups have been collected in the manner which we have

described, a large number of agricultural-looking gentlemen on horseback and on foot begin to move among them; these are partly southern dealers, but more generally the large turnip-growers from the east coast of Scotland, and from the northern and eastern counties of England. The merits of each flock are so accurately known by those who have an interest in frequenting Falkirk, that a cursory inspection suffices. No stranger accustomed to the bustle and the crowd, the handling and haggling of an English fair, would suspect that transactions of a magnitude to which Barnet, St. Faith's, and Wey Hill afford no parallel, were on the eve of taking place. The owners are seldom with their flocks, but their whereabouts is easily ascertained by those who want them. "What are ye seeking for the Gordon Bush ewes, or for the Invercashley wethers, the year?" says the purchaser; and if the parties are well known to each other, a price is named within 1s. or perhaps within 6d. a head of what the vendor means to accept. A few words pass about the abatement of the odd shilling or sixpence, and with a half-jocose complaint that the vendor was shabby with his lucky penny last year, several thousand sheep have changed hands. The news of the price at which the best lots are sold spreads through the fair, and within a very trifling percentage, the value of every other lot is at once ascertained. A large proportion of the lots pass from year to year into the same hands. No purchaser of a smaller number than 500 must expect to get sheep at first hand from any of the standard flocks; indeed, these magnates generally decline to divide their lots at all. On the outskirts of the fair will be found small, mixed, and inferior lots, where the buyer may have haggling for 1d. a head to his heart's content. The settling at Falkirk is as peculiar as the dealing. No man brings money, *i. e.* currency, with him to Falkirk. On a portion of the moor adjoining the sheep ground, and adjoining also to long lines of booths, a wooden pent-house, about five feet square, announces itself by exterior placard to be "The Royal Bank of Scotland;" the British Linen Company, the Commercial Bank, and every other banking company north of Tweed appear there also by similar wooden representatives. The purchasers come to the fair provided with letters of credit, and, stepping into the tabernacle to which they are accredited, bring out in large notes the amount required; these are handed to the vendor in an adjoining booth, and

are probably within a very few minutes at his credit with the issuer, or with one of his rivals; for a Scotchman, dealing with a banker who is very reasonable in his charges, and who is to be found in every village in the land, always throws on him the responsibility of keeping his money. The bankers in the aggregate carry from the ground the same notes which they brought in the morning, a few scratches of the pen in their books having sufficed to balance all these large transactions. The clearing of the ground is as orderly as the other proceedings of the day, and, under the superintendence of the best herds and the best dogs in existence, the immense fleecy mass moves off, with almost military precision, on its southern and eastern journey.

What shall we say of the gathering of the morrow? Every isle and holm which opposes its rugged crags to the fury of the Western Ocean between Islay and the Orkneys; every mainland glen from the Mull of Cantyre to Cape Wrath pours in its pigmy droves, shaggy and black, or relieved only, as to colour, by a sprinkling of reds, and of duns graduating from mouse to cream-colour. From Northern and Eastern Sutherland, Caithness, Ross, and Inverness, they come in longer on the leg, smooth and vulgar. From central Argyle, Perth, and from some of the islands, come the carefully-bred West Highlanders; these are the flower of the show, engage every one's talk and attract every one's attention; every individual of them is a delight to the eye of a connoisseur. Aberdeen and Forfar send in droves of large and bony, but useful, bullocks. A few Ayrshire cows and heifers for the dairy, some miscellaneous lots, and a few Irish, make up the account. We do not know the numbers; we have heard of 30,000, and again of 60,000. The October show is the most imposing. The almost universal colour is black; the moor is in appearance one black mass. You may be accommodated with every size, from that of a Newfoundland dog to a bullock of 100 stones. The cattle are mostly in the hands of dealers, having been bought up at the Northern and Western markets; many, however, of the best West Highlanders are brought to the tryst by their breeders, and you may see a kilted laird from the Hebrides standing, like Rob Roy, at the tails of his own bonny stots and queys. Every dealer in small cattle offers you Skye beasts, and you would be inclined to attribute almost miraculous productive powers to that celebrated island, till you were informed that (as a merchant would say) "that is the favourite brand," and that large numbers of these beasts are brought from the other Hebridean isles to the Skye markets. To speak generally, every one of these animals has his predestinated course;

the smallest, called six quarters, from being only eighteen months old, will clean up the rough pastures and eat a little straw in Clydesdale, Dumfriesshire, Cumberland, and the neighbouring districts. The older of the small cattle will proceed to Brough Hill, a very favourite fair with dealers, because it is said to be attended by more gentlemen's bailiffs than any other in the United Kingdom. The finest West Highland heifers are for Yorkshire, and the bullocks for the counties of Leicester, Northampton, and Buckingham. The heavy north-eastern bullocks will supply the Lothians with stall-feeders, and will go in large numbers for the same purpose to Northumberland, Lincolnshire, Norfolk, and the south-eastern counties of England. These are all Norfolks when they get to Smithfield market. The proceedings are as orderly, and the dealings on as large a scale as those of the preceding day. A few small lots of a score each may be found, but generally they run from 50 to 300 and upwards. A purchaser of less than the whole of one of these large lots gets his number, not by a selection, but by a cut: a drover passes through the black mass, and cuts off by estimation the number; they are then counted and made up to the required figure by alternate selections on the part of the buyer and seller. A third day follows, but it is not of much account. The cattle are for the most part miscellaneous lots, and what a Scotchman calls his shots, and an Englishman his culls. We have been somewhat minute in describing these proceedings, because they are on a scale of magnitude quite unknown to southern agriculturists. We can assure our readers that the men who carry them on are quite equal to the occasion. We always considered our annual intercourse with them to be both a privilege and a pleasure. No trading class can furnish more intelligent men than the Scotch stock farmers, perhaps indeed than the Scotch agriculturists generally; men well educated, of courteous and simple manners, of great intelligence and much general information, enterprising, and keenly alive to every reported improvement. We never could associate with them without drawing rather disagreeable comparisons. Many of these men are originally and still from the Cheviot district of the border; several of them hold stock-farms in districts separated by hundreds of miles from each other, besides a more agricultural farm on which they reside. Their system must be excellent, for they only see their mountain farms a very few times in the year. Others hold only one farm, and reside on it; and of these, some on the west coast of Sutherland have long been the resident gentry and quasi lairds of the district, though holding under their great superior, the duke of that ilk. Till the very recent introduction of roads and inns, their houses were the only refuge of the traveller

from the mountain and moor. We must always have a grateful recollection of a lady who strongly objected to these innovations on her generous and refined hospitality. Though sixty miles from her

doctor, and depending on coasting traders for luxuries and fashions, she looked back with regret to the days when she had no conveyance but a horse or a boat.

THE LATE HARVEST.

The harvest is now concluded. Other years have been blessed with weather as favourable for the ingathering of the fruits of the earth, and there have been crops as abundant in promise; but that promise has been disappointed at the critical moment by unpropitious weather. Rarely has it fallen to our lot to have so good a produce of every kind so well secured. This merciful dispensation demands the deepest and most lively gratitude; and well has it become the nation to raise its voice in praise and thanksgiving for so great a blessing. Prayer is offered every Sabbath day in our churches, that He who reserveth unto us the appointed weeks of harvest will be pleased to give and preserve to our use the kindly fruits of the earth, so that in due time we may enjoy them; and it would be well if our Liturgy contained some form of thanksgiving which might be used yearly in every parish at the conclusion of harvest—if abundant, for its abundance; if scanty, that it is bestowed at all! It would be well if, while petitioning for future mercies, we expressed our gratitude for those already received. In this utilitarian age, it is good that our thoughts should not always be grovelling upon earth, and that while we boast of the increased and increasing produce which skill and science are forcing the soil to yield, we should sometimes reflect on the comparative impotence of both, and remember that though one may plant and another may water, it is God who giveth the increase. How beautifully is this dependence, which we are too apt to forget, expressed in the latter part of the 65th Psalm—"Thou visitest the earth, and blessest it; thou makest it very plenteous. The river of God is full of water: thou preparest their corn, for so thou providest for the earth. Thou waterest her furrows: thou sendest rain into the little valleys thereof: thou makest it soft with the drops of rain, and blessest the increase of it. Thou crownest the year with thy goodness, and thy clouds drop fatness. They shall drop upon the dwellings of the wilderness, and the little hills shall rejoice on every side. The folds shall be full of sheep: the valleys also shall stand so thick with corn that they shall laugh and sing."

These are words which should be deeply impressed upon the memory of every tiller of the ground, and of every consumer of its fruits. They

are words which have forced themselves continually upon our thoughts when we have wandered through our most beautiful country; its fields whitening to the harvest, and waving with a crop as luxuriant as ever gladdened the heart of the husbandman. Still the present trying season is calculated to awaken many humbling and salutary thoughts. Foremost among these is the consideration to which we have already adverted regarding the inefficiency of our most strenuous exertions unaided by the blessing of Heaven.

Some of our legislators considered that they had secured for us an exemption from famine; and yet, with ports constantly open, we have seen bread nearly as dear as it ever was during the continuance of those restrictions by means of which legislators of another school vainly endeavoured to secure to the grower a remunerating price, and thus to render us independent of foreign supplies. Both classes of legislators must have learned, by this time, the truth of the remark of one of our greatest statesmen and philosophers: "The rest," said Burke, "is in the hands of their Master and ours—a frost too long continued, or too suddenly broken up; a deficiency or an excess of rain, or of snow; the blight of the spring or the mildew of the autumn can do more towards causing distress of the belly, than all the contrivances of all statesmen can towards relieving it."

The last half-century has been the reign of agricultural improvement. During that period the average produce of our fields has been doubled, and the races of our domestic animals have been so improved, that they appear almost like a new creation. During the last fifteen years this progress has been moving with accelerated velocity. Chemistry, geology, animal and vegetable physiology, have been pressed into the service of agriculture. The most modern of sciences have lent their aid to the oldest of arts. Our men of practice are proud of the skill which has made two blades of grass grow where but one grew before; and our men of science flatter themselves that with their assistance more certain and more abundant harvests will be reaped. And then comes the potato blight, as if purposely sent to rebuke these vauntings, to baffle the skill of the farmer, and laugh to scorn the wisdom of the philosopher. New forms of disease break out

among our sheep and cattle, small-pox and pleuropneumonia decimate the flocks and the herds which are the glory of our show-yards. For seven years the potato blight has continued its ravages. It has effected a social revolution in Ireland, exterminated or expatriated millions of its population, and reduced to beggary some of the proudest of the land. For seven years its ravages have continued; and we are as far from having discovered its cause, or devised a remedy, as we were on its first appearance. It seems to be independent of the weather. Through seasons of rain or of sunshine, of heat or of cold, it holds its course like a destroying angel. Every variety of the plant and every variety of cultivation suffers from it alike. Those which escape one year are smitten the next. The sum of our knowledge respecting it is this: that at a certain period of its growth, the crop is suddenly smitten, and that the withering leaves are covered with myriads of a scarcely visible fungus; but whether this comes as a cause or a consequence we know not. A kindred parasite is blasting the vineyards of the wine-growing countries. What if a similar scourge, or the wheat midge of America, should desolate our corn fields? how deplorable would our condition be then! With what gratitude should we then hail that immunity from such ravages which we now receive with thankless indifference. The last harvest may teach us again that, dependent as we are upon the vicissitudes of the seasons, we do not always know the kind of weather which conduces to dearth or abundance. The proneness of the cultivators of the soil to be dissatisfied with the weather is no new story. It has been the constant theme of satire, from the heathen fable of Jupiter and the husbandman, to the observation which Walter Scott put into the mouth of a gardener, that the weather which others called fine was not "o'ermuch to be complained against." There is truth, however, in the proverb that—

"Be it fair, or be it wet,
The weather always pays its debt."

He who gives the former and the latter rain in his season is often working for our good by means which we little suppose. The summer passed afforded a striking example of this. What could be more unpropitious than its promise? In March we had the weather of May; from that time till July we had the coldness of March, without its brightness. Still, through coldness and dampness and gloom, the crops continued to flourish, and gave promise of abundance, provided a speedy change should take place in the weather, of which there seemed little hope. That critical period, the blooming season, was unfavourable; the ear was filling, the grain was

in the milk, and there was an alarm of incipient mildew. Sunshine broke out as if by miracle, and there was a cry that the heat had come too suddenly, and that it would induce premature ripeness. These fears were dissipated; our fields were blessed with a crop unrivalled for quantity and quality, and we had two months of the finest harvest weather which the most inveterate grumbler could desire. "O that men would therefore praise the Lord for his goodness, and declare the wonders that he doeth for the children of men; who covereth the heaven with clouds, and prepareth rain for the earth, and maketh the grass to grow upon the mountains, and herb for the use of man; who giveth fodder to the cattle, and feedeth the young ravens that call upon him. A fruitful land maketh he barren for the wickedness of them that dwell therein." Again, "He maketh the wilderness a standing water, and water springs of a dry ground. And there he setteth the hungry, that they may build them a city to dwell in, that they may sow their land and plant vineyards to yield them fruits of increase." "O that men would therefore thank the Lord for his goodness, and declare the wonders that he doeth for the children of men!"

WAGES UNDER EDWARD III.—In the reign of Edward III., the daily price for works of husbandry was as follows:—Fivepence for mowing, either by the acre or by the day; one penny for haymaking; two pence for reaping in the first week of August, three pence in the after weeks; thrashing, two pence farthing the quarter of wheat or rye; a penny farthing for the same quantity of beans, peas, barley, and oats. In all these cases this was the maximum; in some places the usual rate was less; and neither meat, drink, nor other courtesy was to be demanded, given, or taken. Twice in the year servants were sworn before lords, seneschals, bailiffs, and constables of every town, to observe this ordinance, and not to leave their winter places of abode for the purpose of seeking work in the summer, if employment were to be had at the fixed rates at home. There was, however, a saving clause for certain counties in this point. Stocks were to be set up in every township for the punishment of those who should refuse to take the oath, or who should break the ordinance. They were also to be punished by fine and ransom to the King; but the pecuniary penalty was after a few years abolished, imprisonment being substituted for it; and at the same time the wages of master-carpenters and masons were raised from three pence a-day to four pence, and of inferior workmen in proportion. Men absconding from service were to be outlawed, and burnt in the forehead, when taken, with the letter "F," in token of falsity, if the offended party choose to sue for punishment; but this pain of burning was respited till the ensuing Michaelmas, and then was not to be executed except by advice of the justices. This clause, therefore, appears to have been deemed unduly severe, even by the very persons who enacted it, and to have been put forth merely in *terrorem*.—*Domestic Magazine*.

PLOUGHS.

The comparative trials of wheel and swing ploughs, that were made in England and in Scotland, arrived at the very flattering conclusion that each country possessed the best implements for its own use. And this conclusion is most undoubtedly true to a very great extent; for the English wheel-plough would not perform the purposes to which the Scotch swing-plough is applied, and the latter implement completely fails in the waxy and flinty clays of the southern counties of England. Even on the fresh-water clays, where the implements are able to work, the wheel-plough takes and keeps a better hold of the ground than the swing plough. It does not appear that any direct law in mechanics is able to account for the fact that a wheel on the end of the beam of a common plough, or on the end of a turnip-drill scuffler, enables the implement to take and keep a better hold of the ground than when the implement is drawn from the end of the beam, as a swing-plough is pulled. It may be accounted for by no positive law, and yet be a fact, as it is most certainly a truth.

The shoulder of the horse being higher than the beam of the plough, an uplifting power of some degree is exerted by the force of draught, which in the wheel-plough is expended on the wheel, and is there stopped, proceeds no farther, and leaves the share in the ground undisturbed. In the swing-plough, the uplifting power meets with no opposition, proceeds along the beam, reaches the share, and lifts it from the ground. This simple observation may account for the fact above stated, and supply the place of a mechanical law.

On all truly loamy soils the Scotch swing-plough is unequalled, but on the waxy and flinty clays it wholly fails from want of weight and strength, and of a capability to force its way in the tough substratum, and among the firmly-embedded flints. Even on loams with a harsh grating bottom of gravel, or chalk, or a compact diluvial debris, it fails in taking and keeping a hold of the ground, owing to the wrought-iron share wearing "below" on the point, forming a round "nib," and consequently throwing the plough upwards. Cast-iron shares constitute a very great improvement; the wearing is even on both sides; and on a wheel-plough they very far surpass the swing-plough with the wrought-iron share, on the subsoils now mentioned. On these stiff loams, and on all harsh bottoms, the best plough now in use is "Jeffries' plough," which can be used at pleasure with two or four horses, and has cast-iron shares of a broad wing and strong points.

All the swing-ploughs of South Britain are too low in the mouldboard to raise and shape a drill of

pulverized earth, especially in the hind part of the mouldboard. And this is a very considerable fault, though the drill system is less used than in south Britain; the common plough is required to open drills with one furrow to be sown by the drop-drill, even where the twice drilling of land is dispensed with. The ploughs are likewise too low and narrow in the heel, or the hindmost part; the furrow-slice is not placed and pressed into the vertical position as by the Scotch plough, which has greater posterior width, and a more shouldered pointed extremity of the mouldboard.

J. D.

SEXUALITY OF PLANTS.

The doctrine that plants are of different sexes, and which constitutes the foundation of the Linnean system, though but lately established upon the basis of logical induction, is by no means a novel doctrine. It appears to have been entertained even among the original Greeks, from the antiquity of their mode of cultivating figs and palms. Aristotle and Theophrastus maintained the doctrine of the sexuality of vegetables; and Pliny, Dioscorides, and Galen adopted the division by which plants were distributed into male and female; but chiefly upon the erroneous principle of habit or aspect, and without any reference to a distinction absolutely sexual. Pliny seems to admit the distinction of sex in all plants whatever, and quotes the case of a palm tree, as exhibiting the most striking example. Linnæus, reviewing with his usual sagacity the evidence on which the doctrine rested, and perceiving it was supported by a multiplicity of the most incontrovertible facts, resolved to devote his labours peculiarly to the investigation of the subject, and to prosecute his enquiries throughout the whole system of the vegetable kingdom: which great and arduous enterprise he not only undertook, but accomplished with a success equal to the unexampled industry with which he pursued it; so that by collecting into one body all the evidence of former discovery or experiment, and by adding much that was original of his own, he found himself at length authorized to draw the important conclusion "that no seed is perfected without the previous agency of the pollen; that the doctrine of the sexes of plants is, consequently, founded on facts."

APPLES FOR COWS.—A good neighbour of ours tells us that he is feeding his cows in part on apples, and, he thinks, advantageously. It is his opinion that apples, whether sweet or sour, in these times of scarcity of feed, are worth far more for cows than to make into cider. He says they may be fed to cows in larger quantities, now that the grass is dry, and especially if a little hay from the barn be given, than if the pastures were as green as usual; that if you feed them in any quantity below the scouring point, they will increase the

quantity without deteriorating the quality of the milk; but that if you go beyond that point, the milk will be diminished, and that the feeder should observe the effect, and stop feeding within the limit, if he would derive the greatest benefit from his apples as a feed for milch cows. Others have said that if cows are admitted to falling apples by degrees, they will soon learn to eat enough of them without eating too many. We know not how all this is, but our neighbour is a man of good sense and careful observation, and we are inclined to believe that he is right in thinking that the quantity should be limited; and we have no doubt that apples, if fed in the best manner, are valuable for any kind of horned cattle, as we believe they are also for swine, and, for aught we know, for any kind of animals.—*Conn. Valley Farmer.*

H O P S.

The most ancient known account of the cultivation of hops has been discovered in France. Among the records of that kingdom, there is a patent of donation so far back as the reign of King Pepin, in which mention is made of "humolariæ," which doubtless meant the hop garden; and in 822 we find that the Abbot of Corby exonerated the millers within his district from all services regarding hops. From about that period the culture of this plant spread over Germany, and was even introduced into Sweden; but it is remarkable that so late as the 18th century, it was unknown in Italy, which we presume could scarcely have been the case, had it been in use among the Romans.

DESCRIPTION OF PARAGRELES.

The ruinous effects frequently produced by storms of thunder and hail upon the crops have led to the almost universal erection, on the continent, of these conductors, consisting of a thin mast of fir, twice the height of an ordinary hop-pole, having a sharp point, and an iron wire running straight down from the top to the bottom. They are placed in rows among the vines, about one hundred yards from each other. All the vineyards of La Vaux and La Côte have, it is said, been preserved from the hail by means of this new invention. Some say that clouds, whence a fall of congealed drops would otherwise take place, are by these means attracted and made to discharge the electric fluid, or dissolve in rain. The following descriptive and explanatory remarks on paragrêles are quoted from a continental journal:—"When made in the simplest manner, these consist of wooden poles, from 35 to 50 French feet high, and planted in the firmest manner in the ground, on the top of each of which is fixed a sharp point of yellow brass wire, about the eighth of an inch in diameter: to the bottom of this is attached, by means of a ring, another yellow brass wire, about the sixteenth of an inch in diameter, continued all the way along this pole to

three or four feet under the ground, and fixed to the poles by small wire staples. From this description, it will be seen that paragrêles are merely lightning rods made in the simplest and cheapest form, by which it is proposed to draw down the electric fluid from the clouds, and by that means to prevent the formation of hail. The paragrêles ought to be placed at the distance of 450 feet from one another. When any tall tree happens to be growing where the pole ought to be placed, the trees may be made use of, instead of erecting a pole."

THE HORSE IN FIELD LABOUR.

It is a circumstance deserving of remark, that in none of the earliest historical records of the Anglo-Saxons or the Welsh, is there any allusion to the use of the horse for the plough. Until a comparatively recent period, oxen alone were used in England, as in other countries, for this purpose; but about the latter part of the tenth century, some innovation on this point was creeping in; and therefore a Welsh law forbids the farmer to plough with horses, mares, or cows, but with oxen alone. On one of the pieces of tapestry worn at Bayonne, in the time of William the Conqueror (1066) there is the figure of a man driving, a horse attached to a harrow. This is the earliest notice we have of the horse in field labour.

CALENDAR OF AGRICULTURE.

Continue the planting of trees of every kind, the making of new hedges, and repairing of old ones, the making and repairing of roads, and the scouring of ditches and water-courses.

Continue ploughing in fresh weather; during frosts, cart stones for drains or buildings, and earths into heaps for composts.

Cut underwoods, and fill up vacancies by pitting and layering. Continue the most careful attention to all kinds of live stock; feed regularly, both with raw and steamed food; give the same kind of food, the same quantity, and at the same hour if possible; regularity has great effect in the feeding of animals, as in most other branches of business. Store turnips in dry weather. Thrash grain regularly, and litter the cattle yards evenly and thinly with the refuse straws. Reduce works of every kind into a system, and see that no parts of that system get disjointed and disarranged, and appoint every business when and how to be performed.

All farming property should be insured. The buildings are the landowner's property, and the stock and crop belong to the farmer, and each party should insure his own. A neglect on these points shows a great dereliction of social duty.

METEOROLOGICAL DIARY.

BAROMETER.			THERMOMETER.			WIND AND STATE.		ATMOSPHERE.			WEAT'R.
1854.	8 a.m. in. cts.	10p.m. in. cts.	Min.	Max.	10p.m.	Direction.	Force.	8 a.m.	2 p.m.	10p.m.	
Oct. 22	29.37	29.52	47	57	46	Westerly	strong	cloudy	sun	fine	dry
23	29.42	29.37	45	54	42	Westerly	gentle	fine	cloudy	fine	showery
24	29.43	29.13	40	52	46	W. & S. E.	gentle	cloudy	cloudy	fine	showery
25	29.10	29.27	43	47	41	N. East	var.	cloudy	cloudy	fine	wet
26	29.52	29.91	39	50	42	W. S. W.	airy	fine	cloudy	fine	dry
27	30.19	30.30	32	54	46	S. by West	gentle	fine	cloudy	fine	dry
28	30.31	30.26	45	56	47	S. by W.	lively	fine	cloudy	fine	dry
29	30.14	30.17	43	57	50	S. by W.	lively	fine	sun	fine	dry
30	30.18	30.12	48	64	57	South	airy	fine	sun	fine	dry
31	30.10	30.20	53	64	55	S. Westerly	airy	fine	sun	fine	dry
Nov. 1	30.33	30.35	44	61	50	S. S. W.	airy	fine	sun	cloudy	dry
2	30.36	30.23	50	57	52	S. S. W.	gentle	cloudy	cloudy	fine	dry
3	30.23	30.26	45	52	42	N. West	gentle	fine	sun	clear	dry
4	30.23	30.04	40	50	48	N. W., W.	lively	cloudy	cloudy	cloudy	showery
5	30.02	30.12	47	54	45	N. W., W.	lively	cloudy	fine	fine	dry
6	30.30	30.43	34	52	36	W. N. W.	var.	fine	sun	fine	dry
7	30.51	30.43	31	48	45	W. S. W.	gentle	cloudy	cloudy	cloudy	dry
8	30.30	30.17	41	49	47	W. N. W.	calm	cloudy	sun	fine	dry
9	30.14	30.31	34	42	32	N. by East	airy	fine	sun	fine	dry
10	30.23	30.04	27	44	43	N. N. W.	lively	fine	sun	cloudy	rainy ni.
11	30.00	30.16	40	46	43	N. N. W.	gentle	haze	fine	cloudy	dry
12	30.22	30.20	38	44	37	W. N. W.	gentle	fine	sun	cloudy	dry
13	30.09	29.83	33	46	44	S. West	gentle	cloudy	cloudy	cloudy	hint of r.
14	29.66	29.50	35	37	36	S. East	gentle	cloudy	cloudy	fine	rain
15	29.18	29.10	33	48	42	S. West	airy	cloudy	cloudy	fine	rain
16	29.00	29.20	40	49	39	S., variable	var.	cloudy	cloudy	fine	rain
17	29.33	29.41	31	44	43	N. East	strong	fog	cloudy	fine	rain
18	29.60	29.80	40	43	36	N. East	lively	cloudy	cloudy	cloudy	dry
19	30.00	30.09	37	42	37	N. East	lively	cloudy	fine	cloudy	dry
20	30.09	30.10	34	40	37	N. East	lively	cloudy	fine	cloudy	sprink.

ESTIMATED AVERAGES OF NOVEMBER.

Barometer.		Thermometer.		
Highest	Lowest.	High.	Low.	Mean.
30.270	29.080	62	23	42.9

REAL AVERAGE TEMPERATURE OF THE PERIOD.

Highest.	Lowest.	Mean.
50.0	39.47	44.73

WEATHER AND PHENOMENA.

October 22. Wind; lull at night. 23 to 25. Weather change for rain. 26. Clearing at sunset. 27. White frost; after foggy night. 28 to the end. Dry and sunny.

LUNATIONS.—First quarter, 28th day, 7h. 4m. afternoon.

November 1 to 9. A period of fine and dry weather; it then changed, and on the 10th night rain began. 11 and 12 were two fine days. 13 to 17 inclusive were more or less rainy—total fall

about $6\frac{1}{2}$ or 7-10ths of an inch. After the morning fog of the 17th a fine and cutting north-easter set in, and continued till the 20th, when a lull and a change commenced.

LUNATIONS.—Full Moon on the 4th day, 9 h. 1 m., p.m. Last quarter, 12th day, 10 h. 4 m., p.m. New Moon, 20th day, 1 h. 2 m., a.m.

REMARKS CONNECTED WITH AGRICULTURE.—The late rains, though insufficient to fill the ground so as to raise the springs, have done much good to the herbage and green crops; they have also acted upon the land, and have again set the ploughs to work. The seed-time has therefore been propitious, as was the late profuse ingathering. How much cause then we have for sincere thankfulness! May the consumers of bread be enabled to have *abundance*, without that very low price which might induce profligate waste. At present, however, bread is too dear.

Croydon, Nov. 21.

J. TOWERS.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR NOVEMBER.

Since we last wrote, very great progress has been made in ploughing and sowing, in nearly all parts of England, with the land in remarkably fine condition for the reception of the seed-furrow. The present high prices of wheat have, it would appear, acted as a great stimulus to the farmers in this particular; and we learn that large additional breadths of land have, this season, been laid down for wheat, under the well-grounded impression that that crop will be more remunerative than spring corn. From several quarters we have received advices, stating that the yield of the new wheat is proving much smaller than had been anticipated at the close of harvest operations. It may be perfectly true that in some portions of the country the growth has not come up to the expectations of the growers; but no one can doubt for a moment that the total yield is considerably in excess of 1853, and *above* the average of most former years: and let us remark, further, that the produce of red wheat on much of the light and most inferior soils has proved as heavy as upon the best cultivated lands. This is a most significant feature in the trade at this moment, and it is one calculated to have more than usual influence upon value. Not, be it understood, that we have any idea that prices will rule low; but the immense quantity of red wheat which continues to be received at our various markets indicates that there is no want of supply, whatever may be advanced to the contrary; and in order to show that abundance actually exists, we may notice some anxiety to realize at present rates, because there is a possibility of a decline in them. Certainly, there are circumstances in operation which tend to shake confidence in any advance. Our New York letter informs us that purchases of flour to some extent had been effected there for shipment to England, and that the outflow of Indian corn to the United Kingdom was enormous. This resumption of trade is not favourable to a rise in price here; on the contrary, it will, no doubt, induce great caution on the part of dealers generally, in laying in stock. The abolition of the corn monopoly in Egypt—the Pasha having disposed of the whole of the Government stores, and thrown open the trade—has released a large supply of produce, which is now on its way to England; and the chances of the Danube being completely opened for commerce has led to large

purchases of wheat at Ibraila for spring delivery—subject to certain conditions—as low as 19s. per qr. With all these features in the market, however, we can scarcely anticipate what may be termed heavy importations for a considerable period; indeed until the war with Russia is brought to a close, any accumulation of stock here will be wholly out of the question. Scarcity, however, need not be apprehended, because we are now offering a much higher price for grain than any other nation; hence we may naturally infer that to this market the bulk of the surplus produce of the world will be directed. The recent decree of the Emperor of the French on the subject of distillation has resulted in somewhat large supplies of grain being purchased here for Belgian account, and has created a demand for malt for brewing purposes, arising from the scarcity of wine in most of the departments in France.

The yield of spring corn, especially of barley, is turning out well; but its general quality is by no means prime. Prices keep up remarkably well, and there does not appear to be any chance of a serious decline in them.

The potato crop has now been raised, and it is gratifying for us to observe that our previous observations on this head have proved correct. That the total produce is enormous—after making due allowance for losses by disease—is evident; yet the high value of grain has had the effect, combined with a large consumption, of enhancing the quotations; and it would appear that, as we have no reason to look forward to any large importations from abroad, consumption must consequently be almost wholly met by home produce. Really fine potatoes will command a high range of value during the whole of the winter. The improvement in the quotations during the month has been 20s. per ton. In Ireland and Scotland the growth has been large, and of fine quality; and steady supplies are coming to hand from those quarters, though they are not so large as we have noticed at some corresponding seasons.

There has been considerable activity in the markets for live stock, especially for prime animals, which have continued extremely scarce and dear. For several months past a great scarcity of prime beasts and sheep has been complained of, and great difficulties have been experienced on the part of butchers in obtaining adequate supplies to meet the wants of their customers. The numerous Government contracts for live stock have taken off large additional numbers of good and useful beasts.

However, as regards the feeders, we do not think that the profits have been large; in point of fact, owing to the great difficulties which have been experienced in fattening the stock, we know of some severe losses having been sustained—half-fat beasts, after being kept in the stalls for several months, having produced no more than when purchased in a lean state. As regards sheep, there has been a great deficiency in the weight and condition. We may state, however, that a very large supply of fine beasts will be shewn on the great market-day next month, and we may therefore anticipate the accustomed supply of beef for Christmas consumption.

The hop trade has continued in a healthy state, notwithstanding that unusually large supplies of hops (nearly 8,000 bales) have come to hand from the continent and from the United States. Selected new qualities have realized £21 per cwt. It is asserted that the bulk of the hops received from Germany are old English qualities “worked-up” and repacked. Of course dealers are on their guard in this particular, and a few brewings will speedily determine the value of these arrivals. Their price is certainly tempting; and it would be as well for us to observe that the present duty is only 20s. per cwt., to be increased to £2 10s. after July next, in the event of our next crop turning out well.

From Ireland and Scotland we have received dull accounts respecting the corn trade. The fall in prices has not been large, though somewhat in excess of the decline at Mark-lane and in Liverpool. The extent of the surplus produce of wheat, barley, oats, and potatoes now on hand tends to show that, with good prices in England, the shipments will be large between this and the end of February.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Although fair average supplies of stock have been on sale in our leading markets, we have to report considerable firmness in the general demand, and an advance in the quotations. Really prime animals, both beasts and sheep, have been unusually scarce, and commanded corresponding prices, the range in value having continued heavy. This is the case in nearly all parts of the United Kingdom, and is evidently the result of the inferior quality of the cattle-food produced in 1853. Stall-fed beasts and sheep have increased in weight very slowly; and we may safely calculate upon prime animals commanding high prices for several months. The supply of food is now much larger than for a considerable period, the turnip and carrot crops being full average ones; hence, stall-fed animals will now fare much better than they have done for some months

past. Breeders are now realizing very large profits; but those of the feeders are smaller than we have ever known them, owing to the great present deficiency in weight compared with the period at which many of the beasts and sheep were first purchased—in other words, stock has not fattened satisfactorily, notwithstanding that very few instances of disease have been noticed.

The great scarcity of rough fat has led to considerable firmness in its price, and the tallow market has been considerably influenced by the falling off in the supply. As regards linseed and rape-cakes, we may observe that the demand for those articles has ruled brisk, and that the quotations have steadily improved. The best town-made linseed cakes are now worth £12 10s. per ton. We have, however, received a steady influx of linseed from India, but large quantities have been sold for shipment to France, Holland, and Germany.

The future value of live stock is fully expected to rule high; indeed, present appearances of our market indicate even a higher range in the quotations. Prime beasts and sheep will, no doubt, keep up their price, and we see no reason to anticipate any decided decline in the quotations of inferior breeds.

The aggregate imports of foreign stock into the United Kingdom have been small, compared with several previous years, and not the slightest improvement has taken place either in their weight or condition. The following are the arrivals into London:—

	Head.
Beasts	7,120
Sheep	16,604
Calves	1,108
Pigs	369

COMPARISON OF IMPORTS.

Nov.	Beasts.	Sheep.	Calves.	Pigs.
1853	7,390 ..	22,565 ..	1,629 ..	919
1852	3,102 ..	18,152 ..	1,215 ..	427
1851	6,279 ..	22,866 ..	1,409 ..	1,127
1850	5,928 ..	17,662 ..	1,058 ..	1,486
1849	4,228 ..	14,204 ..	618 ..	409
1848	3,488 ..	13,424 ..	669 ..	—
1847	3,486 ..	16,213 ..	667 ..	41

Annexed are the total supplies of stock, English and foreign included, shown in Smithfield:—

	Head.
Beasts	23,442
Cows	515
Sheep	121,031
Calves	1,848
Pigs	2,726

COMPARISON OF SUPPLIES.

	Nov. 1853.	Nov. 1852.	Nov. 1851.
Beasts	25,760	23,063	23,583
Cows	562	462	435
Sheep	127,150	108,975	115,770
Calves	2,615	1,958	1,718
Pigs	2,790	2,669	3,210

The arrivals of beasts from the northern grazing districts have amounted to 10,600 short-horns; from other parts of England, 2,000 of various breeds; and from Scotland, 310 Scots. About 500 beasts have made their appearance from Ireland, chiefly *via* Liverpool. Beef has sold at from 3s. 4d. to 5s. 2d.; mutton, 3s. 4d. to 5s.; veal, 4s. 2d. to 5s. 6d.; and pork, 3s. 4d. to 5s. per 8lbs. to sink the offals. The prices obtained in the same month in 1853 were:—Beef, from 2s. 6d. to 4s. 6d.; mutton, 3s. to 5s. 2d.; veal, 3s. 4d. to 4s. 8d.; pork, 3s. 4d. to 4s. 10d. per 8lbs.

Newgate and Leadenhall markets have been firm for each kind of meat, as follows:—Beef from 3s. 2d. to 4s. 8d.; mutton, 3s. 4d. to 4s. 8d.; veal, 3s. 10d. to 5s. 2d.; pork, 3s. 4d. to 5s. 2d. per 8 lbs. by the carcass.

WEST GLOUCESTERSHIRE.

The operations of the agriculturist at this season of the year afford but a limited scope for observation, yet they are of a most interesting character. Provision for the future supplies of "the staff of life" is the most prominent feature; and that is proceeding under the most favourable auspices. It is impossible that the weather could have been more favourable. Frequently has it happened that so much rain has fallen during the months of October and November that the land could not be worked, and the operation of wheat-sowing has in many instances been of necessity deferred till after Christmas. However, under such circumstances the practice may be acknowledged as a *succedaneum*; the crops are undoubtedly not equivalent to those which are planted at this the more legitimate period. The same remarks apply to wheat sown after swedes, mangel wurzel, or other roots, which render it imperative to postpone the "seedness" till the land is cleared, which, if wet, cannot be done till spring. This year, that necessity does not prevail, as there cannot be a more favourable opportunity for drawing off the roots and storing them; and the advantages of doing so, rather than eating them off with sheep, cannot fail to be acknowledged, when the value of a wheat crop is taken into estimation. Stimulated by the good prices which have ruled the markets, every available acre is appropriated to the culture of wheat, and a considerable quantity has already been planted. There has been just a sufficient quantity of rain to cause the land to work admirably, and, tempting as prices have been, farmers have not been induced to divert their labour from their fields to their thrashing floors for the purpose of immediate sale, feeling the necessity for providing a future supply under the most favourable auspices with a confidence that no important decline in the markets would be prejudicial to their interests. Upon this point the non-agricultural public should not be led astray by the supposition that farmers have been withholding supplies to enhance prices; they have been acting on a sound policy, alike beneficial to themselves and to the community, by sedulously providing for future wants. It sometimes happens that persons in their excess of zeal do much injury to the cause they would promote, by promulgating opinions and introducing fallacies which are extravagant, ridiculous, and inapplicable. There is no produce which the land gives forth of greater importance to the country than wheat; and although the potato to a certain extent supplies a substitute, it can only be accepted in a limited degree. It is a source of much gratification that the potato crop is so abundant, and the tubers so excellent in quality. The produce of the dairies—a staple commodity in this district—is much complained of; many of the farmers declare that theirs is deficient of that of a good year by one-third. This may probably be somewhat exaggerated; but it is quite certain the produce is considerably below an average. Nevertheless the markets are in a normal condition, rather inclined to depression, and not equivalent to the rates for other descrip-

tions of agricultural production. This may be accounted for in some degree by the high price of bread, for it is an unfortunate fact that there is many a labouring man who is compelled to eat his dry crust without the relish of a piece of cheese. The produce, in cheese, from a dairy cow on good land, in a favourable season, in this district, is estimated from 3 cwt. 2 qrs. to 3 cwt. 3 qrs. The profit arising from the sale of the calf, butter, and the value of whey for the pigs, may be computed at £5 per annum. It is calculated that a cow consumes the hay and grass grown on three acres of land. On this important point of agricultural economy no improvements have been introduced, while in other branches of farming the march of intellect has made rapid strides. This cannot be attributed to the farmers' wives devoting their attention to their pianos, for there is not an average of one in twenty throughout the dairy farms of Gloucestershire. It would be fortunate if they were more numerous, inasmuch as a taste for refinement is always accompanied with a taste for improvement. The same inadequate accommodation for housing the dairy cows prevails now as it did in the time of our grandfathers. In the winter season the cows range the fields during the day, to the infinite detriment of the land and their own condition. The scanty herbage which they collect is sour, and consequently deficient of nutritive properties; to make amends for which, considerable quantities of hay are supplied in open cribs, much of which is wasted. The dairy-farms being nearly all laid down to grass roots, are only cultivated in small and very inadequate quantities; and on some they are not cultivated at all. Having no supplies of that kind to meet the wants of the herd, the bay-ricks suffer to a vast extent; and hence the necessity of allotting so much as three acres of land to the maintenance of a cow. When spring arrives, the animals are too frequently turned into the pasture to meet the young grass as it grows, to the material detriment of the future crop. But these have been the customs for ages, and will continue to be so till some impulse arises to stimulate landlords and dairy farmers to more profitable arrangements. The most prominent of these are convenient and well-constructed home-stalls, where the cows may be secured from the inclemency of the weather, and supplied with food in the most suitable and economical manner. It is well known that the expenditure of carbon under the influence of a cold atmosphere is so greatly augmented, that additional food of a superior quality is required to supply the waste of the system; that not being provided for, the animal loses its condition. The health of the cow during the period of gestation is of great importance to herself and to her offspring. Subservient as they are, under the present mode of treatment, to these effects, it is palpably evident that each cow requires a greater amount of hay during the winter than she would do if comfortably housed; and even with that extra allowance, when spring comes she is in a weakly state; and having to undergo the debilitating effects of parturition, and the grass with which she is supplied being young and deficient in nutritive properties, much profitable time is lost before she is in a state to give down an abundant flow of milk. The successful operations of the farmer are so intimately blended with the welfare of the community, with respect to the amount of supplies which they are enabled to produce on the most economical principles, that every subject is of vast interest to the public.

NORTHAMPTONSHIRE.

We have just completed one of the finest autumnal wheat-seedings ever remembered. A large breadth has been got into the ground in very good condition, and is now beginning to make its appearance above ground, and is not likely to suffer much injury from slugs, owing to the dryness of the season. The yield of the last harvest is now proved to be a full average produce, not so productive per acre as some persons anticipated after harvest, owing to the thinness of the crop on the ground. Barley is coming to market very freely, but of coarse quality. Beans, peas, and oats are very fine in quality, and are well stored. The winter ploughing has commenced under favourable circumstances, the land being very sound and dry—so much so, that many localities are suffering much inconvenience from the short supply of water. Sheep are doing well at turnips, and mutton sells freely at stationary prices. Beef that is fat sells at high prices; but as the ma-

pority of the grass-fed beasts are very thin, and are sent away in low condition for fat stock, they yield a very small profit for the summer's grazing, while they cannot be replaced under a high figure for store cattle. Corn has advanced since September very considerably, and is now selling at prices that will repay the cultivator of the soil. The labourers are generally well employed; but the high price of food will very much affect the working classes, and cause a limited demand for all other articles besides food. The present war is the great absorbing question, coming home to the domestic hearths of our nation, telling the sad tale of slaughter and of death, causing the widow's heart to bleed, and many homes to be the scenes of domestic sorrow. May He, in whose hands are the hearts of all men, cause this great national calamity to pass away, and that the "sons of war" may return to their fatherland, to pursue the more peaceful arts of husbandry.—Nov. 21.

SOUTH YORKSHIRE.

A more remarkably dry seed time has seldom occurred than the one which is now being brought to a conclusion. During October little or no rain fell; and it was only until nearly the middle of November before many districts were set free, and the plough once more in operation. In low situations, especially where there had been much summer fallowing, this drought was to a certain extent an advantage which was not lost sight of. Upon light sandy soils, also, most of the sowing had taken place before general rain came, and in these instances the plant has come up extremely even, and now presents quite a vigorous appearance. Upon wet limestones, which have only been sown of late, we expect to see a patchy growth, and the probability is that much seed will not be enabled to get up for some time to come. Nevertheless, all matters considered, the breadth of land already sown, and which will be sown in a few days, is quite up to the average of years; and hence, so far, the prospect of another year is far from that gloomy condition at one time dreamed of. Since harvest we have been extremely busy in thrashing, and the steam-engine has not been for a moment idle. Here and everywhere around, our farmers have sent supplies of corn to market as freely as though there was the absolute certainty of another bountiful harvest, and, satisfied with ruling prices, they have shown no disposition to aggravate a state of affairs alike critical to all classes. Looking at the deliveries so far, a far larger proportion of the new crop of wheat has gone into consumption than for very many years past. Although samples in a general way do not run fine and large—accounted for by the "quick dying" of the plant—the wheat weighs fully as good as estimated, while the quantity is an excess of from ten to fifteen per cent. Barley was never known to weigh so well, although it is small, and many samples present the appearance as though they had been "rated"—i. e., heated in the sheaf. One sample lately exhibited astonished the eyes of many of our old farmers, being found to weigh no less than 61½ lbs. per bushel, or 17st. 8lb. the sack of four bushels. The taking up of potatoes is fully completed. A more bountiful and healthy produce has not been known for the last ten years. Turnips are extremely variable in quality and quantity, although they have generally suffered from mildew. They realize a high price per acre; and it is a question whether sheep will be fed with any amount of profit. Stock of all descriptions in the early part of the month gave way in value. Strong beasts, from 20s. to 30s. per head; and lambs, from 5s. to 6s. each: since then there has been a turn in favour of the seller with sheep, and former prices are fully supported for anything good in quality. Within the last few days, we have had strong frosts, and winter seems disposed to set in earlier than usual.

THE WHEAT WEEVIL.—A practical agriculturist recommends farmers who desire to rid themselves of the weevil, to apply one pound of salt to every two bushels of wheat in the bin. He says he has seen the experiment tried, and hence vouches for its success.—*American Paper.*

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

ANDOVER FAIR.—The number of sheep exceeded considerably the usual average, amounting by careful calculation to about 60,000. The best things realized late rates, whilst the middling and inferior qualities were a trifle lower. A prime pen of lambs exhibited by our respected townsman, T. H. Mortimer, Esq., realized 42s. per head. The business generally was dull, and many lots returned unsold. The show of horses, pigs, and horned cattle was indifferent.

BARNET FAIR, Nov. 21.—This fair, which has been established within the last few years, has become very attractive, the supply and attendance of buyers increasing yearly. The show of cattle was extraordinarily good, both as to numbers and quality, the first-class beasts of all breeds, for stall feeding, realising prices never exceeded. The second quality and young inferior animals also sold freely at a considerable advance in prices, the great abundance of winter provender, no doubt, materially assisting keeping up both prices and demand. Milch cows were in great demand, and prices ruled high for all sorts. Good in-calf heifers sold freely at £12 to £15 per head. The horse fair was scantily supplied with young horses, which sold well at high figures.

DOUNE LATER FAIR.—The show of black cattle, in point of numbers, was rather above an average, and the weather being good, the stock had a tolerable appearance, although the quality was not so good as at the first of the month. There were certainly more heifers than stots, the former of which met a fair sale, but the latter suffered a slight reduction, as on previous markets. The large prices asked in the morning kept buyers back; and the buyers were equally determined to purchase cheap, but the misunderstanding lay in consequence of the high prices got last month; jobbers immediately went to the north, and purchased largely for the market; but, alas, there were not buyers to pick them up: there were no Englishmen, and a very few border dealers. In fact, the only parties who were there to pick up any portion of the stock were those men who like small lots and great bargains. There was little or no business done in the morning; but about eleven o'clock a few sales were effected amongst the better kinds of cattle, heifers, and stots, the former of which took the lead, as has been the case at all recent markets. Shortly after, a little was given in on the part of the holders of heifers, when sales were immediately effected, and continued until few good lots remained unsold. This gave a stimulus to young Highland stots, and sales amongst this kind were made at prices according to quality, little short of last Doune market. This market was, upon the whole, stiff—almost unsaleable.

GARSTANG FAIR, (Wednesday last.)—The stock shown was principally by the jobbers, and therefore not of much interest to the farmers. The trade was among themselves; a few of the Highland Scots obtained about £10 each, a higher price than had been obtained.

MARLBOROUGH SHEEP FAIR.—There was an average number of sheep penned in our fair on Thursday last, and most of the ewes exhibited were in prime condition. Business commenced very brisk at 38s. per head for ewes, and 24s. for lambs, and a steady sale continued throughout the morning.

MORETON-IN-THE-MARSH FAIR.—Notwithstanding the unfavourable state of the weather, there was a good show both of sheep and cattle, which met with ready sales. Mutton fetched from 6d. to 7½d. per lb.; beef, 6½d. to 7d.

RUGBY FAIR.—The demand for first class hunters and carriage horses was greater than the supply, consequently they made high prices. The best seasoned saddle horses were purchased for the army, and great sums were given. Yearling and carts colts were very high. Worked cart horses of good breed fetched as much as £60 each. Nearly all the horses were disposed of. The supply of fat beef and mutton was not so large as is usual at this fair. Runts and stores were very plentiful, and sold at improving prices. All the beef was sold by ten o'clock, at from 6d. to 6½d. per lb., at which price they cleared out. Taking the fair on the whole, it is many years since it was so satisfactory to the graziers.

TRURO FAIR.—There was a large supply of stock, especially sheep, of which about 1,000 were penned and 100 not

penned, and nearly the whole of these were sold. The number of bullocks sold at the fair was 290. Fat cattle realised from 58s. to 60s. per cwt.; store bullocks from 42s. to 45s. per cwt., and sheep sold at about 6d. per lb.

YEOVIL FAIR was fully attended by dealers. There was a very full supply of both horned cattle and sheep, the latter being uncommonly numerous. Beef sold well, and good sheep soon changed hands, but sheep on the whole were not in good request.

YORK FAIR.—Although only nine days after Soulmas fair, and seven days after our last cattle market, we had again a large supply of all kinds of lean beasts for grazing purposes, which met with fair demand, at prices tending downwards upon last rates. Many were left unsold. The supply of calving and dairy cows was above the demand, which had the effect of giving a check to their late very high prices, leaving a number unsold. The horse fair was only small, the high price of provender tending very much to check the demand, and to cause a decline in price. There were some very good two-year-old Irish colts and fillies for grazing purposes, which met with fair demand at £10, £15, £20 to £25 each.

IRISH FAIRS.—**BALLYVAUGHAN.**—As regards black cattle, there was a good show, and prices were remunerative. Pigs were at very high prices; horses were a dear sort, but of a very inferior quality; and large sums of money apparently changed hands. **CLARE.**—Fat cattle sold from £10 to £14; milkers, £8 to £15; three-year-old heifers, £8 to £16. Pigs were from 40s. to 46s. per cwt. **KILLARNEY** was one of the largest and best supplied with stock known to have been held for the last 40 years. Horned cattle rated rather high, and the purchases were limited. Pigs were sold at the moderate average rate of 40s. per cwt., and consequently the sale of that species was brisk. The disappointment of a Cork buyer in getting a money order for a large amount exchanged at the Bank, tended, in a great measure, to keep down the market, as the expenditure of some £600 or £700 in a fair would very naturally produce an opposite effect.—*Killarney Correspondent.* **STRABANE.**—The supply of cattle was most abundant. Milch cows sold at high prices, and a large number changed hands. There was a good show of horses, and a brisk sale at good prices, especially for strong animals for farming purposes. Pigs were much lower in price, particularly young ones.

ECONOMY IN THE CONSUMPTION OF THE TURNIP CROP, BY USING THE TURNIP CUTTER.

In a season like the present, when the yield of turnips is deficient in many parts of Great Britain, the following extracts will be found more than ordinarily interesting:—

The advantage (of using the turnip cutter) is twofold; saving the teeth of old ewes, for which the Swedish turnips especially are too hard; saving the waste of this valuable root, which, where partially scooped out by the sheep, is rolled and trampled about with great waste. The economy effected by this machine has been stated to be no less than one-third of the whole produce. If it be taken, however, at only a fourth or fifth, why, it may be asked, has not every farm in the country been long since furnished with this cheap apparatus?—*From Mr. Pusey's Reports, in the Royal Agricultural Society's Journal; article, by Mr. Pusey, on English Agriculture, 1840.*

I have endeavoured to ascertain the profit of turnip cutting. If, of two lots of lambs, the one received, during winter, cut turnips, the other uncut turnips, the fold with cut turnips would be worth 20 per cent. more than the other fold. The former would sell for forty shillings a head if the latter fetched thirty-two shillings, and the cost of cutting would be one shilling per head, leaving seven shillings clear profit upon one sheep. If this statement had been made by an amateur agriculturist, one would have been rather sceptical. It was given to me word for word by two experienced practical farmers; and I only write it down from their mouths for the consideration of their brethren in any benighted districts of England, or even Scotland, if such yet there be. Let them consider that seven shillings per sheep upon turnips comes to seventy shillings per acre upon the turnip crop, nearly the average rent of land for the four years' course till the turnip comes round again. And

what is the investment of capital? Five pounds for one best Banbury turnip cutter, which will last for five years. We ought to hear no more of the extravagance of high farming. Your real spendthrift farmer is the man—penny wise and pound foolish—who gives whole turnips to his tugs.—*Mr. Pusey's Paper "On the Progress of Agricultural Knowledge during the last eight years." R. A. S. Journal, 1850, page 430.*

GROWTH OF FLAX.

SIR,—Having read some articles in your journal with regard to the growth of flax, and many letters thereon, I beg to send you the account of the expenditure and receipt of my crop for the year 1853. In doing so, I may say that for several years I have grown flax, and it is an average crop. I have heard of my neighbours growing three packs of 240lbs. per acre; I have never had the luck to do so. I have heard of others growing 20 bushels of seed per acre; in that I have been equally unfortunate, never having grown above 16 bushels, the average being about 14 bushels. I have had a Belgian (Clarke) here, at Mr. Warner's advice, but was soon obliged to part with him, his average dressing of flax being only about 4lbs. per day; so I have of late years been working on the old system of dew-ripening, drying by fire, and hand-scutching, waiting in hopes of some machinery being brought out that will enable us to sell the flax straw, and not become manufacturers of flax. I am sure the process of dew-ripening and drying by fire is wrong, for if the weather is very wet you may not be able at the exact time to take up the flax, and in drying by fire you are very likely to weaken the flax, by over-doing it; but I find this old system pays better than the others I have tried, and I now beg to give you the result of 14 acres of flax:—

	£	s.	d.
23 bushels of seed, at 10s.	14	0	0
Ploughing and harrowing, at 12s.	8	8	0
Pulling flax, at 11s.	7	14	0
Harvesting, at 5s.	3	10	0
Stamping 215 bushels, at 1s.	10	15	0
Dew-ripening	3	0	0
Dressing flax	24	4	0
Rent and rates, at £2	23	0	0
	£90	11	0

RECEIPTS.

	£	s.	d.
215 bushels of seed, at 7s. 3d.	77	18	9
13 packs* 46lbs. of flax, at £6	79	3	0
4 packs 76lbs. of tow, at £2.	8	12	8
5½ tons of flax straw, at £5	27	10	0
	£193	4	5

* A pack weighs 240lbs.

I hope this may encourage some to turn their attention to the growth of flax, especially in the western counties, so admirably suited for it in soil and climate.

I fear I am almost too late for asking gentlemen to weigh their mangel wurzel and swedes. I have heard of 40 tons of mangel and 40 tons of swedes; but I fancy they have judged by the eye, and not by the scales. My mangel, which I have just taken up and weighed in different places, just comes to 19 tons 5 cwt. per acre, and considered here an excellent crop. I always listen to those wonderful crops with very great suspicion; and, even if true, believe the costs of raising them more than the profit.

I am, sir,

Hembury Fort, Honiton.

WM. PORTER.

EATING OFF MILDEWEED GREEN CROPS.

SIR,—The query on this subject in your former number did not escape my notice, but, being addressed to feeding practice, I had no recollection of cases at the moment to refer to; nor can I now answer as "A Veterinary Surgeon," my profession being that of chemist. In Johnson's "Treatise on Salt," p.

105, it is said—"Mouldy hay put together with salt, from 8lbs. to 25lbs. per ton, was better relished by the cattle, and did them more good, than sound hay stacked without salt, and this in many instances." And it is probable that other green food would be cured by the like process. Veterinary surgeons will probably agree with me, that the admission into the stomach and intestines of those decaying agents, mould and mildew, in their active state, is not only trying to the digestion, but in danger of producing diseased actions in the passages. Salt is most likely the best counter-agent, even when the fodder must be eaten at once. But I think it much better, when practicable, to salt it in; that is, to let it lie with the salt long enough entirely to kill the mildew, which, in due proportion, it does in a few weeks, while it preserves the fodder and keeps it from heating. As a general rule, we may say 1lb. of salt per cwt.; but this will require variation, according to the degree of mildew.

Plymouth, Nov. 22.

J. PRIDEAUX.

[ADVERTISEMENT.]

M'CORMICK'S REAPER.

[The following letter bears so explicit a testimony to the merits of Mr. M'Cormick's reaper, that we think it deserves to be made public.—*Mechanics' Magazine.*]

West Blarney, by Dunee, Nov. 7, 1854.

SIR,—Previous to receiving Mr. McKennie's note I had made up my mind to let you know how your reaper succeeded

last harvest. It gives me much pleasure to say that it has given me complete satisfaction, and I am now satisfied that it will not be easily beaten. By its aid I cut twenty-five acres of wheat, and ten acres of black oats, both very heavy crops, and partially laid, in a very superior manner, without stoppage from breakage. The reason of my having cut so small a proportion with yours this year is, that having got one of Crosskill's Bell's, I used it chiefly, as I wished to give it a fair trial. Having done so, I have no hesitation in saying yours is the best, for the following reasons: It is easier for the horses. It will cut a great deal more corn in a day. It is much easier taken up, doing at least one-third more and much cleaner. It can cross the ridges, while the other cannot. It is not liable to break or go out of order, nor is it liable to choke either with damp corn or clover. I may state, that the whole of my people prefer your reaper, not excepting the man who takes the corn off; he does not find the work much more severe than with the other, if any.

I may also add, that I cut with your reaper about ten acres a day; eight men or women and four boys take up, bind, and stook twelve acres in a day of ten hours. Last year, as I formerly mentioned, I cut eighteen acres of wheat in twelve hours; the field was level, the crop not laid, though pretty strong.

I have no hesitation in saying, that were your reapers known, they would be more generally used, as they deserve to be.—I remain, sir, yours, &c.,

Mr. M'Cormick, London. ARCHIBALD DALGLEISH.

REVIEW OF THE CORN TRADE

DURING THE MONTH OF NOVEMBER.

The extraordinary excitement and enormous rise in prices of wheat by which the months of September and October were characterized, have been succeeded by comparative calm, and the fluctuations have not been nearly so violent and extreme this as in either of the preceding months just named. Whether quotations have yet attained the maximum we will not pretend to decide; but at the moment there is an unwillingness to purchase more than absolutely needed for immediate use, which may be viewed as an indication of a want of confidence in present rates being maintained. Under these circumstances, there is not the slightest disposition to enter into speculative investments, and a very small excess of supply over what is required for consumption suffices therefore to produce a temporary depression. Though unwilling to enter into predictions in regard to the future, we consider ourselves called upon to furnish all the information we are able to afford on those point which are calculated to have an effect hereafter one way or the other on prices, leaving it to our readers to determine for themselves to which the preponderance is to be given. In the first place, we feel bound to repeat what we have on former occasions asserted—that the result of the last harvest, taking the United Kingdom throughout, has proved decidedly favourable. That there was an excess over good average years in the produce of almost all kinds of grain

may be regarded as an admitted fact; if therefore there had been anything like the usual amount of old corn on hand when the new became available, we should, in all probability, have been able to do with comparatively very small importations from abroad. We have no means of knowing what the stocks in farmers' hands amounted to at harvest time; but we have a very good test, viz., the quantity of old wheat brought forward after harvest. Judging by this, no other conclusion can be arrived at than that, with the exception of that held in rare cases by wealthy individuals, the stocks must have been exceedingly small. Before the middle of September it had become rare to meet with a sample of old wheat in any of the chief markets in the agricultural districts, and soon afterwards the supplies were composed almost wholly of the new crop. There appears therefore to us to be no doubt on that point, and we are of opinion that at the time of harvest the reserve of wheat in farmers' hands was reduced into a smaller compass than on any previous occasion for years. It becomes a question therefore whether with the extra quantity produced in 1854 the quantity of home-grown wheat in the United Kingdom was, say at the close of September, much in excess of what was held at the corresponding period of the preceding year. If this should really be the case—and that it is so, many high authorities on the corn trade stoutly

maintain—it would follow that we shall require to import largely during the time which will have to elapse before another harvest can be secured. The average annual imports since the commencement of free-trade have been in wheat about 3,000,000 qrs. and flour 8,000,000 cwt. Last year, owing to the extreme deficiency of the harvest, they considerably exceeded the usual average—5,000,000 qrs. of the former and 10,000,000 cwt. of the latter article having been imported during the twelve months ending 10th October, 1853. Notwithstanding what has been said regarding the similarity of our position in regard to stocks of home-grown wheat in the autumn of 1853 and 1854, we trust and believe that we shall not need so great a supply from abroad as that represented by the above figures. Our reason for this belief is, that early in September we had still considerable reserves of old foreign wheat in granary; and though these have since disappeared, they have gone in the place where English would have been consumed. It must nevertheless be admitted that even with economy in consumption, which the present high prices will no doubt enforce, we shall need to import, if not as much as during the average of the last seven or eight years, pretty close upon it. This being admitted, it becomes a subject of the utmost importance to ascertain from whence Great Britain can obtain the assistance there is reason to suppose she will need. Difficulties of no ordinary character present themselves: firstly, the war in which we are engaged with Russia; and further, the exhaustion of old stocks in all parts of the world, in consequence of the enormous drain which was occasioned by the immense wants of this country during last year. Notwithstanding the great inducement which the rates some time past current in our markets must have held out to foreign shippers to consign to England, they have, from the absolute want of old wheat, been unable to send any quantity of importance. This cannot be more strikingly shown than by giving the imports into the United Kingdom during the last three months, with the receipts in the corresponding quarter of 1853, and bearing in mind at the same time that the inducement has been about the same, our prices being nearly as high now as they were then.

The figures stand as follows:—

	1854.	1853.
	Month ending Sept. 5.	Month ending Sept. 5.
Wheat qrs.	198057	546924
Barley "	96759	68721
Oats "	125069	166231
Rye "	441	7102
Beans..... "	34490	30991
Peas "	5979	3103
Maize..... "	62847	175565
Flour cwt.	228213	381611

	Oct. 5.	Oct. 5.
Wheat qrs.	91247	468888
Barley "	38385	56452
Oats "	61053	158633
Rye "	2432	7373
Beans..... "	51359	35705
Peas "	5130	4742
Maize..... "	44224	125512
Flour cwt.	90187	463545

	Nov. 5.	Nov. 5.
Wheat qrs.	75517	425866
Barley "	10474	34928
Oats "	26864	88875
Rye "	23	1895
Beans..... "	31496	17844
Peas "	15054	7491
Maize..... "	41732	55685
Flour cwt.	29066	302355

There has been no want of will to consign, but it has been impossible to collect any large quantity of new corn from the farmers during the time they were occupied with sowing, and old stocks as already intimated were as nearly exhausted at harvest on the Continent of Europe as with us. Since the seeding of the land has been completed, the farmers have brought forward rather better supplies; the effect of which has been, increased shipments from the Baltic ports, and a cessation of the demand in our markets for wheat for export to France, Holland, and Belgium. The calm which has reigned in the trade during the last few weeks may be readily traced, firstly, to the sudden falling off in the export demand (which had, up to the end of October, been considerable,) and, further, to the knowledge that some quantity of wheat has been shipped from the Baltic, from Denmark, Sweden, and the nearer continental ports, for Great Britain. When, however, we examine the matter closely, we find that the supply to be expected is, after all, but insignificant. The entire quantity now on passage to Great Britain, from the places named, does not, we are inclined to think, exceed 100,000 qrs.; whereas, we imported in the month ending 5th December last year, 411,121 qrs. wheat, and 294,212 cwt. Flour. It must further be borne in mind, that continued shipments from the Baltic cannot (even if the corn was there ready to ship) take place, as winter may be said to have set in, and, according to all probabilities, the navigation will speedily become impeded by ice.

A careful review of the foregoing remarks will, we think, satisfy our readers that low prices cannot be looked for during the approaching winter, and it even appears doubtful whether quotations have yet attained the maximum point. One point of great importance must not be overlooked, viz., the entire loss of the Black Sea supplies, not only in as far as relates to Great Britain, but as influencing the trade all over the Mediterranean; at Marseilles alone large quantities of Black Sea wheat are re-

quired annually ; besides which, the Italian ports depend habitually on the shipments from Odessa, &c., for a considerable portion of the wheat they consume. Shippers in the North of Europe have therefore no competition to apprehend from the South, and we cannot expect that they will consign freely except well satisfied that high prices will be obtained. What America may be able to do is at present involved in considerable doubt. Notwithstanding the repeated assertions made from the other side of the Atlantic, that but little can reach us from thence, we are still strongly of opinion that it is only a question of price, and that if the temptation is strong enough, we shall find that the United States and Canada will be enabled to furnish a considerable quantity of bread-stuffs. The latest advices from thence state that a monetary crisis had occasioned some pressure in the value of produce, which must tell in favour of shipments to Europe.

We shall now give a retrospect of what has taken place at Mark Lane since the close of last month.

The upward movement was then in full activity, and continued for about a week afterwards, to which has succeeded a profound calm ; but, to proceed in regular order, we shall begin with the first Monday in the month, the 6th instant. There was on that occasion a somewhat less liberal supply of English wheat than had previously come to hand, but the demand was slow, the millers being exceedingly cautious, and the foreign demand (which had, up to that time, been pretty active) having suddenly ceased, a check was given to the upward tendency, and the prices realized were very little, if at all, higher than those current at the close of October. During the succeeding week the demand revived, and on the 10th instant the finer qualities of English wheat sold at rates 3s. per qr. above those previously paid ; this advance was, however, with difficulty supported on the following market-day, and since then the movement has been decidedly towards a decline. No actual fall took place until the 20th, and even then superior parcels of white wheat could hardly be purchased cheaper than before, but the general runs of red were 2s. per qr. lower, and on Monday last a further reduction to the same extent took place. Good red Kent and Essex wheat, weighing 61 to 63lbs. per bushel, may therefore now be quoted 73s. to 75s. per qr., whilst the finest white still brings 78s. to 83s. per qr. In addition to the usual arrivals coastwise, considerable supplies have reached us by the different lines of railway ; and the quantity which has come forward altogether has been sufficient to render the absence of foreign of comparatively little importance ; but it may be questioned whether farmers will be able to continue to supply so freely for any lengthened period. The arrivals

of foreign wheat have not exceeded 18,000 qrs. during the four weeks ending Saturday, the 25th instant, being less than what is generally regarded as an average supply for a single week. The prospect of larger receipts in the course of a short time—it being well known that there is some quantity now on passage for this port—has, however, had considerable influence, and buyers have confined their operations strictly to what they have needed for immediate use. They have, however, found it impossible to work the new English without a mixture of old, and holders of the little in granary being perfectly satisfied that what remains is sure to be wanted, have shown no disposition to lower their pretensions. The decline on English has consequently produced no corresponding reduction in the value of fine old foreign wheat, which is nearly, if not quite, as valuable now as it was when last we addressed our readers. Moderately good qualities of red cannot be bought below 78s. to 80s., and really fine Rostock is held firmly at 90s., and even higher, whilst choice high-mixed Danzig (which is unusually scarce) brings 90s. to 93s. per qr. in small quantities. We have during the last fortnight had a demand for the lower descriptions of Mediterranean and Black Sea wheat for Ireland, and the advices from thence tend to induce the belief that the inquiry will increase rather than fall off. The arrivals off the coast from ports east of Gibraltar have been quite insignificant ; indeed, beyond a few cargoes from Egypt, hardly anything has come forward. At one time, as much as 53s. to 54s. per qr., cost, freight, and insurance, was paid for Egyptian Saidi wheat, but since then sales have been made at 51s. to 52s. per qr ; the difference in quality has, however, been nearly equal to the difference in price. There have been offers of wheat from the Lower Baltic ports, at prices varying from 68s. to 72s. per qr., cost, freight, and insurance, for new wheat, weighing from 61 up to 62½lbs. per bushel, and some bargains have been closed at these rates. A few small cargoes have also been offered from Antwerp ; but to this a stop is likely to be put, as a measure has passed the House of Representatives to prohibit exports of wheat from Belgium, which will most likely come into force immediately.

The top price of town-made flour was advanced to 73s. per sack on the 13th inst. This step was most likely taken by the millers to protect themselves against making forward sales, the orders they then had on hand being quite sufficient to keep them fully employed for a time. The sale has since been much less free, but as yet there has been no talk of putting down the price. Town household flour has, however, given way 1s. to 2s. per sack ; 66s. was the current rate on the 13th ; now good

marks may be bought at 64s. per sack. Norfolk and other country flour has receded rather more, the supplies having increased since the fall of rain which took place in the early part of the month enabled the water mills (which had for some time been at a stand) to resume work. The supplies from America have been so trifling, and the stock remaining in warehouse has become so reduced, that this description of flour has, like old foreign wheat, commanded a relatively higher rate than English. Holders have, in fact, refused to make the slightest concession, and the best brands have sold in retail at 48s. to 50s. per brl.

Up to very near the close of last month, barley of home-growth came sparingly to hand, and of foreign scarcely any supplies were received. Latterly, however, farmers appear to have thrashed this grain rather more freely, and the arrivals coastwise and by rail have increased. During the first fortnight in November we had rising prices, the advance altogether amounting to 2s. to 3s. per qr., and for fine malting qualities 40s. to 42s. per qr. was at one time paid. This rise was partly caused by an export demand for Holland, and though the enquiry has not wholly subsided as yet, it has fallen off, and the maltsters having at the same time contracted their operations, the above quoted advance has been lost; prices are consequently about the same now as they were at the close of October. The market is still very bare of foreign barley; indeed, there is scarcely any of good quality remaining, the stock consisting of a few lots of Egyptian. There has, however, been less doing in this description of barley than in October, and the extreme terms then current have hardly been maintained: 28s. 6d. to 29s. per qr. is now about the value for barley weighing 46lbs. per bush.

Whilst barley was rising, malt also improved; but since the reaction in the price of the former article, the latter has participated in the downward movement, bringing quotations back to about the same point they started from in the beginning of the month.

In addition to tolerably good supplies of oats coastwise and per railway, we have had increase arrivals from Ireland, and within the last week or two upwards of 20,000 qrs. have come to hand from abroad. The total supply, though considerably in excess of what we have until very lately been accustomed to, has not been large, and the dealers' stocks having been very largely drawn upon during the last month or two, it does not appear probable that any lasting impression will be made by this arrival on prices. The changes have been as follows: on the 6th inst. a decline of 6d. per qr. took place; this was more than recovered on the following Monday, but with further arrivals the succeeding week, prices

again receded 1s., and on Monday, the 27th, a further fall of 1s. per qr. took place. The entire fall from the rates current when we last addressed our readers has amounted to 1s. 6d. to 2s. per qr. on new oats, whilst on old the decline can scarcely be considered more than 6d. to 1s. per qr. From abroad the supplies must necessarily be small until next spring, and as there are scarcely any old of home-growth in remaining any part of the kingdom, it is very improbable that the latter will become cheaper.

The supplies of beans have about kept pace with the demand, and no quotable alteration has taken place in prices. The inquiry for peas has been rather slow; but with the approach of winter the demand for this article usually increases, and holders do not appear at all anxious to press sales: the best boilers have been held all through the month at 50s. to 54s. per qr., and other sorts at proportionate rates.

The want of supplies of Indian corn from ports east of Gibraltar has greatly circumscribed the transactions; the receipts have been confined almost entirely to a few cargoes from America, which have found ready takers at high prices. The demand was more lively previous to the 13th than it has been since, this article having as usual sympathized in the depression in wheat. Ireland must sooner or later feel the absence of the supplies of maize from the Black Sea; and we have no doubt that she will have to purchase low-priced wheat in the English markets as a substitute.

We have not allowed ourselves much space for comment on the present state of the corn trade abroad, still we must give a brief outline of the contents of the most recently received advices from the different foreign markets, to complete our review.

Commencing with the North of Europe as the quarter from whence we have to look for supplies, we may state that great exertions have been used by the Baltic merchants to profit by the state of things here; and though the warehouses were nearly as empty there at harvest time as they were elsewhere, sufficient was collected from the farmers of the new produce to enable shippers to load the vessels which were to be procured, and consignments to some extent were made for Great Britain in the month of October, and continued in September. Of what has been despatched, comparatively little has yet reached us; and we are inclined to think that there may be about 100,000 qrs. now on passage for the United Kingdom, including the shipments from Denmark, Sweden, Lubeck, Bremen, and Hamburg.

Two serious obstacles now present themselves to further shipments—firstly, the scarcity of vessels,

and consequent high rates of freight; and further, the advanced period of the season. From Danzig we learn, under date of 24th inst., that the harbour was covered with floating ice, and if the frost should continue for a few days longer, the navigation would become exceedingly difficult and dangerous. We have similar reports from Königsberg, Stettin, Rostock, and even from Hamburg and Holland, and it appears therefore that an early closing of the navigation is highly probable.

As regards prices, the fluctuations have been very much the same as with us; the communication by telegraph is now so easy and regular, that the changes at Mark-lane are known in most of the continental markets a few hours after they occur, and buyers and sellers regulate their operations accordingly. There was, as with us, a rise in the early part of the month; and there has since been a decline.

The shipments from Danzig in the month of October amounted to 871 lasts; and from Stettin probably 25,000 to 30,000 quarters of wheat, of which 121 lasts had been for London and 51 for Liverpool, the remainder for Holland and Belgium, have been despatched within the last six weeks or two months.

From Rostock the exports have not been so large; and from the other Baltic ports they have been on a much smaller scale.

The latest accounts from Danzig state that the trade had, in consequence of the more subdued tone of the London advices, become quieter than it had previously been. Still, moderate qualities of wheat weighing 61lbs. were worth 66s. to 68s., and for a small lot of fine highmixed of 63lbs. weight, 73s. per qr. free on board had been paid a few days before. Vessels were very scarce, and freights high.

At Königsberg, on the 20th, new red wheat, weighing 61lbs. per bushel, was worth 62s. to 63s.; whilst for mixed and highmixed, 63s. up to 67s. per qr. free on board had been paid. As much as 7s. 6d. per qr. freight had been given for Hull.

From Stettin we learn that vessels had been in great request, and very high rates of freight were demanded by the captains of the few ships in port. Good qualities of red wheat were then held at 64s. to 64s. 6d. per qr. free on board.

At Rostock, quotations were rather higher than at the last-named port.

In Holland, prices of wheat have kept so nearly on a level with our own, that exports to England or imports from hence have been alike out of the question.

From Belgium a few reshipments of foreign wheat were made in the early part of the month; but further exports are to be prohibited.

The latest accounts from France state that, after

a period of great depression, a decided rally had taken place in the value of wheat and Flour; and there is reason to believe that that country will stand in need of large imports before the autumn of next year. Should this be the case, something like the same competition which took place last year between English and French buyers, in the Baltic and in America, might again be witnessed, which would of course have the effect of driving up prices at those places where any surplus for export might exist.

In the Mediterranean, wheat—and, indeed, all kinds of grain—continue to bear a high value; and the prohibition of exports from Italy remains in force.

The reports from America, per the Arabia, speak very despondingly of monetary affairs in the United States; and so pressing had become the want of cash, that holders of breadstuffs, as well as of other produce, had been forced to realize at receding prices. Our New York letters reach up to the 14th inst. Rather an important fall had occurred there in the value of Flour since the beginning of the month, and there was then much anxiety to sell; good shipping brands were then obtainable at equal to 36s. per bbl., but for extra sorts 40s. up to 43s. per bbl. was still asked. The supplies from the interior were increasing, and a further reduction in prices was considered more than probable. The shipments up to that period had, however, been trifling—say from 1st September only 7,182 brls., against 428,674 brls. same time last year. Good supplies of wheat had come forward, and prices had in the course of a single week given way 10 cents. per bush.; quotations were then, for red western, 71s. 11d., red southern 65s. 8d. to 67s. 2d., and for Canadian 67s. 5d. to 69s. 2d. per qr. free on board. The exports from 1st September had been, of wheat, 16,953 bush., against 2,561,008 bushels corresponding period last year. In Indian corn an increase is shown, the shipments having been 1,140,484 bushels, against 230,462 bushels.

CURRENCY PER IMPERIAL MEASURE.

	Shillings per Quarter	
WHEAT, Essex and Kent, white...	75 to 79	extra 81 84
Ditto, red.....	70 73	„ 74 75
Norfolk, Lincoln, & Yorksh., red..	70 72	„ 74
BARLEY, malting, new..	33 34	Chevalier.. 36 39
MALT, Essex, Norfolk, and Suffolk, new	71 73	extra 74
Ditto ditto old	69 71	„ 73
Kingston, Ware, and town made, new	73 75	„ 76
Ditto ditto old	71 73	„ 74
RYE.....	—	44 47
OATS, English feed..	26 30	Potato.. 29 31
Scotch feed, new 29 30, old 31 32..		Potato 32 34
Irish feed, white	28 30	fine 33
Ditto, black	26 28	fine 30
BEANS, Mazagan.....	43 45	„ 47 51
Ticks.....	45 47	„ 49 53
Harrow.....	48 50	„ 52 56
Pigeon	48 54	„ 56 62
PEAS, white boilers 47 51., Maple 41 43		Grey 38 40
FLOUR, town made, per sack of 280 lbs. —		„ 63 73
Household, Town 64s. 66s. Country —		„ 62 65
Norfolk and Suffolk, ex-ship	—	„ 57 58

FOREIGN GRAIN.

	Shillings per Quarter	
WHEAT, Dantzic, mixed.. 77 to 80 high mixed —	85	extra 90
Konigsberg..... 75 78	—	83 85
Rostock, new..... 79 81 fine.....	85	90
American, white.... 77 81 red.....	75	80
Pomera, Meckbg., and Uckermk., red 77	80	extra 85
Silesian.....	—	white —
Danish and Holstein.....	73 80	none
Rhine and Belgium.....	—	old —
Odessa, St. Petersburg and Riga.. 68	73	fine — 75
BARLEY, grinding 28 32.....	Distilling..	31 33
OATS, Dutch, brew, and Polands 29s., 31s..	Feed ..	27 29
Danish & Swedish feed 29s. to 30s.	Stralsund	30 31
Russian..... 28 31.....	French..	none
BEANS, Friesland and Holstein.....		42 46
Konigsberg.. 44 48.....	Egyptian..	38 40
PEAS, feeding.....	42 45	fine boilers 45 50
INDIAN CORN, white..... 44 48	yellow	44 48
FLOUR, French, per sack (none) —	—	none —
American, sour per barrel 40	42	sweet 45 48

IMPERIAL AVERAGES.

FOR THE LAST SIX WEEKS

WEEK ENDING:	Wheat.	Barley.	Oats.	Rye.	Beans	Peas.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Oct. 14, 1854..	57 0	30 6	25 4	34 8	44 4	43 0
Oct. 21, 1854..	57 6	31 3	25 9	35 2	44 4	40 9
Oct. 28, 1854..	60 7	32 1	26 6	36 5	45 4	42 8
Nov. 4, 1854..	68 0	33 6	27 3	38 5	47 6	44 9
Nov. 11, 1854..	72 1	35 0	28 7	42 5	43 10	48 2
Nov. 18, 1854..	72 11	34 7	28 4	41 2	49 2	49 8
Aggregate average of last six weeks	64 6	32 10	27 0	38 0	46 8	44 2
Comparative ave., same time last year	70 9	41 2	24 11	41 5	48 6	52 4
DUTIES.....	1 0	1 0	1 0	1 0	1 0	1 0

COMPARATIVE PRICES AND QUANTITIES OF CORN.

Averages from last Friday's Gazette.			Averages from the corresponding Gazette in 1853.		
Qrs.	s. d.		Qrs.	s. d.	
Wheat.... 132,655	72 11		Wheat.... 65,173	72 7	
Barley.... 85,433	34 7		Barley.... 98,943	42 3	
Oats 15,778	28 4		Oats 15,100	26 0	
Rye..... 347	41 2		Rye..... 236	43 11	
Beans.... 4,776	49 2		Beans.... 4,497	52 6	
Peas 2,465	49 8		Peas 2,386	56 7	

DIAGRAM SHOWING THE FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT DURING THE SIX WEEKS ENDING NOV. 18, 1854.

PRICE.	Oct. 14.	Oct. 21.	Oct. 28.	Nov. 4.	Nov. 11.	Nov. 18.
72s. 11d.
72s. 1d.
68s. 6d.
60s. 7d.
57s. 6d.
57s. 0d.

PRICES OF SEEDS.

BRITISH SEEDS.

Linseed (per qr.).. sowing —s. to 74s.; crushing 62s. to 68s.	
Linseed Cakes (per ton).....	£12 10s. to £13 0s.
Rapeseed (per qr.).....	new 66s. to 72s.
Ditto Cake (per ton).....	£6 15s. to £7 5s.
Cloverseed (per cwt.).....	(nominal) —s. to —s.
Mustard (per bush.) white 8s. to 9s.,	brown old 10s. to 13s.
Coriander (per cwt.).....	new —s. to —s., old 20s. to 24s.
Canary (per qr.).....	50s. to 60s.
Carraway (per cwt.).....	new —s. to —s., old —s. to —s.
Turnip, white (per bush.) —s. to —s.,	Swede —s. to —s.
Trefoil (per cwt.).....	new 20s. to 22s.
Cow Grass (per cwt.).....	—s. to —s.

FOREIGN SEEDS, &c.

Linseed (per qr.)... Baltic, 54s. to 62s.; Odessa, 60s. to 65s.	
Linseed Cake (per ton)	£12 0s. to £13 0s.
Rape Cake (per ton).....	£4 15s. to £5 5s.
Hempseed, small, (per qr.).. —s.,	Ditto Dutch, 46s.
Tares (per qr.).....	new, small —s., large —s.
Rye Grass (per qr.).....	28s. to 35s.
Coriander (per cwt.).....	10s. to 13s.
Clover, red.....	(nominal) —s. to —s.
Ditto, white.....	—s. to —s.

HOP MARKET.

BOROUGH, MONDAY, NOV. 27.

The demand for all hops of good quality has continued steady during the past week, and fully as much money for such descriptions has been obtained. In other sorts there has not been much business doing.

HART AND WILSON.

WORCESTER, (Saturday last.)—The supplies of new hops from the planters have nearly ceased, and only 14 pockets passed the public scales to-day; prices in consequence continue to advance where business is done; a few are held for much higher rates in the spring.

COVENT GARDEN MARKET.

SATURDAY, NOV. 25.

Most things in season continue to be well supplied. Pears consist of Crassane, Glout Morceau, Channontel, Duchesse d'Angoulême, and Passe Colmar. Of Jersey Channontels large quantities have arrived, and trade for them is heavy at much lower terms. Good dessert Apples continue dear. Oranges are getting plentiful, as are also Nuts of all kinds. Chestnuts fetch from 20s. to 24s. per bushel. Cucumbers vary from 3d. to 6d. each. Good Spanish Onions may be bought for 2s. per dozen. Carrots and Turnips are abundant. Potatoes maintain their prices. York Regents still fetch from 105s. to 120s., Kent Regents 120s. to 135s., Scotch do. 100s. to 110s., and Cups 90s. to 105s. per ton. Lettuces fetch from 9d. to 1s. per score. Mushrooms are nearly over. Cut flowers consist of Pelargoniums, Chrysanthemums, Camellias, Chinese Primroses, Heaths, Carnations, and Roses.

FRUIT.

Pineapples, per lb., 3s. 6d. to 6s.	Apples, per bush., 4s. 6d. to 10s
Grapes, hothouse, p. lb. 4s. to 8s.	„ des. per doz., 6d. to 1s.
Pears, per half sieve, 2s. to 6s.	Nuts, Cob, per 100, 140s.

VEGETABLES.

Broccoli, per bundle, 6d. to 1s.	Onions, per bush., 2s. 5d. to 4s.
Cabbages, per doz., 6d. to 1s.	Leeks, per bunch, 2d. to 3d.
„ red, per doz., 2s. to 4s.	Shallots, per lb., 4d. to 6d.
Brussel Sprts., p. hf. s., 1s. to 2s.	Garlic, per lb., 6d. to 8d.
Potatoes, per ton, 90s. to 120s.	Radishes, per doz., 9d. to 1s.
„ per cwt., 2s. 6d. to 5s.	Lettuce, Cab., p. score, 9d. to 1s.
„ frame, per lb., 9d. to 1s.	„ Cos, per score, 9d. to 1s. 6d.
Carrots, per bunch, 3d. to 6d.	Small Salads, p. pun., 2d. to 3d.
Turnips, do., 2d. to 4d.	Horseradish, p. bundle, 2s. to 5s.
Cucumbers, each, 1s. 6d. to 2s.	Mushrooms, p. pot., 1s. to 1s. 6d.
Tomatoes, per hf. s., 3s. 6d. to 4s. 6d.	Chillies, per 100, 1s. to 1s. 6d.
Spinach, p. sieve, 1s. to 1s. 6d.	Capsicums, per 100, 1s. to 2s.
Beet, per doz., 6d. to 1s.	Sorrel, p. hf. sieve, 6d. to 1s.
Celery, per bundle, 9d. to 1s. 3d.	Artichokes, doz., 5s. to 6s.
Endive, per score, 9d. to 1s.	Parsley, p. bunch, 2d. to 3d.
	Sweet herbs, per bunch, 2d. to 4d.

POTATO MARKETS.

SOUTHWARK WATERSIDE.

MONDAY, NOV. 27.

During the past week there have been no arrivals coastwise, owing to contrary winds, and a small supply by rail, which has caused a clearance to be effected at an advance on last week's prices. The following are this day's quotations:—

Yorkshire Regents red....	s. d.	s. d.
Essex ditto	110 0	to 120 0
East Lothian ditto	105 0	— 115 0
Pearthshire, Fifeshire, For-	105 0	— 115 0
„ Jarshire ditto	100 0	— 110 0
Reds and Cups	95 0	— 105 0

BOROUGH AND SPITALFIELDS.

MONDAY, NOV. 27.

Last week's imports of foreign potatoes were only 101 bags from Rotterdam, 9 bags and 1 brl. from Hamburg. The arrivals of home-grown potatoes are but moderate, and a steady business is doing, at, in some instances, enhanced quotations. Scotch reds, 100s. to 115s.; do. Regents, 105s. to 120s.; York Regents, 105s. to 125s.; Lincolnshire do., 100s. to 115s.; other kinds, 90s. to 110s. per ton.

COUNTRY POTATO MARKETS.—YORK, Nov. 18.—A good supply of potatoes sold at from 2s. 6d. to 2s. 8d. per bushel—8d. to 9d. per peck. LEEDS, Nov. 21.—We had a small show of potatoes—wholesale 9½d. to 10½d. per 21lbs.; retail 3d. per 5lbs. MALTON, Nov. 18.—A moderate supply of potatoes sold at from 6d. to 9d. SHEFFIELD, Nov. 21.—A good supply of potatoes sold at from 8s. to 10s. 6d. per load of 15 stones. RICHMOND, Nov. 18.—Potatoes 2s. 8d. per bushel. MANCHESTER, Nov. 21.—Potatoes 8s. to 12s. per 252lbs.

PRICES OF BUTTER, CHEESE, HAMS, &c.

Butter, per cwt.	s.	d.	Cheese, per cwt.	s.	d.
Friesland	106	108	Cheshire, new.....	66	to 80
Kiel.....	106	110	Cheddar	68	80
Dorset	110	116	Double Gloucester	60	70
Carlisle	100	104	Single do.	60	70
Waterford	98	100	Hams, York, new....	90	100
Cork, new	90	100	Westmoreland.....	83	94
Limerick	90	98	Irish	70	90
Sligo	96	102	Bacon, Wilts., dried..	72	74
Fresh, per doz. 14s. 0d.	16s. 0d.		„ green.....	64	67

ENGLISH BUTTER MARKET.

November 27.

We have no alteration to note either as to trade or price.

Dorset, fine	110s. to 112s. per cwt.
Do., middling	100s. to 104s. „
Fresh.	10s. to 15s. per doz.

BELFAST, (Friday last).—Butter: Shipping price, 96s. to 100s. per cwt.; firkins and crocks, 10d. to 10½d. per lb. Bacon, 5½s. to 6½s.; Hams, prime 7½s. to 78s., second quality 60s. to 64s. per cwt.; mess Pork, 90s. to 92s. 6d. per brl.; beef, 105s. to 120s. 0d.; Irish Lard, in bladders, 66s. to 70s.; kags or firkins, 62s. to 64s. per cwt.

Nov.	Butter.	Bacon.	Dried Hams.	Mess Pork.
	per cwt.	per cwt.	per cwt.	per brl.
	s. d.	s. d.	s. d.	s. d.
1850..	74 0 80 0	34 0 44 0	56 0 58 0	56 0 58 0
1851..	77 0 84 0	45 0 47 0	60 0 62 0	58 0 62 0
1852..	76 0 82 0	50 0 54 0	64 0 66 0	72 6 75 0
1853..	95 0 100 0	54 0 58 0	70 0 70 0	85 0 87 6
1854..	90 0 95 0	54 0 60 0	68 0 74 0	90 0 95 0

CHICORY.

LONDON, SATURDAY, NOV. 25.

The imports of Chicory, this week, are 550 bags 58 tons from Harlingen, and 392 bags from Hambro'. As the supply of both English and foreign is increasing, the demand is heavy, and prices are with difficulty supported.

	Per ton.		£ s. £ s.
Foreign root (in £ bond) Harlingen 10 5 10 10		Roasted & ground	
English root (free)		English.....	14 0 20 0
Guernsey.....	9 0 10 0	Foreign.....	30 0 36 0
York.....	9 0 10 0	Guernsey.....	26 0 28 0

HAY MARKETS.

SATURDAY, NOV. 25.

SMITHFIELD.—A fair average supply, and a steady trade. **CUMBERLAND.**—Trade firm, at full quotations. **WHITECHAPEL.**—Both hay and straw in fair request, at full prices.

	At per load of 36 trusses.			
	Smithfield.	Cumberland.	Whitechapel.	
Meadow Hay	55s. to 96s.	56s. to 107s.	55s. to 96s.	
Clover.....	60s. 120s.	60s. 116s.	60s. 120s.	
Straw.....	26s. 32s.	27s. 33s.	26s. 32s.	

WOOL MARKETS.

ENGLISH WOOL MARKET.

BERMONDSEY, Nov. 25.—The state of the trade is exceedingly depressed, and several failures in Yorkshire are reported this week. This, with unfavourable news from America, renders the trade exceedingly perplexing, and the tendency of prices is downward, with very limited demand, and prospects gloomy till after the turn of the season, when it is hoped the spring trade will revive. Quotations must be considered nominal at present; there is, however, a fair demand for flannel and blanket Wool.

	s.	d.		s.	d.
Down tegs	1	0	to	1	1
Down ewes	1	0	—	1	0½
Half-bred Wethers.....	1	0	—	—	—
Half-bred hogs.....	1	0	—	1	0½
Kent fleeces	1	1	—	1	1½
Leicester fleeces	1	0	—	1	0½
Flannel wool	0	10	—	1	2
Blanket wool	0	9	—	1	1

BRADFORD WOOL MARKET, Nov. 23.—The demand is as dull as it can be; and things are daily getting worse.

LEEDS (ENGLISH) WOOL MARKET, Nov. 24.—There is no change to report this week; the business done has been limited.

LIVERPOOL WOOL MARKET, Nov. 25.

SCOTCH WOOL.—There is still a fair enquiry for Laird Highland Wool at late rates, white is also in rather more request. Cheviots and crossed are only in moderate demand, at late rates.

	s.	d.		s.	d.
Laird Highland Wool, per 24lbs.....	9	6 to 10	0		
White Highland do.....	12	0	12	0	
Laird Crossed do., unwashed	12	0	13	0	
Do., do., unwashed	12	9	14	0	
Laird Cheviot do., unwashed	13	0	14	6	
Do., do., unwashed	16	6	17	8	
White Cheviot do. . . do.....	24	0	26	0	

FOREIGN WOOL MARKETS.

The market has been quiet, and without any change of importance in the quotations.

LEEDS (FOREIGN) WOOL MARKET, Nov. 24.—The foreign and colonial trade, as stated in last week's report, is still rather inactive. Prices remain firm at recent quotations.

The series of public auctions of colonial and foreign wool concluded on Tuesday, November 15th; the quantities in the catalogues being 14,662 bales Australian wool, 20,519 Port Philip and Portland Bay, 5,064 South Australian, 3,471 Van Diemen's Land, 1,972 New Zealand, 6,382 Cape of Good Hope—Total, 52,570. 2,870 East Indian. Total, 55,440 bales colonial. 303 Merino Odessa, 224 Spanish, 447 black and Portugal, 646 Buenos Ayres, 234 Egyptian, 2,180 Russian, Turkey, &c.—Total, 4,031 bales foreign, and 1,050 ballots Peruvian.

Colonial	55,440 bales.
Foreign	4,031 „

Total 59,471 „

The information from the various brokers is as follows:—In the interval since the last sales, stocks in the hands of dealers and manufacturers have become light, and though the worsted trade (except for Goat's wool and Alpaca) is still in a very unsatisfactory state, and some of the mills restraining their power of production from want of confidence, demand, and remuneration. The buyers for woollens, notwithstanding the diminished requirements for export, appear still to have a steady trade, and have taken this year a larger proportion of German wool, the price of which being well has continued to act favourably on the better descriptions of colonial clothing wool. We have had throughout the series brisk biddings from a full attendance of buyers, and are happy to be able to report the firm maintenance of former rates (except perhaps for lambs' wool), and in some instances an advance of 0½d. to 1d. per lb. —say on favourite clips of Port Philip, on the better description of clothing, and on Cape wool. Buyers for foreign account have been steady purchasers, and taken probably 10,000 bales. It is hardly necessary to add, that we are much indebted to this branch for the support of the market, while the slightly depressed character of our own unassisted demand

leaves our allies a favourable opportunity for their operations. We regret to find the Port Philip wools continue to arrive inferior to last year, both in condition as well as growth; and we fear that strong indications are to be seen of the truth of the report of a diminished clip of 1854 in the reduced proportion of lambs' wool to the several flocks. The very satisfactory prices which the faultless wools of Port Philip, as also of Portland Bay, commanded, will, we trust, be a stimulus to the settler to renovate his breed, and to extend the culture of sheep, as the wool of both these districts has become essential to the upholding of an important branch of our manufacture, viz., the Bradford trade, which, although in a sadly depressed state of late, will ever continue to be the staple branch of the woollen fabric. The Sydney flocks do not generally show the same neglect; and we hope the very high prices many of the wools of this colony, as well as of the Moreton Bay district realized, will compensate the producer for any increased expense he may have been at for the preservation of his flocks. Amongst the Adelaide wools were some quite equal in condition and quality to any former year, and they were duly appreciated. The Van Diemen's Land wools were of an average quality: the prices of these were relatively easier than most other descriptions—not being much in demand for the continent. New Zealand wool gives most favourable indications for the future, as likely to be a most serviceable description; but at present it is anything but in favour with buyers, owing to the sadly irregular manner it is packed—greasy wool being intermixed with washed wool, so much so as almost to bear the appearance of a desire to deceive. Nothing can be more impolitic than to bring the wool of this colony into disrepute, by irregular packing: prices realized for wools well got up must sufficiently remunerate to ensure more care in this respect. Cape wool, notwithstanding the quantity, was larger than last sales, and all cleared off at the full advance, much being taken for export. Skin wool was in good demand for the Rochdale market, and, and, the quantity being limited, advanced prices were paid. Lambs' wool was less required than last sales, which was fortunate for the buyers, as the supply of fair quality faultless descriptions was exceedingly small; as it was, the prices paid in many instances were extravagant; nothing was to be had excepting at a considerable advance on last sales.

Merino Odessa wool was again in very fair request, and was taken almost exclusively for home consumption; the large arrivals over land into France and Belgium preventing foreign buyers from affording that assistance we have experienced. It was, however, all sold at a small advance upon last sales.

Spanish wool was only in limited demand, and could not be moved in any quantity except at a reduction from previous prices.

The Buenos Ayres was of a very inferior description, mostly common wool, for which the use is at all times restricted. Merino quality, both washed and unwashed, would have realized high prices, as all wools of this description have advanced, while low wools have been sadly depressed.

In coarse wools Egyptian 1st white were the only sorts that seemed at all higher; and, as these bright silky wools are much appreciated, and cannot be superseded by East India, it affords every encouragement for their importation.

The stocks of wool on hand have very much fallen below that of last year, in consequence of the shortness in the importation of foreign wool, and largely increased exportations of colonial, foreign, and British grown wool during the nine months from the 5th Jan. to 10th Oct. this year, as may be seen by the following statements, viz. :—

	1853. lbs.	1854. lbs.
The importation from British pos- sessions out of Europe was	46277,276	50,187,692
The importation from other parts..	37,586,199	27,006,173
	83,863,475	77,193,865
Shewing a decrease on the nine months' importation of	—	6,669,610

	1853. lbs.	1854. lbs.
The export of colonial wool was ..	4,577,812	11,767,232
And of foreign	2,134,626	4,614,247
	6,712,438	16,381,479
Shewing an increase in export of ..	9,669,041	—
The export of British grown wool was	4,755,443	9,477,396
Showing an increase in export of ..	4,721,953	—
Or nearly double.		
So that, by taking the increase of exports of colonial at		7,189,420
That of foreign at		2,479,621
And that of British at		4,721,953
We have a total increase in export of		14,390,994
And if to which be added the decrease of impor- tation of foreign wool		10,580,026
		24,971,020
And deduct the only increase which has taken place, viz, that of colonial		3,910,416
We have a total deficiency for the last 9 months of Or of 70,202 bales of 360lbs. each.		21,060,604

The prices current are :—

AUSTRALIAN.—Scoured fine 1s. 9d. to 2s. 2d., do. skin 1s. 4d. to 1s. 7d., fine clean fleeces 1s. 8d. to 2s. 3d., inferior 1s. 4d. to 1s. 6d., pieces and locks 10d. to 1s., lamb wool 1s. 5d. to 1s. 7d., unwashed fleeces 10d. to 11d.

VAN DIEMEN'S LAND.—Scoured fine 1s. 9d. to 2s. 2d., do. skin 1s. 4d. to 1s. 7d., fine clean fleeces 1s. 8d. to 1s. 10d., inferior 1s. 3d. to 1s. 4d., pieces and locks 11d. to 1s., lamb wool 1s. 8d. to 2s. 2d., unwashed fleeces 10d. to 1s. 1d.

PORT PHILIP.—Scoured fine 1s. 10d. to 2s. 2d., do. skin 1s. 4d. to 1s. 6d., fine clean fleeces 1s. 10d. to 2s., inferior 1s. 4d. to 1s. 6d., pieces and locks 11d. to 1s. 1d., lamb wool 1s. 8d. to 2s. 2d., unwashed fleeces 10d. to 1s. 1d.

SOUTH AUSTRALIAN.—Fine clean fleeces 1s. 5d. to 1s. 7d., inferior 1s. 3d. to 1s. 4d., pieces and locks 10d. to 11d., lamb wool 1s. 5d. to 1s. 7d., unwashed fleeces 10d. to 11d.

SWAN RIVER.—Scoured fine 1s. 5d. to 1s. 7d., do. skin 1s. 3d. to 1s. 4d., fine clean fleeces 1s. 4d. to 1s. 7d., inferior 1s. 2d. to 1s. 3d., pieces and locks 10d. to 11d., lamb wool 1s. 5d. to 1s. 8d., unwashed fleeces 7½d. to 9½d.

CAPE.—Scoured fine 1s. 3d. to 1s. 4d., do. skin 1s. to 1s. 2d., fine clean fleeces 1s. 4d. to 1s. 6d., inferior 1s. 1d. to 1s. 2d., pieces and locks 7d. to 8d., lamb wool 1s. 3d. to 1s. 5d., unwashed fleeces 7d. to 9d.

NEW ZEALAND.—Fine clean fleeces 1s. 3d. to 1s. 7d., inferior 1s. 1d. to 1s. 2d., pieces and locks 9d. to 10d., lamb wool 1s. 3d. to 1s. 5d., unwashed fleeces, 9d. to 10d.

First quality South American Merino pretty free from burr 1s. 3½d., second do. do. 10½d. to 1s., third do. do. 9d. to 10d., inferior and burry 6d. to 7d., low coarse and burry 4d. to 5d., good Merino (greasy) pretty free from burr 6d. to 6½d., inferior and burry 3d. to 4½d.

East India good white 10d. to 1s., inferior 8d. to 9d., fair yellow 6d. to 7d., inferior 4½d. to 5d., black and grey 1½d. to 3d.

Shanghai (no first quality) second and middling 6d. to 7½d.

MANURES.

PRICES CURRENT OF GUANO.

Peruvian Guano	per ton	£11 11 0	to	£12 0 0
" D. first class (damaged) ..	"	10 0 0	"	11 0 0
Bolivian Guano	"	0 0 0	"	0 0 0
ARTIFICIAL MANURES, OIL CAKES, &c.				
Nitrate Soda	"	17 10 0	"	18 0 0
Nitrate Potash or Saltpetre ..	"	25 0 0	"	28 0 0
Sulphate Ammonia	"	17 10 0	"	18 10 0
Muriate ditto	"	22 0 0	"	23 0 0
Superphosphate of Lime	"	6 0 0	"	0 0 0
Soda Ash or Alkali	"	0 0 0	"	8 0 0
Gypsum	"	2 0 0	"	2 10 0
Coprolite	"	4 5 0	"	4 10 0

