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[THIRD SERIES.]

THE  
**FARMER'S MAGAZINE,**  
AND  
MONTHLY JOURNAL  
OF  
**THE AGRICULTURAL INTEREST.**

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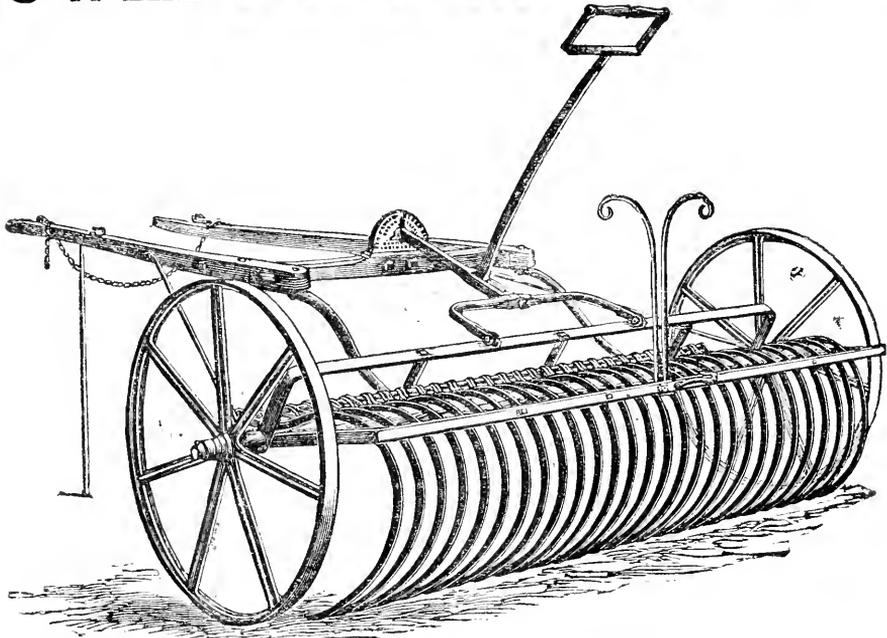
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# THE FARMER'S MAGAZINE.

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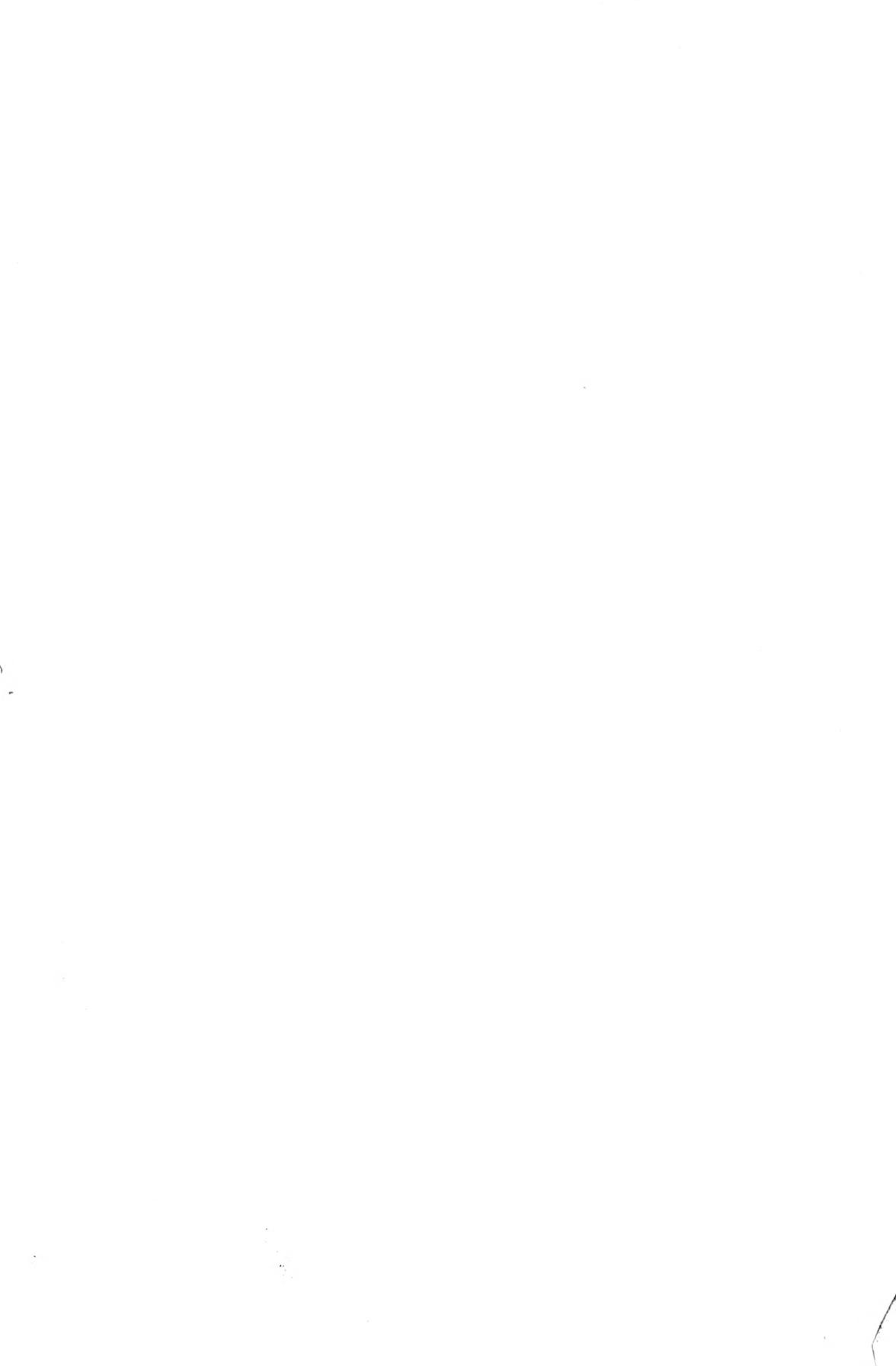
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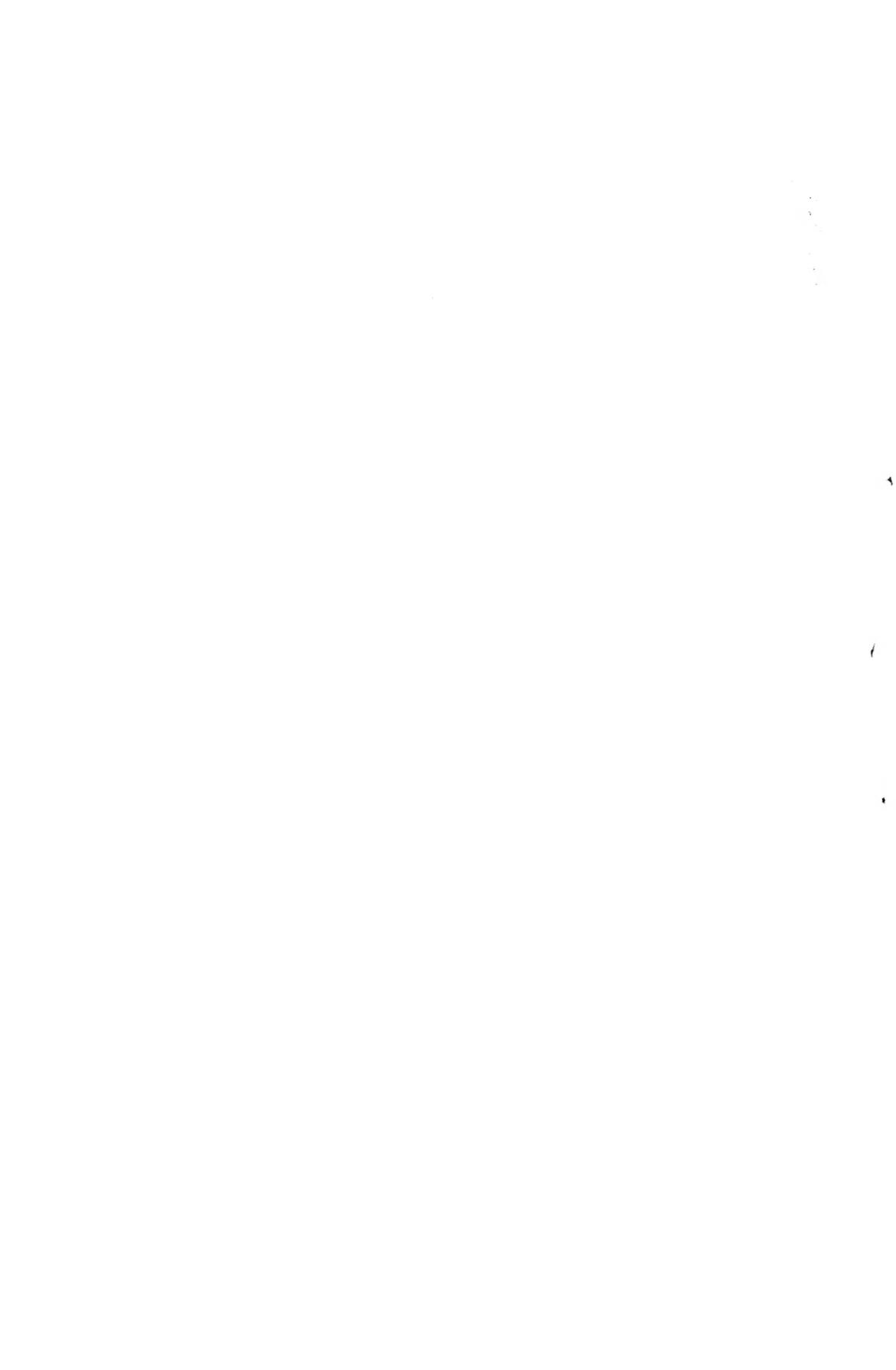
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*London Illustrated by Frederick Goodall, 24th Annual No.*





Yours very truly  
Henry Estlin



# THE FARMER'S MAGAZINE.

JULY, 1867.

## PLATE I.

### PORTRAIT OF MR. HENRY TRETHERY.

ENGRAVED FROM THE TESTIMONIAL PICTURE.

There are men in this country who, although they have never rendered themselves illustrious by their achievements in arms, or famous by their works in art, or by their productions in literature, yet have by the very force of their character drawn themselves out from the ranks of their fellow-men, and become so conspicuous by their good actions, and by their usefulness in their generation, as to call for some lasting memorial of their worth. Such a man is Mr. Trethewy. Of all the eminent agriculturists in Cornwall—and there are many of them—he has by universal consent been considered to be the greatest living benefactor to the interests of agriculture in his native county. His reputation is not, however, confined to Cornwall, for it extends to every portion of the kingdom in which agriculture is cultivated as a science. Mr. Trethewy's career has been one of unblemished honour; it has been fraught with lessons—with useful lessons—to all; and he would never have attained his present position if he had not kept steadily before him the maxims of self-reliance and self-help. Mr. Trethewy is the steward—and the successful steward—of one of the largest properties in the county. For upwards of half a century he has been connected with that property; and when he succeeded to the stewardship, Mr. Hawkins, the owner, was a minor. When that gentleman attained his majority the estate was handed to him, excelled by none in the district for good farming, good tenants, and lasting improvements. During the time that he had the management of the property, he inspired confidence between landlord and tenant, without which no property can be worked with advantage to the owner or justice to the occupier. It need scarcely be said that Mr. Hawkins handed back that estate to Mr. Trethewy's management; and he has not only the most unbounded confidence in Mr. Trethewy as his agent, but he has likewise the highest personal regard for him, and respect for his character. Mr. Trethewy has been a distinguished member of all the leading agricultural societies in this king-

dom. In the Royal of England, in the Bath and West of England, and in the Royal Cornwall he has been a prominent member and frequent judge; and it has not only been for the sake of the estate under his charge, or for his own personal advantage, but for the sake of the county at large, that he has been a member of these Societies, and encouraged by Mr. Hawkins to visit every place from which he thought a single improvement could be obtained. As a land valuer and referee and umpire Mr. Trethewy has always been greatly sought after; questions of the greatest difficulty and disputes of the nicest description have been constantly submitted to him, and he has lent his aid for the purpose of restoring goodwill between neighbours when the breach appeared beyond all human healing.

From my earliest professional career I have felt the highest respect for him, and I can give no better illustration of the opinion I entertained for his integrity and honesty, than by referring to a small transaction in which I was personally concerned. On one occasion I was about to become a purchaser of a small property, and I was told that a valuer had been appointed on the other side. I asked who had been selected, and when told that it was Mr. Trethewy, I said, "I do not want any other. I do not know what his valuation is, but I have every confidence in him, and I am ready to enter into the contract." But I will now draw on to a wider range. You know that Mr. Trethewy, by his advice, forethought, and intelligence, has done everything which a man could do to stimulate and encourage the farmers and the agriculturists of this county in the course of remunerative improvement; and this he has done not only by the introduction and encouragement of new manures and new crops, but by introducing improved implements and improved breeds of cattle. If Mr. Trethewy's talents had been confined to one thing—the good management of Mr. Hawkins's property—we should not have been here to-day; but it is the accumulation of all his merits which have

brought us together on this occasion. Although the outline which I have given is very brief and imperfect, yet I believe you will agree with me that Mr. Trethewy has traced to its sources the spring of agriculture; and though he will pass away from us, yet he will leave his footprints upon the agriculture of Cornwall for all time—and not only in Cornwall, for he has planted two of his sons in two other counties famous for their agriculture—namely Bedford and Norfolk, where he has made them Goliaths in agriculture. I am happy to say, however, that he has one little David in his son William, whom we shall keep among us. Is not such a man entitled to some acknowledgment from his native county? You have answered in the affirmative; and never was there a more spontaneous offering originated by my friend Mr. John Gatley, seconded by Mr. Bullmore, of Trescobas, adopted by acclamation by a numerous meeting, and ratified by the entire voice of the county. It has been said that farmers are but small subscribers—that they measure their subscriptions by their profits; and these, we know, are very small; but I can tell you that on this occasion they have flowed in freely from the very first, and, if needed, would have flowed uninterruptedly to the present time. You must, I am sure, have often seen on market-days the smiling and gratified face of my friend Mr. Gatley, who has taken a deep interest in this matter, standing at the door of the Red Lion Hotel, with the farmers gathered around him and emptying their pockets towards the testimonial, until my friend was compelled to cry out, “Hold, enough! I cannot take any more money.” Then came the examination of the list; and there was found to be upwards of five hundred subscribers, and among the names are some of the most honoured in the county. There are Lord Falmouth, Sir Charles Lemon, Mr. Robartes, Mr. St. Aubyn, Mr. Davey, Mr. Carew, Mr. Gregor, the two Mr. Hawkins, Mr. Ennis Vivian, Mr. Humphry Willyams, Mr. William Williams, Mr. John Michael Williams, Mr. Henry Williams, Mr. George Williams, Mr. Bolitho, Mr. William Coulson, Mr. Hendy, Mr. Gully Bennet, and a long list of others, from the peer down almost to the labourer in his cottage; and, among them, my friend has found the widow’s mite—a widow who, no doubt, remembered that Mr. Trethewy had, by his advice and kindness, rescued a husband, son, or brother from some difficulty during a time of difficulty and distress; but John Gatley said, “No, no; we will not take the widow’s mite, but will accept her goodwill, which will be a blessing upon our work.” Well, the money was subscribed; but what was to be done with it,

amounting as it did to upwards of £400? There was but one feeling—that there should be some lasting memorial of this man, that his lineaments should be handed down to posterity, as an incentive to those who might come after him to pursue a similar useful and upright course. We determined to have one of the first artists in England to pourtray those lineaments; and in this selection I must say that we were greatly assisted by Mr. Hawkins, with whom we communicated on the subject. Mr. Knight, the Royal Academician, was chosen; and I must say that he has been eminently successful, because he has not only pourtrayed the features of Mr. Trethewy, but he has also given us the character of the man. Still, there was a large sum remaining, and what was to be done with that? It was determined, and again we were unanimous, that a service of plate should be presented to Mr. Trethewy with the portrait, in such a form as would enable him, if he pleased—but without in any degree intimating or dictating to the recipient what he was to do with it—to place something hereafter in the hands of every member of his family, to which they could point with just pride to those around them, and say, “See what the county of Cornwall thought of our father.”

We borrow the above biographical notice from the speech of Mr. P. P. Smith, the chairman of the dinner at Truro on the occasion of the testimonial being presented, in the autumn of 1865. We ourselves have often had the pleasure of meeting Mr. Trethewy both in public and private, and can hear willing testimony to that worth and ability which have alike been recognised by his friends and neighbours, as by comparative strangers. In addition to the portrait, the testimonial consisted of six massive and elaborately-chased silver salvers, and a tea and coffee service, also of solid silver, the whole weighing 350 ounces, and the largest of the salvers bearing the following inscription: “Presented, with his portrait by J. P. Knight, R.A., to Mr. Henry Trethewy, of Grampound, by a large number of landowners, yeomanry, and friends, as a mark of their high esteem, and in grateful acknowledgment of the substantial services he has rendered to agriculture, particularly in his native county of Cornwall, September 12th, 1865.” Mr. Trethewy was born on the 29th of October, 1786, and he is consequently in the eighty-first year of his age; hale and hearty we are happy to say still.

The Trethewys are of long standing in Cornwall; and we have seen some records that trace their family-tree very far back.

## PLATE II.

### FASHIONING A FLY.

(For description of plate see page 16.)

H A Y M A K I N G .

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

“The changes which take place in the field and in the stack, in haymaking,” are the subjects of one of Professor Voelker's recent and valuable papers (*Journ. Roy. Ag. Soc., N.S.*, vol. iii., p. 30), an inquiry at this season deeply interesting to a large portion of our readers. The chemical changes which occur during the growth of the grasses and their conversion into hay, ought to be far more generally understood by the agriculturist. This knowledge will be materially diffused by the labours of the Professor.

Haymaking is, of course, very much dependent upon the weather, and the time of harvest varies with the locality, June being the great haymaking month in the metropolitan counties, whilst in other portions of our island this harvest is carried on in July, August, and even in September.

The amount of rain, and the number of days on which rain fell at Croydon in June and July during the year 1864, '65, and '66 were as follows:

	June.		July.	
	days.	inches.	days.	inches.
1864 .....	11	1.06	6	0.43
1865 .....	4	2.06	11	3.24
1866 .....	10	2.83	8	2.05

Some little time since, Mr. J. Bowick, of Stoneleigh, in Warwickshire, described in his prize essay the great assistance derived, especially in rainy seasons, from hay-making machines (*ibid.*, vol. xxiii., p. 48). In the years 1858, '59, '60, and '61 he had two dry and two wet hay-makings. When speaking of the use of his machines during those years, Mr. Bowick observes: “In the two drier years hay was well and easily got; while in the two latter the operation bore a complete contrast to our earlier experience. In 1860 in particular the chief difficulty was how to make hay in cloudy weather alternating with pouring rain; and the chief lesson learnt was, that a strong staff of hands is essential. We managed, with one of Burgess and Key's implements, to dispense with half-a-dozen able-bodied mowers, while another half-dozen were also frequently taken from their work on pressing occasions. As regards the mowing-machine in that unfavourable season, although there were many annoyances arising from stoppages among tangled and heavy crops, yet we never lost an hour's carrying by keeping it at work, while it gave us a power over the whole operation which could not otherwise have been obtained. Improved machinery, as the haymaker, horse-rake, and mowing machine, has tended greatly to diminish the amount of manual labour needed. The former implement has been more or less before the public for the past fifty years. Though many improvements have been made, its principle still remains unchanged. Scarcely second in importance for extensive crops is the horse-rake. Even where it is not employed for windrowing, there is a great saving of labour by dispensing with hand-rakes for clearing the ground. The use of carts instead of waggons in hay carrying is a great advantage, for one strong horse will take nearly as much on an old-fashioned broad-wheeled dung-cart (furnished with suitable gearing), as many folks choose to place on a waggon drawn by two or three horses. The cart can be left beside the rick, while the horse returns for another load, by having three props, one fastened to each shaft, and the other at the tail of the cart. It is a good practice, for hay that has been injured by rain in harvesting, to

add a peck of salt to a ton of hay. Mr. Bowick prefers adding to the hay a mixture, which many have tried, both in making the ricks in summer and in using them in winter. The point aimed at is to give an aromatic flavour which shall be intrinsically good and safe in itself, and which shall at the same time render the hay or clover palatable to the stock fed upon it. This is accomplished by strewing a little of the following mixture in the rick, while in process of erection:

Fenugreek, powdered	...	...	...	112 lbs.
Pimento	...	...	...	4 „
Aniseed	...	...	...	4 „
Carraways	...	...	...	4 „
Cumaine	...	...	...	2 „

An outlay of 2s. 6d. per ton will afford a sufficient application in the majority of cases; and that horses or cattle will consume the compound in preference to better lots not similarly treated, we have had repeated and lengthened observation. An inquiry being made as to how it affected the health of the animals fed upon it, we were able last season thus to reply: ‘Our beasts, numbering 170 head, came out with more than average bloom in spring; and the cow-doctor's bill, from November to April inclusive (the hay-consuming months) has not run over threepence per head.’”

The value of the hay naturally varies with the quality of the herbage. On this portion of the subject Mr. Bowly truly enough remarked (*ibid.*, p. 60): “A few years since it was hardly allowed that this is pretty much in the farmer's own hands. Put on ammoniacal manures, and you get a strong bulky produce, in which the ranker grasses predominate. Apply phosphatic dressings, and the clovers and finer grasses presently appear. Prepare a combination of the two, and a desirable result should follow. Our manure manufacturers of repute, who have characters to lose, do this ready to our hand; and there can be no great hazard in putting on from 20s. to 30s. worth of such dressings per acre—in damp weather in February or March—whilst the prospects of a profitable return is highly encouraging. This refers to grass land, which receives such applications regularly, or which is otherwise in good condition; with exhausted soils, more liberal treatment is required. The following plan has been tried here (Gloucestershire) extensively, and invariably with satisfactory results. Draw out a dunghill about Christmas, containing 300 yards of good yard-manure. Throw up in a heap six feet high, and mix with one ton of Peruvian guano, two tons half-inch bones, and two tons of salt. Turn a time or two, till the whole becomes a rich saponaceous mass. Then cart on the turf not later than February; apply to twenty acres; spread, chain harrow, and spread again. After a week or two little will be seen of it; but at hay-time, as well as on the aftermath, the results are readily visible. By the application of hot lime at from one to two tons per acre, on pieces of sour grasses, or under trees where the *Dactylis glomerata* abounds in all its coarse luxuriance, much improvement in the herbage is produced.” If farm manure is not to be had, then 1 cwt. of guano, 1 cwt. of nitrate of soda, and 2 cwt. of common salt per acre, is a good dressing for artificial grasses. We have, indeed, long contended that our grass lands have never obtained that share of the farmer's attention which they will sooner or later obtain. This remark is not confined to those pastures to which nature

has been bountiful, but extends to those poor yearly more-and-more-impooverished upland grass lands that the holder is so wont to plough up.

Then, as to the ingathering of hay. In the wet districts of Yorkshire far more pains are taken in guarding the haycocks from rain, than in our drier counties. The process followed at Burley, in the West Riding, was that described by the late Mr. T. Horsfall (*ibid* vol., xviii., p. 150). "Till lately I deferred mowing the grass till it was in flower. In the year 1856 I cut it before the flowering time. Though this early-cut grass shrinks more in the stack, yet I find it weigh proportionately heavier. It is not unusual for a square yard cut from the solid part of one of my stacks to weigh 30 stone imperial: I have known it exceed this. The solid part of a small stack of aftermath hay from seven acres of this season's growth weighed 26 stones imperial. I find it of advantage to employ a full complement of haymakers. In travelling through the country I have seen but one haymaker employed where I should have half-a-dozen. I find six haymakers, if fully employed, earn their 12s. or 14s. for one day far better than a single man would earn the same sum in six days.

"The haymaking or tedding machine has in my practice superseded the expensive operation of spreading by hand. When the grass has been spread a sufficient time the haymakers turn it with their hand-rakes from the sun or wind. At the close of the day the grass or hay is raked together in rows; the space between each row is left quite bare. In this state it remains overnight, to prevent the bleaching effects of the falling dew and the moisture from the ground. Early in the morning, as soon as the bare ground between the rows is dry, the haymakers turn over the rows, the underside of which, and the ground on which they have lain, are completely wet from checked evaporation. This operation of turning is easily performed, and well repays the labour. When the ground is dry the tedding-machine is set to work, and the turning and drying are repeated. When the weather is at all doubtful we resort to the lap or shake cock, in making which the haymaker gathers up an armful, say 8lbs. to 10lbs. of partly dried grass, and lets it fall lightly on a heap. He then thrusts his hands under the heap, lifts and folds it without pressing, and sets the heap quite lightly on the ground with the end towards the wind; in appearance it is not unlike a lady's muff of large size. It is a common saying, that well-made lap-cocks will stand a fortnight's rain free from damage. Without subscribing to this, I have no hesitation in stating, that in no form does partly-dried grass keep so well as in lap-cock. The rain falling on a lap-cock is thrown off in a somewhat similar manner as from an umbrella. I never recollect finding a well-made lap-cock thoroughly wetted.

"By the mode I have described I accelerate the process of haymaking; and it is by no means uncommon for me to secure my crop in less than half the time required by my neighbours. On the hay becoming sufficiently dry, it is formed into wind-rows and then drawn together by a sweep into large pikes of about three loads each, with conical tops, which are slightly thatched with straw. When the pikes have undergone a partial sweating, they are eared away and well intermixed in stacking. This piking before stacking I find quite necessary with my rich quick-grown grass, to prevent over-heating. Early in the mornings, and at other intervals, when not occupied with haymaking, the men hoe and clean turnips, &c. Though this district is high, and the climate rather wet, yet from 1847 up to the present time I have succeeded in carrying the whole of each crop in good condition."

On the chemical changes which take place in the con-

version of grass into hay Professor Voelcker remarks: "If grass or clover could be made into hay without undergoing any change in composition, the hay, when made, would no doubt be found as valuable as the green food from which it was derived. From exposure to the broiling heat of the sun on a hot summer's day, cut grass or clover hardly loses anything else but water, neither do their constituents undergo material alterations if the grass is not much bruised, and the drying process takes place with sufficient rapidity. The green colour, sweet taste, and aromatic smell of well-made hay plainly show that such is the case, and that haymaking is not always or necessarily attended with serious loss of nutritive matter. I am aware, however, that many practical men maintain the opinion that grasses and clovers are less nutritious as hay than when consumed green: though this may be true as a matter of fact in nine cases out of ten, I conceive this is not a matter of necessity, but, if it were always practicable to resort to artificial means of desiccation, or to have under complete control the natural drying process in the field, no material loss would be experienced; the green colour of grass would be preserved, nothing but water escape, and all the solid constituents remain behind in much the same state of combination in which they occur in the succulent produce of our grass-fields.

"The nature and extent of the injury which grass sustains in haymaking are generally traceable—

"1. To prolonged showery weather after the grass has been cut, so that it ultimately gets wet and half-dried, and has to be moved frequently on the ground before it can be eared and stacked.

"2. To bad management in the field, and subsequent heating in the stack.

"3. To the mistake of cutting the produce either too early or too late in the season.

"Grass and clover, when ready to be cut down, contain a considerable quantity of sugar, gum, mucilage, albuminous and other soluble compounds, which are all liable to be washed away by heavy showers of rain. As long as grass is still quite fresh, rain falling upon it has little or no injurious effect, for fortunately a coating of waxy or fatty matter covers the epidermis, and wraps, so to speak, the whole vegetable matter in a waterproof mantle. Rain for this reason may fall for days on newly-cut grass without doing any injury to it; but the case is very different if, by repeated turnings, the crop has become more or less bruised, and rain then descends upon the half-made hay; not only are sugar, gum, and other soluble matters then liable to be washed out, but the bruised state of the plants, admitting at least a partial diffusion of the various constituents through the lacerated cell-walls, induces fermentation, which, if not checked at once, causes further loss. During the fermentation soluble albumen and sugar are destroyed—two of the most valuable elements of nutrition. In showery weather, grass recently cut should, for this reason, not be turned over more than is absolutely necessary, and under all circumstances it is desirable to handle the crop as lightly as possible, in order that it may not get much bruised.

"Although haymaking is a simple operation, yet experience and judgment are required to decide when to cut the grass, when to handle, and when to stack the hay.

"I have seen farmers spending labour in turning hay on overcast days, on which a dew-point hygrometer showed the air to be nearly saturated with moisture, proving that evaporation could not possibly take place at the time, and rain might be expected at any moment. In such a state of the atmosphere it is not only useless, but positively injurious, to knock about half-made hay, for it tends to bruise it and to render it more liable to be attacked by the rain, of which the barometer, or more

decidedly the hygrometer, has given previous warning. Frequent turnings of half-made hay should be avoided, especially in the case of clover, when the finer and more nutritious parts, the small leaves, are particularly liable to be knocked off by clumsy handling.

"It is further well known that hay, when badly made in the field, loses subsequently in the stack both in weight and in quality; but the nature of the changes which it undergoes when it heats or ferments in the stack are not so well understood; it may, therefore, not be amiss to describe them as briefly as possible. Let me direct attention to a second analysis of good clover or meadow-hay, drawn up more in detail by Professor Way:—

AVERAGE COMPOSITION OF CLOVER-HAY.

	In the ordinary state.	Dried at 212° Fahr.
Moisture .....	16.60	—
Fatty matters .....	3.18	3.51
*Albumen and similar nitrogenous compounds (flesh-forming matters) .....	15.51	18.96
Gum, sugar, mucilage, and carbon hydrates readily convertible into sugar. ....	34.42	41.27
Indigestible woody fibre (cellulose) ...	22.47	26.95
Mineral matter (ash) .....	7.52	9.01
	<u>100.00</u>	<u>100.00</u>
*Containing nitrogen .....	2.53	3.03

"The preceding analysis represents the average of 75 varieties of clover, and a few other plants which are usually found amongst clover-seeds. Since these varieties differ much amongst themselves, corresponding differences in composition must be looked for in clover-hay, according as one species or another prevailed in the field on which it grew; the time of cutting will also much affect the result. The above figures, therefore, admit only of a general application. Clover-hay generally absorbs and retains a little more water than common meadow-hay under the same circumstances, and when in good condition contains more sugar, gum, and analogous compounds than meadow-hay, from which, moreover, it is chiefly distinguished by a much larger proportion of nitrogenous or flesh-forming matter.

"Taking the mean of 25 analyses of common meadow-hay, we obtain the following:—

AVERAGE COMPOSITION OF MEADOW-HAY.

	In the ordinary state.	Dried at 212° Fahr.
Moisture .....	14.61	—
Wax and fatty matters.....	2.56	2.99
*Albumen and other nitrogenous compounds (flesh-forming matters) .....	8.44	9.88
Sugar, gum, starch, and similar compounds (respiratory substances) .....	41.07	48.09
Indigestible woody-fibre (cellulose).....	27.16	31.80
Mineral matter (ash) .....	6.16	7.24
	<u>100.00</u>	<u>100.00</u>
*Containing nitrogen .....	1.35	1.58

"Hay, whether produced from clover or natural grasses, evidently contains a good deal of ready-formed sugar or soluble organic matter, having an analogous composition, and readily convertible under the influence of ferments, first into sugar and afterwards into alcohol and carbonic acid. These constituents are essential elements in all liquids and moist substances capable of entering into fermentation. No less essential are albumen, gluten, and other nitrogenous compounds. Some of the nitrogenous matter in hay occurs in a soluble, some in a condition insoluble in water. Soluble albumen, and all albuminous compounds exposed for a short time to air and moisture, are readily transformed into ferments, that is to say agents which play the same part as yeast in setting up fermenta-

tion in sugary compounds. It appears that when a vegetable juice ferments, the admission of the air is necessary to the commencement of the change, which then goes on even if the air be afterwards excluded. Ferments almost invariably contain the germs of minute fungi, which become rapidly developed and multiplied in the measure in which the fermentation proceeds. Albuminous compounds that have been exposed for a short time to the influence of the air, as in ordinary ferments, are only capable of acting as inducers of fermentation when in a state of decomposition. This explains satisfactorily why hay that has been subject to excessive fermentation generally is very unnutritious, such a great loss of flesh-forming, as well as sugary constituents, being implied by fermentation."

The fermentation which takes place in the haystack is thus described in the valuable paper of Professor Voelcker, from which I have taken so much:

"In the absence of a sufficient amount of water, many substances otherwise capable of entering into fermentation remain apparently unaltered for a long period. Too much or too little water is alike unfavourable to the process. If one part of sugar is dissolved in three or four parts of water, and yeast is added, and the sugary liquid then placed in a warm room, no fermentation takes place, although three of the essential conditions have been fulfilled. Such a solution will require to be diluted with about an equal weight of water, in order to set up active fermentation. On the other hand, sugar dissolved in, say 16 to 20 parts of water, after the addition of yeasts either ferments but very slowly, or rapidly turns acid in a warm place.

"These facts have a direct bearing on the proper conservation of hay. As long as grass and clover are still quite fresh, the proportions of water to that of sugar in the green plant are too large to encourage fermentation; the nitrogenous constituents in newly-cut grass, moreover, only become ferments after the vitality of the plant has been destroyed, and the vegetable cells and vessels have become ruptured by partial drying, and their contents have been mingled together.

"With the evaporation of water, and, to a certain extent, the more or less complete destruction of the living organization of the plant, the conditions become more favourable for active fermentation. By degrees the drying crop arrives at a stage when the relative proportions of sugar and of the remaining moisture are most conducive to fermentation. Should the weather unfortunately turn showery at that stage of the haymaking process, and the air become saturated for many days and weeks together, the half-made hay often begins to ferment already in the field. When this takes place the hay loses in quality, and becomes much more liable to heat afterwards in the stack. If, on the contrary, fine and warm weather sets in, and evaporation proceeds with rapidity, the per-centage of moisture soon sinks sufficiently low to prevent altogether, or greatly to retard, fermentation. The hay remains sweet, and shows far less tendency to heat in the stack, even if it actually contains more moisture than hay made in unfavourable weather. The more quickly the hay can be made in the field, and the less it gets bruised or loses colour there, the less likely it is to heat in the stack. However, much hay is injured when it is quickly made; and in a fine season it looks to be ready before it is so.

"If dried ever so much or ever so carefully in the field, hay nevertheless heats to some extent in the stack. A slight fermentation, so far from being injurious, may be useful; for, as is well known, peculiar aromatic principles are thus generated, which certainly renders hay more palatable, and, it may be, more nutritious. As long as the green colour is retained, there is no danger of the hay losing in quality; but if the heat in the stack becomes so

intense and continuous as to turn the hay decidedly brown, I have no hesitation in saying that considerable loss in feeding matter is incurred.

"Some feeders of stock prefer brown hay to green, and it cannot be denied that the former often has a more aromatic smell and a more savoury taste than the latter. Although brown hay is much relished by stock, I do not think it desirable to put up hay so wet that it will afterwards turn brown in the stack; for, as I shall show presently, the sugar which is wasted when hay heats and turns brown in the stack appears to me of greater value than the aromatic savoury substances which are generated by that process.

"Some years ago I had an opportunity of examining brown hay which had a peculiarly aromatic, quite fruity flavour. It tasted decidedly acid, and contained scarcely any sugar, but a good deal of mucilage, soluble brown humus-like compounds, with but a small proportion of soluble albuminous matters. On further examination I found the acid in the hay to be acetic acid. The hay was very brittle, dark brown, and an analysis gave the following results:

Moisture ... ..	18.33
Fatty matters... ..	1.70
*Soluble albuminous compounds ... ..	1.94
Mucilage, gum, brown extractive matters, and traces of sugar ... ..	9.24
Acetic acid ... ..	1.93
Digestible fibre ... ..	23.01
†Insoluble albuminous compounds ... ..	8.75
Indigestible woody fibre (cellulose) ... ..	28.53
Soluble mineral substances ... ..	3.98
Insoluble mineral substances ... ..	2.59
	100.00

^Containing nitrogen... .. 1.30

+Containing nitrogen... .. 1.40

The effect of stacking hay when too wet is well known to be most disastrous. The professor had an opportunity of examining a rick of clover hay, which became so hot in the interior that it had to be disturbed. It had been made in a bad season, and was stacked when too moist.

On removing the top layers of the rick the vapours emanating from the heated hay were found to have a peculiar pungent irritating odour, which particularly affected the eyes. A chemist could not doubt for a moment that these irritating vapours were due to the volatile inflammable compound which has received the name of aldehyd. The same pungent odour may be noticed in vinegar manufactories at a certain stage of the vinegar process, and it is well known that aldehyd is produced in abundance when weak alcoholic liquids are allowed to trickle slowly over wood shavings, kept loosely in perforated capacious vats freely admitting air. This hay, upon being analyzed, was found to be composed of—

Water... ..	38.02
Fatty matters... ..	1.90
*Soluble albuminous compounds ... ..	1.88
Gum, mucilage, brown extractive matters, and a little sugar ... ..	6.63
Digestible fibre ... ..	15.55
†Insoluble albuminous compounds ... ..	8.12
Indigestible woody fibre (cellulose)... ..	22.33
Soluble mineral matter ... ..	3.96
Insoluble mineral matter ... ..	2.61
	100.00

\*Containing nitrogen... .. 1.30

+Containing nitrogen... .. 1.30

From these valuable, practical, and scientific researches the haymaker will derive considerable advantage. It is true that all knowledge is of little avail when the unstacked hay is drenching in rain; but, after making this acknowledgment, every reader will admit that by acting upon correct principles the ill effects of the most adverse seasons may be rendered less injurious. If this fact be well understood, then no one with whom we have to do will undervalue the labours of those who have been striving to illustrate the chemical changes which take place during the conversion of the grasses into hay. But, even supposing that all such laborious examinations did not tend to promote the commercial advantage of the agriculturist, they at least afford him that pleasure which ever accompanies the acquisition of knowledge.

## THE TURNIP CROP.

BY A PRACTICAL FARMER.

The season for turnip-seeding has again returned; and although nothing new or novel relative to its culture worthy of note can be stated, yet a few plain remarks and suggestions may not be without their use. The future of British agriculture is, and will be, a most important subject for the study of our highest class of political economists—yes, and of our great philosophers too. Our statesmen and landowners ought at once to take a full and most comprehensive view of the whole question. It is no trifle they have to deal with. It is the supply of animal food for the British population. There is no great difficulty relative to the supply of vegetable food. Corn for bread and as food for stock can be grown for and be supplied to the British market from all parts of the world. Potatoes and other roots can also be obtained in large quantities; but the supply of animal food, and more particularly of fresh meat, can with difficulty be found even now: and, owing to cattle plague and other imported diseases, a gradually-increasing distrust is generally felt and expressed against cattle and other stock being imported. The restrictions upon importations of stock must necessarily be stringent and lasting, which will lead to a less disposition on the part of our continental neighbours to make provision for

our animal wants. These and many other reasons might be urged to stimulate and induce British producers of animal food to increase their exertions and means to breed, support, fatten, and bring to market for the food of the nation a far more extended supply than has ever yet been known. The foundation for this supply is, in a great measure, the root crop; and of this, the turnip crop is the principal or chief dependence. It is yet, in fact, the basis upon which modern British husbandry is mainly built. It is, therefore, extremely important to the whole kingdom that the crop of turnips should be a good one; and it is in a sense equally important to every individual farmer. It secures food for the flocks in the field and the cattle in the fold-yard. It is the main dependence and means by which the cattle are enabled to turn the straw-produce of the farm into manure—so that while the flock in the field manures the land for the succeeding corn crops, the cattle are providing a stock in the fold-yard for the future turnip crop. This is turnip-husbandry, and goes on *ad infinitum*. Well, but how are the best crops to be obtained? and can the farmer grow more root crops profitably than he now does? I am not sure that at the present time he



can generally—*i.e.*, taking into account the whole breadth of the country; but on the best loams, and loamy clays, and loamy soils of fair consistency, he undoubtedly can. I am supposing the average of wheat in the country does not exceed from 50s. to 55s. per qr., and other grain in proportion. It must be borne in mind that the farmers' receipts are far below the country's average. I say he can on these soils, and that these root crops are far more valuable than grass crops—*i.e.*, an acre of roots is far more valuable than an acre of grass. The weight of grass produced upon an acre of medium grass-land will vary from four to five tons per acre; good or prime grass-land will yield from five to seven tons per acre; a crop of turnips on medium soils will yield from fifteen to twenty-five tons per acre; and from twenty-five to thirty-five tons of mangels; on good soils from twenty to thirty-five tons of turnips, or from thirty to forty-five tons of mangels. The proportions of water and nutritive-value in the grass and in the root crops do not so materially differ as to add or detract much from the well-doing of the stock feeding from either crop; but the weight of food to be consumed is of great consequence in the estimate—*i.e.*, making an acre of roots worth about five acres of grass. If then the turnip, or rather the root crop is so valuable, why are farmers to be so closely restricted to certain courses or rotations of cropping, and why are such large breadths of moderate, not to say inferior grass lands to remain under pasturage? If modern culture and modern applications of manures and feeding stuffs are worth anything beyond the old order of management—and no one disputes their worth—they would tell surprisingly upon the conversion of such lands into arable culture. They would thus be made to produce immense crops of roots, artificial grasses, and corn. Vast breadths of these soils would yield capital crops—first, of potatoes; then wheat; next turnips or other roots and esculents, *i.e.*, mangels, swedes, carrots, and cabbages for stock; again potatoes, again wheat, and then clovers or seeds, followed by a corn crop, to be further supplemented by roots again, and so on continuously. And not only these grass-lands, but all good or useful loams may, under our modern applications of culture and liberal manurings, be made to sustain—and under improving conditions too—a like mode of heavy cropping. The continuation of inferior grass-lands under pasture when eligible for arable culture is unpardonable, being a direct loss to the commonwealth of the nation. Many of our old lands and long-cultivated strong loams are now bearing heavy crops of potatoes and wheat every

alternate year; and if a variation is made, it is in favour of a crop of mangels, often yielding a tremendous weight of food. If such modes of culture, manurings and cropping, obtain a lasting standing in some districts—and I know they do—why are they not to be adopted and practised in other localities, or why should they not become general? It is mainly a question of expense, of outlay of capital, of yearly investment in the soil. The *management* is always on the farm. The artificial aids are forthcoming—at least adequate supplies have hitherto been found. Our ships go to the ends of the earth for guano, for bones, coprolites, gypsum, phosphate of lime, beside our own diggings. Then we have manufactories of valuable manures in abundance, and chemically adapted to certain crops. Again, as to feeding stuffs; the supply seems interminable. The importations are immense now, and the demand rapidly increases. This little island of ours ought to be the standing ground for fattening stock as food for the nation, and the importation and manufacture of feeding stuffs must be boundless. It must be made to grow more roots, more grasses, more animal food, and less corn. Ireland, too, is still better adapted for this order of management. Scotland grows splendid root crops. Who can tell to what amount our home-supplies of animal food might come, or be made to extend? Summer soiling for cattle from artificial grasses would become general. I name these matters because it becomes imperative that something must be done, as, from importations, our liability to stock diseases and all their concomitants may ultimately cause a great scarcity of animal food, which my suggestions are intended to avert.

But to the turnip crop. The land must be well drained, the culture ample, till a fine clean tilth has been made; for swedes, ridging at 26-in. intervals is to be preferred, a deposit of at least fourteen loads of good rotted dung made from roots, straw, and a liberal allowance of cake per animal, should be made; in the ridges a sowing of 4 cwt. of guano and superphosphate mixed upon the manure. The ridges then to be closed, and the seed drilled in with a further supply of 2½ cwt. of superphosphate mixed with ashes. The swedes will amply pay for this extra expense. The guano must not come into immediate contact with the seed. For common turnips for early feed pursue the like course, but for winter food they are better on the flat; but a similar double dressing should be given. Sow abundance of seed, certainly not less than four to six pounds per acre. I avoid petty details. There are improved varieties continually coming before the public: the last I have obtained is a Hybrid, from Scotland, a very large and valuable variety, but not yet in general culture. Great attention should be given to obtain the best sorts, provided they are adapted to the soil and the state of fertility in which it is kept.

## THE HIGHLAND AND AGRICULTURAL SOCIETY.

The half-yearly general meeting of the society was held in the hall, George IV. Bridge, on Wednesday, June 19—His Grace the Duke of Buccleuch, K.G., president of the society, in the chair.

Seventy-three new members were elected.

Sir W. ELLIOT reported that the following awards had been made for reports since the general meeting in January:

1. The gold medal to James Purves, Lochend, Thurso, for a report of the reclamation of waste land on the farms of Lochend and Syster, in the county of Cathness.

2. The gold medal to Russell Swanwick, Whittington, Chesterfield, for a report of experiments on the action of different top-dressings on wheat, grass, and cabbage in 1866.

3. The gold medal to Harry Shaw, Bogfern, Tarland, for a report of experiments on the comparative productiveness of turnips in 1866.

4. The medium gold medal to John Milne, Mains of Laithers, Turriff, for a report on the same subject.

5. The silver medal to Ralph Carr, Hedgely, Alnwick, for a report on the silver alder, as a nurse-plant to oak.

### THE FORTHCOMING SHOW AT GLASGOW.—PROPOSAL TO AID THE SHOW AT DUNDEE.

The SECRETARY, in the absence of Mr. Kinloch, jr., of Gilmerton, the chairman of the Committee on General Shows, reported that the arrangements for the show, which takes place at Glasgow on the 30th and 31st July and 1st August, were in a satisfactory state of advancement. The entries now closed were as follows: Cattle 270, horses 200, sheep 450, swine 80, poultry 390, dairy produce 130, implements 1,500, besides a large number of calves, foals, and lambs, which would be shown at foot with their mothers. The entries of implements were greatly in excess of anything they had on any former occasion. The magistrates of Glasgow had kindly granted the free use of the City Hall for the banquet on the 30th, in addition to the free use of the Green for the show, and a liberal donation of £200. As regards the other sub-

scriptions, there had been intimated from Ayrshire £420, Renfrew £160, Argyle £200, Bute and Arran £35.

Mr. HUNTER, of Blackness, said he had been requested by Lord Kinnaird to bring under the notice of the society the show proposed to be held at Dundee on the occasion of the visit of the British Association there in September. He had no doubt the meeting would be a successful one; and, though the association devoted itself mostly to science, it was thought that, visiting a district of the country it never before saw, it would not be disagreeable to the *savans* to see a little of our Scottish agriculture. The various local societies had cheerfully come forward in support of the proposed show, and the principal promoter had been Lord Kinnaird, one of the largest and most enterprising agriculturists in Scotland. Considering that it was about 30 years since a show had been held in Dundee (which was so nearly connected with the Carse of Gowrie and Strathmore, one of the most important agricultural districts of the country), he thought that the society could not dispose of its funds better than by giving a liberal donation to the show at Dundee.

The SECRETARY said the application from Lord Kinnaird had been laid before the directors early in the summer, and they agreed to allow the United Association of Perth, Fife, and Kinross, and the Forfarshire Association, to apply the sums of money voted to them in aid of the Dundee Show. A sum of £55 and two medals were accordingly allocated to the Dundee Show; but to-day the directors had agreed to substitute money for these medals.

Mr. HUNTER said he thought the subscription proposed to the Dundee Show was so small, that it was doubtful whether it would be accepted at all. Such a show could not be conducted without great expense, and considering the large sums given by private individuals, the sum of £50 was hardly worth their acceptance from so rich a society.

Mr. SCOT SKIRVING had much pleasure in announcing that the committee had obtained the sum of nearly £800 for the testimonial to Mr. Bell, of which they proposed to pay Mr. Bell £600 immediately to account. It was intended, however, to keep the subscription open until the January meeting, when it was expected Mr. Bell would attend here to receive the presentation; and it was also intended to retain a small sum wherewith to purchase a piece of silver plate with a suitable device and inscription. The committee still entertained the hope that the sum might reach £1,000. At one time they contemplated extending the subscription-list to England and America, but this had not been done; nevertheless, £800 subscribed by 1,600 of the first agriculturists in the world was a testimonial of which any man might feel proud. He felt gratified in being able to state that the directors of the society proposed to subscribe £100 to pay the expenses connected with the testimonial, and he was sure that this offer would be cordially accepted and ratified by the society. Mr. Scot Skirving also took the opportunity of saying, on behalf of the committee, that they had been deeply indebted to the secretary and the other officials of the society for the very able manner in which they had organized the machinery for collecting the subscriptions.

The CHAIRMAN said he had to propose, on behalf of the directors, that the sum of £100 should be contributed to the testimonial to Mr. Bell.

The proposal was received with loud applause; and the Chairman declared it to be the unanimous opinion of the society that such grant should be made.

#### AGRICULTURAL EDUCATION.

Professor BALFOUR reported that the examinations for the society's agricultural certificate and diploma had taken place on 11th, 12th, and 13th March.

#### VETERINARY COLLEGE.

Mr. CAMPBELL SWINTON, of Kinmerghame, reported, in the absence of Mr. Gillon of Wallhouse, who had been recently appointed chairman of the Society's Veterinary Committee, that the annual examination of the students had taken place on the 16th and 17th of April, when the society's veterinary certificate or diploma had been conferred on thirty out of thirty-eight candidates.

The report was approved of.

Mr. SWINTON said that the members of the society were aware that great anxiety had been expressed for a considerable time to obtain a charter for the Veterinary College in Scotland

so that they should not be brought into connexion with the Veterinary College in England. Negotiations were going on with the Privy Council upon the subject, and the directors of the society had received the most cordial co-operation from the Town Council of Edinburgh, who were greatly interested in the school of veterinary science there, on account of the charge devolved upon them by the generous bequest of the Veterinary College from the late Professor Dick. Communication had been opened up with the Privy Council, and a draft was in course of being prepared which would have to be submitted to the public bodies interested in the matter, and which, above all, would require the sanction of the Privy Council. The negotiations were in a state of very great forwardness, but were not so near completion as to warrant a detailed report. In these as in other negotiations the society was under infinite obligation to the noble President for the interest he had taken in the matter, and the influence he had used with the authorities in England.

The Duke of BUCCLEUCH said, with regard to the charter, that he had been in communication with the Committee of the Privy Council on the subject, both in writing and verbally, and the matter was proceeding as rapidly as circumstances would permit. A draft charter was now under consideration by the Town Council and the directors of the society, and it would as soon as possible be submitted to the Privy Council. Of course, it would be subject to any alterations which the Privy Council and the law officers of the Crown might think necessary to make upon it.

Mr. SWINTON further reported that Professor Hallen had resigned his appointment as Professor of veterinary surgery to the society, in consequence of his being required to return to his duties under his commission in her Majesty's Indian service, and that the directors had to propose in his place Mr. William Williams, of Bradford, who had been appointed principal of the Edinburgh Veterinary College. Mr. Williams is a graduate of the college, and holds the society's certificate or diploma.

The proposal of the directors was unanimously adopted, and Mr. Williams was appointed professor accordingly.

Mr. SWINTON reported that the directors had had under their consideration the expediency of establishing a chair of cattle pathology in connection with the Dick College, and at a meeting of the board, on the 5th June, it was resolved to recommend to the general meeting that an annual vote of £100 should be given for five years, on the condition that the patronage of the chair be vested in the society so long as the grant was paid by it. If the proposal met with the sanction of the general meeting, the directors were of opinion that it should be remitted to a committee—two to be named by the society, and two by the town council—to make such regulations as might be considered necessary for the proper conduct of the chair.

The report was adopted.

Dr. ANDERSON reported that the work during the last half-year had been mainly confined to the performing of analyses for the members. The work in this way had been very large. They had had to consider a number of important cases of adulteration, and in some instances had thus succeeded in protecting the interests of members of the association. They had also been engaged in arranging for field experiments. The experiments were, so far, a following out of those of last year. Seed had been sown and preliminary steps taken with a view to developing their knowledge of manuring; but the experiments this year would be connected with other ordinary operations of the farm in such a way as was likely to make the experiments more generally interesting and useful to farmers than those of last year. They had several matters of investigation in hand, of which the results would be published in due time.

#### STEAM CULTIVATION.

The SECRETARY read a letter from the Marquis of Tweeddale, who has charge of this subject, stating that if there had been anything to report, he would have attended the meeting. The secretary added that the committee on steam cultivation had determined that their reports should cover a series of two years. No report, therefore, would be issued next year, and Lord Tweeddale had not thought it necessary to be present to make any statement till nearer the time for publishing the report.

This concluded the business, and the meeting separated after passing a vote of thanks to the Duke of Buccleuch for his conduct in the chair.

## THE NORFOLK AGRICULTURAL ASSOCIATION.

## MEETING AT FAKENHAM.

Notwithstanding the violence with which the rinderpest had raged in parts of the county, the management of the Norfolk Association would have again postponed the meeting, had not a licence been obtained for the cattle classes. This is consequently the first occasion on which so important a feature has been re-established, and it was really refreshing to find the once-familiar scene re-set with stately Shorthorns, neat Devons, red-and-white Herefords, and long lines of Polled milkers—the very strongest section of the whole show. Not but that there was ample material in other directions. The entries of horses were numerous, if not so remarkable for their excellence; and there were some “proper” prize animals amongst the sheep and pigs, although the competition here was not so great. Taken as a whole, however, the gathering was a decided success, an immense deal of spirit being infused into the proceedings, and everyone appearing to go to work once more with renewed heart and vigour.

Not that the conduct of the exhibition can be recorded as altogether perfect. The effect, for instance, of open judging was materially qualified by the stewards neglecting to have the winning colours given out in the different rings so soon as the decisions were arrived at, and the spectators were thus left in comparative ignorance of how the prizes went, unless they followed the animals back to their respective standings. Mr. England, who was with the hackneys, certainly had the awards at once announced, on the necessity of this being pointed out to him; but elsewhere people were kept very much in the dark, and all enjoyment of the opening-day was proportionately diminished. Then, the Norfolk Association has recently adopted the somewhat peculiar plan of nominating only one judge for each department. Thus Mr. Bulling “did” the hunters, Mr. Turner the pigs, Mr. Clayden the cart-horses, and so on. The solitary system, however, does not seem to answer, as almost everyone we had any opportunity of consulting, whether judges, exhibitors, or visitors, expressed themselves as decidedly opposed to the principle. It may be sufficient to say that men of such repute in the ring as Mr. Keary, Mr. Fookes, and Mr. Kersey Cooper, although they accepted office under these conditions, would all have infinitely preferred to work in couples as heretofore. It is, in fact, a very dreary business where there is much to do, with no apparent advantage to be urged in its favour; but, on the contrary, a deal of risk at times to be run, from entrusting everything to the prejudices or partialities of any one particular person, especially if he be not quite so good a judge as he himself may fancy he is.

There was most assuredly some exception to the new rule at Fakenham, and the placing of the Shorthorns was regarded by other outside judges as in certain cases curiously eccentric. The best of all the bulls, for instance, was considered to be anything but the best even of his own class; and what with his sour head, his poor quality, his vulgar colour, and his generally mean appearance, it is difficult to understand the points upon which his superiority was arrived at. For the best of all, we should have gone the rather to one of Mr. Aylmer's yearlings—both very nice young bulls, though their conqueror was also bred at Dereham, as well as the second in the all-aged class, a son of Thorndale Grand Duke, that was down last year very bad with the cattle-plague, and, as a consequence, was

now not quite in show form. A very good-looking bull of Lord Walsingham's, but with a rather harsh touch, proved himself further in his produce; the best yearling heifer, and about the best Shorthorn in the show, being a daughter of Merton Beau, the third-prize bull, and of Dauntless, the first-prize cow. There is no better test than this, particularly amongst prize-stock; and Thoughtless is a healthy well-grown handsome heifer, whose constitution has suffered in no way from any excesses on the part of her parents. The dam has length and style in her favour just sufficient to eclipse a very neat clean cow of Mr. Aylmer's, whose daughter was the better of the two two-year-olds entered. The competition, in fact, in the younger classes was not great; but considering that this was confined to the county, and that it was very uncertain up to the last moment whether cattle could be exhibited, the display of Shorthorns was more than creditable, whilst the pedigrees go to show there is a deal of good blood available in the Norfolk herds.

Now that Lord Leicester has given over exhibiting, the Devons are dwindling down so unmistakably that, like the Herefords, they might merge into the other classes. Mr. John Overman is almost their only champion, and he has always a high-bred one or two in training; but Mrs. Clarke was here his sole competitor, and it was scarcely worth while sending so far for Mr. Keary when there was so little to do. The single-handed judging might thus much be justified, but fortunately there was more work amongst the mixed breeds, Alderneys, Bretonnes, Herefords, and crosses. Some of the most successful of these were the Shorthorn and Ayrshire experiments of Mr. Henry Overman and Mr. Ellis, and the Shorthorn and polled cross of Mr. England; the Ayrshire being a very happy nick, but then a capital foundation in this way was laid during the late Mr. Overman's time at at Weasenham. The All-aged class of fat steers was a very good one, and many of the lookers-on took the liberty of differing with the judge as to which of Mr. Coleman's two should be first, though the winner, a white Shorthorn, is a fine straight upstanding animal of very commanding appearance, and that, as it seems to us, will always over-shadow the other. Mr. Matthews had another nearly as good a beast; and Mr. John Overman a stylish Devon, which only wants time, and that will be in more form by Christmas; while his Royal Highness the Prince of Wales gave a certain point to the merits of the class by taking a commendation with an animal whose antecedents are altogether unknown. Mr. Brackenbury's fat cow is broad and deep, but patchy; and the other fat things were of no remarkable excellence; the strength of this division cutting in the older steers.

But, after all, the Norfolk and Suffolk Polled made the cattle show. The classes were generally well filled, for there were nine old bulls, half a dozen yearling bulls, a dozen cows, ten two-year-old heifers, and eighteen yearling heifers. And the improvement was as remarkable: high commendations were freely appended, with the largest class, that of yearling heifers, *generally commended*. Both Mr. Badham and Mr. Keary testified, at the dinner, to the great advancement made in this useful breed of stock; and we can only now the more regret that our suggestion as to having a show of the sort at Bury St. Edmund's had not been acted on. They would have held their own

anywhere; for by careful cultivation the Polled have obtained a very uniform character, are of a rich red colour, with neat true frames, and the females more particularly are often noticeably good-looking. Moreover they are of still higher repute in the dairy, and with milk coming fast into fashion, it will be a duty to themselves for the Norfolk squires and farmers to still develop the uses of so good a breed of cattle. Any individual criticism would be chiefly an echo of the prize-list and its appendix; but it is significant of still further progress that the young stock, both in the bull and cow classes, were better than the older animals, as this excellence culminated in the largest and youngest entry.

With Lord Walsingham holding his hand for Bury, and not a long-wool from beyond the limits of the county, the sheep show was only moderate; and although Lord Sondes had a long lead with the Southdowns, we question whether with more competition the Elnham flock will prove as formidable as it lately has been. Some of the sheep were all wrong in their shoulders, as they lacked that grandeur to which the transplanted Down will occasionally grow, and the judge spoke more decisively to the merits of the cross-breeds; Mr. Henry Overman's Oxford Downs getting better and better as he has had time to cultivate them, while Mr. Case was also distinguished for his crosses, and Mr. Butler and Mr. Barrat for their half-bred Hampshires, one of the now favourite nicks with the long-wools. Those old opponents Mr. Brown and Mr. Aylmer had the Norfolk long-wools all to themselves, where the cup went to Dereham for a three-year-old ram never previously exhibited, and which carried so good a fleece that an objection was talked of as to his having been fairly shorn within the time specified, though this we believe ultimately came to nothing, as the extra cup or prize was handed over to Mr. Aylmer at the dinner. His Royal Highness the Prince of Wales was more distinguished amongst the sheep than he had been in the cattle classes, as he took a first prize with a pen of Southdown ewes, bred from the flocks of Lord Sondes and Sir Willoughby Jones. These Royal sheep were a fair useful lot, but they won against little or no competition worth speaking of.

The exhibition of pigs went all for quality, as in most of the classes the competition extended but little beyond placing a first and second. Mr. Duckering's whites are still on their tour, and Mr. Stearn and Mr. Crisp brought in some of their samples from Braintree; but the Messrs. Sexton made no sign. The chief honours were all claimed by the three exhibitors we have just named, and to the merits of whose entries we spoke last week; but Mr. Crisp's champion boar is a very pretty small black, and Mr. Stearn's three white sows are also wonderfully good, if not so forward as some of their competitors. The judge, indeed, had serious doubts as to some of the pigs being within the age at which they were entered, as he had his misgivings as to other conditions being observed. But it is another fancy of the Norfolk management to dispense with the services of the Veterinary Inspector, and gentlemen very reasonably decline to commit themselves to points, the adjustment of which should properly depend upon a professional opinion.

Norfolk, like Suffolk, has its own breed of cart horses, although the bays and browns are not so well known abroad as the chesnuts. When seen at his best, however, the Norfolk is a very good horse for certain agricultural purposes, and more particularly when put into plough pairs on light land. In appearance he takes something after the Cleveland, but with more weight and some hair on his legs he is essentially a cart and not a carriage horse. He has a good kindly head, a clean neck, and is in no ways overtopped, while he has long oblique shoulders and short clean wiry legs, with a deal of what is called

quality; but, strange to say, he does not move so well as he should do. There was a gelding of just this sort in the Crownthorpe prize pair, and a really grand animal he is, but they do not by any means come generally up to such a standard, and we should say that, like the Norfolk cob, the Norfolk cart horse, as a breed, had been neglected, or often crossed out of its original character. There were more bad than good amongst the breeding classes, and the judge himself allowed that he had seldom seen a worse horse than his first prize two-year-old stallion. It was amongst the working pairs, we repeat, where the Norfolk horse went into general competition with other breeds, that he demonstrated his excellence, as it is clear that the Norfolk farmers must exercise more care than they do at present in breeding their horses for any purpose—the farm, the chase, or the road. Hacks, hunters, and plough horses seem to be too often got by chance, and crosses had recourse to where pure blood only should as a first principle be employed.

The other cart-horses were chiefly Suffolks, although the first-prize stallion in the all-aged class was a brown; while the point of preference as to the best of all the stallions rested with the chesnuts, three and two-year-olds. At Braintree Mr. Crisp's Cup-bearer was the champion, as he was also just at Epping in 1866, but the decision of last week was now reversed, and Mr. Wilson's two-year-old President won the cup. As might be expected, great was the discussion consequent thereon; but grand as Mr. Crisp's horse is in places, such as his girth, back, loins, and quarters, he has an unpardonable pair of forelegs, the off being almost a deformity; whereas Mr. Wilson's is a well-grown, true-made colt, if with not all the promise of the other, certainly without his too manifest defects, and for our own part, we go with the second reading. President, indeed, is just where he should be, in open class; but the doubt is, whether he could pass as a Suffolk, as he is by Barthropp's Hero, dam by Heart of Oak, a bay Shire horse! Mr. Wolton's first-prize mare is very handsome, and it was very satisfactory to see that the best mares had the best foals, the two being placed precisely as their dams. There was only one three-year-old filly entered, but she was deemed worthy of a first prize, and Mr. Wolton was first again with his two-year-old, a very perfect filly of her sort, and half sister to the best mare. The second also from Kesgrave was not near the other, being weak in her thighs, as but a moderate one all over; and Mr. Badham managed to get third in the mare and foal class with one so out of all form that the remainder must have been "poor indeed." Our experience of the Fakenham show goes to this—that in Norfolk they often do not breed either Norfolks or Suffolks, but they mix up one sort and another with a result that is anything but imposing or encouraging.

Nothing, again, according to the catalogue, can be much looser than the Norfolk notion of breeding a nag. The hunters have often enough "Phenomenon" pedigrees, while the trotters are got by racehorses, and so on, until all individual character is lost, and the repute of the country is dying out. In a large class of stallions, for saddle or harness, there was little to look at of the true type beyond the four-year-old roan, [that was far away the first, and old Robin Hood, who at eighteen years old is of course getting hollow and faded; but if any allowance was made on this account for the thorough-bred Mr. Stiggins, the years and use of Mr. Baldwin's horse should also have been taken into account. The second-best of these saddle or harness animals was neither one thing nor the other, as little more than a flash flat-catcher; while Captain Barlow's handsome cob Lucifer seems to have lost his action, for he could not go a yard. Then, in the first class of riding horses in work, there was little to pick from, though the second could move a bit under you, but

the first prize went to an animal that ought to be lapped in leather forthwith. Some of the hacks under fifteen hands were of a better stamp, and Mr. Sexton's mare especially was, in her way, as good as anything on the ground. With a deal of power and substance, she has wonderful liberty, and lots of good looks, her chief set-off being a big but but by no means a bad sort of head. Mr. Badham's old grey deservedly stood next, and he never showed to more advantage. He has certainly the best of "manners" and temper, and for a gentleman, or a lady, should fetch a long figure, if only properly placed. Mr. Beart, too, had a very sweet mare in this class, if she was not so fortunate as were some other of the Raynham entries, but then the competition was stronger. The cobs up to fifteen stone were a very middling lot, and the one prize might have fairly been withheld, but it was duly awarded to a soft, long-tailed thing, that threatened to tire soon enough at even travelling round a ring. The ponies were of higher average, and Mr. Fulcher's first, Mr. Beart's second, and the other first, were all quite worthy of their places—pretty to look at and smart to set a going. In the fourteen hands class there were sixteen entries, amongst which Mr. Kendle's white-legged little horse came at twenty years old to be at last without honour in his own country.

Whilst Mr. Kersey Cooper was being so highly tried here, Mr. Bullen was busy amongst the hunters, but there was nothing to be particularly proud of, and beyond Mr. Groom's chesnut there were few prize horses amongst the lot. This one is really a nice stamp of hunter, with a long, lean, wicked head, great good quarters, and other points that at once catch the eye. Mr. Beart got to the front again with a plainish, servant's sort of animal, and the best-looking of the four-year-olds, very well shown off by his owner, Mr. Gooch, was rejected, from splints. The brood-mares for saddle or harness afforded a good illustration of the Norfolk system, as calculated to breed anything you please. But Mr. Cooper was on here; and Mr. Bullen began with the thorough-bred stallions, where his fancy fixed on the big bone of old Stiggins, though the more general favourite was Lord Hastings, Emilius—a really handsome, clever horse, with clean limbs and fair power for his size, although, from some strange omission, his pedigree, by Planet, out of Lord Orford's Exotie, is not to be found in *the Stud Book*. There were only four exhibited in this class; but the two unnoticed horses were the Frenchman Eclairer, and False Alarm, the first-prize stallion at the great Islington Show and the champion of his order at Braintree last week. Combining as he does some of the most fashionable blood of the time—by Trumpeter out of a Pantaloon mare—and associating with this remarkably fine action, it was strange that False Alarm did not finish a little nearer, the more especially when we remember that Mr. Stiggins won.

There was a good show of implements, chiefly supplied by local exhibitors, a flower-show "in union," and the dinner at four o'clock, where the toast-list was spun out to a length and with an ingenuity that approached very closely upon absolute torture. The more noticeable features of this liberal entertainment were a very able and courageous speech from the chairman, Lord Kimberley; the presentation of a testimonial to the secretary of the society, Mr. Bailey; and the extraordinary ovation with which Mr. Sewell Read was received. However well this honourable gentleman may stand in the House of Commons, he can stand nowhere so well as in his own county, and the cheers upon cheers with which his name was greeted were significant enough. The several judges put up also spoke well to the point; but beyond this our strength does not carry us. A number of gentlemen returned thanks for the Army, the Navy, the Church, the

State, and other kindred services; the healths of a number of other gentlemen were given, who by some happy force of circumstance were not present to respond; every piece of plate was formally handed over; and so in the course of five or six hours human energy became exhausted, although, we believe, this was by no means the case with the list of toasts.

## PRIZE LIST.

## CATTLE.

## SHORTHORNS.

JUDGE.—W. Kelk, Woodthorpe, Lincolnshire.

Bulls.—The Cup of £10, for the best of all the Shorthorn bulls, prize of £10 and silver medal to E. Durrant, Wimbotsam (Hamlet); second of £5 to H. Aylmer, West Dereham (Norfolk Thorndale Duke); third of £5 to Lord Walsingham, Merton, Thetford (Merton Bean).

Yearling bulls.—First prize of £8, to H. Aylmer (Baron Hopewell); second of £5 to H. Aylmer (General Hopewell).

Cows in calf or milk.—Cup of £10, prize of £10 and silver medal to Lord Walsingham (Dauntless); second of £6 to H. Aylmer (Maid of Orleans); third of £4 to G. E. Frere, Roydon (Countess Sixth).

In calf, heifers not above three years old.—Prize of £5, and silver medal, W. M. Farrer, Kempstone (Charmer). Commended: G. E. Frere, Roydon (Tibbie Tudor).

Heifers in calf or in milk, under three years old.—Prize of £6 and silver medal, H. Aylmer, West Dereham (Maid of the Morn). Commended: T. L. Barrat, Barney.

Yearling heifers.—First prize, £4, Lord Walsingham (Thoughtless); second, £2, Washington Hammond, Waterden.

## DEVONS

JUDGE (and for other breeds), H. W. Keary, Bridgenorth, Salop.

Bulls.—Prize of £10 and silver medal, J. Overman, Burnham Sutton (Old Wellington). Commended: Mrs. Clarke, Burnham Westgate (Wellington).

Yearling bulls.—No award.

Cows in calf or in milk.—Prize of £5 and silver medal to Mrs. Clarke (Violet). Commended: Mrs. Clark (Handsome), and J. Overman (Violet).

Yearling heifers.—Prize of £3, Mrs. Clarke (Red Rose).

Bulls, not being Shorthorn, Devon, or Norfolk and Suffolk red-polled.—Prize of £8 and silver medal to P. J. Sharnan, Scarning.

Horned cows, not being Shorthorn, Devon, or Norfolk and Suffolk red polled, in calf or in milk.—First prize of £8 and silver medal, W. Ellis, Wymondham (Rosa); second, £4, R. England, Bingham. Commended: H. Overman, for three (Countess, Acorn, Faithful).

Heifers, in calf or in milk, not being Shorthorn, Devon, or Norfolk and Suffolk red polled.—First prize £5 and silver medal to H. Overman (Queen); second, £3, R. England. Highly commended: R. England. Commended: H. Overman and R. England.

Yearling heifers not being Shorthorn, Devon, or Norfolk and Suffolk red-polled.—Prize of £3 to H. Overman (Jenny Lind).

## POLLED NORFOLK AND SUFFOLK CATTLE.

JUDGE.—G. D. Badham, Bulmer Tye, Suffolk.

Bulls.—The Cup of £10, as the best of all the polled bulls, Society's prize of £10 and silver medal, to B. Brown, Thurstford (Tenant Farmer); second prize, £5, Hammond, Balc (Sir Nicholas). Highly commended: T. L. Taylor, Starston (Richard the First). Commended: The Executors of T. Smith, Crownthorpe (Red Jacket the Third).

Yearling bulls.—Prize of £5 to Lord Sondes. Highly commended: H. J. Lee, Warmer, Walsingham (Protector);

Cows in calf or in milk.—The Cup of £7s. 7s., prize of £6 and silver medal, to Str W. Jones, Bart., Crammer Hall (Sweet Briar); second prize, £6, R. Barcham, Thurgarton; third, £4, B. Brown, Thurstford (Hanson). Highly commended: Lord Sondes. Commended: J. Hammond (Moss Rose).

Cows or heifers in calf or in profit, not being Norfolk and Suffolk polled.—Premium of £5 and silver medal to L. J.

Palmer, Snetterton (Beauty); second, £3, R. Archer, Snoring (Naney). Commended: W. P. King, Stibbard.

Heifer, in calf or in milk, under three years old.—First prize, £6, and silver medal, Sir W. Jones, Bart. (Primrose); second, £4, J. Hammond (Butler). Highly commended: J. Playford, Thurnage, and Lord Sondes. Commended: J. Savory, Rudham, and J. Overman.

Yearling heifers.—First prize, £5, B. Brown (Naney); second, £3, B. Brown (Young Hansom). Highly commended: Lord Sondes, W. Betts, Hitcham, and Lady Hastings. The class generally commended.

Fat steers of any breed, above three years old.—First prize of £8, cup of £10 as best of all the fat stock, and silver medal, to J. Coleman, Runhall; second prize of £5 to J. Coleman. Highly commended: W. Matthews, Carbrooke (Duke). Commended: J. Sewell, Pickenham; J. Overman; and H.R.H. the Prince of Wales, Sandringham.

Fat steers of any breed not above three years old.—Prize of £8 and silver medal to H. Overman.

Fat cows above three years old.—Prize of £5 and silver medal to W. T. Brackenbury, Shouldham Thorpe (Luna).

Fat heifers not above three years old.—Prize of £5 and silver medal to E. Durrant, jun., Winterbotham.

## HORSES.

### CART-HORSES (EXCEPT NORFOLK).

JUDGE.—J. Clayden, Littlebury, Essex.

Cart-stallions not under four years old.—Prize of £10 and silver medal to R. Barenham, Thurgarton (Punch); second of £7 to E. Gilbert, Blofield (Duke).

Three-year-old cart-stallion.—Prize of £8 and silver medal to T. Crisp, Bentley, Suffolk (Cupbearer); second of £5 to T. Crisp (Conqueror).

Two-year-old cart-stallions.—Prize of £6, the cup of £10 as best of all the stallions, and silver medal to W. Wilson, Bayham, Suffolk (President); second prize of £4 to T. Crisp (Duke of Suffolk). Highly commended: J. Tingey, Ellingham (Young Glory).

Curt mares.—Prize of £10, the cup of £10, and silver medal to S. Wolton, jun., Kesgrave, Suffolk (Violet); second prize of £6 to T. Crisp (Darby); third of £4 to G. D. Badham (Diamond). Commended: G. T. Baldwin, Fakenham (Violet).

Three-years-old cart-fillies.—Prize of £6 and silver medal to S. Wolton, Newbourn.

Two-years-old cart-fillies.—First prize of £5 and silver medal to S. Wolton, jun., (Empress); second of £3 to S. Wolton, jun. Commended: T. Crisp.

Cart-foals.—Prize of £5 and silver medal to S. Wolton, jun.; second of £3 to T. Crisp. Highly commended: H. Overman. Commended: G. D. Badham.

Pairs of cart-horses.—The Melton Constable cup of the value of £20 and silver medal to the Executors of the late J. Smith, Crowthorpe; second prize of £6 to J. Sewell, North Pickenham (Ruttler and Jolly); third of £4 to J. T. Thwaites, Carlton, Forchoe.

### NORFOLK CART-HORSES.

JUDGE.—J. Martin, Wainfleet, Lincolnshire.

Stallions not under four years old.—The Cup of £10 as best of all the Norfolk stallions, prize of £10, and silver medal, to H. Goodbody, Mileham (Norfolk Hero); second of £7 to H. Overman (Norfolk Lion).

Three-years-old stallions.—Prize of £8 and silver medal to E. Winearls, Marham (Brown Charley).

Two-year-old stallions.—First prize of £6 and silver medal to H. Overman (Star of the West); second of £4 to J. Tingey (Young Briton).

Cart-mares.—The Cup of £10, prize of £5, another prize of £5, and silver medal, to T. H. Case, Testerton (Beauty); second of £6 to J. Savory, jun., Sparham (Damsel); third of £4 to H. Overman, Weasenham (Brag).

Three-years-old fillies.—First prize of £6 and silver medal to J. W. Butler, Barney (Sweep); second of £3 to J. Savory, Rudham (Doughty).

Two-years-old fillies.—Prize of £5 and silver medal to J. W. Butler (Jet).

Norfolk cart-foals.—First prize of £5 and silver medal to H. Overman; second of £3 to H. Overman.

### THOROUGHBRED STALLIONS AND HUNTING HORSES.

JUDGE.—T. W. Bulling, Toffhill, Warwickshire.

Thoroughbred Stallions.—The Cup of £10, prize of £10, and silver medal, to R. Ives, Calthorpe (Mr. Stiggins); second of £6 to Lord Hastings, Melton Constable (Emilius).

Mares or geldings adapted for hunting and equal to carry not less than fourteen stones.—The Cup of £20 as best of all the hunters, prize of £10, and silver medal, to J. E. Groom, Congham (Rufus); second of £5 to J. Norton, Raynham (The Doctor).

Mares or geldings adapted for hunting not equal to carry fourteen stone.—First prize of £10 and silver medal to R. G. Beart, Raynham; second of £5 to J. W. Sharman, Hempton.

Four-year-old colts or fillies adapted for hunting.—Cup of £10 and silver medal to H. Overman; second of £5 to H. E. Blythe, Burnham (Margaret).

### HACKS, HARNESS HORSES, AND PONIES.

JUDGE.—Kersey Cooper, Euston, Suffolk.

Stallions for saddle or harness.—The Cup of £20 and silver medal to C. Beart, Stow Bridge (Ambition); second of £10 to R. G. Beart, Rainham (Fireaway); and third of £6 to Capt. Barlow, Hasketon (Lucifer).

Riding-mares or geldings above fifteen hands high and not exceeding fifteen hands three inches.—First prize of £10 and silver medal to R. G. Beart (Splendour); second of £5 to E. P. Middleton, Hindringham (Zaidee). Commended: J. Reeve, Snetterton.

Hackney-mares or geldings above 14 hands high and not exceeding fifteen hands.—First prize of £10 and silver medal to G. M. Sexton, Wherstead, Suffolk (Sensation); second of £5 to G. D. Badham (Major). Highly commended: R. G. Beart (Beauty). Commended: J. Freeman, Summerfield (The Cob).

Brood mares for saddle or harness.—First prize of £8 and silver medal to H. Overman; second of £5 to J. Overman, (Tring).

Ponies not under 13 hands high nor above 14 hands high.—First prize of £5, the Cup of £5 as best of all the ponies, and silver medal, to T. Fulcher, Elmham; second of £3 to R. G. Beart (Perfection). Commended, Rev. W. F. Thursby, Berglupton (Exmoor).

Ponies not under 12 hands high nor above 13 hands high.—First prize of £5 and silver medal to J. Freeman, Summerfield (Cock Robin); second of £3 to H. Bullard, Norwich (Jacob).

Cobs up to 15st. and showing the best walking and trotting action.—Prize of £10 and silver medal to W. Cann, Wymondham.

## SHEEP.

### SOUTHDOWNS.

JUDGE (and of other breeds), H. Fookes, Whitechurch, Dorsetshire.

Shearling rams.—Cup of £10 as best of all the Southdown rams, prize of £8, and silver medal, to Lord Sondes; second of £5 to Lord Sondes. Highly commended, J. Overman.

Rams of any age.—Premium of £5, another premium of £3, and silver medal, to Lord Sondes; second of £5 to Lord Sondes. Shearling ewes.—First prize of £5 and silver medal to Lord Sondes; second of £3 to Lord Sondes.

Ewe lambs.—First prize of £4 and silver medal to Sir W. Jones; second of £3 to Lord Hastings.

Wether lambs.—First prize of £5 and silver medal to Lord Sondes; second of £3 to Sir W. Jones.

Wether lambs of any other breed.—First prize of £5 and silver medal to G. W. Butler, Barney; second of £3 to J. W. Butler.

Ram lambs not long-woolled.—Prize of £4 to J. L. Barrat, Barney.

Shearling wethers of any breed.—First prize of £5 and silver medal to H. Overman (Oxfords); second of £3 to H. Overman. Highly commended, E. Farrer, Spole Cross).

Ewes of any age or breed.—Prize of £5 and silver medal to H.R.H. the Prince of Wales (Southdowns); second of £3 to P. J. Sharman, Seorning.

Ewes of any age or breed not being Southdown or long-woolled.—First prize of £6 and silver medal to T. H. Case, Testerton (Half-breds); second of £4 to H. Overman.

Shearling ewes of any breed not being Southdown or Long-

woolled.—First prize of £5 and silver medal to H. Overman, Weasenham; second of £3 to H. Overman.

Shearling ewes of any age or breed.—Premium of £5, another prize of £2, and silver medal to H. Overman; second of £5 to Lord Soules.

#### LONG-WOOLS.

JUDGE.—S. F. Kemp, Bilsby, Lincolnshire.

Shearling rams.—Prize of £5 and silver medal to T. Brown, Marham.

Rams of any age.—Cup of £10 as best of all the Long-wool rams, prize of £3, and silver medal, to H. Aylmer; second of £5 to T. Brown.

Ram lambs.—First prize of £5 and silver medal to T. Brown; second of £3 to T. Brown.

#### PIGS.

JUDGE.—J. S. Turner, Chyngton, Seaford, Sussex.

Boars of large breed.—First prize of £4 and silver medal to R. E. Duckering and Sons, Northorpe, Lincolnshire; second of £2 to T. Crisp.

Breeding Sows of large breed.—First prize of £4 and silver medal, to R. E. Duckering and Sons; second, of £2, to T. Crisp.

Boars of small breed (black).—The cup of £10 as best of all the boars, Society's prize of £4, and silver medal, to T. Crisp; second, of £2, to S. G. Stearn, Brandestone, Suffolk; commended, S. G. Stearn.

Breeding Sows of small breed (black).—First prize, of £4, and silver medal, to S. G. Stearn.

Boars of small breed (white).—First prize, of £4 and silver medal, to T. Crisp; second, of £2, to R. E. Duckering and Sons; highly commended, T. Crisp.

Breeding Sows of small breed (white).—First prize, of £4, and silver medal, to T. Crisp; second, of £2, to R. E. Duckering and Sons.

Three breeding Sows of small breed (black).—First prize, of £4, and silver medal, to S. G. Stearn; second, of £2, to H. Overman.

Three breeding Sows of small breed (white).—First prize, of £4, and silver medal, to S. G. Stearn; second, of £2, to H. Aylmer.

Pens of Store Pigs.—Prize of £4, and silver medal, to the Rev. T. L. Fellowes, Tuddenham.

Litters of Pigs on the Sow.—Prize of £3, and silver medal, to S. G. Stearn; highly commended, R. E. Duckering and Sons.

#### IMPLEMENTS.

JUDGE.—T. Chambers, jun., Colkirk, Norfolk.

Collections of Agricultural Implements.—First prize of £10, or silver cup of that value, to Holmes and Sons, Norwich; second of £6, to F. Savage, Lynn; third, of £4, to S. K. Barnes, Wells.

Silver medals for newly invented or improved implements, to D. Crome, Gaywood, Lynn (locomotive combined thrashing and dressing machine), Porter and Co., Lincoln (patent rotary spade), J. Le Butt, Bury St. Edmund's (double action haymaking machine).

Highly commended for different implements: Hornsby and Sons, Grantham; Bushell and Hughes, Fakenham; J. Sainty, Burnham; R. S. Baker, Lynn; J. Baker, Wisbeach; A. Dodman, Lynn; Samuelson and Co., Banbury; Readwin, Fakenham.

Commended: Woods and Cocksedge, Stowmarket.

#### THE DINNER

Was held in the Market Hall, where about 250 sat down; Lord Kimberley, in the absence of Lord Bury, the President for the year, occupying the chair.

In returning thanks as one of the County Members,

Mr. SEWELL READ said: Mr. De Grey had complimented the Privy Council on the good sense they had evinced in granting them permission to hold the show; but he (Mr. Read) wished that he could have gone further, and complimented them on the way in which they managed the cattle-trade of this country. He deeply regretted that a Government, which was supposed to be a farmer's friend, should not think it right to do what all the farmers in England told them it was their duty to do, that was, to slaughter all foreign fat stock at the ports of debarkation. He would say, in the vigorous lan-

guage of his friend Mr. Clayden, that it was no use lopping off the branches and offshoots of that formidable disease, the cattle-plague, unless they made up their minds to lay the axe to the roots of the tree. The only other matter to which he would refer was that of the agricultural statistics. They knew that in the course of a few days that returns would be sent to them to fill up, showing the quantity of corn they had grown and the number of live stock they kept; and he did entreat them, for the honour of the county of Norfolk, to make those returns cheerfully, promptly, and correctly, for they must be well aware that by no possibility could those returns be to their disadvantage. But, at the same time, he very much questioned what advantage they would be to the agricultural interest, though for imperial and statistical purposes they would be most useful. When they read in the *Times* of yesterday that these statistics were to tell them when they were to sell their corn, so as to be able to obtain the best price for it, they knew, as he knew, that such notions were utterly fallacious. If they were to attempt in any way to calculate their crop which had to be produced, they knew that their best speculations might be marred by a week's wet weather, whilst their most sanguine expectations might be enhanced by a few days of steady sunshine. Therefore, he did not think, as a class, they would be benefited by the returns; but he once more earnestly requested them to fill them up, and take away from the agricultural interest that slur which the want of this information had so often cast upon them.

Lord KIMBERLEY, in responding, as chairman of the day, said: Although I am nominally a farmer of a few acres of land, I cannot profess any opinions upon purely agricultural subjects which it would be fit that I should offer to an assembly of this kind; and there is a further reason why on an occasion of this kind a speaker finds himself undertaking a rather arduous task, and it arises from that which I not only do not regret, but which I very much rejoice in—I mean the establishment of the Agricultural Chamber in Norfolk. I had the satisfaction of taking part, under the presidency of my hon. friend the member for East Norfolk, in its formation; and I am certain that all of you who have watched its progress must feel that a very solid and useful addition to the institutions of the country has been made. The Chamber affords us a legitimate occasion for exchanging our opinions, and we can do so with more freedom than we can upon these occasions, which, before the establishment of the Chamber, were almost the only occasions when we could converse together on matters specially interesting to the country. What I am about to say may seem to touch in some way upon matters of a political character, but I can assure you I shall be the last person to break the statutory rule which excludes on these occasions all that can properly be characterised as party politics. When I referred to the Chamber of Agriculture I said that I regarded its establishment with satisfaction, and I had in my mind the strong necessity which I am convinced exists at the present time for a free and cordial and plain interchange of opinion amongst all classes in this country. The moment at which we live is one of a great and most important change. I offer no opinion upon the policy of that change, but I say that we are about to make one of the most momentous changes which has ever been made in the history of this country. We are about to transfer political power in this country to a very considerable extent from you, the middle classes, to the classes below you, and at such a moment as this—not, mind you, saying for one instant that that change is not one which ought to be accomplished, and which it is not wise to accomplish, not expressing on such an occasion as this the slightest opinion as to the manner in which it is accomplished, or as to the part either one party or the other has played in this change—yet I do think it is well that we should reflect upon our position, and that an interchange of opinion amongst the different classes should take place. It is for that reason that I rejoice in the signs of life which this county has shown in the establishment of the Chamber of Agriculture, and in the discussions which have here taken place. Let me point out to you this. The state of security which exists in such a county as this, and especially here, but to a very considerable extent throughout England, is one exceedingly peculiar, and to some extent unusual, because it is not the usual state of society that there should be great landlords, and great tenant-farmers, and that below them should be a great mass of labourers paid by the day. That is

a state of things which does not exist in some of the most fertile countries in Europe. It does not exist in France; it does not exist in Belgium; it does not exist in Italy; and it does not exist to the same extent in Germany that it does here. That position of things is one which should make us reflect. Do not let us think that what has been always will be. History to a very little extent repeats itself, and changes may befall us which we might have anticipated, but which, by not anticipating, we shall not prevent. I am naturally led by these reflections to call your attention in a few words to the condition of the agricultural labourer in this country. Upon that subject a very interesting and instructive discussion has taken place in the Chamber of Agriculture at Norwich. I freely own that I do not agree except in part with the conclusions at which the Chamber arrived, and I dissent in a great part from the opinions which were expressed by the speakers upon that occasion (Oh, oh!). I know you will hear me fairly. I know I shall express an opinion which it is not likely to meet with entire assent, perhaps not all with the assent of many whom I am now addressing; but I am actuated by only one desire, namely to take advantage of this occasion to give an honest, independent opinion. Before I touch upon this particular question, allow me to say one word upon another branch of the subject, which was not considered by the Chamber, and which I can dismiss in a few words—I mean the cottages of the agricultural labourer. There can be no doubt that the proper housing of the agricultural labourer has become a practical question of great importance. I believe that a change in the law which has been recently made—I mean the establishment of a union settlement—was the only measure which could produce a salutary change in that direction, and I am convinced that although it may take time, that measure will ultimately produce the change which we all wish to see. Under that old law it was the direct interest of many persons not to build cottages for the agricultural labourer; and whatever we may say as to philanthropic motives, unhappily human nature is such that man will be influenced to a considerable extent by his interests. And here I would say one word for the class to which I belong—the landlords. It was not the landlords alone who did not wish for cottages to be built in close parishes. The tenant farmers objected to it just as much as the landlords (“No, no!”). It is notorious that it was not the interest of the farmers in a close parish to bring a number of cottages into that parish. (Repeated cries of “No, no!”) You may say “No, no,” but I have heard it repeatedly with my own ears. I have heard men say, “Do not put cottages in this parish, because they will bring a number of paupers into it.” I do not attach any particular blame to gentlemen who took that view. There is no doubt that it was an ordinary selfish view, such as we all take more or less. We have, however, remedied that state of things. We have made it no longer the interest of the tenant farmer that cottages should not be built in any parish. We have made it his direct interest that they should be built there. We have made the law such that the tenant farmer now, when he hires a farm, can apply to his landlord for more cottages, just as he says to him, “I want more cattle-sheds, or more winnowing houses.” You will have a pressure put upon the landlord—a legitimate, natural pressure—that for persons to take their farms they must build cottages. I believe the pressure upon the landlord, and the desire which you will have to have a proper number of labourers handy for employment, will ultimately bring about the desired result, and that you will have a sufficient number of cottages for the housing of labourers employed upon your farms. It is quite obvious that the matter is of the greatest practical importance. I suppose that nothing presses more upon the mind of every employer of labour whom I am addressing than the rise in the price of labour and the tendency of the labourers to leave us. That I take to be the pressing agricultural question of the day. Well, if it be so, what is it that we are called upon to do? Why, to see that by every means in our power we place the agricultural labourer in such a position that he shall not desire to leave us. It is no use for us to talk about old days, or to say we wish they were this or that. We have no control over those who wish to go. Go they will unless we make it their interest to stay. This brings me to the immediate subject which was discussed by the Chamber of Agriculture the other day, as to the restrictions upon the employment of women and children in agriculture, and further

educational measures with regard to the children of agricultural labourers. Upon this subject, the Chamber of Agriculture came to the conclusion that the employment of women and children in agriculture is desirable for their own welfare and for the production of their meat and bread. I have not one word to say against that proposition. I think it is an unfortunate circumstance that society should be such that women are obliged to work in the field, but I recognise the necessity as existing. I am quite certain that the time has not yet arrived when the employers of labour can dispense with the employment of women in the field in the county of Norfolk; nor has the time arrived when the head of the family, the agricultural labourer, can dispense with the assistance of his wife, in field labour, for the support of his family. So far I agree with the resolution which was come to by the Chamber, though I think it would be a very salutary change if the employment of women in field labour could be dispensed with. The other part of the resolution was to this effect—I am quoting from memory—that no further restrictions as to the employment of women and children, and no further educational measures are required, except as to the employment of some of the gangs. I am very glad indeed that that resolution was passed, because it admits, at all events, one thing, and I am quite certain that no assembly of Norfolk farmers could come to any other conclusion than that some regulations are necessary with regard to the employment of gangs. I am very glad that that is admitted, and I am quite certain that no person who hears me, and who reads the report upon agricultural gangs which was presented to Parliament, would feel any doubt as to the way in which he should give his vote upon that particular part of the resolution. I am sorry to be obliged to confess, as a Norfolk man, that when I read that report I felt somewhat ashamed, and I may tell you that the feeling which the report has aroused out of the county is such that few people in this room who have not had the opportunity of seeing persons who have no connexion with the eastern counties, and who have read that report merely in an independent spirit, would imagine. There is no doubt that legislation upon this subject is certain, that it is imminent, whether you may like it or not. Therefore, I am glad that the Chamber of Agriculture came to the conclusion that some regulations were necessary. If the Chamber had not had before it the Bill proposed by Mr. Fawcett, which I do not think would be altogether practicable, they would probably have discussed the matter in a more favourable spirit to the views which I advocate. A Bill has been brought into the House of Lords by Lord Shaftesbury, which I have not seen, but a noble lord has acquainted me with its principal provisions, and I must say that I approve of it. Lord Shaftesbury proposes in the first place as regards gangs that no women shall be employed in gangs under the age of 18. Of course he will propose—at all events if he does not, I shall—that the gaug master should be licensed. Next, Lord Shaftesbury proposes, which is not in accordance with what the Chamber of Agriculture desires, that no boy shall be employed in agriculture under the age of 8 years, and that no girl shall be employed in agriculture under the age of 13. I think that these are very moderate proposals. No man ought to desire that a child of the tender age of 6 or 7 years should be employed in these gangs. It is perfectly monstrous that these things should be done, but I have read it, and I believe that there have been children employed in the field of 6 or 7 years old. [A VOICE: Very few.] They may be very few, and the fewer the better; but I say it should not be possible that any parent should sell the labour of a tender child of that kind. It is not merely the fault of the employers themselves. There are mercenary persons who will sell the labour of children of tender years, but who should not be allowed to do so. Can anyone wish that tender girls under 13 should be employed in the field? It is very obvious that by going into the fields at such an age they acquire habits which mothers of families ought not to have, which prevent them being of use as servants, and which produce an effect upon the population such as none of us desire to see. Then, Lord Shaftesbury proposes that there should be some measures with regard to education. He suggests that you should take to some extent the Factory Act, that you should compel every child to attend school either half days or alternate days, or adopt a system requiring them to have attended so many days during the preceding six months.



I confess I see considerable difficulty in the application of these acts to agricultural children, but for all that I have a strong opinion that more education is required for the agricultural labourer. What is it that we are about to see? We are about to see political power placed in the hands of the masses of the people, and do not think that that will be long confined to the towns. Every man knows that it will extend from the town to the country, and I maintain that it is a political axiom which no man can refute, that to place power in the hands of men at once ignorant and immoral is a most dangerous thing, and most certain to produce a political catastrophe such as we can scarcely imagine. It is an absolute duty for every man who values the permanency of the institutions of this country, for every man who values the permanency of the social state in which we live, to see that every man in whose hands political power will be placed before long, should be given as good an education—and by a good education I mean not merely reading and writing, but as good an education as can be afforded. It is a difficult thing to solve the problem, but we ought to give a candid hearing to those who have fair proposals to make, and receive them not in hostility, but in a spirit of friendliness, knowing that the matter is of the utmost importance to us, the owners of the property, and the employers of labour. It is idle of men to say that the classes below them are satisfied with their position, and that everything is done to make them satisfied with the privileges conferred upon them. There are one or two other topics, if time permitted, I should like to touch upon. I agree with my hon. friend on my left (Mr. Read) when he referred to the fortunate circumstance that we were enabled to hold this meeting without any restrictions as to the exhibition of cattle. He had taken the opportunity of saying a word or two with regard to the action of the Privy Council with respect to foreign cattle. I do not for a moment doubt that there may be great difficulty in arranging a change in so great a trade as foreign cattle, but I must say I agree with my hon. friend that if it can be done—and I for my part cannot but believe that it can—it would be a plain, obvious, and wise policy that all cattle brought from abroad, as long as we have any reason to apprehend any serious disease, should be slaughtered at the port or near the port of debarkation. It is a mere matter of pounds, shillings, and pence, and in the end would be the cheapest method. What would be thought of any expense that might be incurred in establishing lairs for the convenience of the slaughtering of cattle, when compared with the losses which we have experienced in our live stock? As to telling me that that is a loss which merely falls upon those particular persons who happen to be the possessors of cattle, the idea seems to me to be preposterous. Nobody for a moment supposes that when the great dearth of cotton occurred that the loss of Lancashire was not the loss of the whole country, and nobody can suppose that the losses of a large portion of meat which supply the country is not the loss of the whole country. It is obvious to me, if such a measure is practicable, that it is a pity it is not adopted. The next subject to which my hon. friend alluded is one in which I agree with him in part, but not altogether. He gave some excellent advice when he said, "Fill up by all means those papers which are being sent round for agricultural statistics," but he said at the same time that he did not think they would be of much value, because it would not be possible to calculate from the acreage of crops what will be the produce. There is no doubt as to the truth of the observations which he made, but the conclusion which I draw is not that which I imagine my hon. friend would draw. My belief is that Government will not have too many agricultural statistics, but that they will not have sufficient, because it is obvious that the proper course to take is that which was taken in Ireland, namely, to take the estimate of the produce when you take an account of the acreage; and I think there could then be found in those statistics a very valuable guide in calculating the general condition of the produce in any given year. However, I shall not argue this point, because the advice given by my hon. friend is that which I should myself give, and I think there is no doubt that it will be followed, because when the statistics were called for before, the county of Norfolk was by no means backward in responding to the call. There is one subject which, though not strictly agricultural, you would perhaps excuse me if I briefly advert to—I mean the management of our highways. I don't at all

mean to enter into any details; but I think the principle of the Act is good, and one of the reasons why I think so is because the management of highways by boards, at which owners of property meet with occupiers of land, is a more wholesome system of management than mere parish management. I don't wish to take a one-sided application of that principle, for just as I think highway boards are good things, and would work well, the same as our boards of guardians, so for my own part I never could see for what reason the management of county rates is not shared in some proper proportion by the occupiers of land with the owners of land. It is contrary to the general principles by which we are governed, that a certain portion of the rates which are levied upon property in the county should not be managed by a board partly elected by the occupiers of land, and partly composed of those who have some personal interest as owners of land. I think that is a very salutary reform—not a very large one, but one which would give a good deal of satisfaction, and which would place us all upon a more agreeable footing, and which would be more in accordance with the spirit of our institutions. I thank you for the attention which you have given to the remarks which I have thought proper to make, more particularly because I know that those remarks are not agreed in by many whom I now address. My opinion is this—the time is come when we should not fear to face any question upon which we differ, and for that reason I shall refer to one more topic before I sit down, namely, the preservation of game. I have never been a great game preserver, and therefore I am enabled to speak freely on the subject. I think it is to be regretted that the extensive preservation of game in many parts of the country has given rise to the dissatisfaction which undoubtedly to some extent exists; but what I wish to say is this, that while I recognise that that dissatisfaction may have some ground—and I am quite sure that as to that peculiar animal the rabbit, the more dissatisfaction which exists the better, and the more he is put out of the way the better; but with regard to game generally I would venture to say this—it is very natural that gentlemen should not like to have their farms overrun by game, but you must consider what will be the result if you press the thing too far. If game preserving really ceased, probably in the first place you would not have so many resident gentlemen in the country, which I think would be a misfortune. In the next place this state of things would inevitably arise. The owner would put up his farms to the highest bidder. They would be let by tender, and a state of things would be introduced unfavourable to the tenant, and destructive of the good understanding which now exists between owner and occupier. A state of things would be introduced than which I cannot imagine anything more dangerous. The occupiers of large farms having beneath them large numbers of men employed at daily wages, not having a good understanding with their landlords, or the support of their landlords, would stand face to face with the population. I cannot conceive a state of things more dangerous. Game is one amongst many things. My feeling is that the very old and trite motto which I now see on the wall opposite, "Live and let live," is the best state of feeling by which to be actuated. "Live and let live" has two sides. A man when he lives himself must remember that a very difficult and by far the most important part of the maxim is to let live, and no matter whether it be an employer, a labourer, or capitalist, or an artisan, or whatever may be our relationship, I believe that as it is the highest Christian duty, so it is the wisest policy to "Live and let live." To preserve the good relationship which has so long existed between the landlords and tenants, and the tenants and labourers employed under them, in this country—the good relationship which has been maintained by a fair spirit of accommodation, forbearance, and consideration—is not only our own interests, but also the interests of others. I believe that if that spirit continue to animate us, whatever may be the changes, politically or socially, which we may have to meet, we shall be able to hand down to our posterity unimpaired the fair fabric of the constitution under which we live.

Lord SONDES proposed "The Judges of Cattle," coupled with the health of Mr. Keary.

Mr. KEARY, in replying, as one of the judges, said that, having been a frequent attendant at the Royal Shows, he had never seen a breed so excellent in themselves as the breed of Norfolk polled cattle shown there that day. Although he

regretted to say that those exotic cattle—if he might use the expression—the Devons, were dying out, they were being replaced in the county by those native breeds which seemed more congenial to this soil, and for the improvements in which he congratulated them.

Lord HASTINGS, in proposing “The Judges of Horses,” associated with the toast the name of Mr. Kersey Cooper.

Mr. KERSEY COOPER also responded, and stated that he thought there should be more than one judge of horses; in his opinion there should be three; because there was a great difference between horses and meat-producing animals. The latter were judged by one principle of anatomical qualities; but with horses action was pace, action was strength, and action was fashion.

Mr. BADHAM said that he had never seen a better show of polled cattle than he had witnessed that day; and he believed that if he had exhibited, although some years since they used to carry off prizes, his cattle would have been nowhere.

## PLATE II.

### FASHIONING A FLY.

“The lake trout flies,” says Mr. Francis Francis, in his new and very delightful *Book on Angling*, “are legion, each lake and each professor in that lake having his own varieties, which are not governed by any rules but those of fancy, and, being imitations of nothing in Nature, the patterns are endless.” Still, our author, who himself has fathered a fly, allows that on many lakes, “whether it be owing to the depth of the water, or what not, fancy has a good deal to do with the trout’s notions, though, as others, I have found entomology exceedingly successful. Of course, here and there one meets some old fellow who knows every stone and eddy, and whose local knowledge must give him a great advantage; but, as a rule, I have always found a close imitation of the natural fly do better than all the blacks, or browns, or reds, or blues, or hare-legs, and all the colours of the rainbow, which the Celtic practitioner regards as sacred traditions; and I never wanted yet to ask what fly was taking, if there were any fly at all on, knowing from experience pretty well what the fly was at a glance; for a blue dun, or a yellow dun, or red spinner, or a March brown, are the same flies, and should be dressed in the same way, on the north of the Tweed as on the south, a due regard being paid to size.” And so, “dearly beloved pupil, do not listen to delusive talk of hare’s ears and yellows, or hare’s ear and purple, or green, or what not, or blues of all sorts of shades, or fancy flies of endless hue. Some of these certainly kill, but it is rather a fluke if they do, while the odds are that they don’t.”

But fair play is a jewel; and, fluke or no fluke, it is an old joke how, after the professor has whipped the water in vain, a yokel wipes his eye with a hazel-wand and a home-tied article, that the fish will fancy, whatever the gentlemen may think of it. Sandy is fashioning something of the sort to suit the palate of the luxurious lake-trout on this glorious summer morning.

## FOOD FOR MILCH COWS.

TO THE EDITOR.

SIR,—I wish, through the medium of your columns, to call the attention of all those interested in raising dairy produce, whether as amateurs or as a means of livelihood, to the cultivation of the cow-cabbage as a valuable food for milch cows.

As I believe the cow-cabbage is little known, even in England, I must describe its appearance for the information of those who have never seen it. It does not form a head, but it is a tall leafy open-headed kind, and nothing can be prettier than a crop when arrived at maturity, with its purple-tinted, long, graceful, and pendulous leaves.

In the Channel Islands (Guernsey, Jersey, &c.), great pains I believe are taken in its culture, and, from the care bestowed in manuring and preparing the land, it grows there to an extraordinary height.

On the Continent of Europe it is much cultivated and esteemed, as I know from experience, and I myself have grown it in Denmark to the height of six feet and upwards. There we chopped it (stem and leaves) into shortish pieces, and mixed it with chaff and the sweepings of the barn floor. As to its culture, it should be sown on a well-dug and prepared piece of ground in drills, in order the more easily to keep the plants clean, and half a pound of seed on about three square perches of ground should produce more than sufficient plants for an acre of land.

When planted out the land should have been well manured, ploughed, pulverized, &c., and the plants should be put in with a planting-stick in the ordinary manner at three feet apart, and at the same distance row from row; or, if on a large scale, furrows may be opened with the plough, the plants placed against the slanting side of the furrow, and the root covered by the plough, some one following to make firm the plants with the foot and remove any earth which might have fallen on them. The after-culture consists—as in all good husbandry—in keeping the land clean. This, on the large scale, is easily done by one man or a boy, a steady horse, and a horse-hoe, or whatever is most suitable.

As to the time of sowing and planting, I am not as yet sufficiently acquainted with the Australian seasons to pass an opinion. Probably it would require a sheltered situation in places subject to high winds.

Cabbage, it must be borne in mind, is an exhausting crop if consumed off the place, taking away about six pounds of nitrogen per ton; but I am an advocate for the consumption of crops on the holding, converting them into butter, milk, pork, bacon, poultry, eggs, &c., and I think all small holders would find this the most permanently productive system of farming.

To carry out this plan rough sheds would be necessary, and cows house-fed, and great care would have to be taken of every particle of manure, so that say a fourth, perhaps, of the holding might be well manured every year.

Above all, a good breed of both cows and pigs would be required, and the poultry should be properly looked after, and regularity of feeding attended to for every description of stock on the place. There is an English proverb that “muck makes meal,” and our friends the Danes say “the cow milks through the teeth.”

NEW CHUM.

## THE ECONOMICAL APPLICATION OF WINTER FORAGE FOR STOCK.

At the quarterly meeting of the Wenlock Farmers' Club, Mr. Keary read the following paper for Mr. Wickham:—

Could we obtain a definite and reliable answer to this question farming in the 19th century would indeed be made easy. I fear, after we have as fully discussed the question as I hope after I have read this paper we shall do, we shall still find that the real difficulty in farming properly during the winter months lies in applying the principles we may all agree upon to the changes and chances of each successive year. Our primary and most natural object in cultivating the land is to produce man's food as directly from the land as possible—to grow corn upon our tillage and meat upon our grass. Mr. Coke, when he introduced the four-course system, taught us to look beyond this—taught us that by producing meat upon our tillage, as it were second-hand through the medium of a fallow crop, we could increase the quantity of our corn. He advocated it not because he found so great a profit from the meat so produced, but because it enabled him upon his light and almost barren land to keep more stock, by which means more land could be manured each year, and as a consequence more corn grown. In grazing and in growing corn for sale the profit is direct, and only the actual expense of the crop itself has to be deducted from the gross value received in estimating the profits. In assessing, as we are too apt to do, the system of winter feeding of being unprofitable, except in the value of the manure left us, are we not too apt to forget that there are two sets of expenses to be paid for—the cost of growing the forage and the cost of using it—and that not only the value of the manure made, but also the value of the extra crop of corn grown in consequence, must be brought in to balance the account of winter feeding? It is clear this winter feeding requires especial care and attention. Its profits or its losses are so mixed up with other departments of the farm that they do not exhibit themselves to the careless. I cannot propose to decide the exact mode in which each beast, whether store, dairy, or feeding, whether horse, sheep, or pig, must be fed in order to gain as much as possible in the extra growth of corn crop, and at the same time to gain some profit, however slight, from the means we use to obtain it, the feeding process itself. I can only propose to discuss the principles which should guide us each year to a profitable answer to the question. Here is my stock of winter forage of all its various kinds, some good, some bad, some indifferent; how can I best apply it again to the farm? I will begin with the hay crop, for this reason, that I look upon it as the foundation of all feeding, whether of store or fattening stock. With good hay you may do almost anything; even indifferent if not bad hay is too good to waste. In summer we have comparatively little difficulty in keeping our stock in profitable condition, for Nature does our work; but when Nature stops our supply then we must use our heads. Of all our winter forage hay is the nearest approach to, if I may not say the only, natural fodder we have left us, and we cannot be too careful in our use of it. It must be economised by being only used when really wanted, by careful protection from weather or from being wastefully littered about. Whenever used it should be cut up. We are told that in this form it is much more easily assimilated and made use of by the stock, but I think the saving from waste thus gained is a much more practical and important reason. Hay is seldom so bad that we can afford to let it be trodden under foot and made into a bad substitute for straw. The question naturally arises here, what is good hay? Not merely that which grows upon good upland, or that is made well in fair weather. Of their several kinds all classes may be good and all, even the best upland made without a drop of rain, may be worthless. We are too apt to listen to the chemist, who can supply us with artificial manures, when we have either failed or neglected to make our proper quantity of farmyard manure, and we don't pay attention enough to the natural history of the plants we grow and store away for winter use. Good hay must be well made and without too much drowning, but still all is vain if it is not cut at the right time. Nature won't wait any more than the weather. The grass throws up a

stem, and into that and through that it sends the properties to form the seed or corn, after which the stem dies and becomes a mere piece of fibre. It is while these properties are in the stem (and they are on the decrease as soon as ever the flower begins to form) that we must cut, if we wish to secure them, for the seeds are too small to give us any chance of saving a fair proportion after they are ripe enough to shed, and the remaining matter on grass straw is poor fodder, and must not be reckoned as hay. In using good hay we cannot do harm, but the art of feeding lies in giving such a proportion of the different sorts of food that none may be in excess. Hay is the foundation of whatever mixture we use, without which we cannot use our green crop or our artificial food. If we waste our hay we waste our other forage—we cripple our resources by upsetting the proportions of our supply. All stock require a certain amount of bulk in their food. If then our hay is really good, if it is rich in feeding material, in order to avoid giving this matter in excess, we may make up the bulk by mixing cut straw, which is only another species of grass which has seed large enough to be worth the trouble of collecting, and the stems of which we therefore leave uncut long enough to enable them to pass on the feeding properties they possess, when green, into the seed or corn. Inferior hay, which either has been left uncut till too late, has been drenched till it is impoverished, or is less rich in food owing to the unfavourable character of the soil it grew on, must be used upon the understanding that it will supply more nearly the required bulk of food, without that excess of those feeding properties, to economise which we should mix straw with good hay. Some advocate the steaming or salting of bad hay. Doubtless it will make it more palatable to the stock, but it can never restore those feeding properties which have been lost. Salt all stock should be supplied with, whether the hay be good or bad. Steam cannot be nourishing, even if it be forcing. We now come to our straw crops. What shall we do with them? Straw may be valuable as fodder; no doubt, if cut early, it is so to a certain extent. The naturalists explain that straw is but a stem which has discharged its function as a conductor from the root of the rich ingredients of the corn. Some small portion of those ingredients may have been left in it, but if the corn was fully ripe it is small indeed. The chemist, on the other hand, tells us, that the more vegetable matter we mix with the manure heap, the more of those volatile salts and gases shall we retain, which constitute the value of the manure heap, and the loss of which the artificial manure manufacturer would persuade us he can supply. Is this economy to waste what we want and then buy it? Surely the conclusion is that the proper place for straw is the manure heap. It may be economical to use straw as fodder, in order to save good hay or to make up a deficiency in that crop; but it is poor economy to feed an animal on good food, and to spoil the manure because you have let him eat his litter. It is not necessary to run to the other extreme—to throw the straw wastefully about the yard, and then count the value of the manure heap by the number of loads of strawy manure produced. As in feeding, so in making manure, the great art, the real economy, lies in finding the proper proportions to be used, the proportion of litter which should be mixed with the manure. On the light hungry soil, where your object is to apply *little and often* of well rotted manure, the proportion of straw should of course be less than on the stiff retentive clay, where the more undecayed the straw, the longer the manure when ploughed in, the better. This point each must decide for himself. He must not waste one straw, but he must not starve the manure heap. If he has too much straw, he has not got his crops so arranged as to give him the proportion of the different kinds of winter forage which he requires to enable him to keep most stock on the land. Straw can be very profitably used as fodder for all classes of stock; but it is, I believe, very false economy to so use it when it is wanted as litter. It is but a poor substitute for hay as forage, whereas there is no substitute that I know of at all equal to it as litter. The next consideration must be our root crops. We are accustomed to speak of them

as roots, but properly speaking they are not roots at all. The plants are biennials. In the first year they form an excrescence on the stem, as is shown more clearly in the kohlrabi. This excrescence, or root as we call it, is the receptacle, as is the straw in grass or corn, of all the ingredients required by the plant to form the seed, and which we use as feeding matter while so stored up for us by Nature. As winter comes on, the store ceases to increase, and certain changes take place in the chemicals preparatory to the process which Nature will carry out at the proper season, even though you top and tail this little store-room, and deprive it of all further supplies of nourishment, viz., the growth out of these ingredients of the flower, stem, and seeds, after which you find the store-room, like the straw, a mere mass of fibre. If then we wish to apply our root crop properly, we must see that Nature does not cheat us by robbing our root. How often do we hear men congratulating themselves quite late in spring that they have still got plenty of swedes? Go and look at them; they are not rotten, but they are growing, and are being a second time topped, proving that nature is at work. The swede is an early and a hardy plant. It may be sown much earlier, it may be used much earlier, and the crop should be finished up much earlier than it usually is on this side of England. The mangold, though sown earlier, is much better adapted for keeping, as it will lie dormant in the character of a root far longer than the swede; indeed, by the end of the following August, it will show far less impatience to start its flower-stems than the swede does at Christmas. The same may, to a less extent, be said of the carrot. The mangold, it is true, cannot be so carelessly or freely used as the swede. It requires, or at least is better for, a certain amount of keeping, and should be more carefully proportioned to the other kinds of fodder used with it; but when properly used, there is no root more valuable for feeding purposes. Perhaps the best way of using it is cut up into fingers, mixed well with hay and straw chaff, and allowed to lie in a heap for twenty-four hours. Early in the season, or when first used, it should be mixed with swedes, or whatever roots have been used for the stock before. On light land there is little or no excuse for hoarding the swede too long, for these cabbages can be grown for the ewes and lambs, besides rye, tares, and such other early spring green crops which can be got in upon the wheat or pea stubbles, and eaten off with sheep before the ground is required for the next regular green crop. Stock always thrive best not only upon a mixed but a changing diet, and it is in the root crop especially that we can obtain this variety. Our root crop may be mainly swedes, but it should include all those green crops which will grow upon our land. If one fail from drought, blight, or the attacks of our insect foes, we have other strings to our bow. If all succeed, our cattle will enjoy, and enjoy it thoroughly, a greater change of food. As to the economy of cooking roots, I think we may look to practice for an answer. No doubt it renders the food somewhat more easy of digestion; but when we see so many an apparatus which was once to do wonders left after the first year or two to rust, I think we may presume that the benefit is not considered equal to the trouble and expense. To prevent waste of the quantity of our crop, roots should be cut up. I don't like pulping: it is done at a greater cost of labour, with no other result than I can see than that it makes a greater mess of the food. To prevent waste in the quality of our crop, roots must be used before nature robs them of their goodness. There remains only that portion of the cereal crop which we can consume upon the farm, in conjunction with cake and other artificial food. It is useless for me to attempt to lay down a general rule as to the best mixture or the proper quantities to be used. The market prices and the quality of the material must be our guide. At the same time, it is the care in proportioning this part of our forage which will mainly decide the question for us, whether it has paid us to feed at all. There is, I am sure, great waste in this respect. A majority may almost always be found at a farmers' meeting to own that feeding beef at present prices won't pay, and the excuse given to the world for the apparent insanity we are all guilty of in feeding beef for other people when it does not pay us, is—we have our profit in the increased value of the manure. How do we know this? A thorough chemist might ascertain whether *all* he sacrificed in the beef was present in the manure, but no farmer knows this. He knows, as a general rule, that good feeding makes good manure; but he does not know how wasteful feeding will look, upon the scales. A very much

smaller quantity than is usually used, of corn and cake of good quality, well mixed and proportioned with our other forage, will produce quite as much and much better beef, and if the manure has not then so much corn and cake in it as where double the quantity is consumed by the animal, we can add it ourselves to the manure heap, and we then know the exact cost of our wisdom or our folly, without troubling a poor ox to pass it through him. The great rule in feeding cattle or sheep is the same as that recommended for ourselves by practical medical men. They should always finish a meal with an appetite. Like us, cattle vary very much—some are coarser feeders than others—some like one thing better than another, and these whims and fancies of their appetite must be attended to. Another point is, they must be undisturbed—they must know, as they soon learn by habit, when their food will be given to them, and they must not be disappointed. Nothing can beat the system I used to see in Norfolk. The cattle, whether in loose-boxes, or tied up, or in open yards, were fed regularly as clock-work four times a day, and each meal was divided into at least two courses—the man taking to each a feed of roots, cut up and well-mixed with hay and straw-chaff, and when they had quite finished that a feed of meal, cake, and chaff was supplied them. If any course in any meal was not licked up clear by any beast, what was left was at once removed and less given the next time, or if thought necessary a change made in his diet. Under this system the cattle all lay down as soon as they had finished their second course, and did not stir till they again saw their friend. Each beast was thus carefully watched and humoured. With sheep the same care and attention will be amply repaid, but to that system properly requires the practical eye of the regular shepherd—a very rare person to find on this side of England, where the dairy is the principal class of farming. A farmer may, however, be sure that if he sees food in any rack, manger, or feeding-trough, and an animal not then or there eating it, his forage is being wasted and the appetite of his stock injured. I will now only touch upon one other form in which I think we are too apt to waste our forage. How often do we see a fine lot of beasts, either store or feeding stock, in a yard up to their bellies in good straw, and on praising them as a nice useful lot of beasts, are met by the mournful reply—“Yes, but they won't pay me a farthing, they cost too much, but I must have something to tread the straw into manure.” Is this only another proof of our insanity? Is there really no other way of treading our straw into manure? What are our farm-horses doing? They are shut up in the stable with as little straw wasted upon them in the way of litter as possible. Why so? There is no reason on earth why a horse should not make his legs useful when he is not actually at work. A hunter is shorn of his natural clothing and every effort made to render his skin as little susceptible of heat as possible, because he is wanted for fast work. He is fed upon nothing but dry food for the sake of his wind. All superfluous flesh, such as green food would produce, would injure his speed. None of these points do we require in the farm-horse, but just the contrary. We want him to care nothing for cold—to be able to stand about in the wet and cold, and we want all the weight he can carry to match the load which we put behind, not on him. There is no need to keep him in a hot stable at all. His coat will protect him from cold, and if confined in the extent of his ramble, a shed or even a good wall will give him ample shelter. He need not be fed on dry food—on the contrary, he should carry flesh. If roots are to be had it is better economy to cut them up for him than for the beast bought in at such a price that feed him how we will he cannot pay. Our cart-horses are the enemies of our haystacks—the most valuable forage crop we have. Like other stock they thrive best upon a mixture of food, but they seldom get it. A waggoner will give them day after day as much uncut hay, or generally half as much again, as they can eat, and all the corn he can get. Well, they do very well—true, and it is also true that the oldest dairy cow or working bullock with plenty of hay and turnips will in time make beef, but is it economical? Cannot the horse be made to do better? Cannot the old cow be fed quicker and cheaper by a little more care and skill in the use of our forage? In this short paper I have not attempted to go into the details of feeding either store or fattening stock. I have only attempted to point out some of the leading principles to guide us to an economical use of our winter forage. It should be harvested at a time when it contains in the greatest quantity the in-

redient, we want for feeding. It must be used while those ingredients are still preserved free from that deterioration which by nature comes to all sooner or later. It must be used for the purpose for which it is best suited, in such quantities only as the appetite of each animal requires (which our own eyes can tell us better than all the chemists), and in such a form as it is least liable to waste.

Mr. BENSON, the chairman, felt sure that all present had listened to the reading of Mr. Wickham's very able paper as he had done, and that they must feel much gratified with it. It was excellent for the style of its composition and for the principles, while the matter it contained was put before them in a most practical manner. He was sure it contained information which must prove valuable to every farmer who would avail himself of it. He did not think there was anything he could say himself that would be likely to carry on the discussion, but there were one or two subjects on which he promised some little information, especially on that treated of in the latter part of the paper—namely, cart-horses. He was perfectly satisfied that if, when he kept a farm, he could have got a waggoner to have attended to his orders he could have kept his cart-horses for one-half the money for which they had been kept. He never could get a man to cut the hay and straw properly, and give it the horses regularly, with a little swede, although he had found the horses eat it with greediness, that showed plainly enough how much they liked it. He had carted horses, where a certain amount of speed was required with a certain amount of wind, and he never found a thing to suit them better than this. It laid their coats, and the horses looked better than they would have done with any amount of grain that could have been crammed into their manger. Waggoners, however, were not of this opinion, nor could you persuade them to it. They believed that nothing could be done without large amounts of grain, while hay was frequently given by them in such quantities that very often it was trodden under foot, and one-half of the bed was composed of really good fodder. He was perfectly convinced that this mode of feeding did not conduce to the benefit of the horses; and he found it so difficult to get the men to do what he wanted them that this was one reason why he had given up farming altogether. The keep of horses was a most important item in the expenses of the farm, and if they did not look to it themselves, and see that their waggoners really did their duty, this part of the work would never be done as it ought to be. He believed there was as much skill required in the feeding of cattle as in the management of farm horses; indeed, the cultivation of the soil was an easy matter as compared with the rearing and feeding of stock. In the feeding of cattle there was nothing more certain than that there should be a certain amount of bulk in the food as well as a certain amount of nutritive quality, therefore mixed food suited them best. With horses their object was to get the greatest amount of nutriment in the smallest compass. In the feeding of cattle, therefore, straw becomes a very valuable ingredient. There was another matter to which he intended to refer, but he wished it to be understood that whatever he spoke upon was open to correction. It had often struck him as surprising that in this part of the country mangold wurtzel should be altogether discarded. Down in Kent and Worcester it was once much used, and he might say that the root is there coming into fashion again. There were several points, he thought, in them which deserved the attention of the farmer. One recommendation was that swedes had lost or were losing their good qualities just about the time that mangolds began to show their excellence. He was a short time ago at the house of a farmer, who was a very scientific man, and he described mangolds as the most valuable things he had upon his farm. Of course he was quite willing to admit that swedes were most valuable while sound, and that they could not be replaced by anything else, but when they got woody and stringy, which they did early in the year, mangolds afforded a very excellent substitute.

Mr. E. DAVIES said he believed Mr. Instone had had considerable experience in the pulping of roots, and he should like to hear what he had to say about it.

Mr. INSTONE replied it was the best thing he had ever seen.

The CHAIRMAN said he should be very glad to believe Mr. Instone if he dare, but he had heard a good many opinions to the contrary.

Mr. INSTONE said he found he could keep more stock on

the same quantity of roots by pulping than he could before. He mixed cut straw, hay, or chaff with the pulp, and this made the roots go much further. His experience also convinced him that the cart horses as a rule thrived much better out in the yard than in the stable. Even in winter he found this to be the case. Treated in this way they looked as well, were much hardier, and did as much, if not more, work than when kept in the stable.

The Rev. M. SPRAGUE, in the course of some humorous remarks, said he had only a small farm; indeed it was so small, that he could hardly call himself a farmer. Small as it was, however, he had to pay a large price for it. He paid £5 per acre, and he could show a fair profit out of it at that price. He did not know what farmers were doing who did not make their fortunes when paying only 30s. per acre. During the past year he had had a hundred sheep under his hands. He sold them off quickly, and made a good thing out of them. Then he had eight horses, three of which broke their knees; but still he did not grumble. He had two bullocks—"Irishmen," for which he gave £4 10s. per head, and which he sold, one for £13 and the other for £16. He found this county too cold for mangolds, which were naturally of a watery nature. He believed they weakened the milk, and rendered it like what, in his juvenile days, they used to call "sky-blue." He believed waggon horses were much better when kept in the open air than in stables, and this was the uniform custom in Cambridgeshire. Pulping might be very well when the hay or the straw was damaged; but he was not much in favour of it himself.

Mr. EVAN DAVIES, having complimented Mr. Wickham on the excellence of his paper, said he believed that whatever money the farmer may lay out in artificial manures there was nothing like the refuse from the farm-yard and stable. This was the natural "forage" of the soil, and it contained all the elements necessary for any crop they might grow upon their farms. Where there was plenty of this there was no need for the aid of chemist or the manure vendors. Mr. Wickham, in his paper, laid great stress upon the cutting of hay at the precise time, and certainly it was a most important matter. It was a wonderful, yet beautiful and valuable dispensation of Providence, that the grasses which they made into hay did not all contain their maximum amount of nutriment at the same stages of their growth. To explain this more fully he would divide the grasses into three classes. One of these produced its seed in the spring, another in the summer, and another in the autumn. Now, two out of these three were particularly well suited for making hay. Those grasses which produced their seeds in the summer contained their maximum amount of nutriment just before their seeds began to ripen; while those grasses which produced their seeds in spring, when it would be too early to cut and harvest them, did not come to their highest state of nutriment till some time after. It was consequently very necessary to mow the grass at the proper time, so as to get as much nutriment as possible, both in the spring and summer grasses. Mr. Wickham had stated that they did not use their swedes off early enough—that they were used so late in the spring that their nourishing qualities were, to some extent, lessened. As a substitute for the late use of swedes, mangolds had been recommended by Mr. Benson. As that gentleman had stated, mangolds were not much used in that part of the country, and the reason for it was a very simple one. Mangolds would not grow at a greater elevation than 400 feet above the level of the sea, while there he believed they were at an elevation of about 800 feet. There was also a considerable quantity of grass land; and what they wanted there was winter forage, not forage which would carry them far on into the summer, which mangolds would do. He had himself no doubt that a much less quantity of grain might be used in the feeding of stock than was used at present, and that with equally good results. The quantity of grain now used was immense. There were some in this room, he dare say, who give from 10lbs. to 12lbs. per day, and some whom he had asked said they do not know how much; the cowman kept the key of the granary, and he gave what he liked. Now this was not the way to go to work. That farmer could not tell whether his beasts paid him or not, nor could he benefit his fellow-farmers. He never heard before of feeding beasts four times a-day, or at least of making it into eight times by giving each beast two courses. He was glad Mr. Wickham and Mr. Benson had touched upon the keep of waggon horses. There was nothing he believed in which there were greater

mistakes made than in this respect, among the farmers of this country. If there was not one-half there was certainly one-third of the fodder wasted and trampled under foot, and how to prevent this was a matter that had long occupied his attention. The only way he saw, and what he thought it must come to at the last, was to do away with racks altogether. It was a matter, however, which was worthy of every one's attention, and a few tons of hay saved in this way would repay the farmer for any little extra expense he might be put to at first.

The CHAIRMAN said he had himself purchased, at considerable expense, a pulper, which he was told could be worked by an old horse that was fit for nothing else; but he afterwards found that it required two horses.

Mr. KEARY said he did not altogether agree with Mr. Instone, although he agreed with him in the main, as to the manner in which he employed the pulped food. Where roots were pulped, mixed with chaff, and where a little cake was added, he believed a large quantity of young stock might be kept very profitably. He could not, however, recommend this system for the feeding of cattle, and he did not think it would be found to answer. Animals, like ourselves, got more dainty as they got more fat, and they would have to give them better food, and in different and more dainty form. He believed, too, there was nothing like giving the food in small quantities several times during the twenty-four hours, and that with the greatest regularity. Get them to eat it up at once, and then lie down. This, he believed, was the great secret of feeding. As much as 12lbs. and 14lbs. of corn or cake had been given in a day, whereas he always found that he could make his bullocks fat with half the quantity with proper attention. There are many things necessary for feeding besides good food. A good bed, regularity in feeding, cleanliness, and undisturbed repose, were most essential. He approved of what Mr. Instone had said respecting horses running in the yard. He did not approve of their being let loose in the yard indiscriminately, for the weak ones and the young ones would always get pushed against the wall, and fare badly. With proper care in this respect, however, he found them to do well. In the winter they never took cold, they did their work well, and made him yards-full of manure such as no bullocks could make. Bad as was the keeping of horses in stables in the winter, it was still worse to turn them out to grass in the summer. They spoiled more grass than they eat, and there is no reason whatever why they should be let loose as they were at present. In the yard, as he had said, they provided plenty of excellent manure, while he never said the droppings of horses upon the fields did any good whatever—indeed, he considered the keeping of horses in the yards was a system that could be carried on with the greatest success. He had heard of a very valuable mixture for horses, which he believed was also very palatable to them. It was compounded of cut hay, straw, chaff, and such a quantity of corn as they may think proper, with a certain quantity of linseed-cake soaked in water and poured over the whole. He entirely agreed with Mr. Benson that a great quantity of fodder was wasted, and that a great deal might be done in this way to economise winter forage. He was afraid also that the remarks of Mr. Davies were too true, and that there was no chance whatever of growing mangolds in such an elevated county as that. He concurred also in what Mr. Wickham said, that swedes were used too late in the spring. But if they dispensed with swedes they must have something to supply their place, and it had been shown that this could not be done with mangolds. There was however another useful vegetable, which he was much surprised was not used in this neighbourhood: it was the cabbage—the drumhead and the thousandhead being particularly suitable for spring feeding. By means of these, and these alone, he had been able to rear very large numbers of lambs very successfully. The seed is sown the same as the turnip in drills twenty-seven inches apart; they are hoed and attended to like swedes, and they keep good till this time of the year. No one that kept ewes should be without them. In Norfolk there was a large quantity of cabbage grown in this way and for this purpose. If plants were purchased it would be more expensive, but where seed was sown one pound and a half was sufficient for an acre. He recommended them as most valuable, for they were in good condition just at a time when swedes were getting done. Severe as this winter had been he had some now as sound as possible.

Mr. GRIFFITHS said the chairman of the committee, Mr. Evan Davies, had attempted to throw cold water upon the use of artificial manures. But, let him ask Mr. Davies how, if all the artificial manures were withdrawn from the market, the farmers were to manage? There was no doubt that much of the manure of the farm-yard was at present wasted, and he thought it very strange that farmers were not more careful in preventing this waste. He thought it essential that every farmer should have on his premises a few tons of gypsum, and that he should apply some of it regularly to his farm-yard and manure heap. It would keep the ammonia in the manure instead of having it drawn away and wasted as at present. He submitted this as a proposition that was worthy of their consideration. Ammonia was the very essence of the manure, and it evaporated very readily, and therefore in farm-yards, where some means were not taken to prevent it, the waste must be very great. Mr. Davies had also said this part of the country was too elevated for the cultivation of mangolds. He believed the highest cultivated land was admitted to be at Sedgley, in Staffordshire, and upon that land he had seen some as fine mangolds grown as any in the kingdom. It was a medium soil, neither very light nor very hard; and he did not see why the soil of this neighbourhood would not suit them as well. He believed if more manure were worked they would get larger crops of all sorts. No doubt there was a great deal of difference between feeding horses on a farm and feeding them in towns. The draught horses in Liverpool, which were very fine animals and did a vast amount of work, were fed upon cut hay and Indian corn, both steamed, or with farmers they might be scalded instead of being steamed. These were weighed out to each horse by the man who looked after the stables, and then steamed till the corn became soft and pulpy. The result of this mode of feeding was that those horses could do much harder work than farmer's horses were generally able to do.

Mr. EVAN DAVIES said Mr. Griffiths was not correct in saying that he wished to advocate the disuse of artificial manures. He merely wished to impress upon farmers that they should try to collect the manures themselves instead of trusting too much to the market. No one would deny that the natural manures were the best when they could be got; but it was not possible always to get them in sufficient quantities, and in such cases artificial manures were very useful. He did not agree with Mr. Griffiths in the necessity for covering the farmyard and manure heap with gypsum. Ammonia did not evaporate under 65 degrees, and therefore so long as the atmosphere was below that temperature none could be lost, since it would, on reaching the air, be condensed and fall down again. The closeness of the manure, too, prevented evaporation, and the only loss of importance that could take place was when the manure heap and the air were above 65 degrees, and when the manure was being turned over. If anything was lost, he believed it would be the nitrates. He believed much more damage was done by heavy rains and by the water running from the manure heap than in any other way, and this was a matter that ought really to be looked to.

Mr. GRIFFITHS said he did not know at what temperature ammonia evaporated; but he knew this, that in London the stables were sprinkled with gypsum to prevent unpleasant smells, which consisted of nothing but the ammonia.

Mr. DAVIES said if Mr. Griffiths would go to his farm, he would smell nothing that indicated a loss of ammonia.

The CHAIRMAN said he once accidentally met with a gentleman in a railway carriage who called himself a philosopher, and who denied that the peculiar smell alluded to by Mr. Griffiths was ammonia at all.

Mr. GRIFFITHS, interrupting the Chairman, said a remark had just come into his head, which he begged leave to give them.

The CHAIRMAN: And a remark has just come into my head which I should like to give you. He then proceeded to argue that there was nothing like good natural manures, but where enough of them could not be got, the artificial manures were very valuable. He also spoke in favour of keeping horses in the yard in summer months, instead of turning them out to grass, suggesting vetches, lucerne, and clover as good food.

Mr. KEARY said he did not see anything impracticable in what had been said about keeping cart-horses up during the summer. It was true there might be some farms where it could not be done, but if they took the district between there and Bridgnorth for an example, he believed it might be done

on every farm in that area. In the autumn a certain quantity of vetches should be sown. In the spring they should sow again, or even two or three times. With a little manure and a little attention in this way, they would have an abundant supply all through the summer. By this means he thought they would be able to keep their horses for less, and would besides be able to keep more sheep.

Mr. GRIFFITHS said what he wished to remark just now was that in Liverpool, when guano did not sell one season, it was covered over with gypsum to preserve it till the next. This was a plain proof of what he said just now relative to gypsum preventing the evaporation of the ammonia and other gases.

Mr. DAVIES: And very likely the gypsum is afterwards dug in, so as to increase the profits.

Mr. GRIFFITHS said the gypsum was removed, and the manure was left as sound as ever.

The CHAIRMAN said as guano had been alluded to, he should like to hear if any one present had tried it, and what had been the result.

Mr. TREVOR said he had tried it, and it proved very successful.

The CHAIRMAN: The first year I have no doubt it would be so, but how does it do for a number of years?

Mr. TREVOR: I do not think you could go on using it for any length of time without disadvantage. I found that it encouraged the coarser kinds of grass. Once in two or three years is, I think, as often as you can use it. After some other remarks, Mr. Trevor said he had tried mangolds, and they did not answer, while vetches came too late for winter feeding.

Mr. WICKHAM said what he laid great stress upon in his paper was that the amount of nutriment in grass crops depended very much upon the time of cutting them, while in the swede a great deal depended upon the time when it was used. The swede and mangold were not roots, as were commonly supposed and as they were commonly called. They were, as the botanist would tell them, receptacles, in which all the ingredients were collected together for the formation of the seed, and where they remained for a time instead of passing on at once to produce the flowers and the seeds as in annuals. In this state the swede remained during the winter months, and it was very necessary that it should be used in this state before it showed the least symptoms of renewed growth, for as soon as that commenced, and, indeed, before it was visible, a great chemical change took place in the so-called root, which diminished its nutritive properties in a very great degree. It could not therefore be true economy to keep on feeding with these roots till so late a period in the year. Mr. Wickham

concluded by suggesting that kohlrabi might form a useful substitute for the swede in spring.

Mr. C. WADLOW said he believed he farmed as elevated a piece of land as any one in that neighbourhood, and he had grown mangolds very successfully. The only difficulty he met with was in using them in the following spring. He found that early in the season they were likely to scour the sheep and other stock; but as the weather got warmer, he did not find them have that effect. He had had as much as thirty cart-loads off an acre.

The CHAIRMAN said it seemed that the discussion was coming to an end, and he must say that they had had a very interesting meeting. They must not, however, forget the gentleman to whom they were indebted for it, and he would venture to say that a more able paper had seldom if ever been produced at that society. He believed no one could look upon that as a mis-spent evening. Mr. Benson concluded by moving a vote of thanks to Mr. Wickham.

Mr. SPRAGUE, in seconding it, said he believed he never heard a more animated and interesting discussion at any of that society's meetings. On the subject of mangolds they seemed at any rate to be all agreed—they did not become serviceable till such a time as they did not want them.

Mr. EVAN DAVIES, in the course of a few remarks upon the resolution, said he was sure they ought all to feel much indebted to Mr. Wickham to come some distance at much personal inconvenience and some expense to give them that paper, and especially so as he was in a delicate state of health at present. He could assure them it was no trifling task to write a paper of that kind. There was also another reason why they should feel grateful to Mr. Wickham. That society had been in existence about twenty-two years, and the opinions of one member had become known to all, and he might almost say the stereotyped opinions of all. They wanted new matter and new men to come forward and enlighten them, therefore they were much obliged to Mr. Wickham. He thought the paper read that day and the discussion which had followed would prove of benefit to everyone who read them.

Mr. WICKHAM, in replying, said he thanked them for the vote of thanks they had just proposed and carried. He regretted to say that at present there was nothing of that kind at Market Drayton, although it was intended to form a branch of the Chamber of Agriculture there. When they did he should be most happy to see some of the gentlemen now present over at Drayton to help them with their knowledge of farming matters.

After a vote of thanks to the Chairman, the meeting broke up.

## THE PIG.

### ITS CHARACTERISTICS, USEFULNESS, &c.

Pigs, it is said, "are a happy people." We may talk disparagingly about living like a pig; but it is nevertheless true that to live like a pig is to live like a gentleman. Although it is not permitted by the order of nature that a pig should laugh or even smile, he enjoys the next blessing of humanity—the disposition to grow fat. How easily he goes through the world! He has no fancy stocks to purchase—no bank notes to pay—no reconstruction meetings to attend—no political canuses to hold! He has no occasion to take the benefit of the bankrupt act, or to have his estate confiscated to defray the expenses of the war—no income-tax to pay. Free from all the troubles that disturb the country, he is unconcerned about national affairs, as was the man who was awaked in the earliest light of morning by being told day was breaking: "Well," said he, as he turned again to his repose, "let it break—he owes me nothing."

The pig is the personification of independence. He acknowledges no law save that of his stomach. He is no teetotaler. Give him a chance, and he will drink ale or wine unto drunkenness, and in those countries where grapes grow, if they come into the vintage, they get drunk with eating grapes, for which he has an intense liking, and often does terrible damage in vineyards. The worst of the matter is, that the animal so riots and revels among the vines that he destroys and tramples

down many more grapes than he can eat, and does irredeemable damage. If the lees of wine be mingled with their food, they will grow fat without measure.

In China they have a proverb that every gentleman works for his living except the pig. In Illinois, a few years ago, he was made to work. When a chimney was to be built, or a cabin to be daubed, a hole is to be dug in the earth of sufficient dimensions, and water poured into it—the hogs called, and a few grains of corn thrown into the hole, when the hogs plunge in, and soon prepare the lump of clay for the hand of the dauber.

It is rather remarkable that the Irishman and the negro hold much the same opinion of the pig. Both consider the pig as the only gentleman, for he does no work; all his meals are brought to him; eating, drinking, and sleeping are all he has to do; and the more he eats, drinks, and sleeps, the better his duty is performed. But then the motives for the opinion are widely different. The negro—that is, the negro slave—thinks that the very summit of human felicity is to do no work. This is likely to be the case, for he has no motive for work, and therefore only looks upon his daily work as a terrible task, which he is bound to evade in every possible way. Therefore the pig is his ideal of enjoyment; he does no work—he eats and he sleeps.

But the opinion of the Irishman is founded on more ra-

tional grounds. The pig, in his opinion, is a gentleman, and ought therefore to be treated as such. Does not the pig pay the rent, and sure is not he a gentleman to do that? So the pig has the full range of the cabin, and pokes his nose just where he pleases. Indeed, he is often better off than his master's children, for he is never in want of a meal, and the food which he gets is precisely that which he ought to have, namely, potatoes: while as the children get the same food, which is not the proper food for man taken by itself, the pig has no care, and no fear for the morrow. He continues to enjoy himself until the knife is at his throat, and even then he knows nothing about his coming death until he is actually in the hands of his slayers, who probably do not inflict on him more pain than the children suffer when flogged by paternal or maternal authority, or when pummeled by larger boys.

A pig, in Ireland, is often the saving of a family, and his inquisitive snout, peeping out of a cabin door, should be considered a mark of prosperity rather than a sign of decreasing finances.

Pigs are an obstinate race, and are not easily driven. Boys generally succeed better than men in driving pigs, always excepting Irishmen, whose treatment of pigs is a perfect art. An Irishman never seems to *drive* a pig, but coaxes him along. A little push one way, a little pull another, a whistle, a few endearing expressions, and the pig trots comfortably along, giving no trouble "at all, at all." If a pig is very obstinate indeed, and utterly refuses to go where he is wanted, the Irishman manages him by putting his nose in the direction he is intended to take, and then pulling his tail. The result is evident. The pig imagines he is wanted to come backwards, and therefore with the perversity of a porcine nature runs forward as fast as he can. This method is generally used in getting pigs on board ship, where they evince much dislike to the planks on which they are required to walk. The Chinese also make use of the tail-pulling process when they wish their pigs to enter the bamboo cages in which they transport them when fat.

There exists perhaps, in creation, no animal which has less justice done to him by man than the pig. We see him gifted with every faculty of supplying himself, and of providing even against the approaching storm, which no creature is better capable of foretelling, and we begin our treatment of him by putting an iron ring through the cartilage of his nose. Having thus barbarously deprived him of the power of searching for and analyzing his food, we then generally condemn him for the rest of his life to solitary confinement in a pen.

While his faculties are still his own, only observe how with a bark or a snort he starts if you approach him; and mark what shrewd intelligence there is in his bright, twinkling little eye. But with pigs, as with mankind, "idleness is the root of all evil." The poor animal, finding that he has absolutely nothing to eat—having no enjoyment, nothing to look forward to but the pail which feeds him, most eagerly, or as we accuse him, most greedily he greets its arrival. Having no business or diversion, nothing to occupy his brain—the whole powers of his system are directed to the digestion of a superabundance of food. To encourage this, nature assists him with sleep, which, dulling his faculties, leads his stomach to become the rulling power of his system—a tyrant that can bear no one's presence but his own. The poor pig thus treated gorges himself, sleeps, eats again, sleeps; awakens in a fright, screams, struggles against the blue apron, screams fainter, turns up the whites of his little eyes, and dies!

It is very amusing to watch the pigs when "ringed" as their behaviour is not at all that which ought to be expected of them. Indeed they seem to be actuated by the oriental ideas of fatalism, and after struggling as much as they can, they give up the matter as hopeless, and resign themselves to their fate. When they are about half grown, a man armed with a coil of rope, a pair of pincers, and the rings, one for each pig, enters the pen and seizes one of the pigs by the ears. The aggravated animal instantly proceeds to remonstrate most audibly at the proceeding, and sets up a series of ear-piercing screams. But screaming is of no use, and he is dragged out of the pen. A rope with a slip-knot is now thrust into his mouth, the knot is drawn close, and the pig is held in a kind of curb. He is now thrown down, the point of the ring inserted into the cartilage of his nose, and the end turned over with a pair of pincers, until it nearly meets. The ring is now complete, and when the pig tries to root or grub up the ground, the pointed end curves round and

pricks his nose, so that he is warned to cease. During his struggles, his cries are loud and incessant; but the moment the point enters the nostril, piggy exchanges his squeals for a series of half-satisfied grunts, and probably says to himself, "Oh, is that all? I thought I was going to be converted into pork or lard at the least, and perhaps salted afterwards. Who cares for rings?"

A pig is a more clever animal than is generally supposed; that is, if he can find a chance of exercising his abilities, and is left tolerably to himself. We remember seeing several persons engaged for half an hour in catching a pig, which had got into a small enclosure. They tried managing it by throwing in an ear of corn for the animal to engage himself with, while they crept up behind him; but the pig was much too cunning for that, and continued to keep one eye always on his foe. When a number of them came up to surround him, he picked up the ear of corn, and ran away to another spot.

Not only is the pig naturally clever, but it is capable of instruction, and has been taught to perform duties that belong, to other animals. They are often sufficiently tame to permit children to mount on their backs, and one person actually put some of his pigs through a course of training for the saddle. A team of four hogs has been trained to draw a carriage, such an event having taken place at St. Albans some years ago, when an old farmer of the neighbourhood threw the town into such excitement by driving a carriage into town drawn by four pigs. He drove round the market-place several times, and had his porcine steeds put up at a stable, and fed on corn and wash. In a few hours the pigs were again harnessed and trotted off briskly with their master.

In some respects the pig resembles man, so that there may be some ground for calling children pigs, besides those generally given. The pig and the man are both omnivorous; that is to say, they both can eat vegetable or animal food—the one being an omnivorous quadruped, and the other an omnivorous biped or "omnivorous tripod," as the negro called it, on the authority of Tom. Cringle, so when the trough is filled with potatoes and vegetables, it will make a very good dinner upon them; if the butcher chooses to throw in some of the offal of the slaughter-house, the pig will eat the offal; if a thriftless housekeeper lets the pigs have plum pudding and slices of roast beef, the most inveterate gormaudizer could not attack them with greater zest than does his omnivorous companion. If the brewer has pigs and gives them grain, they will devour enormous quantities of the sweet, soft compound, and if any ale is mixed with the grains, as is often the case, they will get gloriously drunk upon it. Many is the time that a pig has been seen staggering about the yard quite unable to direct himself, merely because he had taken too much of the deceptive mixture, hence the saying, "as drunk as a hog."

Among the many qualities and properties which the pig is acknowledged to possess, there are some which are not generally known. For example, ninety-nine of every hundred pots of bear's grease are obtained exclusively from the pig, and have had no connection whatever with the bear. Bears are not quite plentiful enough, or so easily killed as to supply all the vast amount of "bears' grease" which is usually consumed in the whole world. The fact is, lard is purified, scented, put into pots, decorated with coloured labels, called bear's grease, sold at high prices, and has the double advantage of bringing in a very large per-centage to the sellers, and doing quite as much good to the buyer as if it were the genuine fat of the bear.

The pig quite revels in an oak wood or under the oak trees in autumn. We cannot, however, praise the good taste of the pigs quite so much in this instance, for acorns are detestable. It is true that we used to eat them at school; but then school boys, like ostriches or sharks, will eat anything. Even we, however, could not manage them till we had roasted them.

Yet this shows the degeneracy of our race, or rather it would do so in the ears of some people, for our early ancestors used to make acorns a considerable portion of their diet. The Arcadians (happy race!) were said to live almost exclusively on that detestable food. This reminds us of an amusing print published, where a pig was represented as seated under an oak, and exactly facing him an Arcadian also seated under another oak. The ingenious artist contrived to infuse so much of the pig into the Arcadian, and the Arcadian into the pig, that there was some difficulty in discovering which was quadruped and which biped.—*American Farmer*.



## THE CATTLE PLAGUE AND THE GOVERNMENT BILL.

STR,—I had the honour to form, on Thursday last, one of a deputation of the farmers and graziers of many counties of England, and also, on the same day, one of another deputation of the Council of the Royal Agricultural Society, headed by our worthy president, Mr. H. S. Thompson, on the subject of the above Bills, to endeavour to show the importance—if the herds of England are to be saved, and the meat-consuming population of this great Metropolis, and also of the country at large, to be fed hereafter at a moderate price—of establishing a place at every port of debarkation for the sale and slaughter of foreign cattle and sheep.

The subject has become so important in every point of view, that all are deeply interested. Both deputations were received with great courtesy by His Grace the Duke of Marlborough, and the various clauses of the Bill came under discussion; but more particularly the one relating to the sale and slaughter of foreign cattle, which was universally advocated. Under this Bill the Government have power, whenever they see the absolute necessity for it, of at once compelling slaughter; but His Grace informed us (not wisely as we thought) that he did not think the time had yet arrived for it to be put in force, and that he might, and probably should, receive deputations from other bodies taking a different view of the subject. I should just like for one moment to point out how the fear and dread of cattle-plague cuts at once at the root of the production of future supply. I will just put two cases of A and B, calling myself A, grazing say 50 head of beasts for the London market, and B keeping a breeding herd of the like number. A has one beast taken with disease, and destroyed; the remaining 49 are ordered to be immediately slaughtered, and are fit (not then having disease) for human food, and a loss is sustained which is easily calculated, say of £5 per head. But how widely different is the case of B, with his breeding herd! One animal is taken and destroyed; the others, having been in contact, are wisely ordered to be slaughtered; but how much greater is the loss sustained! B's animals being in breeding condition, instead of fat, are worth very little as food, and the loss is immense, from future production being at once cut off, and the food for the future supply of the people entirely taken away. The ease of Cheshire, as a breeding county, will fully exemplify this; and if the disaster of Cheshire should unfortunately occur in many of our breeding counties, no man living can foresee or predict the future price of meat.

Is it not then, I would ask, the duty of the Government to take every possible means of preventing such a disastrous state of things? And I feel bound, after deep and long thought on the matter, to say that the only possible remedy we have is sale and slaughter and perfect isolation of foreign stock. This only will cut at the root and core of our present difficulty; and in this very important point the present bill fails. His Grace kindly read us a letter from Sir John Thwaites, in which he assures him that increased and great supervision will be exercised throughout the metropolis. This appears to me to be very like "opening the flood-gates and then attempting to stem the torrent," or "locking the door after the steed has unfortunately been stolen." Make the provisions of the bill respecting the movement and inspection of cattle as stringent as it can possibly be made; but if the slaughter as recommended is adopted, these will soon become matters of mere form, and the herds of our country, without contamination, would soon be restored to their former health, and the breeding of the country would be able to a great extent to accommodate itself to its wants, which, under present circumstances, it can never do.

Is, I would ask, the energetic conduct of the Irish authorities to be lost upon us? Isolation saved the cattle of that country, and gave us in the Eastern Counties, in the autumn of last year, a supply for feeding purposes which

we should have looked for elsewhere in vain had not that wise and wholesome step been taken. Have we not also another example worthy of imitation in the Emperor of the French? Have not the most stringent measures he adopted saved to a great extent the cattle of that country, and taught our rulers a most important lesson, and one, I trust, that they will in no case neglect? Does not the spread of the disease on the Continent prove that we have every day greater rather than less cause for fear?

The excellent letter of "A Cattle Importer," in the *Times* of Thursday last, speaks in a voice of thunder, telling us that the course we recommend is the wise one. He says, "we formerly got our supplies from Holland, then Holstein, Oldenburg, and Portugal; as our wants increased, and the price of meat advanced, we got further supplies from France, Spain, Prussia, and Denmark; and within the last two years, our wants have been such that we have drawn our supplies from Sweden, Poland, and Austria, as far as Galicia and Styria; and yet, with all this extension of area, we do not get as much as we require, and, I think, before long we shall be forced to go into Russia, as far as those districts where cattle are produced for their fat alone, and where cattle-plague is supposed to have originated." Does not all this point plainly to us the necessity of isolation, if the breeding of our own stock is to continue? which it not only ought to do for the sake of every consumer in England, but it would enormously increase if not subject to the present danger, and the herds of Great Britain will never take their proper place till this is removed.

I had the honour of giving evidence before the Commission of the House of Commons on cattle-plague in October, 1865. I then recommended that entire isolation which has since been carried out to a certain extent and which reduced the death of our cattle from thousands to units. Important as I then thought it, I now feel there is greater necessity than ever for it. At that time my view was thought to be a strong one; but it saved the herds of Ireland, and, if properly carried out, would do the same essential and important service here. And, in some degree to prove the correctness of my view, I will just give the last question, No. 3,451, put to me by the chairman, and my answer: "Have you any other suggestion to make which you think would be valuable to the commission?" "Nothing else. It is a most contagious and dangerous complaint, and I think that strong measures must sooner or later be used." I think that time has now come. The measures which have hitherto been adopted, although partial, have proved so beneficial that it must convince any impartial person that the interests of the consumers of this great country require, without delay, from the Government the establishment of sale-yards and slaughter-houses at every port of debarkation, and that no fat animal should be allowed to leave them alive. These, at all the ports, should be selected as conveniently as possible; and that for the metropolis should not be removed further from that industrial hive than is absolutely necessary for security, and it should have those two very important adjuncts of rail and water communication, which would be found so favourable for the transmission of meat. The eastern end of our metropolis is inhabited by a large portion of the working population, to whom it would be a great boon to have a constant supply of the offal of animals so killed.

It is also important, if a quarantine for store stock is established, that it should be removed from some distance from that for fat cattle. If these objects are properly carried out, I, for one (and this view is also shared by those amongst whom I move), feel that there is no fear of the result.

I have the honour to be, sir, your obedient servant,

JOHN CLAYDEN.

*Littlebury, near Saffron Walden, May 31st.*

## ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

The seventh anniversary festival of this institution was held on Wednesday evening, May 29, at the Salisbury Hotel, Salisbury Square, and attracted a large number of friends and supporters. The chair was taken by Lieut.-Col. Loyd Lindsay, M.P.

The dinner itself was an excellent one, proving that The Salisbury is well worthy to take rank with older establishments which have become celebrated as caterers for public festivals; while the singing, under the management of Mr. P. Verren, who was admirably assisted by Miss Rose Weisse and Messrs. A. Lester, J. Furneau, F. Walker, and W. Winn, contributed greatly to the entertainment of the company.

After the usual loyal toasts had been duly honoured,

The CHAIRMAN proposed, "The Army, Navy, Militia, and Volunteers." In doing so he alluded to the approaching visit of the Belgian Volunteers to this country, and expressed a hope that the reception accorded to them would be in harmony with the hearty welcome given last year to the English Volunteers who visited Brussels. He was quite sure that all who had any regard for the national character would be desirous that the visit, now so near at hand, should be made as agreeable as possible to the guests (cheers).

Captain STYAN, in returning thanks, expressed his conviction that the Volunteer force had never before been in such a state of efficiency as it is now; and, connecting the toast with the farming interest, observed that no portion of the community had contributed more to the national strength than the agriculturists. He concluded by expressing his cordial concurrence in what had fallen from the Chairman respecting the visit of the Belgian Volunteers.

Monsieur ROYTT, who on rising was loudly cheered, said he could not allow the kind expressions which had been used in reference to his fellow-countrymen to pass without acknowledgment. As regarded the visit of the English volunteers to Belgium, he assured the company that it was esteemed by his nation a very great honour; adding that there were so many resemblances between the two peoples, that they might almost be considered one (cheers).

The CHAIRMAN then proceeded to propose the toast of the evening—namely, "Prosperity to the Royal Agricultural Benevolent Institution." He said he could assure the meeting that he approached that task with great anxiety, remembering as he did that the chair at previous anniversaries had been occupied by some of the most distinguished noblemen and gentlemen in the country, including Mr. Disraeli (loud cheers), Lord Stanley (cheers), Earl Spencer (renewed cheers), and Earl Cowper (cheers). With such predecessors, he might, he thought, pardonably entertain a feeling of pride at having been selected to occupy that position, although he was not capable of dealing with the subject as it ought to be dealt with, or of advocating the cause of this great Agricultural Benevolent Association—the only one in the kingdom—as it deserved to be pleaded. He was happy to say that, though the Association had not yet had a long existence, it was in a very flourishing position. Started as it was as recently as 1860, it had already attained great prosperity, and possessed a considerable amount of funded property. He was happy to be able to add that the Council were exercising a very wise and prudent discretion in regard to the funds which had been entrusted to their management (cheers). £16,000 was already invested in Government securities; and he thought they would all agree with him that the policy of continuing to invest was a sound policy for an institution like that, especially as there was so much competition among charitable societies for public support; and younger institutions, by pushing themselves forward, advertising, and various means of bringing themselves prominently before the country, often contrived to attract more public notice than their older rivals. When a great institution like this had been founded, the first duty of the governing body, in his opinion, was to secure its permanency, and that could only be done by investing in public securities a sufficient amount to give it stability in the future

(Hear, hear). The income of the Society now amounted to five or six thousand a-year—a sum which, though large in itself, was not large in comparison with the wealth and importance of the agricultural interest; nor was it at all adequate to the object, namely, the relief of the distress which must, in the natural course of events, arise in the pursuit, by vast numbers of persons, of such a calling as that of the agriculturist. Let none of them, then, relax their efforts in behalf of this Society. The institution commenced under most favourable auspices as the "Royal" Agricultural Benevolent Institution, and, had the Prince Consort remained alive, instead of having, to the deep regret of the whole community, passed away, he would no doubt have continued one of its most zealous, active, and determined patrons. His penetrating mind would have discovered the great benefits which the Society held out to the farmers of this country, and he would never have rested content until that great branch of industry, Agriculture, had been duly represented in a Society like that. The Prince Consort has left, in the Prince of Wales, a son whom they must endeavour to enlist in their cause (cheers). That Prince was the first personage in the country next to the Sovereign, and let them hope that his Royal Highness would prove a leading man in the agricultural interest, and at the same time a warm friend of an institution established for the benefit of unfortunate cultivators of the soil (cheers). There was hardly anything permanent that had not proceeded gradually, and that Society appeared to form no exception to the rule. It had already a large number of zealous and active friends and supporters in various counties of England; but there were other counties where there seemed as yet to have obtained scarcely any footing, and he hoped that before long it would penetrate into new districts, and diffuse its benefits over the whole kingdom. He trusted that with a view to this result those who were already members or supporters of the Society would bring their influence to bear upon others, and induce them to unite in the work. This institution could scarcely be called a charitable one; it had an attitude above that of charity. It was one of the most remarkable and beautiful features of our day, that those who had shared in the prosperity of others could hereafter receive their help in adversity (cheers). A farmer's life was peculiarly exposed to dangers arising from circumstances over which the farmer had no control. In addition to the ordinary misfortunes to which human nature was liable, and from which no person could be exempt, there were the special maladies which beset both animal and vegetable life. There was the cattle plague, which was now again threatening ruin to many; there were the ravages of tempest and storm, which in a single hour might devastate the labours and cripple the industry of a whole year. Moreover, the misfortunes which overtook the farmer fell upon him, as it were, with a heavier blow than was felt by other people. Misfortune was in his case accompanied by the loss of his farm. He was obliged to leave the home where he was born and brought up, and with the loss of his home came that of the surrounding fields, whose acres he had cultivated with so much interest as well as labour and anxiety (Hear, hear). The farmer looked upon his holding as he looked upon the face of a familiar friend. Moreover, in losing his farm he lost his position in society (Hear, hear). Perhaps he would have been enabled to dispense a certain amount of patronage and kindness among many around him; as an employer of labour and a guardian of the poor, he had held a position and pursued a course which caused him to be looked up to with respect and esteem; and when he descended from this prominent position to that of a poor man, he could hardly fail to be deeply sensible of the change. In many cases poverty was in this country almost regarded as a crime ("No, no"). At all events, the man who was poor could not be regarded as successful, and in this country success was too often made the test of merit ("No, no"). When, however, a man who had helped to support such a Society as this became reduced by misfortune, there could be no disgrace in his receiving the same kind of assistance as he

had contributed to for others (cheers). He (the Chairman) deprecated that Society's being compelled to spend a large amount in advertising or other expensive modes of bringing the object before the public. Every farmer should be an agent of the institution (hear, hear), and canvas his friends around him; all the members should use their best efforts to enlist others in the cause. He was glad to find that Mr. Shackel, Mr. Philips, and other gentlemen, were exerting themselves so successfully in Berks-hire, and he hoped that every county would soon be able to boast of equally energetic friends of the institution (cheers).

The toast was drunk with the honours and with great cordiality.

Mr. MEEH proposed "The Chairman," congratulating the company that one so closely connected with the land directly

and indirectly had manifested such a deep interest in the Society, and pleaded its cause with so much eloquence.

The CHAIRMAN having briefly returned thanks, Mr. ROGER EYKYN, M.P., proposed "The Agricultural Societies of England, Ireland, and Scotland," and referred to the successful efforts which they had made for the improvement of agriculture.

The remaining toasts were, "The Executive Council"; "The Secretary," Mr. Charles Shaw, in proposing which the Chairman paid a high tribute to that gentleman for his valuable services; "The Stewards"; and "The Ladies."

Among the donations announced were 25 guineas from the Queen, 25 guineas from the Chairman, 25 guineas from Lord Overstone, and 50 guineas from Mr. J. Scurf; the aggregate amount subscribed being about £4,000.

## ROYAL CORNWALL AGRICULTURAL ASSOCIATION.

### MEETING AT LAUNCESTON.

This exhibition was opened on Wednesday, May 29, at Launceston, and continued on the following day. Last year, in consequence of the cattle-plague, there was no show; and this year, owing to Orders in Council, there was none of horned cattle.

In the departments of sheep, pigs, and horses there were many excellent animals, there being upwards of 90 entries of sheep; but, although the exhibition was extensive, and comprised many good specimens, its general quality was perhaps not equal to some former exhibitions. The young sheep were of an ordinary character; but the old ones were good specimens of the various breeds that were to be seen. Amongst the latter the competition was so close that the judges had to call in aid, to arrive at a decision. The judges, as also for pigs, were Messrs. Corner, Longford, Wellington; J. Moon, Plymouth; and R. Pollard, Wadebridge. There were under 20 pigs exhibited, but, though in number the show was under the average, the quality was much above it. The small breeds were especially good; and the bours were well represented.

In addition to the exhibition of horses, sheep, pigs, and implements, there was a dog and poultry show, under local management, and entirely independent of the society's list. In the poultry department there were 160 entries; and all the classes had many good specimens, especially the most useful breeds.

The butter sent in for competition was of most excellent quality, especially that which took the first prize. Mrs. Brown (Landrake), Mrs. Bayly (Milton Abbott), Mrs. Trood (Lanhydrock), and Miss George (Endellion) were the judges of the butter; and they unanimously made the following awards: 1st and 2nd, Mrs. Parsons, Tremaal, Launceston, 12lbs. of butter; 3rd, Mrs. Evelyn, Launceston, 3lbs. of butter.

The implement department was largely supplied, and exceeded that at Falmouth the year before last, which itself was a large advance on previous years. About £50 were offered in prizes; and among the exhibitors were nearly all the great manufacturers—namely, Messrs. Garrett and Co., Leiston Works, Suffolk; Messrs. Picksley, Sims, and Co. (Limited); Messrs. Hornsby and Sons, Grantham; Messrs. Samuelson and Co., Banbury; Mr. Brenton, Polbathick; Mr. Plimsaul, Plymouth; and Messrs. Hawkes and Spencer, Tiverton. The trial of implements took place in a field on the farm of Mr. Gubbin, the local secretary. The ploughs, the combined mowers and reapers, and the mowing machines were worked on this ground; but the award has not reached us.

### P R I Z E L I S T .

#### SHEEP.

##### LEICESTERS.

##### Yearling Rams.

First, second, and third prizes, £6, £4, and £2, G. Turner, Cadbury, Tiverton.

##### Old Rams.

First prize, £6, G. Turner; second, £4, J. Tremaine, Pol-

sue, Philleigh; third, £2, G. Turner. Highly commended, T. Potter, Thorverton. Commended, J. Tremaine.

##### Old Ewes.

First prize, £4, J. Gould, Poltimore, Exeter; second, £2, A. S. Toll, Tilland, St. German's.

##### Yearling Ewes.

First prize, £4, J. Gould; second, £2, J. Tremaine; third, £1, Rev. S. N. Kingdon, Bridgerule, Devon.

##### Extra Stock.

Highly commended, T. Potter.

Yearling Long-wooled Rams (not being Leicesters).

First prize, £3, W. Drake, Warbstow; second, £2, W. Drake.

Long-wooled Old Rams (not being Leicesters).

First prize, £3, Mr. Clark, St. Budeaux; second, £2, W. Drake.

Long-Woolled Ewes (not Leicesters).

First prize, £2, Mr. Clark; second, £1, Rev. H. A. Simcoe, Penheale.

One Shropshire Down, no prize awarded.

Dartmoor Yearling Rams.

Prize, £3, J. Martin, Wishworthy, Lawhitton; commended, J. Drew, Artiscombe, Tavistock.

Dartmoor Old Rams.

Prize, £3, T. Parnell, Trewen.

### PIGS.

Boars of a Large Breed.

First prize, £3, J. Langford, Stokeclimsland (Berkshire); second, £2, J. Widdicombe, Torrhill, Ivybridge (Berkshire).

Sow of Large Breed.

First prize, J. Widdicombe (Berkshire).

Boars of a Small Breed.

First prize, £3, R. Jackman, Harts, Lifton; second, £2, J. Sydney Davey, Redruth; third, £1, J. Sydney Davey.

Sows of a Small Breed.

First prize, £3, R. Jackman, Harts, Lifton; second, £2, J. Sydney Davey (black Essex); third, £1, J. Sydney Davey, (black Essex).

### HORSES.

Stallions for Agricultural Purposes.

First prize, £10, W. Jackman, Bradstone, Milton Abbott, Devon; second, £5, H. Laity, Clowance Farm, Camborne, (Goldfinder).

Mares for Agricultural Purposes.

First prize, £5, G. Elliot, Swiley, Plymouth (Blossom); second, £3 W. Oatey, Wadebridge.

Three years old Geldings for Agricultural Purposes (unsound).

Three years old Fillies for Agricultural Purposes.

Second prize £2, W. Jelbart, Tamerton, Folliott.

### HACKS AND HUNTERS.

Thorough-bred Stallions.

First prize, £10, J. Tremayne, Sydenham House, Lew Down

(Paul Clifford); second, £5, The North Devon Horse Breeding Association, Holsworthy (Sir Roger Hill).

Stallions, not Thorough-bred.

First prize, £5, J. Philip Mornick, Southhill.

Mares and Foal, or in Foal.

First prize, £5, C. Trelawney, Coldrenick (Prosperine); second, £3 T. Palmer, Borough Kelly.

Three Years Old Geldings.

First prize £3, J. Battams, Kilworthy, Tavistock; second, £2, R. Hearle, Probus.

Three Years Old Fillies.

First prize, £3, G. B. Battams, Kilworthy, Tavistock; second, £2, S. Kingdon, Lynch, Thorverton, Devon.

Special Prize for the best Mare or Gelding of any age, calculated for a Hunter.

G. B. Battam's 5 years old, by Vulcan; dam by Bishop of Romford's cob.

The Challenge Cup, for the best Three Years Old Gelding or Filly, got by a thorough-bred Horse, or out of a thorough-bred Mare, withheld for want of merit.

## THE HANTS AND BERKS AGRICULTURAL SOCIETY.

### MEETING AT BASINGSTOKE.

The show season may be said to have fairly opened here on Wednesday, May 29, under circumstances that will probably pretty generally characterise the conduct of such meetings in 'sixty-seven. Any attempt to get together an entry of cattle had been abandoned, and the exhibition was confined to horses, sheep, pigs, and poultry, backed by some stands of implements, and a trial of mowing-machines further afield. The show was altogether a very creditable one, and in some features really remarkable for its excellence. The judges, for instance, generally commended the class of cart-mares, sixteen in number, which Mr. Spooner pronounced to be better than many a class of the same sort that he has been called to act over at the invitation of the Royal Agricultural Society. These mares, moreover, were all very much of the same stamp, handsome, active, and of very good quality; clean-made rather than cumbersome, but with plenty of power and use about them. Lord Uxbridge took the first prize, and Mr. Apletree the second, while Mr. L. Lewis, Mr. John Phillips, of Ardington, and Mr. W. H. Fuller, of Caversham, were highly commended, the more general compliment being deservedly shared by the others. The three-year-old draught fillies, although but a small class, was another very good one, where Lord Ashburton won with a level lengthy still improving mare; Mr. Sparsbaat being highly commended, and Mr. Apletree commended. The three two-year-old fillies entered by Mr. Atkins, Mr. John Phillips, and Mr. Addison were all noticed by the judges, and Mr. Atkins' prize filly is so well-grown, so truly shaped, and so full of good points that she is bound to do well elsewhere, should her owner have only entered her for Salisbury or Bury St. Edmund's. In fact, these cart mares if sent on in a body might do a deal for the horse show of the Bath and West of England Meeting. The cart stallions were not so good, a fairish grey of Mr. Dandridge's being the best in the old class, and Mr. E. Fitt's second; while Mr. Earwaker's was the prize two-year-old of a small and very middling sample, Mr. Stubbs stood first and Mr. E. Cobden second for mares and foals; and Mr. J. B. Spearing from Ireland, Mr. W. C. Spooner, of Eling, and Mr. J. White, of Odiham, having ably done their duty in this way, the trio went on again amongst the pigs, the judging of the hunters being entrusted to Lord Portsmouth, Sir Charles Miller, and Mr. Deacon, the Master of the H. H. There was only one class and only one prize, a cup given by Lord Bolton, the President of the year, for four years old and upwards, "*judging to be the point of merit*"—a condition that pushes this kind of thing to the very verge of absurdity. None of the judges seemed to fancy "the argument" upon which they were called to decide; but fortunately the class was very moderate, so that it could not much matter which won. The ordeal consisted of four flight

of hurdles placed so close together, that it looked like one of those catch-match courses between a man and a horse. A great long-striding resolute hunter would be quite bothered at such a business, whereas any handy old screw might hop in and out, after the fashion of the piebald over the poles in a Circus. Some of the competitors were very apt in this way; but Mr. H. Frampton of Newbury was declared to excel all others with a common, under-bred animal, to which the Cup was awarded accordingly. Mr. H. Humpey's first-prize boar and sow were both capital Berkshires—long, deep, and square; but the other entries of this breed were, as at Reading last year, by no means remarkable for their merits, but rather for their coarse quality, long hungry heads, and "high-ridge" backs. Lord Portsmouth and Captain Warren exhibited some pretty little pigs amongst the other breeds, where Mr. Box of Farleigh won with a plain flat-sided sow, whose superiority was not so apparent. The Cotswolds had the call of the sheep, and Mr. King Tombs the call of the Cotswolds; his first prize old ram combining great size and weight, and his second prize shearing having yet better looks than his sire, just mentioned. The pride of the Langford flock, however, was in the extra stock, where Mr. Tombs exhibited a ram "bred by Mr. Lane, bought by his present owner for 210 guineas, who has since refused 240 guineas for him, fed on vegetable food *only* since the season." This sheep had never previously been exhibited; nor is he entered for any of the great meetings of this year. He was consequently not in show condition, and never, we believe, noticed by the judges. He is, however, very handsome, but is no-ways a big sheep, but rather a light, smart, compact animal, beginning with a capital kindly head, and all over full of style and fashion. By mere weight or inches, there are, no doubt, many which would beat him, as, indeed, Mr. Tombs' prize ram here measured more in his girth; and symmetry with quality, rather than size, must tell the tale of the 240 guineas *refused*. Mr. Thomas Herbert beat Mr. Tombs for first prize amongst the shearing Cotswolds, of which Mr. Beale Browne was also an exhibitor; but the other prizes for the "other breeds" went chiefly to Mr. H. Portsmouth, with little or no competition amongst the ewes and lambs. The West Country Downs do not show so well out of their wool, when their heads seem to grow coarser than ever; but for use, and more especially as a cross, their value is becoming more and more appreciated. Mr. E. Odling, from Amesbury, took the chief prizes for the old and shearing rams; Mr. Bennett, of Chilmark, for ram-lambs, with a wonderfully good pen; Mr. Child, of Lower Wyke, for rams "not housed since October," a rare test of the hardihood of the Hampshires; and Mr. Budd was best for ewe-lambs and for old ewes; while

the Messrs. Barton and Mr. Rawlence, of Bulbridge, won with ewe tegs. The judges of sheep were Mr. Humfrey, of Chaddeworth; Mr. Saunders, of Watercombe; and Mr. Butler, of Tufton. The poultry-tent was well furnished; and there was some strong competition in the trial of mowers, where Hornsby's and Wood's American machines, both in the charge of Mr. John

Sutton, now established at Shirley, near Southampton, were pretty generally accredited with the best work—an opinion which the judges, Messrs. Lancashire, Hart, and E. Portsmouth ratified; the first prize being awarded to Hornsby, the second to Wood, and Burgess and Key highly commended.

## THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

SPECIAL COUNCIL: *Wednesday, May 29, 1867.*—Present—Mr. Thompson, President, in the chair; the Earl of Powis, the Earl of Shrewsbury and Talbot, Lord Vernon, Lord Walsingham, the Right Hon. Sir John Trollope, Bart., M.P., Sir Alassy Lopes, Bart., M.P., Sir A. K. Macdonald, Bart., Sir Watkin Wms. Wynn, Bart., M.P., Major-General the Hon. A. N. Hood, Mr. Cantrell, Mr. Clayden, Col. Challoner, Mr. Dent, M.P.; Mr. Brandreth Gibbs, Mr. Holland, M.P., Mr. Hutton, Mr. Jonas, Mr. Milward, Mr. Read, M.P., Mr. Rigden, Mr. Wells, Mr. Jacob Wilson, Professor Wilson—to consider the Government Bill on Contagious Diseases among Cattle.

It was resolved that, in the opinion of the Council of the Royal Agricultural Society of England, all foreign cattle should be slaughtered at the port of entry; and that quarantine establishments should be formed at all ports where store cattle are imported, in which they shall be detained a sufficiently long time in quarantine.

A deputation consisting of Mr. Thompson, President, the Earl of Shrewsbury, Lord Vernon, Lord Walsingham, Sir John Johnstone, M.P., Sir Thomas Western, M.P., Colonel Kingscote, M.P., Mr. Clayden, Mr. Dent, M.P., Mr. Brandreth Gibbs, Mr. Holland, M.P., Mr. Milward, Mr. Read, M.P., Mr. Wells, and Mr. H. Hall Dare, Secretary, had an interview with the Lord President of the Council on Thursday, to impress the above unanimous opinion of the Council of the Society upon his Grace, who informed the deputation that the Privy Council under the proposed Bill would have power to regulate or to prohibit the landing of foreign cattle, and to regulate their removal or "disposal," which word would give power to order their slaughter; but he should be reluctant to give such order without great consideration, and without obtaining the sanction of the Government. The Privy Council were well informed of the state of the Cattle-plague on the Continent, and were of opinion that the recent outbreak in England must be attributed to the seeds of the disease of last year, as in many instances it had appeared in spots whence diseased stock had been removed, and that it was erroneously assumed to spring from lately-imported cattle: of this there was no direct evidence. They had been in direct correspondence with the Metropolitan Board on the subject, and had induced them to re-appoint committees, who exercised constant vigilance over their districts.

Mr. Thompson, Mr. Dent, M.P., Lord Vernon, Mr. Clayden, Mr. Milward, and Mr. Read, M.P., urged the views of the Council on his Grace, and the deputation then withdrew.

### STEAM CULTIVATION.

A discussion bearing on the reports lately presented by the committees of inspection, and published in the new number of the Society's *Journal*, took place on Wednesday, May 29, at half-past 12, at the Society's rooms, Hanover-square. Mr. Thompson, the president, in the chair. The attendance was very numerous; and amongst those present were the Earl of

Shrewsbury, Lord Walsingham, Lord Vernon, Lord Powis, Sir M. Lopes, M.P., Mr. E. Holland, M.P., Mr. J. Dent, M.P., Sir A. N. Macdonald, Sir W. Stirling, Sir John Trollope, M.P., Sir W. Wynn, M.P., Sir H. Vavasour, Mr. C. S. Read, M.P., Colonel Challoner, Mr. R. H. Ellman, Mr. Clutton, Mr. J. Clayden, Mr. F. H. Frere, Mr. E. Johnstone, Mr. Samuel Jonas, Mr. Owen Wallis, Mr. Jacob Wilson, Mr. E. S. Cantrell, Mr. W. Hutton, Mr. W. Rigden, Mr. B. T. Brandreth Gibbs, Mr. J. Hichen, Mr. W. N. Robertson, Mr. Cox, Mr. Carey, Mr. R. Robson, Mr. Clutton, Mr. J. C. Morton, Mr. J. A. Clarke, Professor Wilson, Mr. Henry Hemsley, Mr. Thomas Dunne.

The PRESIDENT, in opening the proceedings, said: The business of the Society this morning is, to discuss the reports on steam cultivation that have lately been presented to the Society. I have undertaken to open the discussion—not, be it understood, with the view of delivering a lecture upon steam cultivation, because I hope our time will be much better spent than in listening to the opinions of any one man upon a topic so extensive as that which is to engage our attention. I have undertaken my present duty with the intention of making, in the first place, a few remarks upon the reports themselves, and then of throwing out one or two propositions, or rather questions, for the consideration of the meeting. In that way, I hope we shall hear some very practical and useful information. First, then, a word or two about the reports themselves. As one of those who took an active part on the committee appointed to organize an inquiry into the present state of steam cultivation on an extensive scale, I feel great pride and gratification in seeing laid before the Society, in the course of twelve months, so very unpropitious as they have been in point of weather, such ample and excellent reports upon this important question. I must, in passing, remark that the committee who undertook the reports undertook a very onerous duty. They have carried it out in spite of many difficulties; and they have displayed great talent in the way in which they have completed the task. That they should have persevered, notwithstanding a most unfavourable season, during which the weather caused delay in all the operations of husbandry in the summer and autumn, and prevented steam implements from being brought into use, as in any ordinary season, was only what one expected from men who possessed the spirit of true Englishmen. That they should have collected such a mass of valuable materials was only the natural reward of their patience and perseverance. But when we come to look at the reports themselves, and see that while they contain a great mass of details, involving continual comparison and repetition (without which, indeed, the returns would have lost a large portion of their value), they at the same time come before us a really readable volume, and interesting as a consecutive narrative, as well as valuable from the information it contains, I do say that it is a proof of literary merit of no common kind (Hear, hear). Permit me, therefore, publicly, on behalf the Society, to offer our best thanks to the Commissioners, for the zeal with which they have undertaken a most difficult duty, for the perseverance with which they have carried it out in spite of numerous difficulties, and for the great ability and talent with which they, especially those gentlemen to whom was entrusted the work of preparation, compiled reports that will no doubt be read with interest in all parts of the civilized world (cheers). Having thus unmistakably given my own opinion upon the character of these reports, I would for a moment or two allude to some remarks I have heard occasionally, expressive of a little disappointment that they do not contain certain things which the objectors

hoped and expected to find in them, but which I wish to show could not properly have been inserted. I have heard it said that the reports should have contained a statement of average results, which would have settled some of the leading features and principles of steam-cultivation. This objection very probably takes some such form as this. "It is now ten or twelve years since steam-cultivation was first introduced; there are now hundreds of steam engines at work on the land, and so extensive an inquiry as that of last year ought to have settled some of the main questions affecting steam-cultivation, such as giving us an average comparison of the cost of steam *versus* horses, or any other power; the kind of implements which we had best employ, and the best mode of applying the best power." While not agreeing at all in these views, I think it right to mention them, because I believe there is a complete answer to be given to any objections that may be raised. With reference to averages, I think we are very apt to attribute too much importance to a statement of average results. There is a sort of feeling common amongst most of us, that if a number of instances in which the average has been taken is sufficiently great, we have arrived at something like a law of nature from which there is no appeal. When considering the value of averages we ought especially to consider what the kind of results is from which the average is collected, because if the results themselves are dissimilar it is plain the average loses its value altogether. Take any familiar example—chairs, for instance. If you were to compare the cost of a certain number of chairs, provided they are of the same kind of material and manufacture, the average cost of a great number would furnish a certain kind of information as to their price; but if you were to compare chairs of all kinds, from the plain wooden kitchen chair to the highly-ornamented drawing-room chair covered with satin-damask, we know the average struck would furnish no idea of the value to an intending purchaser. It would not be the average price of any particular kind of chair, and therefore, instead of being a guide, it would only lead him into error. If we apply this to the case in hand we shall at once see that the cost of cultivating strong clay-land will always be greater than the cost of cultivating light-land farms. Therefore, the average cost of cultivating the two different kinds of land would be of no value to the man who wished to obtain information as to cultivating one or the other. In endeavouring to strike an average of the cost of steam-cultivation in a certain number of cases where the soil is somewhat similar, you have to take into account the old adage that "one man will thrive where another will starve;" and if you are to consider not only the differences of soil and climate and the size and position of farms, but also what is the average of the capacities of the man who would have to conduct the operations, then I think you will perceive that if our reporters had attempted to deal with the question of averages, at all they would have been brought into great difficulties in their calculations, and would in the end have produced a result that would have been of no practical value. Consequently, I think they have exercised a wise discretion in discarding all averages, and merely tabulating the results of their inquiries, side by side, for the convenience of the reader in search of special and comparative information (Hear, hear). Then we come to the second point I mentioned—the kind of machinery to be adopted. There are strong reasons why the name of any individual maker should, if possible, not be brought forward in a report of this kind; and the only reason which would be sufficient to warrant that objection would be the existence of so great a number of makers, and so large a variety of apparatus, that an intending steam-cultivator would be so bewildered in his choice that it would be a positive benefit for him to be guided by the experience of gentlemen who, like our reporters, had had the opportunity of seeing many implements, and judging of their various capabilities. In the early days of steam-cultivation there were a great number of inventors and makers. During the last five or six years, however, many of these implements have been found unable to stand the test of every-day wear and tear, and the consequence is that the best of the inventions have been gathered up by a select few implement makers, so that at the present time the number of those who stand as recognised manufacturers of steam-cultivators are so small that if a man intending to purchase an apparatus after an exhibition of the implements at work, and a perusal of the de-

scriptions furnished of their different merits and capabilities by those who have worked them (and especially if these reports were considered), if he cannot after that decide which maker he should go to, and which system he should adopt, he is, depend upon it, not in a position to begin to cultivate by steam, and had better postpone altogether the introduction of a steam implement upon his farm (Hear, hear, and laughter). The third point I mentioned as an objection I had heard raised was, as to the best mode of applying steam-power, the best system of husbandry, and the best mode of bringing out the full steam-power upon certain farms. It was said that our reporters should have gone into those questions. Now, I do think that here, as in the other points, they have exercised a very sound discretion, and so far from feeling any disappointment myself that we have not made greater progress in settling a definite code of steam-cultivation, I think we shall, if we look fairly at it, feel very grateful that so much has been accomplished (Hear, hear). Let me tell you that, amongst the answers returned in reply to questions sent out by the Society, 178 came from owners and employers of steam apparatus; and out of those 178 how many do you think had had their apparatus at work for ten years? Only one. There is only one who has at the present time had steam implements at work for eleven years; and out of the 178 there were 33 who had been working a steam apparatus not more than five years. Some perhaps would say that a man who has been at work so long ought to have been able to make some progress towards establishing a definite system of cultivation adapted for steam; but we must bear in mind that even going back so short a time as eight or ten years, the steam apparatus itself was by no means in the perfect state it is now. It required great and constant improvement. There were heavy expenses of wear and tear, and constant outlay for renewals. So I cannot see how those who have been at work five or six years can be expected to have made much progress in fixing a definite code of steam-cultivation. We must remember, too, that all this time they have had to prepare their farms for the introduction of steam, to instruct their men in the use of machinery, and to inform themselves, in many cases, as to the best mode both of working and applying the new power. In fact it amounts to this, that they had not only to adapt agriculture to steam, but to adapt steam to agriculture at the same time. If that is so, and there can be no question about it, I have a strong feeling that we are much indebted to those pioneers of progress, as I will call them, who have thrown themselves heartily into this question, and have spared neither time nor money in their determination to make the cultivation of the land by steam a great and signal success (cheers). Having dealt with the objections which I have heard stated, and which I hold have no foundation, I would next ask your opinion and invite your discussion upon certain questions which I will very briefly indicate. One question I put before you is this: What in your opinion is the most useful and practical feature of these reports? I have been asked that question myself; and as I always think that questions asked by those who take an interest in the subject give a good indication of a desire for information, which should be supplied, and which can never be better supplied than by such a meeting as this, I thought it would not be a bad way of treating this discussion to repeat to you some of the questions put to me by gentlemen interested in agriculture generally and steam cultivation in particular. One of those questions, as I said, was, Which was the most prominent practical feature of the reports? I have no hesitation in saying for myself that I should assign the chief prominence to the fact that the reports are a faithful record of numerous cases where steam has been introduced for the cultivation of farms under a great variety of circumstances, soil, climate, position, and other special conditions. These descriptions of so great a variety of farms, and the faithful accounts of steam operations in a large number of given instances, would furnish to almost every one who, finding himself in a difficulty, might wish to profit by the experience of others, certain reliable data: he would be almost sure in these reports to find some case which is similar in many respects to his own. If the water he is obliged to have should be bad, he will see how a few pennyworths of Frank's fluid were found sufficient to destroy its injurious character, and thus save his boiler. If he found in a wet season that he was in danger of losing his seedtime, he

would read that others have got out of their difficulty by purchasing a plough in addition to a steam cultivator. Indeed, there is hardly any difficulty which will occur to a man using a steam apparatus which is not here described and respecting which he will not find advice and experience to assist him out of it. If this be not entirely the case, at any rate the reports would tell him where he might apply for information from men who had probably gone through the same difficulties as he was experiencing. Then, again, there is the case of a man who wishes to set up a steam apparatus: he would be able to find the experiences of those who in a somewhat similar position of soil and situation had decided what kind of apparatus would be best suited for the particular system he meant to adopt—whether he meant to go in for great results by a large outlay, or otherwise. There is, for example, No. 69 in the report, respecting the farm of Mr. Bomford. There you have rather an extraordinary instance of a man who is so taught by a successful experience that he is not satisfied with having had steam engines and working apparatus upon his farm, but intended, when the commissioners visited him, to have two more. That I should consider a strong case where a man of large capital and energy goes in for great results. If, on the other hand, a man wished to take the lowest mode of employing a steam auxiliary, as it is very properly termed, and with a small outlay to get a powerful assistant (but still only an assistant) to the ordinary appliances of the farm, he has the experience of those who have gone before him in the same path, which experience is recorded and illustrated by most able pens specially for his guidance and instruction. These are my own opinions, but I should like to hear what the meeting considers the most practical and useful features of the reports. A second question, which it might be useful to direct your attention to, is—“Does it appear from these reports that steam cultivation is successful as a commercial speculation?” As the solution of a mechanical problem, no doubt it is a most perfect and thorough success (cheers). That which was proposed has been accomplished, and great feats of cultivation have been performed by steam which no other power could possibly have undertaken with the same result. But then comes the question whether as a commercial speculation generally steam cultivation has been a success. Does it in the majority of cases lead to profit from a pecuniary point of view? I should be inclined to describe it as a success which a very small amount of ignorance or inattention would convert into a failure; it is a success where it has been well managed, and a failure where badly managed (Hear, hear). There can be no question, I think, of these two positions, and between the extremes there is almost every variety of great and modified success down to partial failure. A clever man will make steam cultivation answer; but a man must be very careful if he does not understand the subject himself, or cannot obtain a manager or assistant who does, how he touches the matter at all. That is the impression left upon my mind by a very careful comparison and perusal of the reports. No doubt upon clay land, a degree and depth of cultivation and a perfection of cultivation can be attained which could not be attained by any other way. In fact, strong clay, such as was described in one of our reports, two or three years ago, as a soil varying from glue to cast-iron in different seasons, cannot be really and efficiently worked except by steam. But, unfortunately, that kind of soil is chiefly held in small occupations, and that part of the problem has not yet been solved which shows us how to apply steam to them. This is one of the directions in which progress and development are most needed. The purchase of a powerful steam apparatus by the owner of 200 acres or so of clay land, is, of course, out of the question, unless the apparatus is used on the adjoining farms as well. As yet, however, the partnership or company principle has not been sufficiently tried in agriculture for us to speak of the results with any degree of confidence. This is one of the things upon which I should be very glad to hear any suggestions, and in which it would be most gratifying to see advancement made. Another point is with respect to light lands. I believe we shall soon see steam engines very generally employed for the cultivation of light land as an auxiliary on a large farm, for cleaning stubbles in the autumn, for breaking up land for barley in the spring, and for many similar purposes. There are various cases in which I believe a light cheap steam apparatus would be one of the most valuable things on the farm. I believe we shall soon see no farm of any considerable

acreage without a steam apparatus (Hear, hear). This is a matter, however, in which we want further progress; we want suggestions for the use and management of an apparatus for light lands, not too heavy nor requiring too much power, and to be purchased for a reasonable sum. The three questions then which I should like to propound to the meeting are these—1st, Which is the most practical and useful feature of the report? 2nd, Does it appear from these reports, or from the general knowledge of those who may speak upon the subject, that steam cultivation is successful generally as a commercial speculation? and 3rd, In what direction does our present system of steam cultivation most require improvement (cheers)?

Mr. RUCK (who was called upon) said he rose without any preparation to make a remark or two, but not to express an opinion upon the three questions asked by the Chairman. The reports must be read with general satisfaction by every member of the society, for, no doubt, the investigations of the commission had been carried out in a most impartial and straightforward way, both as regarded those who allowed their farms to be exhibited, and the implement-makers whose machines were tried. The excellent address of the Chairman and the reports had suggested four questions to him rather different from those of the Chairman, but still equally important. They were—1st, What power can we get out of sixpennyworth of coals? 2nd, Will work that is done by steam be equal or superior to that done by horse-power? 3rd, Will the land cultivated by steam be in a superior state to that cultivated by horse-power? 4th, Will the crops produced by steam cultivation be larger than those produced by horse-power? His own opinion was that sixpennyworth of coal would give as much power as one horse in a day's work; and that two operations with steam would be worth at least three by horse-power (Hear, hear). By steam-cultivation, clay land would be improved in the course of time, and light land almost immediately. With light land the first operation would have a decided effect, but clay land would take two or three years before it could be ameliorated and brought into proper condition. He had no hesitation in saying that with respect to crops, steam cultivation would yield an average increase of 8 bushels an acre throughout the whole of the country (cheers).

Mr. SMITH (of Woolston) said he had read the reports very carefully, and could endorse the praise the Chairman had uttered respecting the authors. He thoroughly approved of them from end to end, and believed the commissioners had used their best endeavours to produce faithful reports—reports which would be found full of good and ample evidence, if people would only take the trouble to read them. The question as to how far steam cultivation was a commercial success was touched upon indirectly in the reports. The whole thing resolved itself into the question whether it would answer for a man to buy steam tackle. Upon that point Mr. Randell said that he bought a set of tackle in 1857, and had worked it ever since with the most successful and gratifying results; and the main advantage appeared to be that a deeper soil was produced. What better evidence could be given of the commercial results of steam cultivation than Mr. Randell's testimony that he had worked a set of tackle for nine years, and was still working it? Similar evidence was given by Mr. Stephenson of Yorkshire, who declared that he had not spent five shillings upon his implements, and who pointed out that the ropes and porters were the main items of wear. Mr. Armstrong and others supported this testimony as to the wearing powers of steam implements. In two cases it was shown that heavy lands had been worked at 7s. and a trifle per acre, while with horse work it would have been at least 14s. The reports showed throughout that the drainage was greatly improved by the breaking-up of the under-soil. He (Mr. Smith) told the Society that years ago, having found it out on his own land. The thing had been done there for 11 years, and the land was cold clay as stiff as any in England. Never a drop of rain ran off it: it all went through the soil into the drains, leaving its fertilizing properties as it passed. If land could be cultivated 8 or 10 inches deep, and the steam engine brought to bear directly after harvest, what could the result be but a complete commercial success? The most extraordinary thing in connection with steam cultivation was, that when land had been worked for some time it required but a few days every year of engine work. Farmers could then afford to let their horses be idle for a portion of the year.

Since he had cultivated by steam he had never used more than three horses, whereas before he used six at hard labour. There was no account of his farm in these reports; but he mentioned these facts to confirm the evidence that by steam cultivation horses were saved. Mr. Bomford, for instance, showed that it saved him so much in horses, that he was going to spend another £1,400. If by steam cultivation the drainage was improved, the natural consequence in most soils must be an increase of produce. Professor Voelcker, in his Analysis of Soils, stated that there was a vast fertilizing quality in our clays. He (Mr. Smith) had experienced that on his own farm, where he grew corn every year, wheat and beans going on regularly. He could not manure the land deep enough for beans every year, and had occasionally to use a little artificial manure. No doubt with this kind of cultivation he could keep growing on the cold clay for ever. The great thing to do was to keep the productive quality up by artificial stimulants, and cultivating deep. The most prominent feature of steam cultivation, in his opinion, was, that it kept the land clean; while persons who had not the advantage of steam cultivation had dead fallows for four or five years, and had to use three or four operations for their fourth crop. Another prominent feature in the report was the proof it gave that a steam engine did three or four times more work in one operation than a horse. A double depth was reached, and a double effect produced. Mr. Prout said he had saved considerably by using Fowler's apparatus. Some spoke, with more or less diffidence, as to the results of steam cultivation; but all the evidence pointed one way. Upon the question of produce, Mr. Randell, who was an excellent farmer, said he did not appear to make any increase, but he acknowledged that he got stronger straw; and Mr. Stephenson, in Yorkshire, said he got good crops before he used steam cultivators, and he got no better now. The fact was, that where a man farmed high, it was a difficult matter to drive cultivation beyond a certain point; but, when it was acknowledged that the straw was stronger, it was evident there must be in the end a better result with less manure. Referring to the Chairman's remarks as to an apparatus suitable for light soil, he thought we should not look to reduced prices in machines. He would not reduce the cost of his; for the machine he worked was as good now as it was ten years ago. The commissioners said that Randell's windlass was better than his; but that was a matter of opinion (laughter). His was constructed upon sound mechanical principles, and had stood the test of ten years' work. He did not, however, wish to enhance the value of his own apparatus. It was of no consequence to him whether he sold one or not. He made them, not to sell, but to work upon his own farm (cheers).

Professor VOELCKER: Reference was made by the last speaker to Mr. Prout's farm. I paid a visit to it lately, and was strongly impressed with the great improvement in drainage. That was nothing novel to me, I confess, because I had, many years before, seen the wonderful improvement in drainage effected by steam cultivation on Mr. Ruek's farm. This recent visit to Mr. Prout's makes me say, I believe that if steam-ploughs were placed on our strong clays we should not want any drainage at all. We should merely have, for a time, to carry off the surface-water, and depend entirely upon steam ploughing for the drainage-work. I know that in well cultivated clay land, during the greater part of the year, all the water that falls upon it is required. I have a strong impression that, after years of cultivation of our clay soils, we should require all the water that falls. It now goes through the drains simply because it runs through the cracks in the ground; it does not go through the soil. If, however, the good effects of steam cultivation could be realized, we should have an abundant store of food within the reach of the growing crop; and, like Mr. Smith of Woolston, we should only require once now and then a little artificial manure to stimulate the surface; and we could then depend upon the value of our clay soils. If this could be done, we should reap a great advantage. We should save, in the first instance, in not having to expend upon the drainage, and could throw our plans altogether upon the resources of the soil. Perhaps, at the present time, this is a little Utopian; but, at the same time, I think we could aim at it; and, if steam cultivation reaches a high state of perfection, we shall have made a very great step towards saving our manures. We shall not then require any looking after our drains; nor shall we have to

take them up, and put fresh pipes in, or furnish an increased supply of drains to carry off the water; for, as I have said before, by the constant cultivation of the heavy clay lands, we should reduce the porosity of the soil so much, and improve its mechanical condition to such an extent, that every inch of rain that falls upon the land would require to be taken up and rendered useful.

Mr. THURLOE said he could not agree with the preceding speaker that cultivation by steam would entirely do away with the necessity for drainage; but, from what little experience he had had, he should say that in proportion as they deepened cultivation by using steam they would improve the ground by enabling it to soak up more moisture. With reference to the three questions stated by the Chairman he had not much to remark. Howard's apparatus having been alluded to, he wished to say one word with regard to it. In the concluding report of the Committee of Investigation it was stated that engines required to be driven at a uniform speed and pretty fast; by which, he presumed, was meant that the steam apparatus for breaking up the land ought to go at a uniformly quick pace. In that view he quite concurred; but he was afraid that with Howard's apparatus the thing could not be done in all cases or in all weathers. That apparatus was worked by a leather strap (A Voice: "It can be worked in many ways"). At any rate that was one of the ways, and the strap could not always be kept on in wet and windy weather. In fine weather no doubt the apparatus answered extremely well, but when wet and wind prevailed the case was different. He mentioned that defect some time ago to Mr. Howard, who then brought out a union-joint, which was fixed to the central axle of the fly-wheel, and of course, being so fixed, it went at a slow pace. If by the intelligent mind of Mr. Howard anything could be devised to make the apparatus work in all weathers, they would have in that case an implement which was almost perfect.

Mr. BOMFORD wished to offer one word of explanation with regard to the double set. He had 600 acres of land where he was living and 300 nine miles away. His reason for purchasing a second set was that he required it for those 300 acres, intending to fill up the time by letting it out. If the 900 acres were all together one set of tackle would be sufficient. As soon as his crop was off he was anxious to get his land broken up. The work could only be done in fine weather, and therefore the sooner it was done the better.

Mr. BULSTRODE said he must commence by thanking the Council for inviting him to be present at that meeting and allowing him to take part in the discussion, although he was not a member of the Society. He had read with great pleasure the full and able report of the commissioners. There were several points to which he thought it would be well to direct attention. In the first place, he would remark that (although he was probably addressing on that occasion monied gentlemen) the question of outlay would always be one of primary importance to the ordinary farmers of England. The trials made hitherto were in favour of the direct system, in which the apparatus was the most scientific, but also the most expensive. If farmers were to take the verdict of that Society from the trials already made, they would be obliged to purchase at a cost of from £800 to £1,500, and a great many farmers would have to tunk a good while before they either would or could do that (Hear, hear). When he looked at the reports—and he must say that they quite coincided with his own experience in the matter—he found several startling results. In the first place the trials of machinery did not appear to have been always successful. For example, there were two machines, one of which was purchased by Lord Berners, and the other by Lord Vernon. Both took prizes at the shows where they were respectively exhibited, and yet both proved failures in practice. Again, although the stationary or round-about system had been condemned by that Society, hundreds of sets on that system had been going on for years, and they had been successful, and had yielded a good profit to persons who had used them, Mr. Smith of Woolston being among the number. The results were at first rather startling, but if they considered how the trials had been made they could not after all feel very much surprised. There were small regular plots of ground, the machines were of the best description, and the men by whom they were managed were skilled men, well up to their work. All this involved great advantage over the work on an ordinary farm, and, in some degree, accounted for a system which



possessed great general utility not appearing equal to one which had special excellence. The case was something like that of a short run between a thorough-bred racer and a hunter. The direct system was sure to be very creditable when it had full and free play. This, he said, fully explained why apparatus which had been almost always defeated in these trials had, nevertheless, been perfectly successful in practice, and were working to the satisfaction of their owners in hundreds of instances about the country. This was a matter which he thought should be specially brought before the farmers of this country. If they found many instances in which farmers having engines from 8 to 10-horse power were enabled by making an additional outlay of from £250 to £300 to adopt steam-cultivation successfully, surely that was a matter well worthy of attention. This bore very much on one of the questions brought forward by the Chairman. Of course, had those farmers simply followed the verdict of the Society, they must have spent from eight to fifteen hundred pounds, or let steam-cultivation alone. At the same time, while speaking so positively in favour of the stationary system, he hoped he should not be misunderstood. He was perfectly convinced, and the remarks of the commissioners bore him out in stating that the direct system was the most scientific and economical for farms which were really adapted for it, for farms of large size, and with fields in every way favourably situated. What he wished to impress upon farmers was, that on farms of ordinary size, with fields of ordinary shape, with ordinary covenants and leases, and with ordinary purses, the indirect system was generally the best, and would produce the greatest result with the least risk (Hear, hear). Some persons might say, "Why not hire machinery on the more economical and scientific system?" He thought that the remarks of the commissioners on the hiring system afforded a full and sufficient answer to that question. The commissioners spoke of the two great advantages of steam cultivation—namely, a reduction of the number of horses required, and facilities for performing operations at a rapid pace. Both these advantages were to a great extent lost by persons who adopted the hiring system. Farmers could not venture to reduce their horse strength if it were uncertain whether they would be able to have an engine to cultivate their fields when they wanted it. Again, supposing a few days after ploughing they thought it would be an advantage to give the land a good drag-harrow, which was a very valuable adjunct to steam cultivation, they could not do that because the machinery was gone. They would have to fall back on their horses, letting them draw over the ground, and thus undo the very work which had just been done so carefully and at such great expense. Another objection to the hiring system was that in some cases they must pay almost double what the rate of cost would be if they had tackle at home. Others might differ from him on that point, but that was the result in his own case. Then, again, the commissioners said a good deal about the importance of judicious management, and the Chairman had dwelt on the same point. The best tackle that was made might with injudicious management be perfectly useless, while with good management even inferior tackle might be comparatively useful. As regarded management, two things ought to be borne in mind. Sometimes persons did a great deal of mischief to their tackle, tearing it very much, by doing at one operation what ought to be done in two or three consecutive operations. Under such a system as that tackle could never be kept in good order. In the next place it was most important to avoid all unnecessary hindrances. When he first began cultivating by steam himself, he had so many stoppages, there was so much loss of time from implements at one end or the other, that he soon began to study how he could reduce the hindrances to the minimum; and in this point of view it was most important that the tackle should be worked in the best manner. There was another advantage of the indirect system, which had hardly been spoken of sufficiently; he referred to the saving in the expense of water-carriage. Under the direct system there were many farms where the water-carriage must involve great expense and vexation; while under the indirect system the water-carrying could be done almost for a nominal sum. His object, he wished it to be understood, was not to condemn the more scientific apparatus, which was well adapted for large and special farms, but to show the great value of the cheap and stationary apparatus (Hear, hear). Notwithstanding all the drawbacks, he felt per-

fectly convinced that steam cultivation would overcome all the obstacles it had to contend with. It had needed, however, some impetus, and he was sure the thanks of the country were due to the Royal Agricultural Society of England for the money which had been devoted to the late investigation, and for the ability displayed in the valuable reports which had been published.

Mr. DAVIS said, notwithstanding what had fallen from Dr. Voelcker, he would venture totally to deny that steam cultivation would produce any effect on strong land, unless it were thoroughly drained in the first instance (Hear, hear). He agreed generally with the reports of the Commissioners; but there was great divergence in their statements. For instance, as regarded the time required for the removal of the tackle; in one report it was stated that the tackle could be removed in an hour and a-half, by four horses: while in another report, it was said that the work of removal would require six horses for a day and a-half! He did not see how these statements were to be reconciled. He believed it was quite impossible for any man, however active, to remove tackle from his farm in less than half-a-day. The Commissioners had done their work so well that he need not trouble himself with any further remarks, and he would only add that he concurred in the bulk of their reports.

Mr. EDMONDS said he could endorse the opinion of previous speakers as to the value of the steam-plough. He had had one for three or four years, and liked it extremely, and in fact he should not like now to farm without one, especially on strong land. He could not help thinking that on strong land steam cultivation had the advantage of being less expensive than cultivation with horses, and that the land was greatly improved by it. He could not agree with Dr. Voelcker, that with steam cultivation they could do away with drainage altogether. He hardly liked to oppose the opinion of such a scientific authority, but in practice they found that where there was a depth of 10 or 12 feet of clay, the rain that fell would either remain on the land till it was evaporated, or must run away from the surface through the drains, and he did not think it could remain long enough to evaporate without injuring the crops. His opinion was that they must continue to drain deeply on clay-soil, and one advantage of the steam plough was that it would help to do away with deep furrows. With regard to light land, he thought steam cultivation was much less expensive than cultivation with horses. He was also of opinion that the implements at present employed on light land might be improved, and that special attention should be directed to the implements required for the after-working of the soil. He thought that land dug up in autumn, and left in that state in winter, might be cultivated with a simple drag, with a scarifying tine that would cut the whole of the land. There was another matter in which he was still more anxious for a change. In his neighbourhood they had to give something like a pound per ton for coals. That was a very heavy item of expense, and he should be very glad if something could be done to economise fuel. As regarded roads for Fowler's plough, he would observe that last autumn being very wet he could not get on the strong heavy headlands when he wanted to plough some wheat. Had there been a road there, or a patten like Boydell's on the engine wheel, it might have been done; but one of those things was essential where there was strong land. They must either have roads for the engines on headlands, or something put on the wheel to prevent the implement from getting stuck and grubbing. With regard to the moving of tackle, he did not know what implement was referred to as requiring a day and a half; but if it was Fowler's he should be surprised to hear that the time required was half a day. He was something like two hours in removing the tackle with a couple of extra horses.

A MEMBER: The implement referred to was Howard's.

LORD VERNON said: I do not set myself up in the least as a practical farmer, although I have the great misfortune to farm nearly 2,000 acres of very heavy clay land. Looking upon that at first as a hopeless task, I watched very carefully the series of trials which commenced at Leeds down to that which took place at the last show of the Society at Newcastle. I had the honour to act during almost the whole time as one of the stewards of implements connected with steam ploughing before I could satisfy my mind that any implement had sufficient power to work my land. It is perfectly true, as was stated by Mr. Bulstrode, that the prize set of apparatus

on the direct system which I bought at Newcastle did not work so successfully on my farm as on the trial; but I am perfectly satisfied that, so far as the trial went, the judges, who devoted an immense amount of attention to the task, came to a correct decision, and chose the best implement that was exhibited; and I can only account for its not having been so successful on my own farm by the fact that the land was unusually stiff and ungrateful, and that the breakages were, in consequence, very heavy. I am glad to have this opportunity of stating that Mr. Fowler, of whom I bought that implement, supplied me with other apparatus on terms which were very creditable to him indeed; and that set, which has been on my farm for a year, has worked very successfully in every way (cheers). I might appeal to Mr. Wilson, who is present, to confirm my statement that, instead of land that was before almost unproductive, I have now got land which will produce some of the best wheat crops in the county (Hear, hear). It is, I think, hardly fair to lay the blame of any failure on this Society, for the successful adoption of steam cultivation has been very gradual. I have no doubt that as we go on we shall improve in details. It is my opinion—I know it differs from that of many of my colleagues on the Council—that trials of steam cultivation, which are enormously expensive, ought not to be so frequent as they are now, and that, as we have now a codification of the results of steam cultivation throughout England, when trials recur thrice as much attention should be paid to them as has been paid hitherto (Hear, hear). I must say that my experience as a steward of steam cultivation has been that the duties of the judges have been almost more than men could perform within the time that was allotted to them, and certainly more than was consistent with securing a satisfactory report of results. I cannot quite agree with Mr. Smith of Woolston, that when the ploughing apparatus is not at work there is no cost attending it. The case has been very different with me. I have worked my apparatus with an expensive staff, the manager has been paid very high wages, and I am firmly convinced that unless you employ duly-qualified men, men superior to ordinary agricultural labourers, the cost of breakages will be enormous. If the wages paid are higher than those of ordinary agricultural labourers, that should be fairly set down to the apparatus. I may add that I pay my staff on the scale which Mr. Fowler recommended me to pay, and I find from the reports of the commissioners that it is not higher than what is generally paid elsewhere. I did not think when Dr. Voelcker got up that he would so completely dash my hopes to the ground. I live, as I have intimated, in a district where the land is very stiff, and where 3,000 acres have been drained at a cost of £6 10s. per acre; so that the doctor has rather damped my feelings (laughter). I cannot conclude without saying how very highly the Society ought to value the labours of the commissioners who have travelled so far over the country, and have produced, as I understand they have, such a very able report. Having returned from abroad only a few days ago, I have not yet had the satisfaction of reading the report; but I am happy to hear that it is worthy of gentlemen who, in their capacity as judges and reporters of agricultural meetings, have been constantly before the public. I may add that, having been instrumental to some extent, together with Mr. Wilson, in impressing upon the Council the importance of these investigations, I very much regret that circumstances have not enabled me to assist my colleagues in the performance of their duties as committeemen (cheers).

Dr. VOELCKER wished to say one word in explanation. It was an accepted axiom that without drainage no improvement of land was possible, and he had not intended to express any opinion to the contrary (Hear, hear). His remarks applied to the future. His impression was that, many years hence, after plenty of good steam cultivation, the mechanical condition of the land would have been so improved that there would not be as much want of drainage as there was then. Of course they must begin with drainage (Hear, hear), and what he hoped for might not be realised in some cases under 10, 20, or even 50 years. He had been speaking prophetically (laughter).

The CHAIRMAN said he had hoped that Professor Voelcker, for whose scientific attainments he felt the greatest possible respect, was going to withdraw altogether what he must say was such a rank heresy, that if 300 years ago he had uttered it before a meeting of a Society of that kind, he would certainly have been burnt (laughter).

Mr. SMITH (of Woolston) observed that he had worked his tackle with his ordinary farm labourers from the time he started, eleven years ago, and had found no difficulty whatever. He had experienced no breakages, and his implement was as good now as ever it was. In consequence of his windlass being made on an unsound principle, he changed it at the end of about four years, and adopted the four-wheeled windlass, which had kept in very good order. As to the cost, it was comparatively trifling, being simply the interest of money on about £180 to himself, but £210 to other people.

Mr. HOLLAND, M.P.: We must all feel satisfaction in having been brought together this day, and had such an opportunity of listening to the remarks of practical men. I think, too, that we cannot help seeing the advantage which is likely to arise from the publication of this volume of the Society's *Journal*, containing as it does the results of practical operations throughout the country. There is this feature in connection with all professions, that you should have a knowledge of the individual with whom as a professional man you are about to act. A medical man may be the most perfect physician that ever existed; but what does he do first of all, when he has to treat a patient? Why he feels his pulse; and so with us, in the same manner we should feel the pulse of our own land, so to speak, before we apply steam power to it in any particular shape. In this volume any man who wishes to apply steam power to his land, whatever that land may be, will find all the information he needs in a condensed and handy shape. Now, in spite of what Dr. Voelcker says, I believe that you must have deep drainage in connexion with steam-ploughing (Hear, hear). I take my own county for example, in order to show this from my personal experience and practice. The heavy land in the Vale of Gloucester is all in deep ridge and furrow, the work of some unkind agriculturists in former ages; and this must all be undone by the steam cultivator before we shall make a full profit out of that land. It is thrown up in such immense high ridges, that a five-foot-six-inch man in one furrow can hardly be seen from the next adjoining furrow. And not only is the land on the surface of that shape; but, on going down into the subsoil, you find that the under-surface has taken the same shape, and that that is a heavy clay. How, then, are you to deal with land such as that, without drainage? Again, these furrows very seldom run parallel with one another, and are generally in the form of an S. I tried to drain them in parallel lines; but my drainage failed, and I was obliged to follow the old course of ridge-furrows, as the only mode of getting the water off the land. Through the applications of steam-ploughing, however, I am bringing down these high ridges on my land by degrees. I find that we need not be at the expense of putting drains in the furrows so deep as otherwise we should have to do; and now, after seven years' steam-ploughing, I have more or less done away with the ridges, and made the surface comparatively flat. I too, like Mr. Smith, find that the water does not run off the land, so as to do it damage by carrying away the fine silt and alumina into the furrows; but now that the water runs off through the drains it takes a much less quantity with it. To bring the land into this state has taken me seven years, and I admit that the drainage is not of so much consequence now as it was previously; because there is a larger flow of water through the interstices of the land into the drains, and the land is placed in such a position that it can take advantage of the water which falls from the air. I should be sorry, however, under any circumstances to begin the expensive system of steam-ploughing without the previous application of drainage to the land (Hear, hear). We have heard a good deal of valuable information to-day respecting the practice of different gentlemen; but there is one light in which I view the system of steam-ploughing, about which I should wish to make a remark or two. I call it not only a revolution in our method of working the heavy clay lands of this country with all the advantages that have been described to us; I call it also a moral revolution which affects every class of persons connected with agriculture. I look upon it in this light, that it is impossible for tenants in the long run to take up steam-ploughing unless the farms are put into steam-ploughing condition for them. Small fields must be done away with (Hear, hear); hedgerows must be done away with (Hear, hear); for my experience tells me that I should be sorry if I had to plough with less than

two hundred yards of rope. There is a large amount of economy effected in proportion to the quantity of rope that you have out (Hear, hear), and in not having to be stopped in passing from field to field by the impediments of hedgerows (Hear, hear). But an important question now arises, Will the tenant farmer, when the advantages of steam-ploughing are well understood throughout the country, embark his capital in the enterprise where his tenancy is for a short period only? I believe that, with the capital and the intelligence which always flows with capital into any trade, and the increased education which on the part of the tenants is being applied to their holdings, we shall find these holdings cease to be yearly, and that a system of leasing will pervade the whole country (loud cheers). Here I connect the landlord and the tenant together in the matter of steam ploughing. Let me now connect the labourer with it, and show what will be the moral advantage to him of the steam plough. Of course you take your best labourers. Like Mr. Smith, I have not a man from my village who has not been educated as a steam-plougher. The seven years during which I have been engaged in the system have given time enough for a generation of young steam labourers to grow up, and I find that the men who are connected with the steam plough have become a species of aristocracy among the villagers, that they value the advantages of their position, and are determined to hold it, and have their children educated also, so that they in their turn shall become some of the best men in the village. All these things are going on together; and I have remarked not only at home, but in other places, that your best labourers, your steam-ploughers, or those whom you employ in connexion with steam cultivation, must come out of decent cottages (Hear, hear). In fact, you cannot make steam-plough labourers out of families who are crowded to an indecent extent under one roof. Now, all these matters upon which I have thus briefly touched are worthy of consideration. In conclusion, I would observe that, by these operations of steam ploughing, and by sending into the world this volume, we are not only promoting a revolution in the tillage of the land, but effecting a revolution in the habits, the manners, and the morals of all who are connected with the land, whether as owners, occupiers, or labourers (loud cheers).

Mr. BUMFORD said he had omitted to state that he took for his engineer a man who had been previously trained to steam thrashing and other operations, and selected the best men among his own labourers for steam cultivation.

Mr. STEPHENSON concurred with some of the previous speakers in giving the preference to the roundabout system. He had been a roundabout man for ten years, and quite coincided with the greater part of the remarks of Mr. Smith. With regard to draining, he agreed in thinking that all land ought to be drained before being steam-ploughed.

Mr. WATTS had been working Fowler's apparatus for the past six years, and last season added another engine to the set, so that he was working upon the double-engine system; and it appeared to him that steam cultivation had now attained almost to perfection. Like Mr. Holland, he had had to encounter the difficulty of some very high-backed land, which, however, he had gradually reduced, and in every way he was satisfied with the system. As far as regarded working the machinery, the labourers in the field had been taught to work it, and did so successfully.

Mr. COLEMAN concurred in all that had been said with respect to the value of the reports published in the Society's *Journal*. His object in rising, however, was to draw attention to the fact that in the statistical report the cost of working the apparatus constructed by himself was shown in a different manner to that generally adopted throughout the report. No doubt this was done quite inadvertently; but it was calculated to produce an unfavourable impression on the minds of those who did not understand the matter. The case he referred to was in No. 23, where the cost of working was made to be 17s. 4d. per acre, whereas he believed it was under 5s. an acre, taking a day's work at £1 11s. 4d. for seven acres per day. But by some curious arrangement, which he did not understand, a charge of £3 11s. 3d. was added to that, which produced the result of 17s. 4d. per acre, to which he had alluded. He fancied it must have arisen from this: That the year 1865, when only 150 acres were done, was an unfortunate year for steam-ploughing, and he presumed that the whole amount of the interest on capital, maintenance, and so forth was concea-

trated in those few days (Hear, hear). He mentioned this because he did not observe that there was any other case of the sort.

Mr. SMITH (Woolston) said that was a mistake, for there were a great many cases where the cost was brought up to a higher sum than it should be.

Mr. COLEMAN: That might be so; but there were also cases in which the price was shown low. Persons who looked at the matter cursorily, might imagine that the amount stated in the report was the actual cost of steam cultivation by his system.

The PRESIDENT observed that anyone who took the trouble of reading the report carefully through could not be misled.

Mr. Jacob WILSON said that Lord Vernon had forgotten to tell them that when he commenced steam cultivation, he had a very small farm in hand, and had therefore to engage a special staff to work a pair of engines. Then he was simply working for the good of his tenantry; and when the men were not employed in steam operations, they were employed in the plantations and in other work. No practical farmer would take that as a fair example of employing agricultural labour. As a near neighbour of Lord Vernon, and having a set of tackle similar to his Lordship's—namely, a pair of ten-horse Fowler's direct traction—he knew that he could now get a class of labourers in Northumberland who could do the engine-work efficiently. Any of his boys, indeed, could drive the engines as well as any man in the place. He had adopted Fowler's double-set engine after much attention to the subject of steam cultivation and opportunities of investigating the trials of the Royal Agricultural Society, which many other men had not possessed. Up to the year 1864, he had never seen a set of tackle which to his mind was what he wanted. He might, perhaps, be peculiarly situated in having three roads running through his farm; consequently, however much he chose to enlarge his fields, he had always had crooked fences. One of the gentlemen who had spoken that day stated that he had had some trouble with Fowler's drum-engine in working about circuitous hedges with a single engine. It was therefore left for him to get either a double or roundabout set, and he did not hesitate in going to Fowler for a direct set, with which he was perfectly satisfied, for he could work it at any angle in any corner, and from whatever place he chose to put the engine. He lived in a coal country where the best coal was from 3s. to 4s. a-ton, and that brought expenses down considerably, in comparison with those of Mr. Kuck. It was a matter of deep gratification to him that he had been associated in the preparation of the report, and that it had been so well seconded by the country at large, and especially by gentlemen who used machinery in the cultivation of the land, of whatever make it might be. The desire of the Council was, that the report should not be biased in any way in favour of or against any individual maker; and he was sure that the reporters would have the credit given them of having made a fair statement (Hear, hear). That report would, he thought, bring out one point in a practical way which had never before been educed. There were a great many persons, whom he might term amateurs, who thought of going into steam cultivation, with the hope that it would do everything for them; but those who had had experience of its working, he was sure, would agree with him that there could be no greater fallacy. So far as he was concerned, he might state that, in the matter of manure, for instance, he did not want less, but probably more, because steam enabled him to grow a greater variety of crops. That, he thought, settled the point (Hear, hear). Another thing ought to be borne in mind, for which credit also should be taken. The President had told them that very few instances indeed occurred where farmers had had this means of cultivating the land for more than five years; in fact, he (Mr. Wilson) believed that, as a rule, it could not be for more than three or four years. Now, during that period they would naturally have, as he himself had experienced, a good deal of up-hill work—not in breakages, however. They probably went a little deeper than they had need. Perhaps they broke the pan, and probably some part of their implements also. It was not, therefore, until their second course through the farm that they realized the great advantage which he believed was to be derived from the system. Mr. Randell, and perhaps one or two other gentlemen, were the only men who had been long at it; and certainly, to raise the value of a farm consisting of a strong black tough clay from eight shillings an acre to its

present value, said a great deal for the utility of steam cultivation. Most fervently did he hope that the best wishes of the Council for the furtherance of English agriculture, and especially of steam cultivation, would be amply realized through this report.

Mr. BROWNE said that, having had some experience in steam ploughing, he felt it to be his duty to state the results. Like one of the gentlemen who had already spoken, he was the occupier of about 2,000 acres of land, and had been in possession of one of Fowler's sets of tackle for six years. This he had kept in constant use, and he had arrived at the conclusion that it was a fine-weather implement only, and that in such circumstances it was most valuable. A great deal had been said about the cost of working, but he did not think that that had anything to do with the question. In comparison with horse-labour, the advantage of it was, that it could be used and made to do an enormous amount of work at the right time, and that, in his opinion, was its chief advantage. But he repeated, that he considered it only a fine-weather implement, and one that ought not to be used at any other time. As to doing without manures in consequence of the adoption of steam-cultivation, that was all moonshine. They could not do without manures, but must have them as well. One of the faults he found with the system was, that he sometimes went deeper than he wished to go. But on the whole he could speak most highly of it, and his only wonder was that it was not more widely adopted.

Mr. MORTON suggested that as the reports were of so valuable a character it was desirable that they should be circulated in a cheaper form than in the Society's journal.

The PRESIDENT stated that it was intended to publish them in a 5s. volume directly, and that if it were found necessary the Council would no doubt be prepared to publish an extract at a still lower price—eightpence or a shilling. As Mr. Browne had described his implement as a fine-weather one, he wished to know whether that remark applied to Fowler's or only to any other steam apparatus.

Mr. BROWNE replied that he could not speak much of any other than Fowler's, because he had never had any other, and no other was used in his neighbourhood, Swindon in Wiltshire. In wet weather it was found that the tackle broke; and, in fact, he was of opinion that the time for bringing it out was when the sun shone on both sides of the hedge and they could do a good long day's work. It had been observed that the ordinary agricultural labourer was not adapted to the work; but he had installed his men into the office, and had had no difficulty whatever in working the apparatus with them. Of course their wages had to be raised, but he met with no difficulty after following the instructions given by Mr. Fowler.

Mr. JAMES WEBB had himself used steam cultivation only for a short time. He had lived in a neighbourhood, however, during the last six years, where it had been extensively carried on, and had had experience of its operations on the lands of Mr. Holland and Mr. Randell. Within a seven miles radius of Evesham he found that there were not less than nine sets of tackle at work, so he was obliged to follow the stream, and he did not know a single case in which steam culture in that neighbourhood had been unsuccessful. Those who used it then were using it now; those who had come into the neighbourhood since had adopted it, and there was not one instance of its being given up. He mentioned this because in the vicinity of Worcester, which was not many miles off, two or three landlords had started implements which were always in the repairer's hands. Success, he believed, greatly depended on the skill of the people who worked the machines. Those in the neighbourhood of Evesham, with the exception of Mr. Holland's and one other, were in the hands of the farmers, and worked by their labourers. At first he had some doubt which he should adopt; the direct-action, or the round-about. His farm was large enough to have employed the direct-action; and he could get on it at all times; one portion was light land, and the other portion a strong clay; but he adopted the cheaper plan, the round-about system, and was perfectly satisfied with the results. In answer to Sir Walter Stirling Mr. Webb added, that his farm consisted of six hundred acres of arable land, that he had purchased his engine from a farmer who was leaving the neighbourhood at a reduced price, but that its original cost, including thrashing apparatus, was £700.

Sir W. STIRLING remarked that he had put this question because the meeting had received valuable information from

gentlemen who were large landowners, and from tenants who had large holdings. But he wished to know whether there was any gentleman present with a small holding, say of three, four, or five hundred acres, who had purchased a steam-engine himself, and could state the benefit he had derived from its use. At that moment they were all, as it were, in conflict with the labourer. Whatever might be the opinion of Dr. Voelcker with respect to the drainage of lands, there could be no further question about the drainage of our labourers, who were constantly being withdrawn from the land for many and various purposes. On that account, therefore, it was that agriculturists turned to machinery with an anxious eye, and therefore he himself was most desirous of learning what course he should take from such information as might be given by practical gentlemen that day. With regard to the remarks of Mr. Mortou, respecting the issue of a cheap edition of the reports, it should be borne in mind that farmers were not much disposed to burn the midnight oil in poring over books or literature. For his own part, he farmed many hundred acres of light land, and he had not yet been induced by anything he had heard to lay out a large sum of money in the purchase of a steam-plough for that land; nor did he find that his neighbours were inclined to do so either. He had, therefore, come to the meeting for information in the simplest and readiest manner, by the testimony of any gentleman of practical experience who would furnish the results in a few words, *multum in parvo*, and which would be much more valuable to the farmer than any report that might be published on the subject, however admirably got up.

The PRESIDENT: Mr. Stephenson, for one, who has given his testimony, occupies a farm of about 390 acres. He is one of the early patrons of steam machinery, and speaks well of it after eleven years' experience on those 390 acres. Then, there is Mr. Robert Helmsley, who also farms a small holding by steam.

Mr. WEBB observed that one of his neighbours purchased an engine last autumn for a farm of less than 400 acres, and had employed it very successfully.

Mr. HELMSLEY said that in introducing the steam-engine on his farm, he had first looked round to see what purposes he could apply it to besides cultivation, and he had turned it to account in grinding, thrashing, and carrying on a variety of other operations. In his opinion a man ought to have at least 300 acres of arable land if he would use the steam-engine, and he certainly should not have done it himself had he not held pretty nearly that amount. The system he adopted was the round-about, which he considered the simplest and best.

The PRESIDENT then moved, and the Earl of POWYS seconded a vote of thanks to the Committee of Inspection, and especially to the gentlemen who had acted as reporters. The motion having been carried by acclamation,

Mr. ALGERNON CLARKE, one of the reporters, briefly acknowledged the compliment. One remark had fallen from the President which he should like to say a few words about. It was, that they could not take up a volume containing the reports, and turning to the last page or two, see a direction of this kind: "If your farm is of such and such a description, you ought to buy Mr. So-and-So's set of tackle." Now, as far as his colleagues and himself were concerned, he begged to say that they were not prepared to assume any such responsibility (Hear, hear). They did not undertake to save people the trouble of thinking for themselves. All they undertook to do was to save people the trouble of going round the country for themselves, and they had endeavoured to collect as much information as they could with the least expenditure of their own time and the Society's money; and he could assure the meeting that his colleagues and himself had worked hard with that object before them. They had very frequently got wet through; and he believed they had only eaten dinner about four times all the time they were out. Nevertheless, he was happy to say they got on very well in spite of that (Hear, hear, and laughter).

The PRESIDENT, noticing the first portion of Mr. Clarke's observations, explained that he did not raise the objection referred to; but having heard it mentioned elsewhere, he felt bound to allude to it that day in order to refute it (Hear, hear). He perfectly agreed in the course which the reporters had adopted (Hear, hear).

On the motion of Lord VERNON, a vote of thanks was passed to the President, whom the noble lord congratulated

upon being the means of completing the report on "Steam-cultivation," and complimented him on the able manner in which he had discharged the office of President.

The meeting then separated.

**MONTHLY COUNCIL:** *Wednesday, June 5, 1867.*—Present—Mr. Thompson, President, in the Chair; the Earl of Shrewsbury, Lord Berners, Lord Vernon, Lord Walsingham, Major-Gen. the Hon. A. N. Hood, Sir J. Johnstone, Bart., M.P., Sir E. C. Kerrison, Bart., Sir T. Western, Bart., M.P., Mr. Amos, Mr. Barthropp, Mr. Bowly, Mr. Cantrell, Mr. D. R. Davies, Mr. Dent, M.P., Mr. Druce, Mr. Brandreth Gibbs, Mr. Hoskyns, Mr. Jonas, Colonel Kingscote, M.P., Mr. Lawrence, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Read, M.P., Mr. Shuttleworth, Mr. Robert Smith, Mr. Torr, Mr. Wells, Professor Wilson, Major Wilson, Mr. Jacob Wilson, Mr. Frere, and Dr. Voelcker.

The following new Members were elected:—

Bevan, Geo. James, Godmanchester, Huntingdon.  
 Bromley, Joseph Roberts, Gesyns, Newmarket.  
 Brown, William, Highgate, Holme on Spalding Moor, York.  
 Brown, Philip M., Fornham All Saints, Bury St. Edmunds.  
 Casswell, John Henry, Laughton, Folkingham.  
 Day, Henry Morgan, Langham, Bury St. Edmunds.  
 Dobell, G. C., North John Street, Liverpool.  
 Exeter, The Most Hon. Marquis of, Burghley House, Stamford.  
 Ford, Francis, Hatter Street, Bury St. Edmunds.  
 Gee, Thomas, Dewhurst Lodge, Wadhurst, Sussex.  
 Gillow, Richard Charles, Leighton Hall, Lancaster.  
 Goldsmith, George, Sapiston, Isworth.  
 Green, Stephen, Haverfordwest.  
 Greening, Edward Owen, Nelson House, Broughton, Manchester.  
 Gedge, Charles Johnson, Bury St. Edmunds.  
 Hales, Frederick C., Denham Hall, Bury St. Edmunds.  
 Hall, George Samuel, The City of Ely.  
 Human, N. Harlock, Isleham, Soham.  
 McKenzie, William, Dawson Street, Dublin.  
 Marsh, John Edward, Alderton, near Woodbridge.  
 Mathew, William, Knottishall, Harling.  
 Middleton, Charles, Holkham, Wells-next-the-Sea.  
 Miller, John, Walsham-le-Willows, Isworth.  
 Moor, Simon, Lidgate, Newmarket.  
 Newson, Henry, Bury St. Edmunds.  
 Oliver, George John, Bury St. Edmunds.  
 Ogilvie, Alexander, Sizewell House, Leiston, Suffolk.  
 Ord, John Thomas, Fordham House, Bury St. Edmunds.  
 Payne, George E., Badwell Ash, Isworth, Suffolk.  
 Pennington, Frederick, Broome Hall, near Dorking.  
 Richardson, Rev. John, St. Mary's Parsonage, Bury St. Edmunds.  
 Roe, Rev. Charles, Sicelesmere, Bury St. Edmunds.  
 Southgate, Walter, Ipswich.  
 Sturt, Henry Gerard, M.P., Critchill, Wimborne.  
 Taylor, Samuel Garrod, Hartest, Bury St. Edmunds.  
 Tozer, Charles James, Bury St. Edmunds.  
 Tracey, Anthony W., Abbey Gate Street, Bury St. Edmunds.  
 Waddington, Harry S., Cavenham Hall, Mildenhall, Suffolk.  
 Wade, Henry Roe, Little Waldingfield, Sudbury, Suffolk.  
 Waters, Benjamin, Motcombe, Eastbourne.  
 Westrop, John, Denston, Newmarket, Suffolk.  
 Whitlocke, John, Great Yeldham Hall, Halstead, Essex.  
 Williams, F. Martin, M.P., Goonvrea, Perranarworthal, Cornwall.  
 Wilson, John, St. Bees, Whitehaven.  
 Wilson, Joseph, Penrith.  
 Wing, Charles, Bury St. Edmunds.  
 Wollaston, Charles, Bury St. Edmunds.

**FINANCES.**—Major-General the Hon. A. N. Hood presented the report of the Committee, from which it appeared that the secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, and Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on May 31 was £1,462 3s. 10d. The Committee recommend that the sum of £1,900, now on deposit, be withdrawn.

This report was adopted.

**JOURNAL.**—Mr. Thompson announced that the Judges report that in Classes IV. and VI. the essays are not considered worthy of the prize; but that in the former the chairman should be empowered to open the motto papers and communicate with two of the authors, with a view to the insertion in the *Journal* of portions of each of their essays; that Mr. Angus have the option of receiving a copy of the *Journal* instead of 25 copies of his paper on statistics.

This report was adopted.

**CHEMICAL.**—Sir John Johnstone, Bart., M.P., stated that the Committee recommended that the following paper, which had been drawn up by the Society's consulting chemist, should be immediately published:

**INSTRUCTIONS FOR SELECTING AND SENDING SAMPLES FOR ANALYSIS.**

**Artificial Manures.**—Take a large handful of the manure from three or four bags, mix the whole on a large sheet of paper, breaking down with the hand any lumps present, and fold up in tin-foil, or in oil silk, about three ounces of the well-mixed sample, and send it to 11, Salisbury-square, Fleet-street, E.C., by sample-post; or place the mixed manure in a small wooden or tin box, which may be tied by string, but must not be sealed, and send it by sample-post. If the manure be very wet and lumpy, a larger boxful, weighing from 12 to 15 ounces, should be sent either by sample-post or railway.

Samples, not exceeding 4 ounces in weight, may be sent by sample-post, by attaching 2 penny postage stamps to the parcel.

Samples, not exceeding 8 ounces, for 4 postage stamps.

Samples, not exceeding 16 ounces, for 8 postage stamps.

Samples, not exceeding 24 ounces, for 1s. in postage stamps.

There must be no writing or printing in the packet or its cover in addition to the address "Dr. Augustus Voelcker, 11, Salisbury-square, Fleet-street, E.C.," and the address of the sender of the parcel, and the number or mark of the article sent.

These particulars must in all cases be given not on loose pieces of papers, but on small labels attached to the samples or packages containing them.

The samples must be sent in covers open at the ends, or in boxes, bags of linen, or other materials, which may be fastened by string, but must not be sealed, so as to be easily examined. No parcel sent by sample post must exceed 1½ lb. in weight, or 2 feet in length, or 1 foot in width or depth.

**Soils.**—Have a wooden box made 6 inches long and wide, and from 9 to 12 inches deep, according to the depth of soil and subsoil of the field. Mark out in the field a space of about 12 inches square; dig round in a slanting direction a trench, so as to leave undisturbed a block of soil with its subsoil 9 to 12 inches deep; trim this block or plan of the field to make it fit into the wooden box, invert the open box over it, press down firmly, then pass a spade under the box, and lift it up, gently turn over the box, nail on the lid, and send it by goods or parcel train to the laboratory. The soil will then be received in the exact position in which it is found in the field.

In the case of very light, sandy, and porous soils, the wooden box may be at once inverted over the soil and forced down by pressure and then dug out.

**Waters.**—Two gallons of water are required for analysis. The water, if possible, should be sent in glass-stoppered Winchester half-gallon bottles, which are readily obtained in any chemist and druggist's shop. If Winchester bottles cannot be procured the water may be sent in perfectly clean new stoneware spirit-jars, surrounded by wickerwork.

For the determination of the degree of hardness before and after boiling, only one quart wine-bottle full of water is required.

**Limestones, Marls, Ironstones, and other Minerals.**—Whole pieces, weighing 3 to 4 ounces, should be sent, enclosed in small linen bags, or wrapped in paper. Postage by sample post 2d., if under 4 ounces.

**Oilcakes.**—Take a sample from the middle of the cake. To this end break a whole cake in two. Then break off a piece from the end where the two halves were joined together, and wrap it in paper, leaving the ends open, and send parcel by sample post. The piece should weigh from 12 to 15 ounces.

Postage 5d. If sent by railway, one quarter or half a cake should be forwarded.

**Feeding Meals.**—About three ounces will be sufficient for analysis. Enclose the meal in a small linen bag; send it by sample post.

On forwarding samples, separate letters should be sent by post to the laboratory, specifying the nature of the information required, and, if possible, the object in view.

**BURY ST. EDMUND'S MEETING.**—Mr. Milward reported that the committee recommended Mr. Woodruff's (55, Southwark Bridge-road) tender be accepted for first and second class refreshments; that Mr. Elphick be engaged as stewards' assistant on the usual terms; that the pay of the assistant veterinary inspector be increased to £3 per diem; that shedding and bundles as per entries be ordered from the contractor; that 50 large placards be placed about the metropolis, 50 about the railway stations, and 500 smaller in the country; that 8,000 stock catalogues and 5,000 implement catalogues be printed; that pupils from the Royal Veterinary College be permitted to attend as before; that Mr. Barthropp be requested to act as steward of the poultry department; that an insurance for £300 be at once effected on the wheat and barley on the premises of Mr. Nunn, the Mayor of Bury St. Edmund's, with whom an arrangement for the supply of forage had been made, including that which would have been required for cattle, and who very liberally consented to allow the Council to take only that which will now be required.

This report was adopted.

**COUNTRY MEETING DISTRICTS.**—The report of this committee was referred back to them for reconsideration.

**JUDGES.**—A committee, consisting of Mr. Amos, Mr. Barthropp, Mr. Bowly, Mr. Clayden, Mr. Davies, Mr. Druce, Mr. Brandreth Gibbs, Mr. Randell, and Mr. Robert Smith, were appointed to recommend judges of stock, implements, poultry, butter, and cheese, whose report would be presented at a Special Council on the 19th inst.

**EDUCATION.**—A committee, consisting of the Earl of Powis, Major-General the Hon. A. N. Hood, Mr. Acland, M.P., Mr. Dent, M.P., Mr. Holland, M.P., Colonel Kingseote, M.P., Mr. Wren Hoskyns, Dr. Voelcker, Mr. Wells, and Professor Wilson, was appointed to prepare a scheme for carrying out the Educational Grant for the current year. On the motion of Lord Walsingham, seconded by Mr. Dent, M.P., a cordial vote of thanks was accorded to Mr. S. Benj. L. Druce, honorary secretary to the late Education Committee, for his zeal in conducting the business, and the care and attention he had bestowed on it.

Reports relating to the acreage of land under crops were received from the Board of Trade, and reports of the Agricultural Exhibitions at Vienna and Aarhus (Denmark), by Professor Wilson.

The thanks of the Council were ordered for the present of a silver medal from the United States Agricultural Society, and it was resolved that a silver medal be returned to the United States Agricultural Society.

## ROYAL AGRICULTURAL SOCIETY OF IRELAND.

The monthly meeting of the council of this society was held in Upper Sackville-st., Dublin. Lord James Butler occupied the chair. The other members present were: Lord De Vesey, Lord Crofton, Sir Percy Nugent, Bart., Sir Allen Walsh, Bart., Sir Robert Paul, Bart., Hon. Bowes Daly, Lieutenant-General Hall, C.B., W. Donnelly, C.B., H. H. Woods, Dawson A. Milward, L. Waldron, J. M. Royse, A. McClintock, J. Kincaid, G. A. Boyd, W. J. Armstrong, P. Riall, and C. C. Vesey.

Captain Thornhill read the following report of the judges appointed to inspect the labourers' cottages entered for competition:

"We beg to forward to you, for the information of the council, our decision on the merits of the cottages referred to us for inspection. For facility of reference we will make our report by provinces, instead of in the order which we inspected them. For the province of Leinster.—The competitors in this province consisted of two, Mrs. Bomford, of Oakley Park, Co. Meath, and Lord Digby, Geashill. Mrs. Bomford's cottages consist of a row of four houses. They are well built, and the materials are of good quality, and care seems to have been taken in the plan to consult the convenience and comfort of the inhabitants; but they have one fatal defect—the situation of the offices. The living room, which is small, has two doors, a back and front door—opposite each other, without any porch, the want of which is supplied by placing the offices (viz., pig-sty, cow-shed, and fowl-house) in a lean-to shed against the back wall of the house, with a passage as shown on the plan. This certainly obviates the objection of having two doors opposite each other, and so causing a thorough draught; but it entails the far more serious objection of the house opening into a cow-house and pig-sty, and liable to the foul odour which must arise from such close proximity to such places. Otherwise the economy of these cottages, and the attention given to the convenience of the inmates, and their general finish, would have made them dangerous competitors. The second lot in the province of Leinster are Lord Digby's, at Geashill. They consist of a row of three, and a single cottage, which has a tiled roof. The plan of these cottages is exactly the same as

the four cottages to which the gold medal and the Duke of Leinster's challenge cup were awarded in 1865: they have the same general good style of finish and attention to detail which we remarked upon in our report of that year. The offices are convenient and well placed; there are no back doors to these houses, which for the centre house might have been convenient; and we think the windows, which are turning on pivots in the middle, would have been better for side slips, to keep them air-tight when shut. These cottages may appear dear, but the roof and the timber used is best red pine, and the difficulty of procuring stone raises the price of the perch of masonry from 5s., the price of the other cottages, to 8s. If allowance is made for this, and the superior timber used, the cost will be fully accounted for. In the province of Connaught there were likewise two competitors, Mr. Meldon, at Atheny, and Lord Clancarty, at Ballinasloe. Mr. Meldon's cottages, which we saw first, are well built as to the outer walls and good roof, but the general finish is rough; the roof is not ceiled, so that the upstairs room must be very cold in winter. The floors are not tongued; and as the lower rooms are not ceiled, when the boards begin to shrink the dust will be liable to fall through, and the draughts will be considerable, making the rooms cold. The yards and offices were good and substantial, but wanting finish. Lord Clancarty exhibited two pairs of cottages—one pair very much superior to the other, but, of course, more expensive; the great difference was in the size, which gave space for a convenient staircase, while in the smaller cottage there was only space for a very sharp ladder. In all other respects of offices, finish, &c., these two pairs of cottages are the same. The roofs are ceiled, with a lining of turf between the ceiling and the rafters, which must add much to the comfort and warmth of the bedrooms; the larger cottages are tiled; the smaller pair have a composition floor. We cannot say how it will wear, as the cottages were not occupied when we inspected them, but it looked well made. In the province of Munster there was only one exhibitor, Lord Middleton, who showed a group of two. They are well built cottages, with convenient yards and offices; the pig-sty and a porch to the back door are under the same roof, against the back wall of the house, but as there is a solid partition

wall between the porch and the sty it is not so objectionable as Mrs. Bomford's. The doors of the two cottages are rather large; the outer door might with advantage have been lower, with a space for light between the top of the door and the top of the door case. The great fault of these cottages is that they are not ceiled, which, from the size of the living room and the large open loft, will make them cold in severe weather. In conclusion, we beg to state that we award Lord Digby the gold medal for Leinster, as against Mrs. Bomford's in consequence of the objectionable position of the offices of her cottages; Lord Clancarty the gold medal for Connaught, for his cottages, as against Mr. Meldon, for the superior finish and attention to the details, which conduce so much to the comfort of the inhabitants; and the second gold medal for his pair of cottages erected for a sum under £60 each, there being no competitor. We likewise award the Munster medal to Lord Middleton for his pair of cottages, there being no competitor, and his cottages being certainly in many ways desirable. And we have much pleasure in awarding the challenge cup to Lord Digby for his four Leinster prize cottages, as we consider them superior in finish and comfort to any of the others. The plans of these cottages having been already lithographed, and there being nothing very striking or worthy of recommendation in the plans of the other cottages, we do not recommend them to be lithographed for insertion in the journal of the society.—(Signed) ROBERT C. WADE, CHARLES C. VESEY, J. M. ROYCE."

Captain Thornhill also read the accompanying report from the judges on the drainage of land:

"On the 23rd inst. and two following days we proceeded to inspect the drainage submitted in competition for the gold medals of the Royal Agricultural Society, 'to be given to the landlord or occupier who shall have drained the largest quantity of land in the best manner' within the fifteen months ended December 31st, 1866, one in each province, and the 'Hall Challenge Cup, to be competed for by the winners of the provincial gold medals.' We regret to find that three proprietors only have come forward to compete, all within the province of Leinster, so that the winner of the medal becomes the owner, for the time being, of the cup. We were fortunate in having fine weather, and first visited the estate of Lord Digby, at Geashill, in the King's County, where we were much pleased to find a very extensive system of improvements in course of being effected. The thorough drainage of 134 statute acres, to which our attention was called, has evidently been laid out with judgment and well executed. Owing to the difficulty of procuring stones, Mr. Trench has adopted in about 80 acres of the land drained what he calls the 'mixed system of tiles and stones,' 4 inches of the latter evenly levelled upon the upper surface, with a  $\frac{1}{2}$ -inch pipe tile laid thereon, tightly packed with about 2 inches of larger stones, and then filled in the ordinary way, and discharging into a sub-main formed in the same manner, but with tiles of larger capacity, suited to the quantity of water to be voided. We looked upon this as a very perfect system, particularly where the fall is bad, and where veins of running sand show themselves, which in time might silt in and choke the stone soling, when the tiles would come into play with good effect. It is, however, an expensive system, the average cost per statute acre, with minor drains  $\frac{1}{2}$  feet deep and 30 feet apart, being £6 12s. (equivalent to £10 15s. 9d. the Irish acre). In the towland of Ballyknockan, consisting of a cold, thin moor of a very poor description, resting upon a retentive subsoil, a remarkable and immediate improvement has been effected in the herbage, the thorough drainage having been followed up by an outlay on top-dressing with Dublin dung of £12 per acre. The drains have all been very carefully laid out by the intelligent overseer, Mr. Milly, who accompanied us, a fair fall being obtained in every instance, with a good drip from the minor to the sub-main, and the latter, at its point of discharge, faced with a good, strong rubble wall set in mortar, and having a grating to prevent the entrance of vermin, neatly hung on pivot hinges, so as to open by lifting, to remove any silt. The remainder of the thorough drainage on the estate has been effected with stones only, at an average cost of £4 per statute acre. The sub-mains, as well as the minor drains, have been filled with broken stones; we should, however, have preferred a duct being formed in the former with stone. In every instance where found requisite, neatly paved watering-

places have been formed by terminating the sub-main within about a perch of the open main, and excavating a basin-shaped hollow in the intervening space; a dwarf wall, with a passage under being formed at the verge of the open main, to prevent the passage of cattle into it. We were greatly pleased to see a large extent of reclamation carried on generally through the estate for many years, and with most gratifying results in the improved appearance of the district. We examined very carefully the drainage plough of Mr. Trench's invention referred to in the specifications sent in by him, to which we would beg to call the particular attention of the society, and with the working of which we were much pleased. By a simple contrivance the angle of the handles and range of beaver can be so altered that a man can manage and a pair of horses work the plough, as we saw, at a depth of two feet, and as we were assured with equal facility to a depth of 3 feet 6 inches. Mr. Trench estimates a saving in the use of this implement of about 20 per cent. in manual labour. In the very ample report, specifications and details of expenditure on thorough drainage furnished were given, also the particulars of about 7 miles of open main drain opened during the year 1866, for the unwatering of some extensive valleys. As main drainage alone did not come within the scope of our instructions, we merely inspected portions in passing, and must say that better executed work need not be desired, and we feel satisfied that the result will be as valuable as the proprietor can wish. On the following day, Friday, 24th May, we proceeded to the estate of R. G. Cosby, Esq., situated near Timahoe, in the Queen's County, and found a large extent of land—139 statute acres—thoroughly drained, and altogether completed in a most satisfactory manner. The land is admirably adapted for thorough drainage in every way, quarries of yellow sandstone being in the vicinity of every field. Broken stones have been used to a depth of from 12 to 14 inches in the minor drains. The sub-mains are formed with a box drain or conduit, 6 inches wide and 8 high, flagged in the bottom, the mouths secured, as on Lord Digby's estate, and with a good fall in every instance. The extra depth of stones in the minor drains we look upon as important, as aiding the aëration of the soil. The materials have been most carefully laid into the drains, and as they are all that can be desired, good and most permanent work has been done, at an average cost per statute acre of £4 14s. We have seldom seen so favourable a field for thorough drainage, or one that will make a better return on the outlay. In our opinion, the work here executed is as nearly perfect in every way as it is possible for it to be. We were much pleased to find that the energetic proprietor has for several years carried out a system of land improvement on a similarly extended scale, and with most favourable results. The under steward who accompanied us was a most intelligent man, well up to his work, and evidently taking a deep interest in it. On the third day, Saturday, the 25th May, we proceeded to Golden Grove, the residence of W. H. P. Vaughan, Esq., and regret that we cannot speak so highly of the works executed here. It was pleasing to see an anxiety to do good, but we think the money might have been much more judiciously expended. Minor drains were run too obliquely along the face of the fall, tiles were used brought from a long distance, where excellent stone was to be had out of neighbouring gravel pits, if properly screened. Head drains, where run, were in the gripes of the fences, where roots will probably grow into and choke the tiles; deep bog 6, 8, and 10 feet deep, was attempted to be drained with stones in some instances, with tiles in others, without soling of any kind or collars for the tiles. Some ingenuity has been shown in bringing the water in the sub-main near the mansion house under a stream by means of metal pipes, and the sub-main mouths have in every instance been well faced, and the open protected from the entry of vermin. The maps, &c., furnished us were of the most meagre kind, and gave scarcely any information; we could not take upon us, from the knowledge acquired, to state how much per acre the expense of the work has been, nor can we say that the object desired, viz., the drainage of the land, has been effected. On the whole, viewing the character of the work and its results, and taking into consideration the importance attached to the medals given by the Royal Agricultural Society, and that the stamp of our approval should be given to the class of work most likely to be beneficial and generally adopted in the country, we beg to recommend that the gold medal of the Royal

Agricultural Society be awarded to R. G. Cosby, Esq., he 'having drained the largest quantity of land,' submitted to our inspection by any proprietor, and 'in the best manner,' whether viewed as a question of work executed or in its economic results.—(Signed) WM. FETHERSTONHAUGH, H. J. MACFARLANE, C. UNACKE TOWNSEND."

The following gentlemen were elected members of the society: Major Stephen Henry Smyth, Annesbrook, Duleek; Henry Shepard, Oaklands, Wicklow; Captain John Woulfe Flanagan, D.L., Drumdoe, Boyle; C. French, Clooniquin, Tulsk; Theobald A. Dillon, Mount Dillon, Strokestown; William Calvert, Monkstown, Co. Dublin; George Walpole, Castleode, Strokestown; Richard Flynn, Tulsk; J. Power, Raheen, Elphin; Wm. P. Worrall, Prospect House, Waterford; Captain Browne, Scots Greys; Right Hon. Judge Morris, and Michael Ryan, Thurles.

THE HALF-YEARLY MEETING

was held on the same day, Lord Crofton in the chair.

Captain Thornhill read the half-yearly report:

My Lords and gentlemen,—Your council, in presenting the usual half-yearly report to the general meeting, have much pleasure in stating that an average number of members has been added to the society since December last. It having been arranged that the annual cattle show of your society be held this year for the province of Leinster in Dublin, a sub-committee of your council proceeded to examine and report upon the various sites within and around the city suitable for such purpose; and the premises of the Royal Dublin Society, which had been kindly offered by that body for the purposes of the show, not being considered sufficiently spacious, a deputation waited upon the commissioners of Saint Stephen's-green, and represented the peculiar advantages likely to be derived by having the exhibition held within that enclosure. The commissioners, after due deliberation, have, under certain reasonable conditions, in the most handsome manner complied with such request. In pursuance of the recommendation made at the general meeting in November, 1866, that the council should consider the propriety of offering increased premiums for the growth of green crops in the season of 1867, all proper attention was given to the subject, and it has been ultimately decided that it would be more desirable to apply whatever funds might be available to the general purposes of the exhibition for the present year. By this arrangement your council have been enabled to place £1,000 at the disposal of the premium sheet committee, they offering such inducements to exhibitors as will guarantee a full representation of the various classes of animals usually exhibited at the society's shows. It has also been definitely settled that a steam plough and grubber shall be brought from England, the operations of which cannot fail to create much interest. The use of a large field for the trial of these implements has been liberally offered by Mr. Ion Traut Hamilton. The local farming societies in connexion with the Royal Agricultural Society continue to offer suitable prizes to tenant farmers in their respective localities for improvement in tillage and the introduction of superior stock. It is to be regretted that a larger competition has not been called forth by the Leinster challenge cup and provincial gold medals, as also for the premiums offered for newly-erected and improved labourers' cottages. In drainage also, the competition for the Hall challenge cup and medals is limited, there being only three competitors for works executed.

Annexed is the balance-sheet as audited by Messrs. O'Connor

and Molloy, who, as heretofore, have given their gratuitous services.

ANNUAL STATEMENT OF RECEIPTS AND EXPENDITURE OF THE ROYAL AGRICULTURAL SOCIETY OF IRELAND FOR YEAR 1866.

<i>Receipts.</i>		£	s.	d.
Dr.				
Balance to Credit from last Account	... ..	241	10	3
Subscriptions received from 895 Members up to 1st May, 1867	... ..	1316	2	0
Interest on Cash in Funds, viz.—£5,585 5s. 9d., at 3 per Cent.	... ..	164	15	4
Interest on Deposit Receipts	... ..	31	17	10
Rent from Royal Agricultural Society's Club	... ..	£60	0	0
Less Rate and Allowances	... ..	18	8	4
		41	11	8
				£1795 17 1

<i>Expenditure.</i>		£	s.	d.
Cr.				
Money Premiums awarded per Local Societies	... ..	170	10	0
Medals for same	... ..	188	18	0
Secretary's Salary for one year	... ..	250	0	0
Chemist's " " "	... ..	100	0	0
Accountant's " " "	... ..	80	0	0
Mr. Callanan's Gratuity	... ..	29	18	0
Hall Porter's Wages	... ..	26	0	0
Advertising	... ..	9	13	6
Stationery	... ..	5	19	10
Postages	... ..	29	10	11
Rent, £141; less Rates and Taxes, £8 15s. 4d.	... ..	132	4	8
Insurance of Premises	... ..	4	0	0
Printing	... ..	63	9	0
Incidental expenses	... ..	7	8	11
		1097	12	10

Expenses Judges of Labourers' Dwellings	... ..	£9	18	4
Inserting Subscribers in Directory	... ..	12	12	0
Expenses Deputation to Lord Lieutenant	... ..	2	16	0
Subscription to Horse Show in 1866	... ..	100	0	0
Arrears of Premiums from Clonmel Sheet	... ..	15	0	0
		140	6	4
Balance to Credit	... ..	557	17	11
				£1795 17 1

Examined, and found correct.

J. KINCAID,  
PHINEAS RIALL,  
CHAS. C. VESEY,

Members of Finance Committee.

23rd May, 1867.

We have carefully examined the above accounts, and compared the vouchers with the items, and found them to be perfectly correct.

ROBERT MOLLOY,  
VAL. O'B. O'CONNOR,

Auditors.

28th May, 1867.

The Report was adopted, and a vote of thanks was given to the auditors.

TALK ON AGRICULTURAL PRINCIPLES.

THE WHEAT CROP.

Wheat, furnishing as it does, the most important article of human food—that which has been expressively called "the staff of life"—deservedly takes the first place among the crops grown on the farm. It is an annual herbaceous plant of many varieties, the diversities being probably the result of difference of climate, soil, and culture. All the kinds cultivated on this continent belong to the same species, of which there are two

leading varieties—winter and spring wheat. The root of this plant is well adapted to withstand severe cold, and hence it successfully braves the winters of a high latitude, thriving several degrees farther northward than any point in Canada. The grain is composed chiefly of starch, the percentage of which varies from 50 to 70 per cent. It also contains a large proportion of gluten, the percentage of which varies from 10 to 20, in addition to which it contains from 3 to 5 per cent.



of fatty matters. It is a noteworthy fact that the percentage of gluten in wheat varies according to the quality of the soil in which it is grown. A crop grown on fertile land not only yields more bushels of grain, but will give more and better flour than that produced on poorer soil. Wheat does best on strong, tenacious land, abundantly stored with both mineral and organic plant food, in a well-elaborated state. It will neither thrive in poor soil, nor in soil whose resources of fertility are in a crude state. Most of the constituents of the grain can only be obtained from the richer kinds of manure, and there is perhaps no crop raised on the farm which is more exhaustive than this. The straw of wheat is composed largely of silica. It also contains lime, gypsum, magnesia, and common salt. Chemistry has shown that the ash of wheat contains a proportion of bone earth or phosphate of lime. About 70lbs. of this substance are taken by a crop of wheat from an acre of ground. This is a substance which is never found in any large proportion even in fertile soils. It abounds most in new lands, in consequence of the ashes of the wood that has been recently cleared and burnt out of the way. Wheat requires not only a rich but a deep soil. It flourishes best in land that has been deepened by subsoiling and underdraining, as well as enriched by liberal supplies of manure. Manures containing nitrogen, phosphates, and alkalis are best suited for soil in which it is intended to grow this crop. Guano, liquid manure, animal refuse, wood ashes, and crushed bones are sources whence such supplies may be obtained. The composition of the plant, and its habit of growth, show what place it should hold in a rotation of crops on the farm. From the fact that it requires to have its material of nutriment in a thoroughly elaborated state, it is plain that the soil should be as mellow and well-fined as possible. This suggests the culture of roots as an excellent preparation for wheat, as nothing so completely mellows land as a well-cultivated crop of roots. Wheat very readily permits grass and weeds to grow beneath its shelter. This is another reason why it is best a root crop should precede it, since in this way the land is effectually cleansed. Its true place, therefore, evidently is after a root crop, and before grass, which last is sown to excellent advantage along with wheat.

It is foreign to the object of this "talk" to refer to the harvesting and after-treatment of wheat and its straw. Only a few hints as to the principles that bear on its successful culture can now be given. Wheat, although our most important grain, has come to be looked upon as a rather uncertain crop, especially in the older sections of the country. This arises chiefly from the diseases and insect-enemies to which it is liable. The principal diseases are rust, mildew, smut, ergot, and canker or blight. The chief insects that prey upon wheat are the midge, the Hessian fly, the army-worm, and the joint-worm. It is worthy of especial attention that good farming is a safeguard against most of the diseases that affect this crop. Scrupulous care to sow only healthy seed is a most effectual means of securing a healthy increase. Like begets like, and disease is propagated in the plant-world much as it is transmitted from father to son in the world of human beings. Early sowing is another excellent precaution. Drainage is most important. Wheat-growing on low, undrained lands, with a peaty or calcareous soil, is very liable to be attacked by mildew. Keeping this grain in its proper order of succession to other crops is another means of preventing disease. Thorough working of the soil, and keeping it supplied with the right nutritive elements in due proportion, is also of importance. The insect-enemies of the wheat crop are not so easily kept under. Though good farming is to some extent a protection against them, yet they frequently defy the utmost skill, industry, and vigilance. Thorough tillage, careful preparation of the soil, deep fall ploughing, burning stubbles, a judicious rotation of crops, rolling the young wheat, &c., have proved themselves excellent precautions. By thrashing wheat infected with insects on a tight barn-floor, and burning up the chaff and dust, a large proportion of the eggs and larvae, destined for future increase, may be destroyed. A species of wheat called "midge-proof," is pretty extensively sown now; and entomologists hold out the hope that before long the midge will be held in check by other insects preying upon it, as has been the case with the Hessian fly and other pests of the farm.

**BARLEY.**

Of all the cultivated grains, there is perhaps none which

comes to perfection in such a variety of climates as barley. It is found in most parts of the habitable globe, and maintains itself in spite alike of tropical heat and drought and the cold of regions bordering on the frigid zone. Linnæus found it growing in Lulea Lapland, in latitude 67 degs. 20 min. In genial climates, such as Egypt, Barbary, and the south of Spain, two crops of barley may be reaped the same year, one in spring from seed sown the previous autumn, and one in autumn from a spring sowing. This explains a passage in the Bible (Exod. ix. 31) where the effect of the hail which desolated Egypt in consequence of Pharaoh's refusal to let the children of Israel depart is thus described: "The flax and the barley were smitten, for the barley was in the ear, and the flax was balled; but the wheat and the rye were not smitten, for they were not come up." It is agreed among commentators that the event thus narrated took place in the month of March; the first crop of barley was therefore nearly ripe, and the flax ready to pull; but the wheat and rye sown in spring were not yet sufficiently advanced in growth to be hurt by the hail.

Barley grows best on a light fertile soil, well cultivated and free from weeds, which are more injurious to it than any other grain. It should therefore follow a hoed crop if possible. Root crops require a well pulverized soil, and so does barley. In England it is almost always sown after turnips which have been either fed off by sheep or drawn to winter quarters for cattle food. This grain does well on heavy soils, provided they are worked and stirred until a proper tilth is secured; but this of course increases labour just at the busiest season of the year. But it should always be borne in mind that it is very poor policy to sow barley on land not properly pulverized. Barley grows and ripens with astonishing rapidity, nevertheless it should be got in as early as the state of the ground will admit, and should be harvested before it is quite ripe, as it quickly injures if allowed to stand too long. When harvested early the grain is of superior quality, and less liable to shell out and be wasted.

The grain of barley very much resembles that of wheat in its composition, but it contains less gluten and more starch and sugar, as the result of which it is less nutritious, though equally wholesome. It takes from the soil a larger percentage of mineral substances, such as potash, lime, silica, magnesia, phosphoric acid, &c., than wheat or rye, and such manures as contain these substances should be liberally supplied to the soil that is repeatedly cropped with barley. M. de Saussure carefully analyzed the ashes produced by burning barley and its straw, with the following results:

The grain reduced to ashes *with its skin* gave out of 100 parts 18 of ashes, which contained:

Potass .....	18
Phosphate of potass .....	9.2
Sulphate of potass .....	1.5
Muriate of potass .....	0.25
Earthy phosphates .....	32.5
Earthy carbonates .....	0
Silica .....	35.5
Metallic oxides .....	0.25
Loss.....	2.8
	<hr/>
	100.00

1,000 parts of the straw produced 42 of ashes containing:

Potass .....	16
Sulphate of potass .....	3.5
Muriate of potass .....	0.5
Earthy phosphates .....	7.75
Earthy carbonates .....	12.5
Silica .....	57
Metallic oxides.....	0.5
Loss.....	2.25
	<hr/>
	100.00

The barley analyzed grew in a chalky soil. In one of a different character the products would vary somewhat, but the proportion of silica in the skin and straw as shown by the above tables is remarkable.

Barley is quite as exhaustive a crop as wheat, if not, indeed, more so, and it is therefore a mistake to suppose that soil need not be in as good a condition for it as for wheat. Barley will do well in a shallower soil than wheat, because it sends its

roots very much along the surface, and not to a great depth. It is an excellent crop for growing with grass seeds.

This grain is chiefly raised for manufacturing into pot-barley and alcoholic beverages. The demand for it in this country is chiefly for the last named purpose. Its use for brewing and distilling dates back to a remote period, and is said to have originated with the monks. Barley is much used in European countries as food for horses, but for some reason or other is not consumed thus to any great extent on the American continent. It is a less heating feed than the oat,

but more nutritious. According to the careful experiments of Thær, the comparative value of wheat, barley, and oats, for feeding stock, may be represented at by 47, 32, and 24, taking the same quantity of each. The quality of soil on which these grains are sown would, however, modify their intrinsic and comparative value. The culture of this grain for bread purposes is largely carried on in some countries, and might be more widely extended on this continent with advantage. It makes almost wholesome and digestible quality of flour, and is therefore well adapted for human food.—*Canada Farmer.*

## ON THE WHEAT-EXPORTING POWER OF THE UNITED STATES.

BY AN OLD NORFOLK FARMER.

In treating on this subject it is necessary to make a distinction between the Old, or Eastern, and the New, or Western, States. The former consist of New England, including New Hampshire, Maine, Massachusetts, Vermont, Connecticut, and Rhodes Island; the states of New York, New Jersey, Kentucky, Virginia, Pennsylvania, Tennessee, and those South of Columbia. The latter, or Western States, comprise Ohio, Indiana, Illinois, Michigan, Missouri, Wisconsin, with several newer States, districts, and territories, which at present possess no populations to raise produce for export trade.

With respect to the Old States, which formerly raised a supply—never very large—of wheat for exportation, they have long ceased to do so, and are, to a very large extent, dependent upon the Western States. The New England States do not raise more than enough for two months' consumption in the year for its own population, and receive the supplies of flour for the rest of the season from the West. The State of New York raises about half what her population requires; and the city of New York would be starved if it had no other resources than its own State. The same falling off in the production of wheat as well as other produce, both animal and vegetable, with the exception of Indian corn, has taken place in Virginia, Kentucky, Pennsylvania, Tennessee, &c., and even in the newer States of Ohio, Missouri, Indiana, Illinois, &c., which now do not produce more than two-thirds of what they did a few years since. The cause of the progressive decadence of nearly all the lands brought under cultivation is obvious enough, and is fully acknowledged by all the American writers on the subject. It arises from the systematic scourging of the soil, by continuing to grow wheat or Indian corn so long as it will yield enough to afford a margin of profit. To such an extent is this practised in the New England States, that a large proportion of the land which formerly yielded good crops of grain of all kinds is now cultivated for cereals. The practice with young farmers is to run out the land left them by their fathers, and then sell it as they best can, and go to the Western States, where the finest land can be bought at a dollar an acre, requiring no clearing, as there is no timber; and so free is the soil from stones or roots, that the plough may be driven miles through it without meeting with an obstruction. So easy, in fact, is the cultivation of the prairie land, that one man and a couple of boys can manage from 160 to 200 acres. Russell mentions one or two instances in which 125 acres of Indian corn and 50 acres of wheat were raised and harvested by one man and two boys, besides saving 80 acres of hay in the meadows. He also speaks of the President's farm of 160 acres, managed by two young men. As an instance of the restlessness of the young American farmers, he mentions a gentleman who inherited a farm from his father, of 5,000 acres, half of which only was broken up. It is situated in a beautiful part of the country in Ohio; and one would have supposed it enough to satisfy any

man of moderate wishes. But no! he went westward, and purchased a farm (!) in Illinois, 54 square miles, or 34,560 acres in extent; then sold out his patrimonial estate, a beautiful property, and settled down as a prairie farmer, where there was not a tree or shrub to be seen, or a human being besides those employed on the land. We suspect this was the man mentioned by Trollope, as having 10,000 acres of Indian corn growing in one field or *lot*, when the latter was in Illinois in 1861. He paid only one dollar per acre for the tract, and it is probable that the old property sold for much more than he gave for the new one. The whole soil of this region consists, to any depth, of a rich vegetable mould, through which the plough share cuts with perfect ease, to the depth of eight or ten inches. It is generally sown with Indian corn for some years, until it has attained sufficient solidity to bear a crop of wheat, which yields from 20 to 30 bushels per acre.

What we have stated respecting the deterioration of the soil of the Older States is confirmed by Jay, Morrill, and all the American writers on the subject. Wells, in "The Year Book of American Agriculture for 1857," complains of the "alarming deterioration of the soil" of the New England and other States on the Atlantic seaboard; and what is more remarkable, it extends to Ohio, Wisconsin, and Indiana. And Mr. Morrill, M.C. for Vermont, in introducing a Bill into Congress, affirms that agriculture is rapidly declining in every State of the Union; that the quantity of food produced bears no proportion to the number of acres under cultivation, and that over a very wide area some of the most useful crops bid fair to become extinct. This passage is quoted by Jay, in his statistical view of American Agriculture; who, while he questions the correctness as to the extent of the falling off of the produce, admits that "as productiveness of crop and distinctiveness of soil are said to be the two most prominent features of American agriculture, the large harvest in our young States ought not to blind us to the fact that the fertility of those parts of the older States which once yielded us abundantly seems to have been steadily diminishing for a long course of years." This fact is exhibited, "not only in the wheat lands of New England and other parts of the North, but on the tobacco fields of Virginia and the cotton plantations of the South; and the subject deserves the most careful investigation." (Jay's Address, p. 54).

"In Indiana," says a writer in "The Year Book of American Agriculture," "the river bottoms, which used to produce 60 bushels of Indian corn per acre, now do not produce more than 40; and in Wisconsin, not more than half the quantity of wheat per acre is raised that was raised twelve years ago" (p. 216).

It will be said that there is no fear that the agricultural resources of America should fail while there is so much fertile land still available for cultivation, which neither in its original purchase, nor in the labour required to bring it under cultivation, involves anything like the expense

attending the clearing and cultivation of lauds in the Atlantic States. This is true enough; and it is this fact that is drawing off the population—agricultural, at least—from those States to the Prairies of the West. In order to give an idea of the extent of the different divisions of the territory of the United States, we present the following particulars to the reader:

The total area of the United States contains 2,916,166 square miles, or 1,891,946,240 acres. One-thirteenth of this is "improved" or brought under cultivation—say, 145,534,526 acres, whilst one-eighth of the remainder is "occupied," but not improved, amounting to 218,301,489 acres, making a total of appropriated lands of 363,836,015 acres, and leaving a balance of unappropriated land to the extent of 1,528,110,225 acres. The agricultural population, when this account was published, amounted to 2,400,000 males, or one to every 157 acres occupied, or one to 60 acres of "improved" land. The appropriated land is divided into 1,449,075 farms, averaging about 250 acres, or 100 acres of improved, and 150 acres of unimproved land. If we allow the same proportion of land to the future purchasers of the unappropriated portion, it will provide for 6,112,440 farms, supposing it all capable of cultivation; but it is evident that the choice of a tract of land will be determined by, first, its quality, and second, its nearness to a profitable market, both which qualifications are necessary to successful cultivation. The following is the regional division of the country:

	Sq. Miles.	Acres.
The Pacific Slope .....	786,002	or 503,041,280
The Atlantic do.....	514,416	329,226,240
The North-west Region ..	112,649	72,095,360
The Gulf do.....	325,537	208,343,680
The Mississippi Valley ...	1,217,512	779,226,880
Totals.....	2,956,146	1,891,933,440

The first of these is at present very partially occupied, and is too far from the eastern seaboard to be available for the exportation of grain to Europe, even when peopled and cultivated, except on rare occasions. The second comprises all the old States, the soil of which is, to a large extent, so far impoverished as to produce no wheat for exportation, as we have already shown, and is therefore only the channel by which the supplies for Europe are forwarded to their destination. The fourth, or Gulf Region, grows little or no wheat, and is supplied with flour from the North-west. The fifth, or Mississippi Valley, possesses a very rich and fertile soil, and, from its extent, if cleared, would furnish support for a hundred million of population. A very small portion of it, however, is brought under cultivation; the third, or North-west Region, being that to which a very large proportion of the immigrants from the Eastern States direct their attention, and from which the bulk of the supplies to the Eastern States and Europe are obtained. This region, as is shown above, contains 72,095,360 acres of land of the first quality, requiring no clearing of timber, and so easily cultivated that the labour is mere pastime to those employed. It is difficult to ascertain how much of this region is at present "improved" or cultivated; but it is rapidly being peopled, and every year is increasing its exporting power. It is, in fact, to this region that both the old States, North and South, as well as the nations of Western Europe, will look in future for a large portion of their supplies of wheat or wheaten flour. We shall therefore now direct the attention of the reader to the circumstances that are likely to govern the exportation of bread corn from this region to Europe.

With regard to the power of production, the accounts given by Trollope and other persons of this region are astonishing to an English reader, however well acquainted with farming in the "old country," where crops are

obtained with so much labour, expense, and difficulty. To purchase land at a dollar (4s. 2d.) per acre, on which the plough may at once be driven into a soil that it "cuts like butter," and which, if sown with Indian corn, will yield, the first year, from 40 to 60 bushels per acre, is something so marvellous that it is almost beyond belief. Yet such is the case; and thousands of acres of such land are annually brought under cultivation in this region, adding increased stores to the supplies of bread-corn and other agricultural produce. The States from which these supplies are obtained are Ohio, Indiana, Missouri, Illinois, Iowa, Wisconsin, and Michigan; and the principal port for the reception of the produce is Chicago, which is situated on a tongue of land between Lake Michigan and the river of the same name. Of this city we shall have to speak hereafter.

At the commencement of the present century this region was imperfectly known even to Americans, much less to Europeans. Even so late as the year 1825, Indiana and Illinois were not peopled sufficiently to entitle them to claim one inhabitant to the square mile (see the *London General Gazetteer*, article "United States"). The first settlers of importance who went to those States were two English gentlemen, Messrs. Flower and Birkbeck, both men of family and fortune, but who, having embraced the idea that the war with Napoleon would result in a revolution ruinous to England, removed their families and fortunes to America about the year 1805, purchased a large tract of land in Illinois or Indiana, and settled down upon it as cultivators. It was a great mistake from beginning to end. Neither the men nor their families (most of them elegant and highly educated young women) were qualified to undergo the rough hardships and rougher society they were compelled to encounter. Fifty miles from the nearest village, with only the lumberers or first rough pioneers to associate with, their visions of growing comfort and advancing prosperity soon vanished. The contrast between the high civilization they had abandoned and the utter barbarism of their new position was such as to produce the most bitter regret, especially amongst the females of the families; and, to add to the discomfiture of the principals, the sturdy settlers, who flocked around them, robbed them continually; and, without being able to obtain redress, they were compelled to submit to the grossest impositions practised by those they employed. One of them (Mr. Flower, we believe) lost his life in crossing a river—whether by accident or treachery we do not recollect; but the last we heard of the party was, that one of the young ladies, who had been accustomed in England to all the refinements of life, had married a common bricklayer, being in a state of utter destitution.

The States of Indiana and Illinois are now the most productive in the Union, and are fast being filled with an industrious and persevering population. Indeed, this is the case with all the North-western States, the tide of immigration having for many years set in in that direction; and, as we have seen, there is still room for millions more. The following was the state of the population of the "Lake States," as they are properly called, on account of their disposing of their agricultural produce by way of the Lakes. The account gives also the extent of the "improved" land, in acres, in each State.

	Population.	Improved land.
Ohio .....	2,339,511	12,665,587 acres.
Michigan ...	749,113	3,119,861 "
Indiana .....	1,350,428	8,161,717 "
Illinois .....	1,711,951	18,251,478 "
Missouri.....	1,182,912	6,246,871 "
Iowa .....	674,918	3,780,258 "
Wisconsin ...	775,881	3,746,036 "
Minnesota ...	172,123	554,897 "
Kansas .....	107,206	372,855 "
Total ...	9,063,143	57,190,560 acres.

Although large quantities of wheat and oats are grown in these States, the staple produce is Indian corn, for which the virgin soil is peculiarly adapted. This in fact is the case with all the middle States, where it is the favourite plant, as may be judged by the largeness of the quantity raised in the entire Union, which this year is estimated at one thousand million bushels (1,000,000,000), or 125,000,000 qrs. It is not only the staple article of produce, but is also the staple cereal food—the staff of life—of both man and beast. The abundance of the acreage produce in the north-west is such that at times the price is reduced so low that it does not pay to shell it, and it is frequently burned in the cob as the cheapest fuel they can use. Trollope states that this grain ("corn," as it is termed in the country, in distinction from other cereals) is mostly given to cattle and pigs, which is more profitable than to send them to market direct. One bushel of corn will lay on ten pounds of pork, which sells at 4 cents, or 2d. per lb., which will give 1s. 8d. per bushel. Now, supposing the grower lives 125 miles from Chicago (the shipping port), which is not unusual, it will require a man and two horses to take a load of 40 bushels, or one ton, the expense of which would be 9s. per day; and as the journey on the prairie roads would occupy nine days, the value of the corn would be more than swallowed up in the cartage. It is sometimes sold as low as 4½d. per bushel on the farm.

The natural richness of the soil in these western States has given rise to speculation in land, which has had already a very injurious effect. The passion for large tracts of land is universal, according to a writer in the *American Agriculturist*, who, in looking out for a farm throughout the "States," found on the average that on the real estates, as well in the free as in the *then* slave states, there were at least five acres of waste to one acre of cultivated or *improved* land. This passion he found pervading all classes, from the wealthy merchant or tradesman in the city or town to the plain farmer with his three hundred acres, and his two men to assist him in cultivation. "Multitudes," says this writer, "in the city, who hardly get time to step into the country at all, own large estates there; and capitalists, who never expect to work an acre of land, own whole townships..... 'Only so much land as we can till and make better' is the motto for every farmer. All beyond that is a nuisance that calls for abatement."

The justness of this writer's remarks is everywhere illustrated by examples. Land, in fact, is so cheap and good, and the terms of payment to the government so easy, that the purchasers secure five or six times the quantity they can or even intend to properly cultivate. They therefore run out what they do cultivate by continued cropping, and when it is reduced to barrenness or unprofitableness they abandon it, and break up a fresh tract. To keep up its fertility, or to restore it by compensating manures, is never thought of; and thus the fine virgin soils in the western and north-western states are, like those on the eastern sea-board, growing less and less produce every year. "A few years ago," says Mr. Morrill, "it was not difficult to raise 100 bushels of wheat from three acres of land—now it can scarcely be done in the older settled localities from six acres." As an example we may quote the returns for the State of Ohio, the oldest of the western territories. It appears from these, that between the years 1850 and 1858 there were added to the cultivated land 87,821 acres, whilst the produce of wheat was *less* in the latter year by 1,454,412 bushels; the average product being 11.35 bushels per acre, against 18.78 bushels in 1850—being a falling off of nearly 7½ bushels per acre in the eight years, or nearly one bushel per acre per annum. Thus the striking fact is deduced that, whatever increase of pro-

duction the United States may exhibit in their annual returns is due entirely to the new or western states, and the land in those newly brought under cultivation. All the New England and other eastern states are annually becoming more and more dependent upon the west for their supplies of bread-corn, as well as other produce. Some of the American economists do not hesitate to declare that, unless the system of culture is altered, the States will in a few years be compelled to import wheat from Europe, instead of exporting it thither. "Should no effort," says Mr. Morrill, "be made to arrest the deterioration and spoliation of the soil of America, while all Europe is wisely striving to teach her agriculturists the best means of hoarding up capital in the lands on that side of the Atlantic, it is easy to see that we are doomed to be dwarfed in national importance; and not many years can pass away before our ships will be laden with grain—not on their *outward*, but *homeward*, voyage. Then, with cheap bread no longer peculiar to America, our free institutions may be thought too dear by those of whom even empires are not worthy—the men with hearts, hands, and brains—vainly looking to our shores for life, liberty, and the pursuit of happiness."

Such are, to a greater or less extent, the opinions of the most far-seeing and intelligent of American social economists. We have thought this digressive repetition of the important subject essential to a full understanding of what we have further to explain of the difficulties under which American agriculture finds itself increasingly involved. We shall now recur to the commercial system by which the boundless natural wealth and productions of the Western and North-western States are conveyed to their destined markets.

We have already stated that the principal shipping ports for the produce of the West is Chicago, situated on Lake Michigan, which gives it the command of Lake Erie, on which the port of Buffalo stands, at the head of the Erie Canal. The rise of Chicago is one of the most remarkable instances of the indomitable industry and talent for business of the American people. The following statement of the progress of its population will perhaps afford as ready an idea of that progress as could be adduced:

## POPULATION OF CHICAGO.

1830 official	70	1850 official	29,962
1840 ditto	4,852	1852 ditto	38,738
1843 ditto	7,580	1853 ditto	60,625
1844 ditto	10,864	1860 ditto	110,973
1845 ditto	12,088	1862 ditto	138,835
1846 ditto	14,169	1863 estimated	160,000
1847 ditto	16,859	1864 State Census	178,900
1848 ditto	20,023	1865 estimated	200,000
1849 ditto	23,047		

The commercial affairs of this young city are under the management of a Board of Trade, consisting of fourteen hundred of the leading merchants, bankers, tradesmen, &c., under whom are seven inspectors of the different kinds of produce, as grain, provisions, fish, flour, high wines, cooperage, and a weigh master. By these different officials all goods of whatever kind are examined, and their precise character registered; a small tax of a few cents being paid by the owner upon entering the city. Thus, a waggon load of grain, provisions, &c., being weighed in bulk, on a suitable machine, paid 10 cents or 5d., or if weighed in bags of 100lbs. each, 3 cents or 1½d., and so on. Hogs and oxen must be cut into a certain number of pieces and packed in a certain manner, in casks made of oak staves. Grain of all kinds is brought to and despatched from Chicago in bulk. The storage room for this consists of seventeen warehouses which together will hold 10,055,000 bushels; but a considerable proportion is shipped directly from the cars or

vessels in which it is brought, by means of *elevators*, which we shall presently describe. The quantity of grain of different kinds shipped in the season 1865-6 was as follows :

Flour, barrels ...	1,523,576	Oats, bushels...	10,598,061
Wheat, bushels..	8,098,968	Rye, do. ....	1,022,200
Maize, do. ....	25,228,526	Barley, do. ...	645,089

In all it amounts to upwards of 50,000,000 bushels of grain, which is, however, considerably below what it has been in some previous years. The agricultural produce is brought partly by rail, and partly in barges, by the river, and the Illinois and Michigan Canal. There are eleven principal lines of railway, having their termini at Chicago. A large quantity of produce and goods are also received by way of the Lakes, less however of the first than of the latter. The number of ships of all kinds that arrived at Chicago in the year 1865 was 904, having a tonnage of 228,215 tons. In 1863 the number of vessels engaged in the Lake commerce was 1,569, with a tonnage of 470,034 tons. The Lake ports, with which these craft trade, are Buffalo, Oswego, Ogdensburg, and other United States ports; Kingston and Montreal, Saruia, Colborne, Collingwood, Goodrich, and other Canadian ports. The great outlet for agricultural produce is by Buffalo at the head of the Erie Canal, which conveys it as far as Troy, where that canal is united with the Hudson, which takes the produce to New York.

We have stated that the grain is brought to Chicago partly by cars or waggons, partly by railway, and partly by barges on the Illinois and Michigan Canal. It would occupy too much space to go into the charges on the several modes of conveyance; and besides, it is unnecessary, because they are, of course, included in the price of wheat at Chicago, as well as the charges on its receipt at that port, for inspection, weighing, landing, &c. We find that the price of spring wheat (which is the only kind given in the report), for the years 1864-5 and 1865-6, were respectively, for the first from 1 dollar 2½ cents on March 31st, before the navigation opened, to 2 dollars 20½ cents on the 15th July, when the shipment was at its height; and for the second year, from 1 dollar 2 cents on the 1st of April to 1 dollar 51 cents on the 16th September. These were the extreme prices; and we may reckon the averages for the first quality of wheat for the years 1864-5 and 1865-6 respectively at 1 dollar 57½ cents, or 6s. 6½d. English, for the first, and 1 dollar 27 cents, or 5s. 3½d. English, for the second year, reckoning the dollar at gold price, and including all charges up to storage; the subsequent charges upon removal being debited to the purchaser, or to the grain if removed by shipment at the owner's expense. The following figures, taken from the report, will show the reader both the progress and the present extent of the grain trade of Chicago. The first year in which any grain was exported was 1838, when 78 bushels were shipped of wheat only; and until 1847 no other grain was exported. In 1848, the exports amounted to 2,286,000 bushels of wheat, 566,460 bushels of Indian corn, and 65,280 bushels of oats; in all 3,001,740 bushels. In 1858, the shipments amounted to 10,909,248 bushels of wheat, 7,493,212 bushels of Indian corn, 1,498,134 bushels of oats, 127,008 bushels of rye, and 7,569 bushels of barley; in all 20,035,166 bushels. In 1865-6 the exports were 15,718,348 bushels of wheat, 25,228,526 bushels of Indian corn, 10,598,061 bushels of oats, 1,022,200 bushels of rye, and 645,089 bushels of barley; in all, 53,212,224 bushels, or 6,651,528 quarters of grain of all descriptions.

The last year's shipment of wheat, flour, and Indian corn from Chicago was by no means the heaviest. In 1861 nearly 24 million bushels of wheat, and the next year 29½ million bushels of Indian corn, were exported.

The loss of the crop of winter wheat in the season 1865-6 caused a considerable falling-off in the receipts as well as shipments of that grain, and, with the great demand consequent on the war with the South, caused an advance in the price, which rose on the 15th July, 1864, to 2 dol. 20c., or 9s. 2d. per bushel, at Chicago, and continued for ten weeks at 2 dol. and upwards. It is evident, on comparing these prices with those of the United Kingdom and other countries of Europe, that no shipments of wheat or flour could be made hither, except at a heavy loss. Such prices, however, are exceptional, and must not be taken as a rule. We must therefore follow the wheat from the granary at Chicago to New York and Europe, in order to ascertain the actual return price to the shipper. The following, according to Trollope, are the expenses per bushel upon Indian corn, for which the farmer obtained only 5d., or 10 cents :

Cost price.....	10 cents
Freight to Chicago .....	10 "
Storage .....	2 "
Freight to Buffalo .....	22 "
Elevating, and canal to New York .....	19 "
Transfer at New York .....	3 "
Ocean freight .....	23 "
	—
	89 cents

Or 3s. 8½d. per bushel, or 29s. 8d. per qr.

This was in 1861, since which the price of corn has materially advanced, and in 1865-6 reached an average for the season of 54 7-10ths cents, or 2s. 3½d. per bushel for the first quality. The charges on wheat are, we believe, the same as on corn, as both are shipped in bulk, and no sacks are used.

Very little grain is sent by railway, on account of the heavier charges from its being sent in bulk; but flour, which is always packed in barrels, is sent in winter by rail, when the Erie canal is closed by the frost, which generally takes place about the end of November. The freight of flour to New York ranges from 70c. at the end of June to 1 dol. 60c. on the 28th April, and 2 dol. on the 28th November, giving an average of 1 dol. 14¾c. on the thirty-one weeks of the navigation.

The situation of Chicago, on the neck of land between the Lake and the River Michigan, affords the best accommodation for the delivery of goods to the various stores. Trollope went over that of Messrs. Sturges and Buckenham, which then contained half-a-million bushels of wheat. It was so constructed that "both railway vans and vessels come immediately under its claws, as I may call the great trunks of the elevators. Out of the railway-vans the wheat is clawed up into the building, and, down similar trunks, is at once poured again into vessels. The only limit to the rapidity of its transit was set by the amount of boat-accommodation. There were not boatmen enough to take the corn away from Chicago, nor, indeed, on the railway, was there a sufficiency of rolling stock or locomotive power to bring it into Chicago. The country was bursting with its own produce, and smothered in its own fruits."

The elevator is thus described by the same graphic writer: "It is an immense, immovable trunk, attached to the lower end of a large granary; and in order that it may work freely, a shed is erected on the roof of the granary, twenty feet high. Into this box, or tower, the elevator is passed, and from thence takes a slanting position, outside the building, to the river, where a vessel lies to receive the corn, which passes from the granary to the vessel, on the same principle as a dredging machine, except that the buckets and troughs are hidden from sight. At the head of the elevator, which empties itself into a measure containing forty bushels, a porter stands, near the door, to close the elevator; and when the grain

amounts to the weight required, he shuts the door, marks down the figure, and, pulling a string, the forty bushels of grain run down into the vessel below. This operation takes less than a minute, and costs a farthing."

The wheat shipped at Chicago passes the whole length of Lakes Michigan and Huron into Lake Erie, at the head of which, and not very far from the Falls of Niagara, stands Buffalo, the principal receiving port of the produce of Chicago and the Western States. It also receives shipments of all kinds of agricultural produce from the Lake-ports of Milwaukee, Racine, Grandhaven, Sarnia, Detroit, Toledo, Cleveland, &c. At Buffalo the cargoes are taken from the Lake vessels and put on board of others, adapted to the Erie Canal, which has its head at Buffalo, and connects the lakes with the Hudson river and New York city. The Welland Canal pierces the Isthmus separating Lake Erie from Ontario. It admits ships of 500 tons burthen, and will probably at some future period be of great importance to the intercourse between the North-western States and Europe, to which we shall presently refer again.

Buffalo enjoys a large transition trade, upwards of sixty million bushels of grain of all kinds being annually passed through its elevators, by which it is transhipped. All this is effected in what are termed "the open months," that is, when the Canal is free from frost. This is between the beginning of April and the end of November, or eight months, during which, as may be supposed, with so much work to do, the city is a scene of intense activity, the elevators being worked night and day, to forward grain alone, at the rate of nearly two million bushels per week. The Erie Canal is becoming much too narrow for the increasing quantity of produce that is poured through it. Although it was considerably widened a few years since, the trade has again out-grown it, and great delay in passing the locks is constantly occurring. We have been assured by persons who have witnessed it, that the line of vessels waiting their turns to pass the locks sometimes extends *eight miles*, and there is frequently a delay of a month before the last of the line could pass. This is a growing evil, as the North-western States get more and more peopled and under cultivation. The railways cannot give relief, being too expensive, and are also, as we have seen, unprovided with the means of entering into competition with the Lake and Canal transit. We are now, in fact, arrived at the most important part of the subject of the exporting power of the United States—namely, the facility and cheapness of the transit of grain from the West to the Eastern seaboard and thence to Europe.

This question, as a matter of course, and of the utmost moment, has for some years engaged the attention of the merchants and others of Chicago, as well as the agriculturists of the Western States, with whom it is, in fact, a vital one. For, as the progress of cultivation is continually receding further and further from the Eastern or Shipping States, unless some cheaper mode of transit can be devised for the produce, it will be in vain to increase its amount for the purpose of shipping it to Europe. We have had a sufficient proof of this the last three years, during which the shipments of wheat and flour to the United Kingdom have been trifling compared with what they were in the three previous years. The following we take from the Returns of the Board of Trade, reducing the cwt. into qrs.:

Imports of wheat, and flour as wheat, from the United States for the years 1865 and 1866:

	Qrs.	Qrs.	Qrs.
1865, wheat	274,777	Flour, 73,362	Total 348,139
1866, „	148,299	„, 40,226	„, 188,455

The entire shipments of wheat and flour in the United States from the 1st January to the 1st July, 1865, were

only 218,462 qrs.; and in 1866, they were equally small, the price in that country being proportionately higher than in either England or France.

Thus the American farmers are beginning to feel the effect of the scourging system they have uniformly adopted, both in the older and the new States, in the cultivation of the land. The exhaustion of the soil, as they proceed, drives them farther and farther away from the shipping ports, by which the expense of transit is proportionally increased, as well as the difficulty of bringing it to a market at all. This was forcibly exposed by Dr. Brainard at a meeting of the Illinois and Michigan Board of Commerce in 1864. "Here are fields of grain," said he, "rotting; the cattle are turned into them. It is used as fuel; while in Europe, nations are suffering for want of it. They are willing to pay for it; but here steps in Pennsylvania, and says, 'We will block up the canals, and the north-west shall not build up cities greater than our own.'" The use of Indian corn as fuel is by no means an uncommon practice. They have no timber for fuel in the Prairies; and when Indian corn is as low as 4½d. or 5d. per bushel, it will not pay to have it shelled, and it is then, *in the cob*, the cheapest firing they can procure. It is also given to the cattle and pigs in the cob, a cart-load being brought to the yards and shot down for the animals to help themselves. Trollope states that if in loading wheat a bushel is spilled on the ground it is left there, because it would not pay to spend time in gathering it up.

An attempt was made by the Chicago and other merchants in the north-west States to procure the passing of a bill in Congress for the construction of a ship-canal from the Mississippi River to the Atlantic. This would have prevented the necessity and expense of the Lake passage and the transshipment of the grain, and would have effected a saving of 9d. to 1s. per bushel on it. It was, however, successfully opposed in Congress by the northern members, especially those of Pennsylvania; and it appears a hopeless case to bring the scheme forward again, as the same reasons exist for opposing it. The merchants and others of the north-west therefore look in another direction for the relief that is so essential to their future welfare; for not only are the present means of transit by the Erie Canal utterly insufficient even for the present amount of produce, but it is attended with so much expense as to reduce the returns of the growers to a minimum when they have a good crop. It is to Canada that they now look for that relief which they cannot obtain from their own Legislature.

The passage by the Welland Canal, which connects Lake Erie with Lake Ontario above the falls of Niagara, and which admits vessels of 500 tons burthen to pass, has already been accomplished, and by the Rideau Canal the vessels were conveyed to the Ottawa River, which brings them into the St. Lawrence below Montreal, and thus clear of the rapids. Several cargoes of corn have been by this route conveyed to Europe, and the Canadians had contemplated widening the canals formed to avoid the rapids on that river; but the summary abrogation of the Reciprocity Treaty put a stop to the scheme. The north-western merchants are still in hopes of prevailing on the Canadians to accommodate them; but we much question whether the latter will allow them to obtain a footing in their territory as such a concession would involve, and which Jonathan would well know how to "improve." Any scheme, in fact, whether by way of Canada and the St. Lawrence, or by a ship-canal in the United States, must be a radical and efficient one, having for its object the accommodation of a future large extension of the cultivation of the north-western prairie lands, and the proportionate increase of agricultural produce. If this could

be accomplished, the fifty million bushels of grain now passing yearly through the Buffalo elevators would soon become a hundred millions; whilst the reduction in the expense of 9d. to 1s. per bushel, or 6s. to 8s. per quarter, would enable the American growers to swamp the European markets, especially those of the United Kingdom, where the growers would be utterly unable to withstand the competition. But unless the north-west can gain their point in this respect, it will be in vain that they increase the amount of production. The further westward the cultivation is extended, the heavier will be the expense of getting the grain to the eastern seaboard; whilst the greater the quantity offered for sale, the lower will be the price, which must, under such circumstances, be below that of production, as has already been the case on some former occasions, when wheat was reduced at Chicago to 1s. per bushel, and whole fields were left with the grain rotting, or given up to the cattle as it lay.

There is not a maxim in commerce more true or of more universal application than that while demand and supply regulate price, so price will overrule production. The supplying of the home demand is the first object of the producer; the raising of a surplus for exportation is accidental, and must depend—first, on a foreign demand, and, secondly, on the price relative to the expense of production. If either the demand ceases or the price to be obtained does not remunerate the producer, the cultivation must be discontinued to the extent of the surplus, and be confined to the home demand.

We shall now turn to the question of the price of labour in the United States, particularly the western portion. Russell says that agricultural labour at Chicago was worth from 4s. 6d. to 5s. per day, whilst in Mississippi, Irish labourers were paid 6s. per day. We believe that throughout the States the average price may be taken at 4s. 6d. per day, or about £70 per annum. We cannot, therefore, be surprised at the small amount of labour bestowed upon the land or at the smallness of the acreage produce. The area of "improved" or cultivated land is stated to be about 145,500,000 acres; the quantity of wheat produced was 12,500,000 quarters, or one quarter to every 12 acres of cultivated land; and this with a population of 30 millions! We cannot wonder at the smallness of the produce, we say, when we consider that the proportion of labour is not more than one man and two-thirds to every 200 acres of improved land. This was in 1850, but the proportion has decreased since the war. Jay states that in 1840 the proportion of the population engaged in agriculture was 77.4 per cent.; but that in 1850 it was reduced to 44.69 per cent. of the whole population; and there is reason to believe that this proportion has been still further reduced, especially since the late war. Jay estimates the average yield of wheat throughout the States at 9½ bushels per acre, and of Indian corn and oats respectively at 19 1-10 and 19½ bushels per acre, peas and beans at 6-90 bushels, &c. It is a significant fact stated by the same intelligent writer, that in 1840 the wheat crop of New York State amounted to about 12¼ million bushels, but in 1855 to only 9 million bushels, being a falling off of 25 per cent.; the produce of maize during the same period having increased from 10 million to 20 million bushels. The entire produce of wheat of the crop of 1850 amounted to about 100,500,000 bushels. Jay ascribes the falling off of the average yield in New York and other states of the Union to three causes—the ravages of insects, diseases of the plant itself, and deterioration of the soil. The last is not only destructive *per se* of the crop, but, by engendering disease, it encourages the breeding of parasitic insects. These latter have greatly extended their ravages of late years, both in the old and new states, and it is feared will become increasingly troublesome.

The following table shows the rate of monthly labour, exclusive of board, both men and women being supplied with food by the employer:—

States.	Average Wages.		States.	Average Wages.	
	Men.	Women.		Men.	Women.
	d. c.	d. c.		d. c.	d. c.
Alabama.....	11 71	7 98	Mississippi.....	14 21	5 94
Arkansas.....	14 61	5 88	Missouri.....	10 93	10 00
Columbia.....	14 02	8 00	New Hampshire...	26 00	13 47
Connecticut.....	19 08	11 20	New Jersey.....	17 98	9 56
Delaware.....	15 31	11 58	New York.....	18 32	9 68
Florida.....	32 14	5 00	North Carolina...	11 65	6 12
Georgia.....	14 57	7 39	Ohio.....	16 39	9 42
Indiana.....	13 02	6 77	Pennsylvania.....	17 85	9 91
Kentucky.....	14 95	9 36	Rhode Island.....	18 60	12 95
Louisiana.....	—	—	South Carolina...	13 94	8 30
Maine.....	29 35	12 15	Tennessee.....	10 94	6 42
Maryland.....	15 42	9 48	Vermont.....	15 53	12 65
Massachusetts.....	22 90	13 60	Virginia.....	10 18	6 98

These give an average of 16 dols. 78c. for men, and 9 dols. 25c. for women.

We have now finished our task, so far as the exporting power of the United States is concerned. The obstacles in the way, and which are daily increasing, are as follows:—First, The constant progress of cultivation towards the north-west, and in an opposite direction from the shipping sea-board, by which the expense and difficulty of transit are proportionally increased. Secondly, The continued deterioration of the soil that follows cultivation, from the practice of running it out by growing cereal crops as long as it will yield a profit; and thus, whilst the area of cultivated land is largely increased, the proportion of cereal produce is continually decreasing. Thirdly, The inadequacy and expensiveness of the present means for the conveyance of produce from the place of growth to the sea-board, by which not only would it be impossible to forward a much larger amount than at present, but the charges are so high as to raise the price beyond that in the European markets.

This last is a fatal obstacle to the export of wheat, except when the price is high in Europe. The American merchants of the West are well aware of this, but at present they cannot help themselves. "The great want at Chicago," says the "Report of the Board of Commerce" of that city, "is a broad, deep, and commodious ship-canal between the lakes and the Atlantic, so capacious as to enable our largest vessels to pass direct from Chicago to Montreal, and even Liverpool. Such a road, your Committee believe, can be obtained through Canada—first by the construction of the Ottawa ship-canal, with a depth of 12 feet of water, and at the cost of 12,057,080 dollars, by which route Montreal is brought 500 miles nearer Chicago than New York city, and the distance from Liverpool reduced 800 miles. Secondly—by the enlargement of the existing locks of the Canadian canals, so as to pass our largest crafts to the Gulf of St. Lawrence. The total distance from Chicago to Montreal by this route is 1,260 miles—152 nearer than by the New York and Erie Canal to New York State, besides dispensing with the labour of transshipment."

The above was written before the abrogation of the Reciprocity Treaty between Canada and the United States, and the Canadians had actually begun to widen the locks on the canals formed to escape the Rapids of the St. Lawrence; but the abrogation of the treaty, and of the arrangement by which each power was to have only one vessel of war on the lakes, induced the Canadian

Government to suspend the works on the canals for the present at least. Whether they will be resumed in the present state of the relations between the two Governments, in which the one—if it not encourages, at least, connives at the brutal and unprovoked raids of the Fenian burglars, is a question that time only can solve. So far as the United Kingdom is concerned, it would destroy its agriculture, by reducing the price of wheat 6s. to 8s. per quarter, which would be about the difference in the expense between the two routes via the St. Lawrence, and the Erie Canal and New York, to Liverpool or London.

Under present circumstances, the competition, so far as Western Europe is concerned, lies between the United States and Russia. The cultivation of the Southern provinces of the latter power is continually being extended, and they are supplying the West with annually increasing quantities of wheat at much lower prices than the Western States of America can afford it. Everything, with the

latter, is at present against an export trade; everything, with the former, in favour of it. And unless the Americans can reduce the expense of transit, and adopt a better cultivation of those States within an easy reach of the Eastern Sea board, it is useless for them to grow wheat for exportation to the United Kingdom.

If demand and supply regulate price, it is equally true that price will regulate production. Nothing will overcome these inevitable laws of commerce. If an individual or a country raise more than is required for his or its own consumption, it is because the surplus possesses a money value greater than the cost of production. But if either the demand ceases, or the money value of the surplus sinks below the cost of production and transit, the cultivation will of necessity be again reduced to the supply of the local wants. It is in obedience to this inevitable law of commerce that Dr. Brainard had cause to complain that "grain was rotting in the fields, and the cattle were turned into them."

## THE NEW FARM.

"That 'ere be the Glory der Die-John," remarked Mr. Melon, the gardener, as he saw me arrest my step before a fine rose in the greenhouse; and, as he spoke, he proceeded to pinch the unhappy florets of a young geranium.

"Why, whatever do you do that for?"

"Oh, them be the beggar, the green fly!"

"Well, what do you do to get rid of them?"

"Oh, smoke 'em, sir—smoke 'em, when there's nought else to do."

"Well, you'd better be quick about it."

"Oh, I'll do it to-night. I thought to do it last night; but there was that 'ere batch of taters kept me. Them be the beggars to breed, they be. Why, they be great-grandfathers in four-and-twenty hours!"

This set me a-thinking. Can these creatures realize all the hopes and fears, delights and pains, of this mortal coil—of food, sleep, pleasure, travel, toil—all in that short period? What a concentrated existence! Or do they live a life within our life, and have years rolled up in one of ours, days with their own night, and sun and moon distinct from ours, and appreciable only by their own peculiar senses? Mystery on mystery! How, on every side, there teem proofs of an almighty superintendence of this *world*, the Greek equivalent for which is "well-ordered arrangement," and the Latin "neatness," or rather "neat," as our excellent preacher told us last Sunday!

Well, I have just brought home for this faithful dependant a choice assortment of fancy geraniums, to his great delight.

While making my selection, a stray question led to an enthusiastic outpour on the part of the seedsman (who is very eminent in his line). You may learn something from every one, if you keep your ears open, and let him discourse on his pet subjects. The great Burke's version of this idea was, you will remember, that no one could stand with the passer-by, to shelter from a shower, without gaining instruction, provided, un-railway-traveller-like, he took the trouble to talk at all.

To return, however: "Why don't you amuse yourself with this, sir? I know a gentleman who has made thousands by it; he got forty pounds, the other day, for one seedling."

I pricked up my ears; and he gradually instructed me in the mode of mixing the pollen of one flower with that

of another, by means of a camel-hair brush, taking care that the bees have not been before one at the particular blossoms, and covering the impregnated flower, until it seeds, in a muslin bag. Won't I cut up one or two of my indulgent sponse's caps!—unbeknown to her, it must be. But won't she thank me when she sees the brilliant floral effects of next season? and won't I then tenderly try to tap the plethora of her cheque-book, supposing mine to be, as is likely, most agriculturally weak? The seed of this season, sown in June, will send up its plants to flower next year. But, after all, consider the taste and skill that will be required to produce a lovely combination!

"Then, sir, you must take care to choose plants of good strong habit to operate upon—plants, too, showing quality, and true in shape; and then, sir, you'll find that you must beware of the best varieties, as they are internally unhealthy, having been bred in-and-in too much. That's the way they get the fine tints."

Why, what, after all, methought, is this but Shorthorn breeding, without the preliminary outlay, and consequent precariousness? Both pursuits exert the same fascination that attends the chemical compounding of elements. The one, however, may be followed in a cottage with a rood of garden attached, whereas the other requires capital and acreage and ample accommodation.

Having drifted to Shorthorns, I remark that my prediction has come true, and that there has been found in England the chivalry to buy up at a price that implies the careful keeping of the blue blood of a breed that is gaining favour every day. But, as we sped down to Preston Hall in "the special," we involuntarily reflected, At what a discount this famous stock would be, if the crowded train should happen to be smashed by an accident. What prices! My neighbours and friends have never ceased to meet me open-mouthed ever since I was known to have attended the frightful auction. What a sight it was, too, as the sun shone out, and the busy train went by, to see a "Grand Duchess," only calved last March, come hopping and skipping around the ring, a mossy-coated substantial youngster, showing exceeding quality, in two minutes knocked down to the name that boasted "Exquisite" (Lord Spencer) for 430 guineas.

"Spose that un takes to scouring?" growled a butcher at our elbow.

True to his instincts, Mr. Eastwood secured for a



moderate sum one of which I noted "a small head, very racing-looking—stepped like a thorough-bred—a strong loin and short level back;" and then came a white one on the scene.

"I'm not prejudiced against white, sir," confidentially whispered an unknown but shrewd Shorthorn authority behind me, from whom I sucked, between the sales, parenthetically, many an anecdote of the earlier crosses and favourite families; "and I know that Joe Culshaw considers that colour to have turned out some of the best and truest-shaped things he ever had to exhibit: they are hardy enough too, sir."

And this bidding, I assure my friends, was not the bidding of novices or nincompoops. Grave, stern, calculating countenances of canny Scot and serious Saxon masked many a brain that might on occasion serve even a Chancellor of the Exchequer. Tenant-farmer, peer, banker, brewer, baronet, and manufacturer—all and each were ably represented on this famous day, to which men went down under strong excitement, as to the fight at Farnborough. I am considered no longer, I am thankful to think, the unmitigated lunatic they did think me, for drawing at the fountain head, and I shall henceforth dilate with satisfaction on the beauties and the pedigree of the white, red, and roan. But, Shorthorns, avaunt! or I shall dream of ye!

"What a precious nasty mess this fold be in!" murmured a good but slow labourer just now, in our unattended hearing, as he vainly endeavoured to push his barrow laden from the calf-pens, up a yielding incline of accumulated muck; "and them pigs be always a mooting it." "Come, you wouldn't say that if you were a turnip grower." "Nay, sir, it be rare stuff for that job." "Very good, then; just get your pike and level that heap, then lay yonder board upon it, and you may wheel any amount on it without difficulty." Intensely dull is the lowest order of the bucolic mind: the monkey that used puss's paw to fork out his roasted chestnuts from the fire were a professor of political economy, beside so many of our labouring population, who believe even in this enlightened age that the ugliest local hag is a witch, and account for every death of stock upon the farm with a "please sir, him had a pain."

The fact is, I consider pigs in the fold-yard do an immensity of good by breaking up and compounding the mixed strata of the manure-pan, reducing it to a pulpy state fit for transportation at once into the root drills, without being robbed of its moisture and spirit, as it is so much through evaporation when turned in a heap upon the headland, not to mention the saving of labour. And the pigs too, they do very well for themselves somehow in this employment. The juices may feed them as mud fattens the carp. The waste of cake and corn too they secure. This reminds me that from stress of work lately we have not been able to crush the oats as I like to have them done. The carters from some cause prefer them whole, and as I see no alteration in the teams' appearance, I have not interfered, for it manifestly will pay better if I find that the allowance keeps the horses fresh and blooming, at the same time that there are a porker or two sustained on such grain as runs the gauntlet of the equine internal mill.

"Time will show, sir," as our honoured bailiff invariably answers when I shock his understanding by a suggestion or description of some new-fangled machinery or mode.

Since I wrote the above I have begun the green-house experiments. Having tied in the shape of a cross two pieces of light wire, looped at the four ends, and laid them upon a circular piece of net, through the border of which and the loops I had run a fine tape, on drawing

its ends together a tidy cap was the result, with one of which I encircled each geranium boss that I operated on, so effectually feucing off the bees from confounding my experiments.

What pleasures of anticipation will overhang those boxes of seedlings next year! And if only I should manage to turn out something triumphant, then I'll sell it for a lot, and buy, say a new bull-calf, or a brooch for the missus, or better still, perhaps bank it. Ay! that's just what I'll do. I find that the winter floods have left a rich deposit of no less than four to six inches in depth, where an island is gathering upon a gravel-bed at a bend of the river; but the grass already considerably overtops it, being just ready for the first cutting. A great treasure are these two acres of Nile-like vegetation. There is plenty to eat and plenty to trample, the summer months through, in the fold-yards; making a goodly store of manure for autumnal dressing, without the aid of straw. Thanks, then—my profoundest thanks—to the kind upper regions that load our loved Wye with this precious fertilising matter, and save our pocket the unsatisfactory purchase of so many tons of "artificial."

There is some advantage beyond the beautiful scenery it affords, in living upon a side-land. The turnpike-road, of necessity, is made and mended with limestone; the washings from which, as they come conducted in small rills along our orchard pastures, being allowed to wander from fixed points at their own sweet will, develop and foster an under-carpet of clover that fascinates the South-down flocks, keeping them devoutly to the watered spots. Without this aid there would be but a picking of weakly grass.

We have two fields of wheat this year, the history of which is very different. The one was sown on a ryegrass ley, which had been closely fed with sheep and cattle for two years, having received besides a heavy refresher of some patent grass-manure—the beneficial effects of which, I am bound to say, I never saw. This plant started well, and then reverted, being for weeks a sickly growth—so much so that I was once half-tempted to plough it up. Once, during a morning ride, I found a regiment of rooks in grave investigation of the thinner places. Taking care not to disturb them, I see now the service they did me by their wire-worm lunch. The field was rolled with the heaviest Crosskill, still for some weeks the plant was puny and unsumptive. It has lately picked up, and is now advancing at a great pace, promising to be of fine stature after all. It reminds one of the curious way in which some stunted children have been known to take a start, and spring up to good size, after confinement to their beds with measles, or other infantine complaint. The fact was, I have been taught that it does not do to turn down these light loams with too much growth upon them. The clod won't lie flat, do what you will, and dries too quickly too—so that when the young wheating has sent its foraging fibres through, they get starved in the hollow, and only revive (none the better for this cheek) when they manage to grapple the under-soil again.

The other field started oddly, and has never met with a reverse. It will be a grand crop, with cane-like, branching stems, and heads, I hope, in unison. Although close adjoining field No. 1, it has a strong admixture of marl in its composition, and is considered a sulky soil, difficult to work, by the native population—a delightful contrast, however, in our eyes, to the sticky, impracticable clays we had upon our Welsh farm. This field was well dressed with fold-yard muck two years ago, and sown with wheat. The frost managed to get at it and nip its roots: the crop was consequently thin, but the grain excellent. It was accidentally over-ripe when cut with a machine, and shed

a good deal. The stubble was pared for autumnal cleaning, when—lo! and behold!—a thick covering of wheat came up, despite gleaners and pigs. It weathered the winter so well, and was so strong by the time the ewes went upon it, that I have allowed it to stand; and a grand harvest I anticipate, which I shall take care to have cut in good time.

One short word more and I have done. The other morning, having seen a mouse in the mushroom-pit, I inquired of Melon what the tortoise-shell cat was about? "Oh! him be *blowed*, sir!" "Blowed! What do you mean?" "Why, you see, sir, when you gave orders to have them poachers trapped on account of the pheasants, the very first night why our's gets nabbed and breaks both her legs, so as it was a mercy to put her out of her pain. Well then, says I, as the worst is come to the worst, we must get submit out of you; so I skins her for a cap, and I slits her in two or three places, and hangs her in a bush by the brook, where the cray-fish do mostly congregate. There the fly soon settled on her, and, now they're hatched, the maggots do flop out beautifully, and you'll have a nice dish soon." "Save me from such," I exclaim, with an involuntary shudder; and, being now myself somewhat blown, conclude.

And so it was a mistake altogether, and the experiment came to nothing. Certainly, most certainly, the experiment did come to nothing, but it was only for a night. With the bright morning I was in the conservatory again, as a giant refreshed, having during the dark hours, by lamplight, investigated all the sources of information upon the subject, hitherto latent in my library. And to save such among my readers as may be equally ignorant from error in their practice, let me premise that the first day when I set enthusiastically about my novel task, I simply took one flower, the colour of which I thought would blend happily with a second selection, and showered the pollen or yellow dust upon it. I was greatly wrong however, and that performance must lead to most uncertain results, being simply what the unreflecting bee does, wherefrom, as it allowed occasional beauties, but a multitude of hybrid deformities arise. Such a kaleidoscope mode of operation will only accidentally answer. The line and plummet way of proceeding is, first fix upon the florets, the tufts of which you may imagine, from study of the theory of colours in some such excellent treatise as Chevreul's, will tastefully combine with those of another plant of the same genus, be it geranium, azalea, pansy, &c. Catch the bud as it is opening, just before Sir Bumble Bee attempts to worm himself in: open it gently, and with a pair of fine-pointed scissors nip off the heads of the stamens before the pollen has powdered them (they break off quite readily at the merest touch). If you would be sure of having seed, as there is some uncertainty in these fancy flowers duly ripening, operate as I have described upon every floret in the pelargonium boss, and then encircle it in a bag of net, strained over cap-wire, bent transversely. The pistil, or female organ of the flower (being a dark stem in the midst of the stamen bunch) is not ripe so soon as the stamens or male portion. Watch your charge narrowly, and in a day or two you will observe that the pistil has opened its button head into spreading antlers like the horns of a butterfly. It is then covered with a gummy deposit, to which the pollen dust will adhere. Now, with a fine camel-hair brush apply the farina off the stamens of the other flower to it. Cover up again, and leave it. The flower hath now performed its office. Very shortly the petals will fall off, and the seed vessel appear in full stature. Now, set up the plant in the sun to ripen, and you may with comparative certainty look forward to the production of a new variety next year. Before the horns of the pistil

open, there being no gummy dew, the pollen will not adhere. Hence, the wisdom of the natural arrangement. The stamens attain their full growth, and being thickly strewn with the yellow dust, overhang the pistil, whose opening they await until the least gust of wind shakes a shower over it, that is most certain to adhere on the sticky surface; or a bee with his hairy legs and extatic movements does the same service. Old Melon is delighted, and thinks me a mighty genius for my pains. His imagination had never wandered forward from the common practice of the hot-bed and cucumber frame to the like mysteries of greenhouse cultivation.

There was a loud chattering and avine scrimmage the other morning upon the lawn, when a villain of a jay came and divid into dark recesses of an Irish yew, quite near to the house, and whipped off the frequently inspected eggs of one of the children's nests. They have ever such a number of them everywhere about, of which one little boy, I think, almost dreams. They are not allowed to take any except the blackbird's. I found, however, the other day, a "collection" of eggs, blown and laid carefully upon bran, in an old toy-box. Of course this would not do, being nothing less than open mutiny. On inquiry, however, I found that mamma had been a party to the transgression, inasmuch as she could not resist one youngster's argument, that he was sure that it made the birds industrious to take toll of a solitary egg. It was impossible for her, without injury to the youthful mind, to condemn any move that fostered industry; so the youngster innocently triumphed. To return, however, to the jay: the children have several times since the fracas found an egg laid in a flower-bed or on the grass-plot—once that of the missel-thrush, once that of turtle-dove. Their idea is that the jay has dropped some of his spoil: mine, that the fond parent had miscalculated the distance home. The birds upon the lawn afford us endless amusement: the starling nimbly working after worms; the thrush and blackbird, with head depressed and ear on one side, as if in detection of a grub's subterranean excursion, the fly-catcher hovering and alighting in turn; the selfish detestable robin—and, behold, now too a rarity—why, no less than an individual of the large woodpecker species, with gorgeous scarlet head and yellow breast. How he stoops so awkwardly (being quite out of place off a tree), and bends and digs in with his hard long tongue! How comes it that he has resort then to the feeding-ground of the throstle? Is it that his stomach is out of order, and that he has a sore tip to his tongue, which makes his usual task of tree-boring painful; or is it that he requires change, as we human beings take salad and the dog chews couch-grass? Look out, my brilliant, for there arc hawks about, and you may have one down upon your broad back in a moment, making havoc of your plumage in savage cageruess, despite your shrill cry.

But here comes one of the little girls.

"Well, and what brings you here?"

"Oh! I want to go out with you, papa, if you will let me, and lead Juno."

"Well, but where's your sister?"

"Oh! she's gone out with Miss Eglantine: she likes going with her" (this was in an earnest, thoughtful, half-sad tone and way), "because she thinks she gets better luck."

"What do you mean, darling?"

"Oh! I don't know: she's always more fortunate than I am. And I'm sure I don't want to go out with the governess. I get quite enough of her in school-time."

Well, that's not quite a right feeling, and I don't like this symptom of incipient superstition, that draws one to think of swimming witches, when if they floated they were guilty and burnt; if they sank they were drowned, and so in both cases conveniently cleared from the con-

munity. However, we'll set out, and see how the oak-stripping gets on in the plantation I have to thin. Having arrived upon the scene of operation, the black pointer tugging at the leading-rein all the way with a determination to get on, that I cannot believe to have given absolute pleasure to my little companion—(she never murmured certainly; but, perchance, her dignity forbade it)—we seat ourselves on a rustic bench in the wood, hard upon the spot where the busy band is engaged. How amusing it was to watch the lads climb monkey-like up the slender stems that sway to and fro with their weight, as they peel the uppermost twigs, or chip away with a hook the obstructive sprays, chattering all the while to one another with a twenty-tongue power! The lowest five feet or so, a grown man just hacks around, and then strips the bark, that parts with a wheezy sound from the wood if it run well (as they technically phrase it) in shape like the cricketer's leg-pads. Then against the tree a boy places his ladder and mounts. When we arrived the gaffer was engaged in making one of the rough ladders they use for this purpose. It was a good yard wide or more, the side-pieces being straight limbs of a peeled sapling, the three intermediate steps hazel wands, their ends being thrust into holes extemporized by the point of the woodman's knife; the top and bottom steps were, however, peculiar in being made with a twisted hazel or honeysuckle vine. The reason for this was obviously that when the ladder is placed against a tree this twisted supple step forms an arc, which slips not as a stiff smooth step would, but which holds the more firmly the greater the weight upon it, as the greater the strain upon it the more it bends towards the shape of a semicircle.

Curious is it that these simple men have learnt in practice a fact, the theory of which it belongs to the highest mathematics to explain. It was very delightful to sit there, and watch the swift progress with which loeust-like the lads shifted from sapling to sapling.

The subdued sunlight shot gleamily through the thick foliage, producing an exquisite alternation of most lovely light and shade as it fell, fancifully broken, on ereeping bramble, the bursting braeken, and the twisted brush-wood tangle, tinting all with such delicate exhilarating dyes, as would baffle the pencil of the most skilful artist, whether he dash in a general effect after the brilliant, dreamy, suggestive style of Turner, or contortedly copy each sprig and leaf with the feebler disciple of the Pre-Raphaelite school.

Could the photographic apparatus give colouring, as it does the network of underwood, one might hope to see such delicious effect reproduced; but not, I fear, before then.

My eye! what an amount of cobalt and opaque white would the fair lady-sketcher vainly daub upon her board, in frantic, faithless imitation of that wondrous atmospheric, ethereal effect which those blue-bells so simply produce, intermixed with a copse's undergrowth!

But the marker's dry. Well, to be practical, let me record what the woodman taught me. A good oak copse is reckoned to pay about £18 in sixteen years, not reckoning the trees that are left standing. The plantation we are thinning is about twenty years of age, has been thinned once, and will require thinning in about ten years again. It is calculated to yield about 1½ tons of bark to the acre, besides the sticks, which are worth a shilling each one with another, and will come in for valuable fencing, hop-poles, and the like. The present price of bark is about £4 10s. the ton, and the stripping costs from 27s. to 30s. the ton. The peeled saplings must remain standing until the winter. "If you was to cut them now, they would rip in the sun, so as you couldn't cleave

them nohow!" Then it requires an artist to decide upon the best period for taking the bark in to scale, and he must have his wits about him there, I am informed, so many are the customary allowances—so crafty the tricks of the trade. "I remember when I went in last year with your'n, sir. There was the foreman; him was a bobbing about with his toe under the scale. 'Stand off,' says I, 'and you shall have your weight, never fear.' There be dead robbery oftentimes, sir, in a bark-yard."

Oak should be planted about four feet apart, and thinned ultimately to forty trees the acre, in order to grow timber. Well, then I consult him as to a bit of rough side-land (arable ground)—that it does not pay to cultivate for ordinary crops—whether he would advise my planting it with oak when the time comes. "Oh! no, sir—larch; them do pay so much sooner. Bill, you remember that bit of a rocky breast near —; that was planted with larch as thick as it could stand—in nothing much better than stones too. Why, they had to carry the soil here and there to have place to plant in. Why, that 'ere bit of wood sold for £320 by public auction. There was some from 40 to 50 feet high, and about four feet apart. Them was used for sleepers and rafters, and the tops came in for fencing stakes (all the dead'uns I was to have, for to carry home to my lodgings). That was a thing that would come in for any market, and it was a regular timber merchant as bought it. Bless us, what a game the haulier had to get them away! They was packed so close, and felled this way and that way everyhow. But it was a good price, that was."

And so larch-planting, when the season comes, shall be our little game.

His opinion about orchards is that you cannot have the trees too thick, in reason: "If you means to plant an orchard, plant one. It must be a blow then, to kill the bloom upon all."

An odd phrase he used once: "Says I, I'm not going to be *cattled* about any longer;" which he explained to mean worried, as a herd is, being jostled against each other on their way to market.

Another good phrase I heard the same day, from a preacher's lips, who spoke of his having some good "*swivels*." Fishermen! whatever can they mean? Why, sermons on general doctrine, that will do to attach to a variety of texts and endings.

The mention of sermons reminds me of a sad scene last Sunday morning. Overnight, the children, who had been especially anxious that I should visit their beds to say "good-night," were full of wonderment and praise of a nest of young birds that the cowman's boy had brought them: "Do you know, papa, they are only just fledged, and they sing beautifully already!" They supposed them to be young martins. In the morning, the first thing, they brought me the chirping nest, in a dormouse's cage. One "poor little thing" had forced its way through the wires during the night, and was dead.

"Listen, papa! how they sing!"

"My darling, they are hungry, and calling to their parents, who can't hear them. They are sure to die. What a naughty boy he was to take them!"

"Are they martins, papa?"

"No: they are young water-wagtails, I think. Put them out on the lawn there, and see what they will do."

Just then the schoolroom breakfast-bell rang, and away they scampered to their meal. Meanwhile, the poor birdlings sat in a heap, crowded together, as one used to read the Babes in the Wood did, chirping sadly, but apparently strong. "Well," thought I, "when the children return, we'll try to feed them." I had not been gone five minutes when I returned, to find one quite suddenly dead and stiff, and two others gasping their little

lives out. What a sad sight it was! and then, to think how many human birdlings there are, even this minute, gasping their poor, short lives out, under the torture of illness or cruel parental treatment! When the children returned, we got some small caterpillars from the lime-tree; but they would not take them; and the four surviving innocents sat up against each other and chirped so sadly, as though they felt they were deserted. "Poor—poor little things!" said our youngest, with wet eyes. And so the human birdlings sat round, and keenly felt for the sufferings of the nest that was intended to please them. Hereupon, the man came with a small worm, off which he severed a piece. Then, tapping their beaks, by some magic manipulation he made them open them; and then he popped the worm in. In an instant the first-fed took flight a few yards, to the delight of our French youngster, who clapped his hands and cheered. Then he was

caught again, and the rest fed. "Oh, they'll do now! Take them to your pantry, and feed them soon again. Perhaps we may save what remain." But, alas! on our return from church, we found them all dead corpses. Good cook, in a fit of misjudging benevolence, had crammed them, with crumbs, to death. And so the next day they were buried, and their grave planted; and now the very fact of their brief existence is lost in that facile forgetfulness which is a characteristic of children, and which is a blessing, nevertheless, to be coveted.

I heartily wish those runaway icebergs in lat. 45 deg. would move on, that are credited with causing this inclement weather. My clipped sheep are all shivering under the fence—small blame to them for it. In fact, I'm shivering myself, and must be off to get a warm. *Au revoir!* VIGIL.

## THE BATH AND WEST OF ENGLAND AGRICULTURAL SOCIETY.

### MEETING AT SALISBURY.

The determination to pay a second visit to the city of Salisbury was only carried upon the understanding that the full show of 1867 might make up for the very limited exhibition of last year. Had it been anticipated that the cattle classes would again have been wanting, there is little question but that the Council would have gone farther afield. It must as a rule be always impolitic to over-do a district with a Society of the calibre of the Bath and West of England; while two half-meetings in succession resulted, naturally enough, in a certain tameness that may be taken as the chief characteristic of the week's proceedings. With the restrictive orders still in force, the management was, indeed, quite prepared to lose money by the business; and, however good may have been the receipts, there was little of the bustle and excitement of such occasions observable either amongst the breeders of stock or the manufacturers of implements. The increased means, in fact, for making up a show were only partially developed; for the entries of pigs were small, though good, and of sheep there was perhaps the most uneven array ever brought together. If some breeds were well represented, others offered a miserable front; and, with commendations liberally appended in one section, the prizes were as often withheld in the next. It had been assumed that the flocks of the Plain would make a strong stand in the capital of their own country; nor was this hope disappointed, as the Hampshire or West Country Downs have never been seen to more advantage. Almost all the best-known breeders were represented, and some new or less-known men also came well to the front. This was especially the case in the opening class of yearling rams, where Mr. Coles, of Norton Bayant, with only one sheep entered beat five rams from Mr. Rawlence, two from Mr. Canning, two of Mr. Bennett's, three of Mr. Olding's, and so on; the actual award being emphasized by a number of commendations. And the winner is certainly worthy of his place, being a really noble sheep, combining great size with fine character; as beginning remarkably well with a good, pleasing head, instead of the sour lop-eared look so often noticeable in the Hampshires. The prize shearing has also a capital back and strong neck, but his wool is too open for a Down; and the judges said there was something not quite orthodox in the colour of his poll or the tinting of his ears. Of the five Bulbridge rams, three were distinguished in the return list, with one of the commended

sheep preferred by many to the second prize, that is very plain about his head, though with a capital touch, and hence his superiority to his fellows of apparently a better type. Mr. Bennett's commended sheep were very true to the old Hampshire Down stamp, without being too coarse; whereas Mr. Olding's flock does not go much for appearance, and Mr. Long's specimens went to still further destroy the uniformity of the class. Any prevailing similarity, however, is scarcely a point here, as two of Mr. Rawlence's sheep standing side by side, one taking a prize and the other a high commendation, were very different to each other in the colour of their countenances as well as in expression; the one having almost a white face, and the other a dark one. In the class of old sheep again there was the same difference observable, although Mr. Rawlence would have taken both first and second prizes but for his best, a very handsome true-framed ram, having broken down badly behind, and Mr. Canning came in accordingly with a very good smart sheep. But it was amongst the yearling ewes that the especial excellence of the Hampshire Downs centred, the Bulbridge first prize pen being really admirable, and three out of the five about the very best of the breed ever brought together. Not but that the lot were nicely sorted, and as they show more style and breeding than the rams, and moreover handle famously, we may safely record 102 in the catalogue as the finest sight in the show. Still, the whole class was a good one, with not an exhibitor in it but who was complimented by the judges, even if the prize ewes placed themselves. Mr. Rawlence encountered no competition amongst the ewes and lambs, though the four premiums were fairly earned and as duly awarded.

The Downs "proper" were in no such force, where Sir William Throckmorton had it all his own way with some neat well-bred rams and a still better pen of ewes, the ladies again having the call. Lord Radnor's sheep were by no means up to their usual standard, and we never saw Mr. Farquharson show to less advantage; though the wooden spoon went palpably enough to Mr. Neville Grenville for some poor plain wretched things that would promise to send the South-down quite out of fashion in Somersetshire. Nor were the Shropshire Downs any better, and, with two out of the three Shortwool judges Shropshire men, a strong proportion of the prizes were withheld. Mr. Mansell's prize rams are straight, serviceable animals; but Lady

Willoughby de Broke's flock is going back, and Mr. Holland makes no advance on the mediocrity that has latterly marked his efforts in the way of breeding a prize sheep. Mr. Beach's ewes are better; but with Mr. Horton's entries not forwarded, there was really nothing to beat, and the return of the second prize to the coffers from which it came notes significantly enough the character of the competition. Mr. George Wallis, from Bampton, was the only exhibitor of Oxford Down rams, sending three into the shearing and two into the old class; but the judges refused to acknowledge more than one prize sheep amongst the former; whilst Mr. Fletcher, from Fovant, had only himself to satisfy with an up and down pen of ewes, the Oxfords thus apparently coming into use about Salisbury.

The Somerset and Dorset rams, however, should share with the Hampshires the credit of representing the district, as they did very handsomely, Mr. Danger and Mr. Pittfield being, as usual, amongst the most successful exhibitors. They were opposed nevertheless, and not altogether in vain, by one or two new men, Mr. Henry Mayo's first prize ewes being a particularly level and pretty pen. But these horns ewes generally show a deal better than the rams, which are rather coarse, flat-sided animals, when once you get beyond their picturesque heads, with the points of their horns curling into their very eyes. But, let him tell as he may on the show-ground, it is the early lamb that proves the Somerset or Dorset; and the commended sheep of Mr. James—another new man in this way—was one of a second crop, having been dropped in the summer, after the first had been fed off. But Mr. James was sighing for another opportunity with his Herefords, which are wasting all their sweetness in the solitudes of Mappowder, instead of taking first prizes at the West of England and the Royal. Of the four Mountain sheep exhibited by Mr. Mander and Mr. Quartley, two received prizes and one a high commendation, as there is no doubt but that, for his purpose, the active, hardy little Exmoor is full of good qualities, try him as you may, for mutton or wool.

As with the Short-wools, the show of Long-wool sheep at Salisbury was noticeably unequal; for the Leicesters were very moderate, the Cotswolds very good, and the Lincolns very bad. The competition, moreover, amongst the Leicesters was very limited, Mr. Gould having it all to himself in the old-ram and ewe classes, with three entries for four prizes. These Poltmore rams are very light, small, but bloodlike sheep; whereas the ewes were so poor, with such little substance and such bad legs of mutton, that nothing but "compulsion" could have warranted their ever winning a first prize. When they so choose it, there is no sheep shows like a Cotswold. There is no other clips so nicely into shape, as few face you better, or present generally a more imposing appearance; and there were some admirable examples of this happy union of qualities at Salisbury. For its extent, it was really a great show of the sort, led off by Mr. King Tombs' shearlings, to whose merits we spoke at Basingstoke, but of whose individual merits the judges here took a different view; for the second-best at Basingstoke they now put first, and the then first second; Mr. Herbert separating instead of leading the Longford couple; and Mr. Gillett and Mr. Beale Browne further contributing to the strength of a class pretty generally commendable for fine character and goodly proportions. Mr. King Tombs' old ram, to whose size and girth we testified when we saw him the other day in Hampshire, was again the first of his order, though Mr. Gillett showed three capital rams against him; the second prize, beyond his weight and appearance, having a good firm touch—not always such "a proof" with the Cotswolds.

The Oakland ewes, again, were both lots very good; and despite the absence of the Garnes, the Lanes, and others, the Cotswolds fairly held their own when put over the Hill. The "other" long-wools answered very much to their indifferent description. Mr. George Radmore, who had been commended for a Cotswold-looking Leicester, now won with a Leicester cross; and Mr. Herbert, of East Leach, was second with a Longwool, as he was also with a Cotswold; while Mr. Clarke Hales was the chief champion of the Lincolns, which are bred, we believe, direct from Lincoln blood, and have previously taken prizes about their new home in Cambridgeshire. The oddest-looking sheep, however, of this very odd lot was that of Mr. Allen, described as "a Down ram," and classified accordingly amongst the other long wools! The judges duly awarded every prize here at their disposal; but it is satisfactory to say that they did not commit themselves to a commendation.

With special prizes given by the local committee for Berkshire pigs, some of the best of this breed were still to be found in the open classes, where they were opposed by Mr. Duckering's large Yorkshire or Lincolnshire whites, and generally with the worst of the comparison. A great North Country hog has, however, little beyond his mere size to recommend him. He is coarse in quality, almost bare of any coat or covering, and generally overdone as a breeding animal. With many of these characteristics, Mr. Duckering's pigs do not show the excesses of some of the Leeds fanciers, and his old boars were very properly at the head of a small class; but his single younger boar had no chance with the Berks, of which Mr. Stewart and Mr. Humfrey sent two very excellent specimens, neither too old-fashioned nor "improved" into too delicate a sort, a fault either way that breeders are apt to commit. With good heads and collars, deep, square frames, and plenty of hair, Mr. Humfrey's pigs threatened to hold their places all through as well as they did at Basingstoke; but the sows were now put out, as it was said, for being over-fed for breeding purposes—a cause for disqualification that we should like to see more frequently insisted on; as, indeed, there were other prize-pigs at Salisbury that apparently could not stand, and that might have been condemned with equal justice. The "special" Berks were not, as we have just intimated, so good as their connections in the other classes. They were mostly bred too fine, or, at least, the prize-animals were; and are apparently fast getting away from the useful, hardy type, into a prettier, daintier kind, with which there is little to find fault on their own personal merits, if they scarcely fill the eye of a Berkshire man. Mr. Stewart's pen of hils are very taking; and the Rev. Henry Bailey, great as his reputation as a breeder about home, has his now-customary fortune in the show-ground of receiving nothing higher than a commendation; though Mr. Hewer does better with his couple of breeding sows.

The small breeds were all so good that, with one solitary exception, every entry in every class was noticed by the judges, of whom Mr. Moon, the great authority, testified strongly to the marked excellence of this section of the show. Mr. Duckering's so-called "little" pig, but big enough for anything in reason, are a nice set-off to his big brother, and we should certainly go for nothing beyond the middle breed, under which title if we remember aright they are occasionally entered. With good kind heads, in place of those terrible tusks and snouts, the small whites have capital collars and shoulders, more hair, and better quality. The winning colour, in fact, rather ran upon white, Mr. Pelham Warren also showing some nice white Yorkshires, and Lord Radnor coming in at last with a couple of Coleshills

Captain Warren, however, cultivates the black Essex, and Mr. Coles exhibited some very good specimens of the same sort, perhaps a truer type of what a small pig should be than what often passes under that denomination on our show grounds. It may be possible to make too much of a small breed, just as we may refine down a Berkshire by stealing in a taste of this same black Essex.

The Arts may flourish, the poultry maintain its excellence, the implement avenues extend their long length, but the horse show is still a difficulty with the Bath and West of England Society. Now this is a little better, then again rather worse, and the prize list is clipped or appended or amended until there is no standard to work up to. On this occasion the producing classes of hacks and hunters were altogether abandoned, the good policy of which was somewhat pointedly questioned by an exhibitor, who, seeing nowhere else to place her, insisted upon entering a brood mare with a foal at her foot in the class of all-aged hunters. This was certainly a novelty in its way, but otherwise the hunting classes were made up very much as they were last year, not only by the same exhibitors, but by the same horses. Captain Heygate's Mountain Dew for instance, that was highly commended as a four-year-old, now took second prize as a five-year-old, and a great fine horse he is, with big bone but clean limbs, and good long striding hunting action. Then his own brother, Denmark, first as a two-year-old at Hereford, and as a three-year-old last year, was first again as a four-year-old. He is another big one, but apparently not a pleasant horse to ride, and with a sharp bit to pull him well on his haunches, more in place as a charger than as a hunter. A third entry of Captain Heygate's, out of the same mare, but by Ancient Briton *vice* The Era, took the first prize for three-year-olds, and a very handsome filly she is, showing more blood and fashion than either of her half-brothers, but without their power. Then Mr. Luxton showed an own sister to The Prior, which last year took the first prize as a four-year-old, The Novice being now placed second in the same class, but disqualified as going blind, and so the prize went to Mr. Woodcock's Head-Centre by Drogheda, that was also second last year to Denmark. He is a common animal enough, but the Novice is a nice blood-like filly, though with the fidgetty, worrying action of her sire, the Bald-faced Stag. So far there was not much encouragement in the way of breaking fresh ground, but the first prize all-aged hunter infused a little more spirit into the daily parade. This was the famous Yorkshire-Irish horse Voyageur, the best weight-carrier at Islington last year, and first, second, and first, over and over again in his adopted country. He is now at eight years old a handsomer horse than ever; but he should never be hurried out of his marching walk; or to see him at his best his portrait should be taken in his box. A far nicer nag to ride was Mr. Paull's highly-commended horse, a similar compliment being paid to Mr. Pinekney's wonderfully good-looking brood mare, but she should have had a prize and a class of her own. The three-year-old hunting colts and fillies were only a moderate field, the most showy one of the lot being put out, after a division between the Judges, mainly from his having a clipped knee; but as he was bought there and then by Mr. Barnes, the well-known dealer from Audover, this could not have so much mattered, and no award was more discussed by the public. The pair of prize hacks were both very commendable. Golden Locks for her looks and the horse for his action; while the few ponies were so bad that the prize might very properly have been withheld, as the very winner can hardly be worth the ten pound note he took home with him. The Birmingham Meeting no doubt did some damage to the Salisbury nag-show; as, had they not been both on to-

gether, Mr. Milward for one might again have given some support to the West of England.

The distinction, often enough without a difference, between heavy draught and common cart-horses, is no longer insisted on, although this opening of the ranks did little to increase the competition in the two classes of stallions for agricultural purposes. There were half-a-dozen all-aged horses entered, the best of which, the grey Britain, is a rather clever compact animal, with a good kindly head, deep in his girth, and smart in his action, but with indifferent hocks, and altogether falling away behind. He has the merit of being a home-bred one, and his dam was a well-known winner in her day at the local meetings. Mr. Gale's second is a heavy-topped chesnut of no great merit; while as good, or a better-looking horse than any of the others was a four-year-old, that, however, roared so fearfully and lashed out so viciously that it was quite a relief to see him ordered not only out of the ring, but off the ground. The two-year-olds rather wanted weight, as Mr. Newman's second prize colt has style enough for a carriage horse; and Mr. Gibbs' first is another light, quick mover, but with more power than the other, and there was no question about his place, the more especially as the judges reported very disparagingly of the class, though somewhat strangely they appended a high commendation to the two premiums at their disposal. There was more showing for such a compliment amongst the mares and foals, where Mr. Holland led off with the "Royal" Matchless, still wearing fresh and well at fourteen years old; a great weighty mare of Mr. Gollidge's getting second, though with her foal sadly injured after he reached the ground. But the pick and pride of the draught horses centred over the pairs in work, Mr. Lavington's roans being remarkable not merely for their size and power, but for their general good looks; while Mr. Gibbs matched another pair of capital roans, and Mr. Simpkins a third "set," that even the Lincolnshire judge admitted it was worth coming all the way to look at. The only wonder is that the competition was so limited, the county being, as it is said, somewhat famous for its plough pairs, a character which the sample went far to sustain.

The dog show was very discreetly suffered to drop through; but there was a sheep-shearing match that, under the full blaze of the sun, it was impossible to stand out, with the more grateful shade of the flowers and shrubs, or the poultry-tent so handy. The game fowl struck us as being very good, the single cock birds more particularly; and the Spanish were also declared upon authority to be excellent; but otherwise the strength of this department was hardly up to an average, at least in merits, although the entries were more numerous than ever.

## PRIZE LIST.

### SHEEP.

#### LEICESTERS.

JUDGES—(And for other Long-wools.)

J. Clarke, Long Sutton, Lincoln.

J. Moon, Maristow, Roborough, Devon.

T. Potter, Yellowford, Collumpton.

Yearling rams.—First prize, £10, and second £5, J. Gould, Pottimore, Exeter. Commended: G. Radmore, Court Hayes, Thorverton, Devon.

Rams of any other age.—First prize, £5, and second, £3, J. Gould.

Pens of five yearling ewes.—First prize, £10, J. Gould. (No competition).

#### COTSWOLDS.

Yearlings rams.—First prize, £10, J. K. Tombs, Langford, Lechlade; second, £5, T. Herbert, East Leach Thurville, Lechlade. Highly commended: J. Gillett, Oaklands, Chalbury, and J. K. Tombs.

Rams of any other age.—First prize, £5, J. K. Tombs;

second, £3, J. Gillett. Highly commended: J. Gillett, for two other rams.

Pens of five yearling ewes.—First prize, £10, and second, £5, J. Gillett. Commended: T. Beale Browne, Salperton Park, Andoversford.

## OTHER LONG-WOOLS.

Yearling rams.—First prize, £10, G. Radmore; second, £5, T. Herbert.

Rams of any other age.—First prize, £5, G. Radmore; second, £3, Clarke Hales, Bassingbourne, Royston.

Pens of five yearling ewes.—First prize, £10, and second, £5, Clarke Hales. (No further competition).

## SOUTH-DOWNS.

JUDGES—(And for other Short-wools).

H. Bone, Ringwood.

G. Curoton, Beam House, Shrewsbury.

C. Randell, Chadbury, Evesham.

Yearling rams.—First prize, £10, Sir W. Throckmorton, Buckland, Faringdon; second, £5, the Earl of Radnor, Coleshill, Highworth. Highly commended: Sir W. Throckmorton.

Rams of any other age.—First prize, £5, and second, £3, Sir W. Throckmorton. Commended: The Earl of Radnor.

Pens of five yearling ewes.—First prize, £10, Sir W. Throckmorton; second, £5, the Earl of Radnor.

## HAMPSHIRE DOWNS.

Yearling rams.—First prize, £10, R. Coles, Middleton Farm, Norton Bavant, Wilts; second, £5, J. Rawlence, Bulbridge, Wilton. Highly commended: J. Rawlence, and W. F. Bennett, Chilmark, Wilts. Commended: J. Rawlence, and W. F. Bennett.

Rams of any other age.—First prize, £5, J. Rawlence; second, £3, W. B. Canning, Elston Hill, Devizes. Highly commended: J. Rawlence. Commended: E. Olding, Ratfin Farm, Amesbury.

Pens of five yearling ewes.—First prize, £10, J. Rawlence; second, £5, W. B. Canning. Highly commended: J. Rawlence and W. F. Bennett. Commended: E. Waters, Stratford-sub-Castle, Salisbury, A. Morrison, Fonthill House, Tisbury, and J. Rawlence.

## HAMPSHIRE DOWNS.

Bred in Wiltshire, or within 20 miles of Salisbury.

Five four-teeth ewes, with their lambs, and in their wool.—First prize, £10, and second £5, J. Rawlence. (No further competition).

Five six-teeth or full-mouthed ewes, with their lambs, and in the wool.—First prize, £10, and second, £5, J. Rawlence. (No further competition).

## SHROPSHIRE DOWNS.

Yearling rams.—First prize, £10, T. Mansell, Adcott Hall, Shrewsbury; second, £5, J. Beach, Brewood, Dudley.

Rams of any other age.—First prize, £5, T. Mansell; (second prize withheld).

Pen of five yearling ewes.—First prize, £10, J. Beach; (second prize withheld).

## OXFORD DOWNS.

Yearling rams.—First prize, £10, G. Wallis, Old Shifford, Bampton, Farringdon; (second prize withheld).

Rams of any other age.—First prize, £5, and second, £3, G. Wallis.

Pens of five yearling ewes.—First prize, £10, A. Fletcher, Fovant, Salisbury. (No competition).

## SOMERSET AND DORSET HORNS.

Yearling rams.—First prize, £10, T. Danger, Huntstile, Bridgwater; second, £5, A. J. Pittfield, Eype, Bridport. Highly commended: H. Mayo, Coekers Frome, Dorehester. Commended: H. Mayo, and J. W. James, Mappowder, Blandford.

Rams of any other age.—First prize, £5, and second, £3, T. Danger. Highly commended: A. J. Pittfield.

Pens of five yearling ewes.—First prize, £10, H. Mayo; second, £5, T. Danger. Highly commended: H. Mayo.

## MOUNTAIN SHEEP.

Rams of any age.—First prize, £10, E. Maunder, Heasley Mill, North Molton, Devon; second, £5, J. Quartly, West Molland, South Molton, Devon. Highly commended: E. Maunder.

Pens of five ewes.—(No entry).

## HORSES.

## FOR AGRICULTURAL PURPOSES.

JUDGES.—R. C. F. Howard, Temple Bruer, Lincoln.  
V. B. Watts, Turnworth, Blandford.

Stallions foaled before 1865.—First prize, £30, W. Sainsbury, Hunts House, West Lavington (Britain); second, £15, W. H. Gale, Manor Farm, Burbage, Marlborough (Jupiter). Highly commended: R. Jacob, Baltonsborough, Glastonbury (Bumper).

Stallions foaled in 1865.—First prize, £20, E. Gibbs, Chitterne, Wilts (Banker); second, £10, A. T. Newman, West Dean, Chichester (Young Champion). Highly commended: E. Holland, M.P., Dumbleton Hall, Evesham.

Mares and foals, or in foal.—First prize, £15, E. Holland, M.P. (Matchless); second, £5, J. Gollidge, Whaddon Grove, Trowbridge (Blossom). Commended: J. Lush, Winterbourne Earls, Salisbury (Sober), and A. Lavington, Poulshot Lodge, Devizes.

Pairs of agricultural horses, foaled before the 1st of January, 1862.—First prize, £20, F. Lavington, Chitterne St. Mary, Heytesbury. (No competition).

Pairs of agricultural horses, foaled after the 1st of January, 1862.—First prize, £20, E. Gibbs; second, £10, J. G. Simpkins, Alton Priors, Marlborough.

## HUNTERS.

JUDGES (and for Hacks and Ponies).

H. Corbet, London.

H. Thurnall, Royston.

Mares or geldings, foaled before the 1st January, 1863.—First prize, £25, T. Sutton, Alwent, Darlington (Voyager); second, £10, Captain E. N. Heygate, Buckland, Leominster (Mountain Dew). Highly commended: E. C. Pinckney, Berwick St. James, Salisbury (Kathleen), and Wm. Paull, Fiddle-town, Dorset (Plaudit).

Mares or geldings, foaled in 1863.—First prize, £25, Capt. Heygate (Denmark); second, £10, J. Woodcock, Netherhampton, Salisbury (Head Centre).

Fillies or geldings, foaled in 1864.—First prize, £15, Capt. Heygate (Britannia); second, £5, Mrs. Louisa Malcolm, Beechwood, Totton (Sunshine). Commended: R. Canning, Townshend Manor, Over Wallop, Stockbridge.

## HACKS.

Mares or geldings, not more than six years old, nor exceeding fifteen hands high, calculated to carry not less than 15 stone.—(No entry).

Mares or geldings, not more than six years old, nor exceeding fifteen hands high, calculated to carry not less than 12 stone.—First prize, £10, R. K. Melson, Norton Bavant, Warminster (Golden Locks); second, £5, R. W. Melsome, Stockton, Heytesbury (Little Wonder).

## PONIES.

Mares or geldings, not exceeding thirteen hands high.—Prize of £10, R. Fookes, Milton Abbot, Blandford (Forester Bob).

## FIGS.

JUDGES.—J. Clark.

J. Moon.

T. Potter.

## LARGE BREED.

Boars above one year, and not exceeding two years old.—First prize, £5, and second £3, R. E. Duckering, Northorpe, Kirton Lindsey, Lincoln.

Boars, not exceeding one year old.—First prize, £5, A. Stewart, Saint-Bridge, Gloucester; second, £3, H. Humfrey, Kingstone Farm, Shrivenhams. Highly commended: A. Stewart. Commended: W. Hewer, Sevenhampton, and J. K. Tombs.

Breeding sows.—First prize, £5, and second £3, R. E. Duckering. Highly commended: J. D. Allen, Tisbury; and H. Humfrey. Commended: H. Humfrey.

Two breeding sows, not exceeding nine months old.—First prize, £5, R. E. Duckering; second, £3, W. Hewer. Commended: A. Stewart.

## BERKSHIRE.

Boars.—The prize, £5, W. Yells, Highworth. Commended: J. Rawlence, Bulbridge, and J. K. Tombs.

Sows of any age with pigs, or in farrow.—First prize £5, J. K. Tombs; second, £2 10s., the Marquis of Ailesbury, Home

Farm, Saverlake Forest. Highly commended: H. Rivington Cirencester, Gloucester, Sir W. Throckmorton, Bart., and W. Yells. Commended: H. Rivington.

Three hilt, above four and not exceeding eight months old. First prize, £3, A. Stewart; second, £2 10s., W. Yells. Highly commended: Rev. H. G. Baily, Swindon.

#### SMALL BREED.

Boars above one year, and not exceeding two years old.—First prize, R. E. Duckering; second, £3, Captain R. P. Warren, Worthing House, Basingstoke. (No further competition).

Boars not exceeding one year old.—First prize, £5, E. Coles, Yeovil; second, £3, Captain R. P. Warren. Highly commended: E. Coles and R. E. Duckering. Commended: The Earl of Radnor.

Breeding sows.—First prize, £5, R. E. Duckering; second, £3, E. Coles. Highly commended: E. Coles, and J. D. Allen.

Two breeding sows, not exceeding nine months old.—First prize, £5, The Earl of Radnor; second, £3, Captain R. P. Warren. Highly commended: R. E. Duckering.

VETERINARY INSPECTOR.—Professor Browne.

## THE IMPLEMENTS.

### NOVELTIES AND FIELD TRIALS.

The first business here was a walk through the one-hundred-and-seventy "stands" furnished by one-hundred-and-twenty-four exhibitors, in search of any article of novelty or peculiar interest.

On Clayton and Shuttleworth's stand of engines and machines was a quite new implement—Gillyatt's patent liquid-manure and water-drill. Imagine a barrel-churn hung inside a light framing, with a couple of carriage-wheels and a pair of horse-shafts, the revolution of the wheels causing the barrel to rotate. A number of cups fixed inside the barrel keep the manure and water constantly stirred up, and raise the liquid in equable quantities into a funnel, whence it flows through a hollow axis out of each end of the barrel, and passes down a couple of pipe-coulters. The stream may be either continuously or intermittently delivered by means of slide-valves, worked by levers and cams, upon the outer surface of the barrel; and these are so "timed" that the dropping deposits in diagonal as well as in lineal rows, to give the plants more space and air. A seed-box is attached behind, having an easy and pretty arrangement for raising and lowering the coulters. This light implement keeps the mixture constantly free from deposition of sediment, and delivers a full stream to the last.

A novelty among engines is the oscillating fixed-engine of Deacon and Wood. The expensive parts of the ordinary oscillating cylinder, valves, and couplings are avoided, by admitting the steam directly at each end of the cylinder through ports in raised faces rubbing against an intermediate slotted-plate, which, worked by an eccentric, acts instead of valves. We doubt whether the friction incurred by this form of engine will be a smaller evil than the multiplicity of working parts which it has displaced.

March and Spencer's "Fourneyron turbine" appears well-adapted for driving farm-yard machinery, where a deep fall of water is obtainable, as it avoids the expense of the heavy work of fitting a water-wheel, and, running with a speed of 200 up to 900 revolutions per minute, no heavy shafting and multiplying cog-wheels are required. This firm show a good apple-mill, in which the "breaking down" is done by a Bentall pulping-barrel, placed over a pair of granite crushing-rollers.

Tuxford and Sons have brought out a new thrashing machine, adapted for being driven by a four-horse portable engine, yet able to knock out 30 qrs. per day. Their large machine has the compensation-crank straw-shaker. The white-coater (consisting of wood beaters revolving within a fixed cone of perforated sheet-iron) has been placed at the bottom of the machine, just below the

elevators, which is an improvement; and one of the cleverest pieces of mechanism we have seen is their rotary screen, composed of longitudinal square steel wires, which are adjusted to different widths of interstice by simply being turned round upon their axes, this being accomplished by a pretty movement, much like "changing the tunes" in a self-acting musical box.

The Machinery-in-motion department, we believe, is hardly so extensive as it was last year; but the foregoing observations show that abundant interest is to be found in it for persons about to purchase.

On Messrs. Howard's long stand the most noticeable implements are a new double-furrow plough, made with wood beam and handles, exceedingly portable in turning at the ends of the field, and extremely simple in the mode of attaching the share and slipe to the body—altogether, an implement precisely adapted for saving labour. The "cellular malleable iron" plough-body, on the principle of tubular structures, is a novelty in the right direction, giving great strength, with the utmost lightness. The four-beamed and handled drag-harrows, with the new chisel-tooth, are just what has been wanted in many districts, for securing a thorough surface-tillth. A drawing of the new Bedford boiler was shown—a most original invention, in which the water is entirely contained in tubes, and possessing a series of practical advantages that must secure for it the greatest attention of the engineering world.

Coleman and Morton's new oilcake cutter is a decided success. There is less waste in dust, the pieces are of more equable size, and the crank is much more easy to turn than in the old breakers; and for sheep and lambs we get nodules like dice, or rather like hazel nuts, instead of like nutmegs or inch-cubes, which is a considerable advantage.

On the extensive stand of Ransome and Sims we also observed some novelties. The "Skelton" turnwrest plough has now a handy method of altering the wheel-gear for traversing a right or left furrow without the ploughman leaving his place for the purpose; in fact, he has only to pull a string, which releases or locks a bolt. The digging breast, for attachment to ordinary ploughs, is a most effective addition, invaluable for fallowing purposes; and here, for a few shillings, you get the power to perform a quality of tillage second only to that of steam cultivation. A clever little machine of this firm is the "Automaton" lawn-mower, and the mechanical arrangement for throwing in or out of gear without a clicking ratchet, and without any attention from the workman, is exceedingly good.

The field-trials, or, as the performances ought to be called, "the exhibition of field-implements in action," attracted large numbers of spectators on Tuesday and Wednesday. A light, short crop of old meadow grass, on an up-and-down surface, with banks in some places, and something very like a watercourse to be crossed in others, formed a queerish test for the grass-mowers; but, on walking across the plots done and in witnessing the work of most of the machines, we considered that the trial was, on the whole, satisfactory. Hornsby's machines made good work, in spite of an accident on the railway having been with difficulty set in time for the field-day. Bamlett's cut close and well; and Piekley and Sims, Brigham and Bickerton, Young, Wood, Samuelson, and Burgess and Key, all kept up the credit of their machines; though it was not demonstrated what would have been done with an excessively heavy crop of grass. The clover-cutting on the Wednesday was an excellent test; in which Cutbrett also competed with his one-horse reaper, laying the clover in neat, sheaf-bunches, instead of a swathe. The requirement of the South and West of



England is for machines that will deliver clover and other artificial grass in swath, out of the way of the next round of the horses. The climate is hot enough to make the stuff into good hay without its being spread; and thus knocking off the leaf is avoided.

The hay-tedders and horse-rakes, in due course, followed the grabs-mowers. Howard's haymaker tossed, separated, and lightly laid the grass to perfection. His machine is this year fitted with a hexagonal instead of round wood-roller, and a frame upon which no hay can accumulate. Ashby and Jeffery's haymaker, with solid axle, and the most simple possible gearing, is able to ted with ease a crop of four tons to the acre: it is fitted also with thick-cutting knives, and manure spreaders, for attachment to the forks. Nicholson's haymaker supported its high character for performance; and his newest pattern is offered to the public at a low figure, "complete," without any extra charge. Le Butt's "Champion" haymaker has both front and sides formed of one continuous solid bar of iron, of the strongest possible construction, and is a very efficient machine.

Among the horse-rakes, we singled out Messrs. Howards', as certainly making the cleanest and most perfect work. Howell's, with a seat for the driver, and a self-acting delivery, is very cleverly contrived, but did not approach the machines of Howard, Ashby and Jeffery, and Nicholson in actual work. A very smart little tool is Ashby and Jeffery's hand-rake, with the easiest lever-movement for dropping the load, without the man having to stop for an instant. The work is so well done that the saving of stuff must alone pay for such an implement over and over again in the course of a summer and harvest.

Horse-hoes and ridge-harrows, were worked at intervals upon crops provided for the purpose, and what little we were able to see of the performances confirmed our opinion that for simplicity and effectiveness on level lands Smith's horse-hoe is not yet surpassed; while Garrett and Sons are not beaten for hoes on the coulter-lever principle.

The reaping-machines had plenty of space and time allowed them; but at this time of year no proper test can be provided; and if a machine can cut and deliver anything, it is a crop of light upstanding rye.

On Monday and Tuesday the Beverley Company's three-horse reaper was engaged in cutting round the fields and opening the crop into plots, which were assigned to the various machines by lot. The Beverley machine, having adopted a chain in place of the india-rubber delivery belt, is able to cut closer to the ground than formerly, while sundry other valuable improvements in detail have been made. The reel is driven more slowly, and so is less liable to thrash out corn; the raising and lowering, and the reversing motion have been simplified, and the under-side of the fingers or guards has been rounded, thus reducing the resistance and preventing clogging.

Burgess and Key exhibited in action their newly-improved McCormick side-delivery sheathing reaper; and the cutting, and delivery both were particularly well done, the reel-rake easily pushing off the cut rye from the quadrant platform in neat bunches. This year, one-half the reel-supporting frame is done away with; all the mechanism is supported by the large main-wheel alone; the weight of the driving man is made to counterbalance that of the platform, thus relieving the small off-side travelling wheel of weight, and the horses are relieved of the weight of the pole; and by these alterations, the draught of the machine has been reduced to a surprising extent. A clever notion is making the driver's seat and foot-rest moveable, so as to be turned out of the way for travelling on the road and

passing through gateways, which, again, is further facilitated by folding the divider over the platform.

Brigham and Bickerton's "Buck-eye" combined reaper and mower is well known as an efficient and well-made machine; Brenton's, with roller platform, was also in the field; as well as a one-horse machine of Young, another Wood, and another of Samuelson. Wood's appeared to give every satisfaction to the crowds of farmers and others who followed it in work, the machine having been specially improved by the adoption of a better and stronger plan of hinging the cutter-bar, and we learned that many thousands have been already sold for the season. Cuthbert's one-horse reaper—strongly made as ever, but improved in several details—was evidently a favourite, and the work which we saw done could hardly have been excelled.

Samuelson's cheap "Eclipse" is a capital tool, and must continue to be in very great demand. The Banbury self-raking reaper cuts well; but the delivery of the sheaf and bunches scarcely comes up to our ideas—at any rate not for dealing with a heavy crop.

Hornsby and Sons' "governor self-raker" certainly deposited very-well laid sheaf-bunches, all straight and square across the ends, and 6 feet away from the standing crop; the "action" wonderfully smooth, the rakes being guided in their rotatory sweep by a contrivance somewhat like a steam-engine "governor" in general shape, and having the advantage of acting continuously, instead of with the intermitting motion or irregularity of pressure and friction involved in the use of a cam.

The "Universal Harvester" is likely to be a valuable machine for light-crop districts, and when used for side-sheafing clears, as we believe, a wider track than any other machine does, and this saving of the cut corn from tramping is a most important point.

The most peculiar novelty among the reapers is the new machine of Turner and Farlon. A nearly upright spindle carries two nearly horizontal revolving arms, a rake depending from the end of one, and a collecting-board from the end of the other. These rakes preserve parallelism by means of bevel-wheels and spindles placed inside the hollow iron arms above, the whole being most ingeniously and yet simply contrived. In this machine there is a very simple arrangement of a single rake and collector, revolving in nearly a horizontal plane, a short distance from the ground, and which enters the corn at the side, and therefore does not strike or even touch the ears; and, if the corn is laid *from* the machine, the rake and collector will pass under it and bring it to the knife. The sheaves are delivered by the rake at the side of the machine, clear of the horse-track. To give the necessary reciprocating action to the knife, the crank and long connecting rod are dispensed with, and substituted by the novelty of an improved oblique disc.

The present form of platform is objectionable; the rake does not get close enough to the knives to keep them clean; and the "orbit" (so to speak) of the rakes will have to be placed in a different plane. For very heavy crops we should say that two collectors and two rakes are necessary; and, after watching the position and form of the sheaf-bunches delivered, we think that an improvement would be made if a slow rotation could be given to the stems which support the rakes, so that the rake should partly pull the corn off the platform.

The working of steam-cultivators on Wednesday drew a large concourse of spectators. Messrs. Howards' to-and-fro-cultivator broke up very stony soil in a manner leaving nothing to be desired: the tackle being the so-called "roundabout" arrangement, with compensating double-snatchblock for regulating the tension of the outgoing rope, the Bulstrode slings for expediting the removal

of the pulleys at the ends, and the eccentric-axle windlass; the whole being driven by Clayton and Shuttleworth's ten-horse traction-engine. We saw the four-furrow plough making perfect work, with straight furrows beautifully laid up; and it was remarked by bystanders that an implement capable of cutting and turning such a hard yet powdery soil, full of stones, must be able to make splendid performance on a moist loam suited for "premium ploughing." The Bedford drag-harrows for steam-power are well-known, but this year, a set of very wide and much lighter harrows have been adapted to the steerage-frame; and no person who has a "roundabout" set of tackle ought to be without the harrows, which are found to be even more meritorious in performance than the cultivator itself.

In a far field we found Messrs. Tasker's new apparatus at work. The windlass, as exhibited on several previous occasions, and used by many agriculturists in Wiltshire and some other counties, has a hand-wheel between the two drums; all the spur gearing is inside the drums, the putting in and out of gear being accomplished by friction-brakes. By this machinery any desired amount of tension is given to the outgoing rope; the engine is never stopped, and if the implement should strike upon an unbreakable root or an immovable rock, the friction-brakes slip, instead of the rope or implement being fractured—at least such is the design, and also the actual effect in some cases. The arrangement of snatch-blocks is just that of Mr. Smith of Woolston. The present novelty consists in a set of new implements for drilling, harrowing, rolling, and performing other light tillage operations. A corn drill, with fifteen coulters, and taking 5 feet 2 inches width at once, is hauled by the wire rope, and guided by a fore-carriage steering-wheel under the control of a man who rides on the drill. The steering-wheel is placed so far forward as to admit an iron drag harrow to follow it, in front of the coulters. Hung by a draught-chain to the back of the drill is a broad whipple-tree, with a set of three light iron seed-harrows; and behind these is a field-roller, constructed in two independent halves upon one axis, and a castor or swivel-wheel in front, the light roller-frame carrying a broad-cast sowing-box for small seeds. Of course, the whole series of tools goes along smoothly and pleasantly enough in straightforward work, the harrows and roller following in the track of one of the drill wheels instead of "in the middle," so as to balance the drag of the tail-rope which passes off outside the other wheel of the drill: the difficulty is in turning round such a string of implements for the return journey. The inventor, Mr. Robert Higgins, of Marchwood, Hants, does this by the following expedient: The drill-man sets his steerage-wheel to the proper angle, and raises, by one movement, eight of the fifteen drill-coulters, the tail-rope then being able to pull the drill round without backing it too much. How do the harrows and rollers get out of the way? Their draught-chain is hung upon a strong slide-bar, extending the whole breadth of the drill; so that directly the drill begins to turn round, the chain slips along the bar, from one end to the other, and the drill has turned round and commenced its journey almost before the harrow and roller begin to turn. Very little improvement in the details will apparently make the plan quite practicable for the guidance of only one man. The drill probably weighs less than three-quarters of a ton. We were told that ten acres have been harrowed to a tilth, sown and harrowed, seeded and rolled down, in 4½ hours.

We might suppose that harrowing is not an operation to be profitably executed by steam power; but the fact is that no steam process gives greater satisfaction. And so with this drilling, we can readily believe that, light as the work looks for a powerful engine, it will well please any man who has got his land into—not simply agri-

cultural, but truly—horticultural order, and is loath to tread down its fineness and moistness into the plugs of eaked mortar which would surely be left by every horse's foot.

#### THE IMPLEMENT STANDS.

**TASKER and SONS, Andover.**—Three-horse-power portable steam engine, for small occupations; four, six, and eight-horse-power single-cylinder portable steam engines; fourteen-horse-power double-cylinder portable steam engine; two and four-horse-power portable thrashing machines; single, double, and treble-blast combined portable thrashing machines, for steam and horse-power; Hayes' straw elevator; grinding, bruising, and crushing mills, for steam or other power; steam and horse-power chaff-cutting machines; portable sifting-chaff engine, for accompanying a portable steam-thrashing machine; screw lifting jacks; shepherd's house, or portable granary; rape and linseed crushers; iron one and two-wheel and other ploughs, for light, heavy, and general work, in great variety; iron plough sledge, for removing ploughs from one part of the farm to another; iron whipple-trees; sets of three four-beam trussed-frame and trussed-beam iron harrows; iron expanding drag and chain harrows; Coleman's cultivator or scarifier; improved winnowing machines; fifteen and thirteen-coulter corn drills, without manure; small occupation turnip-seed and manure drills; barrow pumps, for agricultural purposes; broadcast corn, seed, and grass-sowing machines and manure distributors; parallel steerage, expanding, and other horse hoes; one, two, and three-horse-power reaping machines, by different makers; double-action haymaking machine; self-delivery horse rakes; Boby's and Ransome and Sim's self-cleaning corn screens, with stone separator; set of one-horse-power gear work, with chaff cutter; hand-power chaff cutters; Gardner's double-action turnip cutters; and Bentall's root pulpers; iron field and Cambridge press-wheel rollers and land presses; patent windlass for steam cultivation; (new implement) patent apparatus for scarifying, drilling corn, and other seeds, harrowing, rolling, and sowing grass and clover seeds, in one operation, to be worked by steam-power, and so constructed that the several implements can be easily disconnected and fitted for use by horse-power; Smith's wrought-iron cultivator, for steam-power, and Fowler's four-furrowed steam plough; galvanised horse, cattle, sheep, and pig water troughs; set of well machinery, for drawing water; iron water and liquid-manure carts; lawn-mowing machines; garden rollers; corn elevators; sack holders and sack barrows; and specimens of wrought-iron and galvanized garden chairs.

**HORSBY and SONS, Grantham.**—Eight-horse-power portable engine, with contracted steam chamber; four and a-half feet finishing thrashing machine, for preparing corn for market; swathe self-delivery, royal "Governor" self-raker, semi-manual side-sheaf delivery, one-horse back-delivery, and universal harvester reapers; patent "Paragon" and combined reaper and mower; and ten-row corn and seed drills; (new implement) new pattern "M.B." turnip cutter, fitted with angular knives, that may be taken out singly or collectively for sharpening or replacing; (new implement) "M.T." root pulper, fitted with single steel diamond-pointed knives, arranged so that no two of them pass over the same track; "L.I." ditto, of smaller dimension and capacity; an assortment of ploughs, suitable for every variety of work; washing, and combined washing, wringing, and mangling machines; patent mangles; and 10½ and 12½-inch forkleg wringers, fitted with metal screw and brass bush.

**MARSHALL, SONS, and Co. (Limited), Gainsborough.**—Eight-horse-power portable steam engine; combined thrashing and finishing dressing machine; improved straw elevator; and improved circular-saw bench.

**POWIS and Co., London.**—Improved mortising, tenoning, and boring machines; improved "joiner universal"; band-sawing machine; joiners' saw bench; self-acting circular-saw bench; and improved three-cutter moulding machine.

**HUMPHRES, Pershore.**—Seven-horse-power portable steam engine; (new implements) two combined double-blast thrashing, shaking, riddling, barley awning, winnowing, and sacking machines, fitted with Conlson's patent wood spring hangers, and Penney's patent self-cleansing rotary screen, which makes three separations of grain; and pair of 2½-inch eider press screws, with iron work complete.

CLAYTON, SHUTTLEWORTH, and Co., Lincoln.—Six, seven, and eight-horse-power single-cylinder portable steam engines; ten-horse-power double-cylinder steam traction engine; double-blast thrashing and finishing-for-market machines; portable straw elevators; and (new implement) an improved patent liquid-manure and water drill, for seeds on ridge and flat, light in draught and simple in construction, whereby one horse will drill from seven to eight acres per day.

GARRETT and SONS, Savannah, Ga.—Improved eight-horse-power agricultural portable steam engine; (new implement) Allen's patent eight-horse-power portable steam engine, the consumption of fuel guaranteed not to exceed four pounds per horse-power per hour; improved thrashing, dressing, and finishing machines, and corn-winnowing machines; seed, manure, "Suffolk," and small-occupation drills; American grist mills; and (new implement) a patent rick ventilator, for ascertaining and regulating the temperature of the stack and to prevent superfluous heat without disturbing or damaging the contents of the rick.

WALLIS, HANSLAM, and STEEVENS, Basingstoke.—Four and eight-horse power portable steam engines; thirty-six inch and fifty-four inch steam power combined thrashing and finishing machines; Hayes' twenty-four feet straw elevator, to deliver at any angle; corn dressing and winnowing machine; corn screen; oilcake breaker; combined sack holder and sack cart, and two sizes of spherical self-adjusting bearings; fixed gear; two-wheel iron and two-wheel galloways gear ploughs; sets of three and four-beam Excelsior drag and other harrows; twenty-eight-tooth steel tooth horse rake; thirteen-row lever corn drill; five-row turnip and manure drill; one-wheel universal drill steerage; five and seven-tined Coleman's patent scarifier; hand power vertical drilling machines for drilling metals; and four-horse portable horse power thrashing machines.

GIBBONS, P. and H., Wantage, Berkshire.—Seven-horse power portable steam engine, and portable combined thrashing machine.

PICKSLEY, SIMS, and Co., Leigh, Lancashire.—Six-horse power portable single cylinder steam engine, and two-horse power vertical steam engine; an assortment of chaffcutters, of various sizes, for hand, horse, or steam power; oat, bean, Indian corn, and other crushers; Hardley's and other roller mills; disc root pulpers; treble action and disc turnip cutters; one and two-horse reapers and combined mowers; (new implement) horserake, with oval steel teeth, of very light leverage, to be worked easily by a boy, mounted on high wheels; hay and manure forks, hand drag rakes, garden rollers and chairs, wringing machines, grindstone and trough, sack trucks, one-horse power gear, single-purchase crab, and cattle and pig troughs.

AGRICULTURAL and HORTICULTURAL ASSOCIATION, London and Manchester.—Improved four-horse power portable steam engine; swing plough, with steel breast; chaffcutter; portable poultry enclosure and iron house; thirty samples of patent machine-made galvanised and iron wire fencing, in every variety and strength, for poultry, horses, cattle, sheep, garden, and field; wrought and cast iron garden hurdles; field, garden, park, and farm gates, with ornamental pillars, spear heads, &c., complete; cast and wrought iron tree guards and palisadings; wrought and cast iron garden seats, chairs, and rollers; flower stands, garden vases, garden engines, wire baskets, hencoops, lawn mower, terminal saddle boiler, portable forge, and samples of asphalt roofing.

BARROWS and CARMICHAEL, Banbury, Oxon.—Eight-horse power portable steam engine, combined thrashing and corn finishing machine, two lever lifting jacks, and specimens of waterproof leather and India-rubber driving bands.

WILKINS, Ipswich.—Eight-horse power portable steam engine, mounted on three wheels; and four sizes of grinding mill and chaffcutter combined.

ROBEY and Co., Lincoln.—An improved seven-horse power portable steam engine, with slide-valve arrangement for obtaining higher power with less consumption of fuel, and portable combined double blast thrashing and finishing machine.

BROWN and MAY, Devizes.—Three-and-a-half and eight-horse power portable steam engines, two portable combined thrashing machines, and two portable self-sharpening American grist mills.

DEACON and WOOD, Reading.—(New implement) eight-horse power oscillating fixed steam engine, with raised face at

each end of cylinder, communicating with steam chest and expansion valve.

MURCH and SPENCE, Bridgwater.—Fourcyron turbine, adapted for various falls of water; Appold's centrifugal pump; (new implement) apple mill, fitted with entirely new adaptation of breaking-down gear, with granite rollers underneath; double-action brick and drain-pipe machines; small hand-power brick and drain-pipe machine; socket pipe die; contractor's pump, and double and treble Roman tile mould horse and striker.

RANSOMES and SIMS, Ipswich.—Eight-horse power portable steam engine; combined double-blast finishing steam thrashing machine; iron water-pan, to hold 90 gallons; five iron-beam ploughs, for light, heavy, and mixed soils; two moulding or ridging ploughs; two Skelton's turnwrest ploughs; subsoil, ridging, potato, and digging bodies; sets of trussed iron whippetrees and equalizing pommeltrees; set of three patent jointed harrows; Poyser's patent screen and patent self-cleaning adjustable rotary corn-screen; patent bean-cutter; steel combined, universal, and bruising mills, for beans, oats, and oilcake, worked by hand-power; oilcake breakers, on iron frames; Biddell's root-pulper, and Gardner's single and double-action turnip cutters; improved chaff-cutters for hand and horse-power; two-horse gear, fitted with intermediate motion; the "Automaton" lawn-mower, in six sizes; three sizes of new pattern horse-rakes; patent double-action hay-making machine; sets of Stearn's Suffolk double and circular pig and hog troughs; and iron water-pans, to hold  $\frac{1}{2}$ , 9, and 12 gallons, or can be used for feeding purposes.

ANDREWS, Melksham.—Three sizes of chaff machines, with elevator, for steam, horse, or hand power (new implement); patent compound-action mill, to do all kinds of grinding or crushing, without any re-arrangement of parts (new implement); and a meat-chopping machine.

THE READING IRON WORKS (Limited), Reading.—Four-horse power horizontal fixture engine; eight-horse power agricultural locomotive or traction engine; eight-horse power agricultural portable steam-engine; patent mowing and reaping machine (new implement), the speciality being the application and use of a continuous cutting-edge, travelling in one direction, driven by suitable pulleys and gearing; circular saw-bench; thirteen-coulter chain corn-drill; double-action solid crank-axle hay-machine; horse rake, portable thrashing and horse-gear, roller and clod-crusher, barley aveller, combined sack-cart holder, and grass-seed broadcast-sowing machine.

RUSTON, PROCTOR, and Co., Lincoln.—Six, eight, and ten-horse power portable steam-engines; combined thrashing and finishing dressing-machines; and circular sawing bench.

NICHOLSON, Newark.—Steam hoisting machine for farm produce, building materials, &c.; five haymaking machines, with back and forward motions; two patent horse-rakes; oilcake crushers; garden rollers; sack-lifter and weighing machines; wine rack, to hold twelve dozen; an assortment of tin corn and malt shovels; and an assortment of maltster's implements.

HINDLEY, Bourton, Dorsetshire.—Two-and-a-half and eight-horse power portable steam-engines; line of shafting, with pulleys, carriages, &c., complete; portable chaff-cutters, for steam, horse, and hand power; two-horse gear, with independent second motion; single and double cheese presses, iron plough, horse-rake, pair of  $2\frac{3}{4}$  wrought-iron eider-screws, improved apple mill, and double-g geared eider-press.

THE PARRETT WORKS, Martock, Somerset.—Four-horse power portable steam-engine, contractors' stone-cart, one-horse cart, sets of three pairs of patent wheels and axles, and set of Wright's patent fire-bars.

TURNER and FARDON, Leighton Buzzard.—Three and six-horse-power portable steam-engines; portable and stationary corn mills; six, eight, and ten-row corn and seed drills; one-row turnip, mangold, and manure drills; corn-grinding mills, gear-works for one-horse barn works; two-horse-power Vandyke thrashing-machine; three, five, and nine-tined cultivators and scarifiers; (new implement) horserake, with independent action, to rise and fall to an undulating surface; ploughs for one or two horses, suitable for market-gardeners; (new implement) patent self-delivery reaping-machine, with the rakes so arranged that they cannot trash the corn, as they do not touch the ears; oilcake breaker, and oilcake mill.

AVELING and PORTER, Rochester and London.—Ten-

horse-power agricultural locomotive engine; patent travelling rope porter for steam cultivation, and patent agricultural locomotive engine, of nominal eight-horse-power.

**TUXFORD AND SONS, Boston.**—Ten-horse-power portable steeple engine, with two vertical cylinders; four-horse-power improved horizontal portable steam engine; three-horse-power improved portable steam engine; combined treble-blast thrashing, shaking, dressing, and finishing machine; single-blast combined portable thrashing machine; Appold's improved centrifugal pump; and (new implement) patent straw elevator, made for delivery at any angle, to elevate twenty-four feet clear of the ground, very light and portable, and compact for travelling.

**HOWARD, J. AND F., Bedford.**—Patent iron one and two-wheel ploughs, for every variety of work; plough, ridging, subsoil, and digging bodies; dynamometer or draught-gauge; improved chain or flexible harrows, and turnip harrows; sets of two, three, and four-beam handled drag harrows; improved horserakes; patent double-action haymakers for large or small occupations; (new implement) "Anglo-American" combined reaper and mower, with Marsh's patent rake for sheaf delivery, to cut grass or grain equally well, and can be changed from a reaper into a mower, or *vice versa*, in a few minutes; new patent one-horse sheaf-delivery mower; (new implement) patent improved grass mower, so arranged that the cutting-part can be raised clear of the ground to pass obstructions, and turn at the end of the swathe by a simple lever worked by the foot; set of steam-cultivating and ploughing apparatus; pair of Bulstrode's patent snatch-box slings; patent four-furrow double-action steam plough; set of new patent steam harrows, improved iron water-cart, and set of improved trussed tubular iron whippetrees.

**SAMUELSON AND Co., Banbury.**—Self-raking and one-horse "Eclipse" reapers, grass and lawn mowers, combined reaper and mower, lawn mowing machines, and turnip-cutters for beasts and sheep.

**COLEMAN AND MORTON, Chelmsford.**—Five and seven-tined cultivators, Hanson's potato digger, one-horse gear, water or liquid-manure cart, oilcake cutters, and samples of shares for Coleman's cultivators.

**WIGHTMAN AND DENING, Chard, Somerset.**—Haymaking machines, horserakes, cheese press, corn and pulse bruisers, apple mill and corn bruiser, pony and one and two-horse gear, iron ploughs for light and heavy land, root grater, horse hoe, and (new implement) one-row turnip and mangold drill for small occupations.

**WRIGHT, Manningford.**—A Berkshire-pattern waggon.

**KNIGHT, Fisherton.**—Portable hoisting cranes for raising millstones for dressing them in mills, cheese trucks (new implement), and sack trucks (new implement) with three bars.

**KEARSLY, H. AND J., Ripon.**—Two-horse grass-mowing machine, and one-horse reaper.

**GARDENER, Gloucester.**—An assortment of French runner mill and bedstones of various diameter for grinding wheat, barley, and oats; cast-iron millstone prower; mahogany and oak millstone staves, cast-steel mill-bills, thrifts or mill-bill handles, and an assortment of machine wire and brushes used for dressing flour.

**PRIEST AND WOOLNOUTH, Kingston-upon-Thames.**—Five, six, and seven feet wide lever corn drills; drill for turnips and manure, broadcast manure distributor, and five, six, seven, and eight feet wide patent lever horse hoes.

**CARSON AND TOONE, Warminster.**—Chaff-cutting engines for steam, horse, or hand-power; Moody's patent turnip-cutter in various sizes; oil-cake and corn crusher; wrought-iron horse hoes with three steel hoes and various tines; single and double cheese presses with double lever and pulley, on iron and wood stools; curd mill, horse gear for one and two horses, registered wheel rollers and elod crushers, iron field and garden rollers, seven and three-share scarifiers, wrought-iron and wood ploughs, Wiltshire harrows, three-wheel land presser, and pairs of wood and iron sack trucks.

**HUXTABLE, Ottery St. Mary.**—(New implement), hay-making machine, to work on uneven land and watered meadows, with rakes so fixed that when passing over uneven land or gutters they return to their own position without causing any stoppage in the work; (new implement), improved horse-rake; light one or two-horse reaping-machine, Wood's two-horse grass-mower, patent chain corn-drill with twelve coulters, and a garden chair.

**WOODS AND COCKSEGE, Stowmarket.**—Three and four-horse power vertical steam engines, portable corn-grinding mills, universal mills, for hand, horse, or steam power; improved root pulpers, for all power; one-horse carts, one and two-horse power improved grass mowers and reaping machines; improved double and single-action turnip cutters, improved liquid manure or water cart, oilcake breaker, horse-power works, with intermediate motion, two-horse portable thrashing machine, Rumbelow's pig and hog troughs, asphaltting apparatus, and new horse-power pump.

**BAMLETT, Thirsk.**—Two-horse grass mower, combined reaping and mowing machine, one and two-horse reapers, two-horse grass mower, and tripod stand for holding reaper knives.

**THE BEVERLEY IRON AND WAGGON COMPANY, Beverley.**—Improved reaping machines, with double self-acting swathe delivery; model one-horse harvest, market, and crank-axled carts; liquid manure distributor, or water cart, portable pump, for liquid manure or water, pair-horse waggon, and sets of patent cart and waggon wheels.

**ASHBY AND JEFFREY, Stamford.**—New "Palmerston," "Victoria," "Albert," and other haymaking machines; patent hand horse rakes, wrought iron frames, chaff cutters, disc root pulpers, single rotating harrow, steel crank shields, Truckler's patent churns, and a twenty-four-tooth drag rake.

**BOBY, Bury St. Edmunds.**—Improved patent double-action haymaking machines, several sizes of improved corn screens, corn screen or separator of broken kernel, improved malt screens, and patent corn-dressing machine with screen.

**REEVES, R. AND J., Westbury.**—Four and six-coulter liquid manure and seed drills; three, four, five, and seven-row economical manure and seed drills; eleven and thirteen-coulter lever and small occupation corn drills; improved broadcast manure distributors, improved steerage and single-row horse hoes, and two-wheel ploughs, for general purposes; set of tubular whippetrees, improved iron water cart (new implement), to hold 160 gallons; portable barrow pump, iron field roller, pair of 2½-inch wrought-iron cider press screws, combined blowing and dressing machine, and delivery pipe for water barrel.

**SMITH, Kettering.**—Improved steerage hoes, for general purposes; patent horse hoes, improved one-row horse hoe or grubber, with five tines, and improved double blast winnowing machine.

**WOOD, London.**—Several "Royal" and one-horse grass-mowing machines, with reaping attachment: one-horse reaping machine, and a self-rake reaping machine.

**BRISTOL WAGGON WORKS COMPANY, Bristol.**—Light sack or miller's waggon, improved light farm, agricultural, and Hannam's harvest carts; 200-gallon water cart, with driving seat; light crank axle and pony or errand carts, Wood's combined mowing and reaping machine, and one-horse reaping machine; American horse rakes, steel-tooth hay collectors, grass seed drills, wooden sheep racks, and improved road scraper.

**TURNER, E. R. AND F., Ipswich.**—Combined mill, for bruising, crushing, and splitting malt, oats, linseed, &c.; combined crushing, and grinding mills, and oilcake breaker, in three sizes, to break for sheep or cattle.

**WEIR, London.**—Various sized washing, wringing, and mangling machines; indiarubber wringers and starchers; goffering and crimping machines; clothes horses, single and double action; box churns; sets of dairy utensils; butter package and butter forcing machines, bread cutters and bread making machines, mincing boards and sausage-making machines, grinding and other mills, corn crushers, fruit presses, spirit draining and workmen's levels, sealing-wax melters, dressing-room mangle, and a variety of newly invented wooden garden shoes or sabots.

**WILTON AND SONS, Salisbury.**—Various lawn-mowing machines, suitable for boy, lady, and one or two men, improved garden rollers; an assortment of cast iron and galvanized garden-seats, flower-baskets and stands, training arches, and vases; a variety of galvanized game, poultry, and sheep netting; an assortment of cast steel digging and other forks, garden engine and hose, ice chests and refrigerators; "London Pattern," cottages, kitchen, and other fire-ranges; roasting-jacks, cooking pots, cheese presses, weighing machines, dairy utensils, chaff-cutting machines, corn mangers, corn bins, pumps, and wrought iron cattle and sheep troughs.

**ROBERTS AND SONS, Bridgewater.**—A selection of "Econo-

mist" waggonettes, phaetons, four-wheel, Malvern, White-chapel, and other dog-carts; a "gad-about," demmet gig, and miscellaneous assortment of harness, waterproof wrappers, whips, &c.

BAKER, Wisbeach.—An assortment of combined blowing and dressing machines.

HOLMES and SON, Norwich.—Portable steam-power seed sheller, with dressing apparatus; 36-inch circular-saw table; Economical, small occupation, and other seed and manure drills; improved fore-carriage steering, corn and seed sowing machine, new rotary harrow or fork, one and two-row harrow and hand drills, and a corn dressing machine.

PAGE and Co., Bedford.—Patent draining pipe, tube, and brick machine; improved disc pulpers, linseed cake mills, chaff-cutting machines; horse, hay, corn, and stubble rakes; wrought iron field rollers; improved drag, general purpose, diagonal, light land, and diagonal seed harrows; general purpose, light land, and medium wrought iron ploughs; one and two-wheel combined and other horse hoes; improved four wheel wrought leverage scuttler; and registered wrought and cast iron galvanized pig-troughs.

ROWLAND, Salisbury.—Twenty-bushel mash tun and mashing machines; compound and combined oat and bean splitting mills, iron horse gear, hoisting crab, and chaff-cutting machines.

HAWKES and SPENCER, Tiverton.—Six, eleven, thirteen, and fifteen-row chain corn drills; six-row corn and manure drill, improved reaping machine, improved pulverizer and general purpose ploughs, and a hay-making machine.

BRIGHAM and BICKERTON, Berwick-on-Tweed.—Patent "Excelsior" self-delivery reaping machine, and two sizes of the patent "Buckeye Junior" combined reaping and mowing machine.

HARDON, Manchester.—The royal patent cake, a mixed diet for young stock; and the original condimental food.

CLAY, Wakefield.—Patent horse hoe and one-horse grubber, improved horse hoes, chain harrows, cultivators, and combined cultivator and grubber.

TIPPER, Birmingham.—Medicated mystery for horses, cattle, sheep, pigs, poultry, and dogs, and Tipper's sheep-dipping powder.

HARDING, Wincanton.—Samples of genuine farinaceous food for horses, cows, calves, sheep, pigs, and poultry.

HARDING, Dursley.—Wood's two-horse grass-mowing machine, Wood's two-horse combined grass-mowing and reaping machine, and a patent American grist-mill.

TECK and SON, Bath.—(New implement), the Horn-blottin stile, or self-acting substitute for footpath gates and stiles; (new implement), the Chantry stile, or improved footpath gate; an assortment of garden chairs and seats, flower stands, garden tables, garden arches, and syringes; aquapults, aquajets, and pneumatic garden pumps; six and nine feet cattle and hog troughs; tubular wheelbarrows and sackbarrows, corn bins, manure and other pumps, galvanized round and flat bar fencing, park, farm, and garden gates, ornamental metal work, wire netting, and an assortment of cottage and kitchen close fire ranges.

KENDELL, J. AND T., Cashmoor, near Bladford.—Four-horse Gloucestershire waggon, hurdle and hay waggon, two-horse and pony carts; corn, turnip, and mangold drills; iron light and heavy ploughs; land presses, rollers, harrows, winnowing machine, barley hummeller, sack trucks, horse hoes, turnip thinner (new implement), water and feeding troughs, and a shepherd's house.

CLARK and SONS, Salisbury.—Two and four-wheel dog carts, double-seated Croydon carriages, pair-horse waggonette, and pony phaeton.

CAMBRIDGE & Co., Bristol.—Patent plain and notched press wheel rollers and clod-crushers of various diameter, patent jointed self-expanding chain harrows, combined tine and chain harrows, sets of three four-beam "Excelsior" harrows, one-horse gear and intermediate motion, two-horse gear and thrashing machine, improved horse rakes, Gardner's single and double-action turnip cutters, and winnowing machines with sixteen and twenty-inch sieves.

BRADFORD & Co., Manchester and London.—Three-horse power improved vertical steam engine; various sizes of the vowel washing, and combined washing, wringing, and mangling machines; india rubber wringers, rinsing and bluing troughs, portable three-roller and "Premier" box mangles, improved

butter-making machines, portable boiler with steamer, riddling machine, and patent cinder-sifter.

REYNOLDS, London.—Specimen lengths of poultry fencing and netting; rolls of galvanized game and sheep netting, hardware aviary lattice and trellises; and specimens of seed protectors and agricultural and horticultural wire work.

RICHMOND and CHANDLER, Salford.—Variety of chaff-cutters of different power and strength; corn-crushers; (new implement), one and two-horse gear, the one-horse made light to suit the export market; steaming apparatus, root washers, sack holders, and two bread-kneading machines.

MAJOR, H. J. AND C., Bridgewater.—A model roof, exhibiting various roofing and other tiles.

PERMAN, Salisbury.—Self-acting cottage, combination, "Multum in parvo," and "London Pattern" ranges; cottage and medal patent kitcheners; cast-iron mantel-pieces; and cottage ranges with oven and iron stoves, &c., fitted complete.

SIMPSON and SON, Melksham.—Cheese-making apparatus and platform, curd mill, milk and whey strainers, tin cheese tubs; milking pails, tanks, and pans; tin milk warmers, cream tins, cheese bowls, and pair of strong tin milk buckets.

COLTHURST, SYMONS, & Co., Bridgewater.—"Royal Flemish Farm," fac simile of covering with patent Roman tiles; fac simile of ridging with patent ridge tiles; and fac simile of sheeting with patent eave tiles.

GLIDDON, Williton, near Taunton.—Open fire kitchen-range or cooking apparatus, steaming apparatus for cooking, &c., wrought-iron back boiler, open fire "People's" and "Vesta" cottage ranges, roasting apparatus, American cooking-stove, Egyptian baths, and ornamental garden seats and footstools.

LYON, London.—Machines for shelling peas, beans, &c.; machines for mincing meat, fish, vegetables, and making sausages; machines for cutting meat and vegetables; machines for pulping and to assist digestion; chopping-boards, bread-cutting boards, knife sharpeners, and knives for slicing and paring fruit and vegetables.

DAY and SONS, Shavington and London.—Sample chests of medicine, suitable for the use of flockmasters, stockbreeders, and dairy farmers.

NEWHAM and SON, Bath.—Six carriages, specially built to combine ease and durability with lightness of draught.

AMIES, BARFORD, AND Co., Peterborough.—Four sizes of new metal corn-grinding mill, adapted for steam and horse gear; patent wrought-iron adjustable water-hallast rollers of varied diameter; set of portable farmers' steam-cooking apparatus; ornamental lounge garden seats and parcel of seats for use at seaside, pic-nics, &c.

THE CANADIAN WASHING MACHINE AND AGRICULTURAL COMPANY, Worcester.—Various sizes of patent washing machines, with wood and iron frames; compound lever mangles; combined washing, wringing, and mangling machines; india-rubber wringers, clotheshorse, clothesdryer, and patent umbrella tent.

COULTAS, Spittlegate.—Six drills for general purpose, turnip, mangold, corn, liquid manure, &c.; improved fore-carriage steering, and seven feet twenty-six row small seed-drill.

HILL and SMITH, Brierley Hill.—Specimen lengths of patent continuous iron cattle-fencing; box of tools for erecting strained wire fencing; patent wrought-iron sheep and cattle hurdles; wrought-iron garden and ornamental hurdles; wrought-iron entrance, park, field, and garden gates; specimens of galvanised game-proof wire netting; wrought-iron tree-guards, garden seats, and wheelbarrows; and specimen of patent black varnish.

LARKWORTHY and Co., Worcester.—An assortment of patent "Excelsior" ploughs, one and two wheel, suitable for every variety of soil and work; pairs and sets of "Excelsior" harrows, to be worked with one, two, and three horses; and sets of three patent steel-plough and equalising whipple-trees.

YOUNG J. AND F.—(New implement) One-horse double-speed combined reaping and mowing machine, with simple arrangements for changing from slow to quick speed; double-drill turnip and mangold sowing machine; single cheese press, with compound lever and index weights; and improved curd mill.

BEACH, Dudley.—Samples of farinaceous food for cows, sheep, lambs, and pigs; condiment for horses; and XX superfine flour.

ROLLINS, London.—(New implement) Douglas's American lift or suction pumps, to discharge from eight to thirty gallons per minute; (new implement) American deep-well pump; (new implement) Douglas's patent yard-pump; (new implement) Douglas's patent pitcher-top pump; (new implement) Douglas's side force-pump, with air chamber; (new implement) American patent engine yard-pump; (new implement) Douglas's patent double-acting deck and fire-pump; (new implement) Douglas's patent rotary barrel pump; (new implement) premium medal hydraulic ram; weighing machines, hay and manure forks, grindstone with foot power, and miscellaneous collection of American farm utensils.

MILFORD AND SONS, Thorverton.—One and two-horse waggons, one-horse carts, and improved spring pleasure or market cart.

BURGESS AND KEY, London.—Reaping machine for swathe delivery; (new implement), reaping machine for sheaf delivery, to deliver the corn in sheaves at the side, leaving a clear track for the horses; (new implement), mowing machine for natural and artificial grasses, to cut the heaviest crops, combining strength, light draught, durability, ease of management, and facility for removal of any part of machine; reaping machine with back delivery; and (new) reaping machine for sheaf-delivery, extremely simple and light.

WAIDE, Leeds.—An assortment of barrel churns of various dimensions, to make from two to sixty pounds of butter.

BREXTON, Polbathie.—One or two-horse improved back or side delivery reaping machine, two-horse combined reaping and mowing machine, and an improved registered sheep-rack mounted on four wheels.

DAVEY, Devonport.—(New implement), registered portable horse-rake with self-acting delivery and seat for the driver; "Excelsior" turnwrest plough with self-acting furrow-wheel, and plough with parallel self-acting wheels.

SMITH, London.—Specimen plate in zinc and brass for marking sacks, tents, tilts, &c.; iron and steel brands for marking cattle and implements; stencil plates, silver-faced letters and blocks, and sundry domestic articles.

KIDDLE, Salisbury.—Two, three, and four-horse Kerry, Wiltshire, and Gloucestershire waggons; improved one and two-horse carts, and light pair-horse straight-rave Dorsetshire waggon.

HARRIS AND SON, Salisbury.—Light waggonettes, single and double-bodied park phaetons, the Salisbury and handsome four-wheel dog-carts, and a very light two-wheel dog-cart.

BROWN AND CO., Bridgewater.—Patent triple, Roman, and double Roman red tiles.

MOULÉ'S PATENT EARTH-CLOSET COMPANY, London.—Variety of Moule's patent earth-closet or commode, to remedy the evils arising from defective cesspools and waterclosets, founded upon the earth deodorising principle; urinals on the earth principle, and stoves for drying earth.

DAY, SON, and HEWITT, London.—Complete stock-breeders medicine chest, containing medicine and compounds, for cattle and sheep; chest of "Chemical Extract" for cuts, bruises, wounds, &c., in cattle and sheep; chest of "Gaseous Fluid" for gripes, diarrhoea, &c., in horses and cattle; chest of "Red Drench," or inflammation powders; chest of "Red Paste, or Condition Balls" for horses in low and debilitated condition; and copies of three pamphlets—"Key to Farriery," "Prize Essay on the Rearing of Calves," and "The Breeding and Management of Sheep."

HUGHES AND SON, London.—Three and four French runner mill and bedstones, patent smut machine, flour-dressing machine, iron provers and mahogany staffs, an assortment of machine brushes, pulley blocks, mill bands, sack barrows, and sundries used by millers.

BAKEL, Newbury.—Water and liquid manure carts, to contain from 130 to 180 gallons, tumbler on tip cart, and a street watering cart.

PARHAM, Bath.—An assortment of light, entrance, field, and ornamental gates; samples of galvanised and wire fence and trellis work, verandahs, wrought iron stiles, garden seats and iron garden water engines on wheels.

WILKES AND SON, Salisbury.—Circular front cooking stoves, galvanised iron cistern, steam closet, a large variety of cooking and domestic utensils, weighing machine, self-feeding pipe stove, water barrows, garden syringes, improved lawn mowing machine, garden seats and foot stools, galvanised wire netting, garden roller, and improved turnip cutter.

HOWELL, T. AND H., Poole.—Patent fifteen-row chain corn drill, patent self-acting horse rakes, chaff cutter for horse or steam power, and iron horse gear.

KITMER, Louth.—Four cordressing and blowing machines. STABLE, Bouldon.—Rolls and samples of galvanised wire netting, folding garden stools and chairs, wrought iron garden seats, engines, swing water barrows, liquid manure carts, and portable pumps.

LE BUTT, Bury St. Edmunds.—Two champion haymaking machines with double action.

THE TANNED LEATHER CO., Manchester.—Various rolls of improved tanned leather driving straps in different widths and substance, and bundles of extra strong leather laces.

MITCHELL AND BURGESS, Manchester.—Horizontal emery composition grindstones, iron wheel covered with emery composition, and fifty dozen emery files.

HIRST AND SON, Halifax.—Steam-power waterfall washing machines, 14 and 16 lever wringing machines, and 12 to 20 inch flexible lawn mowing machines.

NAPIER, Salisbury.—Four sample sacks of confectioned grain and chaff mixtures, two sample sacks of rich ordinary food for farm stock; samples of preserved rice-cake, linsed-cake, roots, and antiseptically preserved meat; and bottles or cases of farina.

HARWOOD, London.—Gauge glasses, hay forks, American patent weighing scales, articles for sharpening cutlery, case of small goods for domestic use, and sausage and mincing machines.

TOPHAM, London.—An assortment of mincing and sausage machines, patent smut cutting machine, knife sharpener for mincing machines, apple and potato parers, self-expanding metal tube cleaners, and tube brushes.

GRANT, London.—Grant's portable railway, turntable, ballast-truck, and side-truck.

PENNEY AND CO., Lincoln.—Patent adjustable rotary corn separators and corn screens, register malt screen, sack lifter; gravel, sand, lime, or coal screen; waggon top meat safes, and rolls of galvanised poultry netting.

CUTHBERT AND CO., Bedale.—(New implement) One-horse reaping machine, to cut 4ft. 6in.

CHEAVIN, Boston.—Improved patent "self-cleansing" rapid water filters.

GARTON and KING, Exeter.—An assortment of small and large cooking stoves and apparatus, improved wood fire and register grates, garden lounge and seats, continuous cattle, sheep, and other fence, east-iron straining posts, wrought-iron gates, stable fittings, harness-room fittings, and registered "Plymouth" stable lock and latch.

WHITWORTH AND CO., London.—Concentrated fish manures, superphosphate of lime, hop manure, grass manure, nitro salt, and Peruvian guano, &c.

CARSON AND SONS, London.—Specimens of original anti-corrosion paint, and samples of pure linsed oils, turpentine, varnish, and painting materials.

THE BOVEY TRACEY POTTERY COMPANY, Newton Abbot.—Fire bricks, fire-clay tiles or quarries, fire-clay cottage bread-baking ovens, &c.

PIGGOTT BROTHERS, London.—Rick cloths, waterproof hay-sheets, machine covers, tents, and models of marquees, rick cloths, &c.

JONES, Gloucester.—Composition for waterproofing, softening, and preserving leather, and Gloucestershire specific for foot rot in sheep.

SUTTON AND SONS, Reading.—An extensive collection of horticultural, floricultural, and agricultural seeds in glass cases and canvas bags, collection of 150 sorts of natural grasses, and specimens of improved varieties of agricultural roots.

SHUTTLEWORTH AND KERNAN, Shoreham.—Patent horizontal brigade fire-engines, patent double-action farm or factory fire-engines, double-action fire-engines or lift and force pumps, improved garden engine, and twelve leather fire buckets.

SKETCHLEY, Weymouth.—Six-horse power portable steam engine, two universal joiners to mould and saw at the same time, and a betty or sweep saw.

#### THE ANNUAL MEETING OF THE MEMBERS

was held in the Council tent, at twelve o'clock on the Wednesday in the Show week, Mr. Tremayne, president, in the chair. The report, which was read by Mr. Goodwin, the secretary,

stated that there were at present on the books of the society 65 life governors and members, 100 governors, 578 members subscribing not less than £1 a-year, and 297 members subscribing 10s. annually, making a total of £1,040. The society's funded property remained the same as at the end of 1865, viz., £4,923, invested in Consols. The value of the plant had been estimated at £3,153 3s. 2d., and the cash in hand amounted to £274 18s. 3d. The result of an examination of the account of income and expenditure of the past year was favourable, inasmuch as the balance-sheet of assets and liabilities for 1866, as compared with 1865, showed an increase of £210 15s. 10d. A different method has been adopted of stating the annual account, in order to show as nearly as could be the receipts and expenditure in the various departments of the society's operations opposite each other, so that, referring to any one department, the cost and income in connection with it might at once be seen. The exhibition of next year would take place at Falmouth.

On the motion of Mr. T. D. ACLAND, M.P., seconded by Mr. DANGER, the report was unanimously adopted.

Mr. DREWE moved the election of Sir T. Duckworth, Bart., as president for the year ensuing, and the motion, which was seconded by Mr. R. Lush, was carried by acclamation.

Mr. Tremayne, Mr. Moysey, Mr. J. Gray, and the Rev. T. Phillpotts were appointed vice-presidents.

Mr. H. G. ANDREWS brought forward a motion to the effect that the Council should petition the Government to establish permanent markets for the sale of foreign cattle at the ports of entry, and in so doing expressed an opinion that the proposals to slaughter all foreign cattle immediately on arrival in this country was far too stringent a measure. He thought permanent markets for the sale of foreign cattle would be of great advantage to our great cities, especially London.

Mr. JONATHAN GRAY seconded the motion; but Mr. ACLAND suggested that it was a matter for deliberation. He thought that before the Council took action in the matter they ought to have the plans of the Government before them.

Mr. FARTHING moved, as an amendment, "That the subject be referred to a committee," which was seconded by Mr. POOLE.

After some discussion, the amendment was almost unanimously adopted.

A vote of thanks to Mr. Tremayne, the president of the past year, brought the proceedings to a close.

## THE ESSEX AGRICULTURAL SOCIETY.

### MEETING AT BRAINTREE.

The Essex Agricultural Society, having been founded in 1858, is now ten years old—a considerable period in the life of man, and a still more considerable one in the life even of a county agricultural association. But the Essex Society seems destined to flourish to a good old age; and has now visited in succession Chelmsford, Colchester, Saffron Walden, Romford, Halstead, Witham, Harwich, Brentwood, Epping, and Braintree; and has, therefore, pretty well made its first circuit of the county, Maldon being the only place of any importance which remains to be explored. However, if the Dunmow railway, which has now been finished for many months, but still remains unworked, should ever be opened, Dunmow may put in a claim for a visit. The Braintree meeting—to cease speculations as to the future—was a very good one upon the whole, although the cattle classes were thinned by the still lingering rinderpest; and there was indeed, for some time, considerable doubt whether there would be any cattle classes at all, or whether the blank which appeared in this particular at Epping, in 1866, would not be again observable this year. The number of horses on the ground was larger than at any former meeting, with the exception of that at Epping; but the total of cattle entered was comparatively small. The number of sheep penned was also moderate, and of pigs insignificant; while the implement entries were reduced by the now near approach of the meeting of the "Royal" at Bury St. Edmunds, several leading firms being conspicuous by their absence.

As was to be supposed, the chief interest of the Braintree Meeting was concentrated in the horses. A county prize for thorough-bred stallions produced only one entry, namely, Mr. King's "Knight Templar," which received, however, the premium, though at Epping he was less fortunate; and might now have been set aside. A prize for stallions, not thoroughbred, was not awarded, on the score of insufficient merit, although some reliance had been placed on "Morgan Lightfoot," a bay with black points, and standing sixteen hands high. In the next class of weight-carrying mares, the winner "performed" well in the jumping trials, but some pronounced her plain in the hind-quarters. The hunting-geldings were a good class, Mr. F. Barker, of In-

gatestone, being a large exhibitor. The winner of the weight-carrying-mares' prize was again successful in competing for a Braintree town-prize; and it may be observed that all the town-prizes spiritedly given by Braintree were open to the United Kingdom, and this is an Irish-bred mare. The hackney mares and geldings comprised some good animals; Mr. Badham's Little John, which has figured at the Agricultural Hall, won the All-England prize, having, however, only Essex competitors to deal with. It may be remarked indeed that All-England prizes at a county show are rather delusive affairs, for they scarcely ever provoke more than one or two entries from one or two neighbouring counties; though they serve to give a little variety to a local meeting, and to break its monotony, and that is all, for a really All-England competition can only be obtained at meetings of an All-England society. It may be a question worth considering whether Essex would not profit materially by making common cause with Norfolk, Suffolk, and Cambridgeshire, and establishing a large district society on the Bath and West of England model. The winner in the three years old mares at Braintree was so well developed, that she provoked a protest that she must be nearer four years than three years; but a professional inspector over-ruled this complaint. The brood mares were not pronounced very good, if the winner had fair points, but she was still small. The ponies were good; but it was doubted whether the winner did not exceed the prescribed height of 13 hands; however, on being measured, it passed muster. For an "All-England" £25 for thoroughbred entire horses, Captain Barlow showed two, Jonquil by King Tom, and False Alarm by Trumpeter; while Mr. Crisp sent his Abbot. The award was given without hesitation in favour of False Alarm, which was prized recently at Islington, and has good bone and showy action. Another £25 was offered for entire horses not thoroughbred; here again the Abbot figured, although, by some unaccountable error in the Catalogue, he had been described in the previous class as thoroughbred. The unlucky Morgan Lightfoot again competed, but without effect, the prize going to Pollard, shown by the Rev. C. Roe. Facilities were afforded for trying the jumping powers

of the riding horses, and the committee even devised an artificial brook, which some of the entries refused.

The agricultural-horse stock comprised several powerful animals, principally of the heavy Suffolk type; for if they were not directly Suffolks, they had most of them Suffolk blood in their veins. There was a good competition in an "open" cart mare class; where the prize went at last to a Suffolk mare presenting good characteristics as regards alike colour, form, and action. The mare which was put off with a commendation in this class took the prize when grouped with mares with foals; she is 11 years old, and has become well known for her good shape. Some of the fillies were likely promising animals, and the winner of the principal prize had Harwich Emperor for her sire; though she was hard pressed, however, by a filly descended from Warrior. The cart geldings made only an indifferent show—in fact, only three were entered. The yearling colts were pretty good; Major, the winner, being another of Harwich Emperor's stock. The yearling fillies and foals did not call for special remark, but a class of plough horses or mares contained some useful Suffolks; and the prize pair would be found serviceable and ornamental anywhere. The £25 given for cart stallions was carried off by a clever three-year-old colt with good head and quarters, but a little so-so in respect to colour. The All-England prize for two-year-old colts provoked a Cambridge-shire entry by Chester Emperor out of Blossom; while the prize went, however, to a Suffolk colt which has much improved during the last few months. The agricultural horse-stock competition was closed with an "all the world" contest for £30; but "all the world" did not extend, however, beyond Suffolk, Essex, and Lincolnshire, and Mr. Crisp's colt, which had just before won £25, was considered in Essex to be a match for all the world, and took the £30. The competition for this champion prize was not so good as it was last year.

The show of cattle was, as has been already observed somewhat limited, the regulations of the Privy Council shutting out all animals not belonging to Essex, while even some parts of Essex were debarred from competing, and just before the meeting, too, Lord Braybrooke and Mr. Branston withdrew from the exhibition. The principal prize for Shorthorn bulls was taken by Duke of Grafton, with a fine red animal with a pedigree of great length, but with a head considered a little coarse; Nobility, a good white bull, getting second. The yearling shorthorn bulls and the Shorthorn cows were interesting, and the two-year-old Shorthorn heifers were excellent. Some of the Babraham blood has been retained in Essex, while the leading county breeders—Lord Braybrooke, Colonel Brise, and others—have not lacked energy or enterprise in securing good "reproducers" from other quarters. Three of the winners in Shorthorn cows and heifers were by Sir Charles. In the young bull class the prize was taken by Whipper-in, by Prince Victor. In the class of Shorthorn cows without pedigree, the winner, Annie, was a good, useful-looking animal. The yearling heifers, described as Shorthorns, but without pedigree, appeared to have an admixture of Dutch and Welsh blood. Among the cattle of other pure breeds were one or two Brittany cows, for which the merit was claimed that they had resisted the cattle-plague, in fact, that they had never been touched by it at all. The prize fat cow, on the other hand, was said to have had the disease, and to have got over it. However this might be, she, when exhibited was in excellent condition.

The sheep, although limited as to numbers, were in many cases excellent in quality. Lord Braybrooke's Southdowns were elegant in regard to form, but small in regard to size. The Cotswolds and Oxford Downs, chiefly shown by Mr. Giblin, were

good; but from a few Suffolk Downs the judges withheld a prize: they are said to yield a good fleece of wool, but their forms leave much to be desired. Hard by the Southdowns of Lord Braybrooke was one of those mighty long-wooled rams with which Mr. Aylmer of West Dereham, Norfolk, distances all competitors. How does Mr. Aylmer produce such wonders? Conjecture has it that he has devised a cunning fusion of Lincolns, Cotswolds, and Leicesters. The pig classes were scanty and uninteresting. The few animals which Essex contributed were small blacks; but when the competition was thrown open, Mr. Stearn—the indefatigable Mr. Stearn, of Brandeston—came in with his black Suffolks, and bore away the palm. Mr. Sexton, of Suffolk, did not show.

We must not forget to say something about the implements. Messrs. Coleman and Morton, Chelmsford, had a new oilcake mill, designed so as to secure the breaking of cake into portions of uniform size. Mr. Burrell, of Thetford, had again one of his traction engines at work. Mr. Childs, of 481, Oxford-street, London, exhibited a corn separator based upon the "scientific application of air," and improved by a new feed arrangement, which excludes the external air, and feeds the corn regularly into the machine. Messrs. Robey and Co. (Limited), of Lincoln, exhibited an eight-horse power single cylinder portable steam engine, fitted with Lake's patent tube and fine valves, which are said to keep the tubes wholly free from soot, and also to effect a saving of 20 to 25 per cent. in the consumption of fuel. Messrs. R. Garrett and Sons, of Leiston, showed an eight-horse power portable steam-engine, fitted with Allen's patent double-expansion cylinder, which, it is contended, reduces the consumption of fuel to 4lbs. per horse-power per hour. The other exhibitors were Mr. T. Mann, Earl's Colne, Essex; Mr. T. C. Darby, Little Waltham; Messrs. W. Cottis and Sons, Epping, Essex; Mr. E. H. Bentall, Heybridge Works, Maldon; Messrs. Bennett and Botwood, Ipswich; Messrs. Ward and Silver, Melford, Suffolk; Mr. J. Pertwell, Old Hall, Boreham; Mr. J. Peene, Rayne Foundry, near Braintree; Messrs. J. Smyth and Sons, Peasenhall, Suffolk, and Witham, Essex; Messrs. Samuelson and Co., Britannia Works, Banbury; Mr. J. B. Pash, Bexfield Farm, Chelmsford; Mr. J. Foster, Blunt's Hall, Witham, Essex; Mr. H. and J. Joslin, Colchester; Mr. S. P. Cauch, Farnbridge-road Works, Maldon; Messrs. Catchpool and Thompson, Colchester; Mr. J. E. Edwards, High-street, Braintree; Mr. W. Eley, Southminster; Messrs. Bunting and Leabrook, Colchester; Messrs. R. and R. Hunt, Earl's Colne, Essex; Messrs. A. and W. Eddington, Chelmsford; Mr. J. Rands, Ipswich; Mr. W. Spurgeon, Halstead; Messrs. Woods and Cocksedge, Stowmarket; Mr. J. Warren, Maldon; and Mr. Suckling, Bumstead. Mr. J. Rands supplied 50,000 square feet of canvas as shedding for the horses, cattle, sheep, and pigs.

The dinner took place in the town-hall, under the presidency of Mr. Onley Saville Onley. The toast-list was contrived apparently so as to make the after-dinner proceedings as little novel as possible, for it was not until a long time had elapsed that anything specially referring to agriculture was uttered. Mr. Clayden, alluding to the cattle-plague, argued that if we slaughtered the fat beasts which arrived in England from the continent, and placed store stock in quarantine, he was sure that it would not be a question of years before the disease was stamped out. Sir Thomas Western spoke to the same effect; while Mr. Mechi, who was put up very late, proposed the "unsuccessful exhibitors," and observed that a great change had come over Essex. He recollected the time when Welsh runts and Irish beasts were the order of



the day; but he was glad to see that now they had some good Shorthorns, as he was sure they were the best animals they could have for fattening, to say nothing about milk. Mr. Mechi wound up by saying that he had a great deal to say, but he would not say it that night, as the train waited. And so, after a suggestion that Mr. Clayden should be made M.P. for the county, even the dinner came to a conclusion.

## PRIZE LIST.

## CART HORSES.

JUDGES.—J. Manning, Oringbury, Wellingborough.  
G. M. Sexton, Whersted Hall, Suffolk.  
J. Thomas, Bletsoe, Beds.

Cart stallions.—First prize of £15 to G. H. Cant, Mile End, Colchester; second of £10 to G. Richardson, Burnham (Captain). Commended: G. D. Badham, Bulmer (Great Eastern).

Entire two-year-old cart colts.—First prize of £10 to W. Wilson, Moor Place, Stanford-le-Hope (Wellesley); second of £5 to J. Ward, East Mersea.

Cart mares not under four years old.—First prize of £6 to D. Green, Donyland Place (Brock); second of £4 to W. Hobbs, Bocking (Brag). Braintree town prize of £10, open to all England, to W. Thompson, jun., Rose Cottage, Thorpe. Highly commended: D. Sewell, Beaumont Hall (Brag). Commended: S. Wolton, jun., Kesgrave, and W. Wright, Felstead.

Mares with foals.—First prize of £10 to D. Sewell (Brag); second of £5 to D. Green (executor of the late B. Page, Donyland Place).

Three-year-old fillies.—No entry.

Cart fillies under four years.—Braintree town prize of £10, open to all England, to T. Cross, Holbrook, Ipswich. Highly commended: S. Wolton.

Cart geldings.—Prize of £4 to E. Harvey, Tollesbury.

Two-year-old fillies.—First prize of £5 to Lieut.-col. Ruggles Brise, Spains Hall, Braintree; second of £3 to P. Portway, Great Sampford.

Yearling colts.—First prize of £5 to R. G. Salmon, Great Clacton Hall (Major); second of £3 to H. Croxon, Burnham (Boxer). Commended: D. Green (executor of the late B. Page) (Young Traveller).

Yearlings cart fillies.—First prize of £5 to D. Sewell, Beaumont Hall; second of £3 to W. Bot, Broomfield.

Cart foals.—First prize of £5 to H. Croxon, Burnham; second of £3 to H. Hobbs, Bocking. Highly commended: D. Sewell, Beaumont Hall.

Pairs of plough horses or mares.—First prize of £5 to W. Thompson, jun., Thorpe; second of £3 to W. Wilson, Moor Place, Stanford-le-Hope (Doughty and Tulip). Commended: H. J. Hobbs, Goldhanger.

Entire horses.—Prize of £25, open to all England, to T. Crisp, Butley Abbey, Wickham Market. Highly commended: W. Wilson, Baylham Hall, Ipswich.

Two-year-old cart colts.—Prize of £10, open to all England, to W. Wilson, Baylham Hall. Highly commended: T. Crisp.

Cart stallions.—Prize of £30, open to all the world, to T. Crisp. Highly commended: C. Boly, Stutton, Ipswich.

## RIDING AND COACHING HORSES.

JUDGES.—H. Bolton, Putnoe, near Bedford.  
G. Kersey Cooper, Euston, Thetford.  
P. Portway, Great Sampford, Braintree.

Thoroughbred stallions.—Prize of £15 to H. I. A. King, Great Bardfield (Knight Templar).

Stallions, not thoroughbred.—Prize withheld.

Weight carrying mares.—Prize of £5 to G. Morgan, Brentwood.

Hunting geldings.—Prize of £5 to F. Barker, Ingatestone (Paddy).

Hunting mares or geldings.—Braintree town prize of £15, open to all England, to G. Morgan. Highly commended: F. Barker (Paddy).

Hackney mares, not exceeding fifteen hands.—First prize of £5 to J. Blomfield, Halstead (Jenny); second of £3 to A. R. Jay, Witham (Fleetfoot).

Hackney gelding not exceeding fifteen hands.—Prize of £5 S. Young, Felstead (Aladdin). Highly commended: C. P. Wood, Serips, Kelvedon (The Dandy).

Hackney mares or geldings.—Braintree town prize of £15, open to all England, to G. D. Badham, Bulmer (Little John). Highly commended: S. Young, Felstead.

Four-year-old mares or geldings.—Prize of £5 to R. Emson, Halstead. Commended: C. P. Wood, Serips, Kelvedon (Leapfrog); J. Christy, jun., Boynton Hall, Roxwell.

Three-year-old mares or geldings.—Prize of £5 to C. Dawes, Hill House, Chigwell (Polly). Highly commended: G. Patner, Great Easton. Commended: G. F. Josling, Berners, Roothing (King Pippin).

Two-year-old mares or geldings.—Prize withheld.

Brood mares with foals.—First prize of £6 to C. Dawes, Hill House, Chigwell (Grey Kitty); second of £3 to Captain B. Sparrow, Gosfield-place.

Cobs, between 13 and 14 hands.—Prize of £4 to W. Clayton, Dunmow (King Pippin). Commended: H. Hobbs, Bocking (Tiny); J. R. Vaizey, Halstead (Nelly); and G. F. Josling, Berners, Roothing (Pretty Jane).

Ponies, under 13 hands.—Prize of £3 to J. Hutley, Little Braxted. Highly commended: G. Consins, Cressing. Commended: R. C. Davies, Southminster.

Thorough-bred entire horses.—Prize of £25, open to all England, to Captain F. Barlow, Hasketon, Suffolk (False Alarm).

Entire horses, not thorough-bred.—Braintree town prize of £25, open to all England, to Rev. C. Roe, Little Welbetham, Bury St. Edmund's (Pollard).

## CATTLE.

JUDGES.—G. W. Baker, Orwell Park, Levington, Ipswich.  
T. Crisp, Butley Abbey, Wickham Market, Suffolk.  
J. Robinson, Clifton Pastures, Olney, Bucks.

## SHORTHORNS.

Bulls.—First prize of £15 to J. Christy, jun., Boynton Hall, Chelmsford (Duke of Grafton); second of £10 to J. Upson, Rivenhall (Nobility).

Two-year-old bulls.—First prize of £10 to Mr. Tippler, Roxwell (The President).

Yearling bulls.—First prize of £6 to J. Clayden, Littlebury; second of £4 to R. J. Chaplin, Ridgewell (Raven's Eye).

Cows.—First prize of £10 to J. R. Chaplin (Peeress); second of £5 to J. Clayden (Diadem).

Two-year-old heifers.—First prize of £6 to J. R. Chaplin (Celia); second of £4 to J. R. Chaplin (Iona).

Yearling heifers.—First prize of £6 to W. Belcher, Sandon (The Belle); second of £4 to J. Christy (Parisienne).

Heifers, not exceeding 12 months old and not under 6 months.—First prize of £5 to J. Clayden, Littlebury (Rarity); second of £3 to J. Christy (Patchouli 4th).

Bulls, not exceeding 12 months old and not under 6 months.—First prize of £5 to Lieut.-Col. Brise, Spains Hall, Braintree (Whipper-in); second of £3 to J. Christy (Duke of Boynton).

Bulls.—Prize of £20, open to all England.—No entry.

## SHORTHORNS WITHOUT PEDIGREE.

Cows.—First prize of £8 to Lieut.-Col. Brise (Annie); second of £4 to T. Beddall, Finchingfield.

Two-year-old heifers.—First prize of £5 to Lieut.-Col. Brise (Sandy); second of £3 to J. Oxley Parker, Woodham Mortimer-place.

Yearling heifers.—First prize of £5 to W. Belcher, Sandon (Primrose); second of £3 to J. Hutley, Braxted.

Heifers, not exceeding 12 months old and not under 6 months.—No entry.

## OTHER PURE BREEDS.

Bulls.—No entry.

Two-year-old bulls.—No entry.

Cows.—Prize of £4 to Robertson and Co., Ingrave House, Ingrave.

Two-year-old heifers.—No entry.

Yearling heifers.—No entry.

## DAIRY CATTLE.

Cows or heifers.—First prize of £8 to G. H. Cant; second, of £5, to S. Tabor, Fennes, Bocking.

## FAT CATTLE.

Fat ox or steer.—Prize of £5 to J. Hutley, Rivenhall.

Fat cow or heifer.—Prize of £5 to R. Taylor, Hazeleigh-Hall (Princess Royal).

## SHEEP AND PIGS.

JUDGES.—R. Garne, Aldsworth, Northleach, Gloucestershire.  
C. Randell, Chadbury, Eversham.  
J. S. Turner, Chyngton, Seaford, Sussex.

Southdown rams.—First prize of £5 to Lord Braybrooke; second, of £3, to Lord Braybrooke.

Rams of any other short-woolled breed.—Prizes withheld.

Cotswold Rams.—First prize of £5 to J. Giblin, Little Bardfield; second, of £3, to J. Giblin. Commended: J. Giblin.

Long-woolled rams of any age.—First prize of £5 to J. W. Pudney, Tilbury Hall; second, of £3, to T. Beddall, Finchfield.

Oxford Downs rams.—First prize of £5 to J. Giblin; second, of £3, to J. Giblin.

Shearling Southdown rams.—First Prize of £5 to Lord Braybrooke; second, of £3, to Lord Braybrooke.

Shearling short-woolled rams of any other breed.—Prizes withheld.

Shearling Oxford Down rams.—First prize of £5 to J. Giblin; second, of £3, to J. Giblin.

Shearling long-woolled rams.—First prize of £5 to J. Giblin; second, of £3, to J. Giblin. Commended: J. Giblin.

Shearling pure Down ewes.—First prize of £6 to J. Clayden; second, of £4, to J. Clayden.

Shearling short-woolled ewes.—Prize of £5 to P. Portway, Great Sampford; second prize withheld.

Shearling long woolled ewes.—First prize of £5 to J. Giblin; second prize not awarded.

Ewes of any kind with their lambs.—First prize of £5 to J. Archer, Saffron Walden; second, of £3, to J. Clayden.

Fat short-woolled wethers.—First prize of £5 to Lord Braybrooke; second, of £3, to Lord Braybrooke. Highly commended: Messrs. Nockolds & King.

Fat shearling cross-bred or long-woolled wethers.—First prize of £5 to W. Thomson, jun., Thorpe, Colchester; second of £3 to H. Hobbs, Bocking.

Long-woolled rams of any age of a pure breed.—Prize of £10, open to all England, to H. Aylmer, West Dereham Abbey, Norfolk.

Short-woolled rams of any age of a pure breed.—Prize of £10, open to all England, J. Giblin. Highly commended: Lord Braybrooke.

Boars.—First prize of £5 to D. Christy, Broomfield; second, of £3, to C. Sturgeon, South Ockendon.

Boars not exceeding twelve months old.—First prize of £5 to G. Griggs, Romford; second, of £3, to J. Giblin.

Sows in pig.—First prize of £5 to G. Griggs; second, of £3, to G. Griggs.

Sows and pigs: pigs not exceeding twelve weeks old.—First prize of £5 to G. Griggs; second, of £3, to C. Sturgeon, South Ockendon.

Three sow pigs of the same litter under nine months old.—First prize of £5 to J. Giblin.

Boars.—Prize of £10, open to all England, to S. G. Stearn, Brandeston, Suffolk.

Sows.—Prize of £5, open to all England, to G. Stearn.

## THE BIRMINGHAM HORSE AND HOUND SHOW

## IN BINGLEY HALL.

Wafted down by that princely railway, as regards travelling and comfort, the Great Western, we were at the opening of the show by nine on the first day. The arrangements in the Hall were good, considering the limited space and lowness of the roof, which had been made the most of, both for the public, the horses, as well as for the new feature, the hounds. The horses were capitally housed, with plenty of room, the entry this time being 233 to 322 last year, more or less, taking pairs and absentees. The weather being fine, it was sweltering inside the Hall, keeping one in a constant state of Turkish bath, bringing the bloom out on the ladies' cheeks, and causing great mopping of heads on the part of the gentlemen. How Mrs. Beverley, the lady rough-rider, managed to get through her various mounts seemed to astonish many, and nothing but tip-top condition could have done it. She performed very well indeed, considering the unmannerly things she was continually put on, but wants length to make either a fine horsewoman or an elegant one. The exhibition will never be a success to please the public till the roof is heightened, the judging confined to the ring, and the reserved seats or boxes placed farther back, so that the outside of the ring, which is anything but a big one, be left free and open—in fact, regarded as the pit of a theatre or circus. The entry, though small compared to last year, was quite as large as could be properly housed and cared for, and quite enough to make a capital show, if the wags had been of the right sort, and had all been judged in one ring; for which there was ample time, as the judging of all the classes was over at two or thereabouts, half—the better half—having been judged in a bye lane outside the Hall, and which the five-shilling public never saw. So that after two the exhibition was over, unless people were walking round and looking at horses' quarters, staring at each other, or, what was worse, encouraging, by looking on, some fooling in the way of

jumping or blundering over the lowest of bars stuffed with gorse. For what we saw after two, and we waited with promises and expectation big till seven to see horses paraded, we had been better employed in the Bull-ring, filling it up with the Brums of old, aiding and abetting their panting bull-dogs with toad-like heads, waspy middles, and bandy-legs, to pin some hornless bull, splashed with his own gory foam, lashed to a stake and bellowing with rage and torture.

Punctually at nine Lord Combermere and Sir Watkin, two old hands in the ring, and who went to work in a systematic way, commenced judging the thorough-bred stallions for getting weight-carrying hunters; eleven being down in the catalogue, but only seven coming into the ring, the absentees being Beekhampton, the second-prize horse at Islington this year—and which we should advise his owner to rest contented with—Overstone, Bedminster, and Pluto; the latter was on the ground during part of the first day, but was not shown. The seven comprised a wretched three-year-old, 15 hands 3 inches high, by Knight of Kars out of Chère Amie; Tippler, 16 hands, by Tumbler out of Chloris by Bay Middleton, a horse of power, with a good head, strongish neck, round barrel, and good limbs; Ivanhoff, 16 hands, by Muscovite out of Blackbird by Birdcatcher, a very good-looking neat-topped horse, with fair limbs behind and before, down to within three or four inches of the knee, where he falls off, the knees being very small, which bend and totter like one palsied, and his fore-legs are terribly scored with the irons; Xenius, 16 hands 2 inches high, by Sweetmeat or Sir Tatton Sykes out of Sally by Ithuriel, is a misshapen horse; Rouge Dragon, 16 hands, by Windhound out of Paradigm by Paragon, all legs and wings, that anyone of moderate height might walk under without taking his hat off; Minstrel, by Orlando, dam by Melody, a pretty-looking

horse, falling off in his thighs, and not of much power; and Young Knight of Gwynne, 16 hands, by Knight of Gwynne, dam by Gaper, a coarse horse, with a back that a good-sized "double Glo'ster" would scarcely fill up. There was nothing to choose from but Ivanhoff and Tippler, as they were a long way the best, but it was not so clear as who should be third for the fiver; however, it ended in Ivanhoff with his groggy legs being first, Tippler second, and Young Knight of Gwynne third. The last prize, though only a fiver, is still a prize, and a strong recommendation in the Young Knight's country, being partly given by Sir Watkin, so that we expect ere long to find Montgomery famous in story for hollow-backed ones. In the hunter-class up to fifteen stone was the Master of Arts and Little John, who, with many prize-winners in the other classes, go the round of the shows with their showmen, and become as familiar to one as the giant, the fat lady, or the learned pig of the fair-days of our youth, and, as judges differ, appear to stand an equal chance of patronage. In one place the giant, though an over-topped one, is all the go; at the next the fat lady, being very level, with good looks, is all the rage; whilst at a third, where they incline to clever animals with plenty of quality, the pig comes in for all the coppers. Well, in the weight-carrying hunters, with thirteen in the ring out of an entry of seventeen, Master of Arts was selected—an old love of Sir Watkin, and who was one of the trio who gave him the first prize he ever had, when a four year old; but there were whispers about the yard and in the local papers that the Master had a very suspicious mouth, and at the invitation of a professional gentleman we had a peep, and quite agree with him that there were grounds for examination. As he stood in the next stall to Goldfinder, the light-weight hunter, and knowing how beautifully-proportioned limbs deceive the eye, whether of the biped or quadruped, we asked the same gentleman to put the lash of his whip under the knees of both, when we were not surprised to find that the light-weight bloodlike Goldfinder had the pull in size, if there was any difference; and, as to quality of bone, it would be the old story of ground ash to alder in weight and durability.

Hobby Noble, by Hobby Noble, a fair topped hunting-looking horse, with legs well under and a mover, the property of Mr. Westley Richards, a name well known to the friends of the trigger, and who, we were told, goes like a shot, was placed second, the third being Little John—second for the hundred at Islington this year to Sprig of Nobility. Both Master of Arts and Hobby Noble were in the class with Little John at Islington, and passed unnoticed. Little John, though anything but a true-made horse, and rather fumbling in his slow paces, looks like a hunter, as he is a good oily goer, and we should have decidedly reversed the judgment by putting him at the head of the poll. The highly-commended horse of Mr. Avery—a chesnut, with four white legs—is rather leggy, but a good stamp, and, being only five years old, will improve and thicken—there is plenty of room for it. Thorpe Malsor is a sour-headed mealy bay, light of bone, and a horse we never thought much of, that took a prize at Islington when four years old; and Dragon is a powerful cob hunter, with a great lengthy top on a very short leg. Mr. Westley Richards has a horse of character and breed, with fired hocks, in Emperor; Mr. J. Cook, of the Eighth Hussars, a neat hardy-looking horse in St. Patriek; while Mr. T. P. Hawkins's Molly and Mr. W. Davies' Bryan were the next best, which is not saying much, for, as a class, it was nothing to the same at Islington. We do not mean for number, but quality. Goldfinder was a long way the best in his class. Brayfield and Buffoon, though down in the catalogue, and one of them lamented over in one of the local papers as "passed by with all their honours fresh upon them," were

not in the Hall, and consequently not in the hunt. Freency, the second prize here, is not much to look at, and the third a good topped dark chesnut, with blood, but limbs that seem at least a size too small. Of the other twenty-seven we noted Mr. Jones' two—a very compact varmint-looking brown, with a thorough-bred pedigree that we could not help fancying did not belong to him; and Irish Lass, a good stamp of little mare, who went rather straggling behind, and bore marks of the irons on her hocks. Metal, highly commended, is good-looking, with power; Princess, very neat, with good action; and Drayton, a short horse, with drooping quarters and hocks inclined to be curby; while Mr. Burton's is a long thick powerful horse, wrong in his shoulder; and Mr. E. Cary's Round-text, a good stamp with fashion. Highlander, a very taking horse, with a bald face, we fancy had a slight touch of humour in him, for when a young gentleman brought him in the ring to lark over the gorse, and took him at it in a workmanlike manner, Highlander quietly cleared the bar, and then coolly kicked his rider over his head. How a fall alters the expression of the face, especially when one is trying to bewitch the world with noble horsemanship! What a smile that is, as we raise ourselves from the ground and replace the bonneted hat! but Highlander's rider quietly remounted, as if he were used to it, and took the gorse again, without knocking the horse about, like nine men out of ten would have done. The General, a prize-taker here last year and at York, is of the right character and quality, wanting a trifle more length in body; he appears now rather short and leggy, and might move a little better. The Dean, half-brother to Rural Dean, is a quiet gentlemanly-looking horse, almost verging too much on prettiness for a hunter; Nobility, bulky, with good ends and under-standings, the latter a trifle long. Brampton Bay has too much of the charger's forehead, and falls away in his back ribs and hind-quarters. Mr. A. Harrison's were three very useful horses; but Gee's Tom, the Islington prize horse, was entered, but did not come. The three-year-olds were not very grand: the first had length, breed, good ends and action, but lacked size; the second showed breed, but was light in limb; and the third had an old stunked-up hackish look. Mr. A. Harrison's, by Stepping Stone, was good-looking, but no mover; Mr. J. Drage's, a light one, and nothing particular. The class was more remarkable for The Bird of Passage being in it, and passed over—a very promising colt last year, and prize-taker at York and elsewhere. He was twice the size of any of the others, and we believe will turn up again another day, if his owner will get off the heaps of unnecessary flesh now piled on him. He must have stuffed him as regardless of symmetry or anything in the shape of anatomy as that Nature's journeyman who made up the celebrated show animal known as "the live lion stuffed with straw," and which in our time many of us have been invited to walk up and inspect. The two-year-olds were nothing to look at, with the exception of British Queen, who is a very fine-grown filly, with breeding. The first struck us as long and low, with shoulders a little too forward, and hocks inclined to curb; Maggie, the second, is neat, with good limbs, but no size; and Mr. Taylor had a pretty little chesnut by Voivode. The pairs of carriage horses, reaching to four entries, two bay pairs and two brown pairs, the latter having it all their own way, were still about on a par for merit; for if a coachman had handled the second prize instead of the gardener, they might have been placed a step higher.

The hacks and roadsters were judged in the Lane; there were eight in the class, and by what we could see of Harkaway and his stall he appeared to be a gentlemanly hack, with power; Plenipo, a cob with some breed, and Mr. Milward's commended, a showy, stylish-looking hack. Greyleg, the second prize-horse at Islington for weight-carrying park hacks, puts fifteen

pounds more to his account at the Northallerton Bank. Mr. Jonas Webb's Brunette was entered, but did not show. Expectation has breed, length, and character; The Oxford Wonder appeared stout and carty, and Captain Bedford's very neat. Sturdy, a good-looking cob, with rather too much stuffing, was first here last year, and this time beat Viscount, a first-prize-taker at York last year; but Viscount was amiss—so said his groom—suffering, no doubt, like many other noblemen, from indigestion brought on by over-feeding and want of exercise. The ladies' horses were judged in the ring, and for that description of horse nothing came within a long way of Knight Templar, first here last year, who is very elegant and perfectly broken. The second was more of a light hunter, and who showed anything but good manners when Mrs. Beverley mounted him. There were four others in the class, and two absentees, one being Deerstalker, the ladies' horse at Islington. Duchess is a very good-looking hack, whilst Cremorne, from Blockley Vicarage, has scarcely style enough for her name. Of the seven other entries, Blue Bell, a light, varmint little hack, was damaged by a very waspy middle. The harness horses over fifteen hands were poor with the exception of The Parson, from South Wales, who is one of the most stylish, fine, easy-going gig-horses we have seen for some time—in fact, one could not spare a look at the other seven when in his company. Barmaid is a thick, powerful cob, and a good mover at a certain pace; but with scarcely enough fashion for Spiers and Pond; while Leybourne, the second-best, is taking, with stylish action. The commended Laura is a very neat, quiet gig-mare, quick on her legs, without show or fuss; and Mr. Greenaway's chesnut roan was the best out of the other half-dozen. In the next lot of eleven, Donald, a very nice cobby pony, a shadow too long in the leg, standing under *thirteen and an inch*, and said to be thorough-bred—this is rather *Uncommon*, which is also the name of his sire, and no dam given. We have our doubts about thoroughbred pedigrees, an auld acquaintance in the line having occasionally supplied them for the last forty years for horses going to the hammer. Beeswing, another thorough-bred, in name at least, is light, hardy, but plain; whilst the highly-commended Kitty is very stylish in herself and movements, and before another bench may be better appreciated. Spot, who came in for a commendation, is a miniature Billy Button horse, and quite in his element in the circus. The ponies under thirteen we did not see. Piccadilly was entered, but not on the ground. Those under twelve hands to carry children, numbering between twenty and thirty, were brought into the ring, with lads up, and a very pretty sight they were. The Islington pony with a burly man up is anything but a child's pony, and out of its class in this. But the judging was the quickest thing we ever saw. The ponies were trotted round once or twice, brought up in a line, three selected, colours given, and the others out of the ring before you could say Jack Robinson, to the astonishment of every one! "You don't mean to say you have judged the lot already?" said three or four in the same voice. "Yes we have," replied Mr. Thuruall, "we judged them before they came in." There was a hearty laugh, but we must confess we should like to have seen more of them. One little fat cherubin between five and six, with a rosy round face beaming with smiles, and topped by a Joliffe hat, a regular out-and-out old John Warde in miniature, mounted on a knowing bit of horse-flesh about two feet square, caused much merriment in continually going up to the gorse bar and coming away again with as much intention of jumping it as we had; whilst another, a full-grown

swell with hirsute streamers waving in the air, and a look ferocious, nay absolutely terrific, as he gathered up the reins of one of the fattest of cobs with the shortest of tails, charged the two and a-half feet of gorse at top speed, amidst breathless suspense, till he landed on the other side, a hero, amidst enthusiastic cries of Brayvo! Brayvo! "Rather a nice horse that," said somebody to the lad in charge of that model cob Lucifer. "Yes, sir; the Capting won't have nothing but good 'uns." Professor Airy had a fair top, but his hocks were of the worst, and far behind him. In the stallion-ponies were two prizes and two competitors—Bobby, who was shown at Islington in harness, and a little bit of roan. The dray-horses consisted of three pairs; in the first couple one was a fine-grown powerful horse, but his companion was rather flat in the rib; in the second pair one was useful, the other coarse. Mr. Warden's neat light pair ought to have been in the agricultural classes, of which there were but a few. The stallions mustered but half-a-dozen. A.I. a light-grey two-year-old, 16.3 high, and bred in Buckinghamshire, is a fine topped horse, with good limbs, but a very ugly head, not improved by a weak neck. Sampson, a dark-grey, 17 hands-and-a-half, has good ends and short limbs, but hollow in his back. England's Glory, a bay, by England's Glory, a great prize horse, is very compact, well-built, and good-looking, on the shortest of legs, and a well-known prize horse in Norfolk. Tom Sayers being passed unnoticed, forfeited his entrance-fee by taking French leave. For pairs Mr. C. W. Brierley's bay and grey were first again, being in the same place last year. The bay is a very powerful, active-looking horse; his companion rather flat-sided. The second were a very fair sample of light Suffolks, and were bred by Mr. R. Garrett. The odd pair belonged to Mr. Cook, of Warwick. Shepherd F Knapp, the American trotting stallion, was on the ground, and performed in his trotting-gear to continual clapping of hands.

With the best of accommodation in the shape of kennels, there was a tidy show of hounds, some in the three-couples being very fair samples of the modern foxhound; but, take them as a whole, they were not first-class, and the young unentered hounds weaker. There were entries from the following packs: Albrighton, Warwickshire, North Warwickshire, Worcestershire, The Quorn, Durham County, Old Berkshire, and The Hon. Rowland Hill. A bitch in the North Warwickshire continually sat on her hind quarters, begging like a poodle, no doubt to get out. Mr. Hunt, the honorary steward, gave a luncheon to some eighteen or twenty huntsmen, and after some discussion about legs, feet, shoulders and loins, chuckle-heads and egg-suckers, it was finally arranged that a stallion-hound class of one entry from each pack should be given in addition to the other classes next year. This is always an interesting class, as many people would rather see one good hound than a pack of bad ones.

#### PRIZE LIST.

JUDGES.—Viscount Combermere and Sir Watkin Williams Wynne.

Thorough-bred Stallions for getting weight-carrying Hunters.—First prize, of £30, to Mr. E. Griffiths, Marle Hill, Cheltenham (Ivanhoff); second, of £15, to the Marquis of Hastings, Donington Park, Leicester (Tippler); third, of £5, to Mr. Davies Bryan, Rhydwinan, Montgomery (Young Knight of Gwynne).

#### HUNTERS.

Equal to 15 stone, 5 years old and upwards.—First prize, £20, to Mr. Gee, Wadhurst, Sussex (Master of Arts); second, of £10, to Mr. Westley Richards, Birmingham (Hobby Noble); third, of £5, to Mr. J. Gilman, Birmingham (Little John); highly commended, Mr. Win, Avery, Birmingham (chesnut);

commended (Thorpe Malsor), and Mr. G. Matthews, Great Malvern, Worcester (Dragon).

Without condition as to weight, 5 years old and upwards.—First prize, of £20, to Mr. H. Spencer Lucy, Charleote, Warwick (Goldfinder); second, of £10, to Mr. Westley Richards (Freney); third, of £5, to Mr. W. E. Everitt, Edgbaston (Redstar); highly commended, Mr. Westley Richards (Metal), and Captain J. O. D. Cartwright Enery, Whitechereh (Princess); commended, Mr. F. B. Jones, Hereford (Irish Lass), and Mr. G. V. Wart, Edgbaston (Ireland).

Four-year-old Colts or Fillies.—First prize, of £20, to Mr. T. Gee, Wadhurst, Sussex (The General); second, of £10, to Mr. G. B. Lynes, Northampton (The Dean); third, of £5, to Mr. W. A. Millward, Birmingham (Nobility); highly commended, Mr. H. Sanders, Northampton (Brampton Boy); commended, Mr. A. Harrison, Metchley Cottage, Edgbaston (Brown, and two chesnut horses).

JUDGES.—Mr. J. R. Cookes, Stourport, and Mr. C. Milward, Birmingham.

Three year old Colts or Fillies.—First prize, of £15, to Mr. W. H. Potterton, Boughton Grange, Northampton (black, by Lovett); second, of £10, to Mr. A. Harrison, Edgbaston (horse by Marionette); third, of £5, to Captain Harrison, Norton Hall, Stafford (Monkey); commended, Mr. J. Drage, Moulton Lodge, Northampton (brown, by Ugly Buck), and Mr. A. Harrison, Edgbaston (a brown, by Stepping Stone).

Two-year-old Colts or Fillies.—First prize, of £15, to Mr. George Wise, Woodcote, Warwick (Roulette); second, of £10, to Mr. G. McKnight, Oaken Gates, Salop (Maggie); third, of £5, to Mr. J. B. Booth, Killerby Hall, Catterick (British Queen); highly commended, Mr. G. B. Lynes, Preston Deanery, Northampton (Honeydew); commended, Mr. R. Taylor, Birmingham (chesnut, by Voivode), and Mr. E. O. Badham, Moseley, Birmingham (brown, by Knight of Kars).

#### CARRIAGE HORSES.

JUDGES.—Mr. J. C. Welby, London, and Mr. H. Thurnall, Royston.

Pairs.—First prize, of £20, to Mr. T. Avery, Edgbaston (Monarch and Rollo); second, of £10, to Mr. C. J. Shaw, Edgbaston (Shakespeare and Greenfield); highly commended, Mr. J. F. Freney.

#### HACKS, ROADSTERS, AND COBS.

Hacks and roadsters not exceeding 15 hands 2 inches high.—First prize of £15 to Mr. J. Gilman, Birmingham (Harkaway); second of £5 to Mr. W. Avery, Birmingham (Plenipo). Commended: Mr. R. Milward, Thurgarton Priory, Southwell.

Weight-carrying hacks from 14 to 15½ hands high.—First prize of £15 to Mr. T. Johnson, Northallerton (Greyleg); second of £5 to Mr. R. Wynn, Ellesmere, Shropshire (Expectation). Commended: Captain Bedford, Leanington Bay, and Mr. D. Falkner, Banbury (The Oxford Wonder).

Cobs under 14 hands high.—First prize of £15 to Captain J. S. Ballard, Cowbridge (Sturdy); second of £5 to Mr. E. Tranmer, Northallerton (Viscount). Commended: Mr. R. Milward, Thurgarton Priory, Southwell (Harmattan).

#### LADIES' HORSES.

Ladies' hacks, 15 hands high and upwards.—First prize of £15 to Major Quentin, Cheltenham (Knight Templar); second of £5 to Major Richards, Edgbaston, Birmingham (Volunteer). Highly commended: Miss Alkin, Whittington, near Atherstone (Beauty).

Ladies' hacks under 15 hands high.—First prize of £15 to Mr. G. Hughes, Birmingham (Duchess); second of £5 to the Rev. H. Bromfield, Blockley, Worcester (Cremorne). Highly commended: Mr. W. Yates, Shiffnal (Gipsy).

#### HARNESS HORSES AND PONIES.

Exceeding 15 hands high.—First prize of £15 to Mr. T. Meyrick, Bush, Pembroke (The Parson); second of £5 to Mr. A. Oakes, Birmingham (Jessie).

From 13½ to 15 hands high.—First prize of £15 to Mr. H. Ashton, Prestwich, Manchester (Barmaid); second of £5 to Mr. J. Tyler, Birmingham (Leybourne). Commended: Mr. J. Griffin Farmer, Wolverhampton (Laura).

Ponies in harness under 13½ hands high.—First prize of £10 to Mr. J. Scott, Carlisle (Donald); second of £5 to Mr. G. Clements, Birmingham (Beeswing). Highly commended,

Mrs. H. Chavasse, Hamstead, near Birmingham (Kitty); commended, Mr. W. L. Bell, Peterborough (Spot).

Ponies under 13 hands high.—First prize of £10 to Mr. R. H. Short, Birmingham (Bumpus); second of £5 to Mr. E. Woodhouse, Kirton-in-Lindsey, Lincolnshire (Jacob). Commended, Mr. G. F. Wills, Daventry (Little Miss Muffit).

Ponies under 12 hands high, to carry children.—First prize of £10 to Mr. R. S. Simpson, Birmingham (Kitty); second of £5 to Mr. R. Walker, Hockley (Jimmy). Highly commended, Mr. B. Chambley, Coven Lawn, Wolverhampton (Billy).

#### STALLIONS.

Not under 14½ hands high, for getting hacks or roadsters.—First prize of £10 to Captain Barlow, Castle Donington, Leicester, (Lucifer); second of £5 to Mr. W. Robinson, Tamworth (Professor Airy).

Not exceeding 14½ hands high, for getting cobs or ponies.—First prize of £10 to The Marchioness of Hastings, Donington Park, Leicester (Bobby); second of £5 to Mr. Sheridan, Birmingham (Dick).

#### DRAY HORSES.

JUDGES.—Mr. H. Lowe, Tamworth, and Mr. Shepherd, Colleshill.

Pair of dray horses (geldings or mares) four years old and upwards.—First prize of £15 to Mr. C. W. Brierley, Middleton, Manchester; second of £10 to Mr. R. Evans, Birmingham.

#### AGRICULTURAL HORSES.

Stallions.—First prize of £30 to Mr. W. Wynn, Aleester Redditch (A 1); second of £15 to Mr. T. Wallis, Tamworth (Young Sampson); third of £5 to Mr. C. Edwards, Wisbeach, Cambridge (England's Glory).

Pair of horses (geldings or mares) four years old and upwards.—First prize of £15 to Mr. C. W. Brierley, Manchester (bay and grey); second of £10 to Mr. H. Elkington, Selly Oak, Birmingham (Scott and Darling).

*Veterinary Referee:* Mr. E. Stanley, M.R.C.V.S., Birmingham.

#### FOX-HOUNDS.

JUDGES.—Mr. C. Tongue, Wolverhampton, and Mr. John Walker, Wrexham.

For three couple dogs and bitches of any age.—First prize of £25, and £3 for the huntsman, to the Marquis of Hastings (The Quorn)—Dainty 5 years, Crafty 4 years, Heroine 4 years, Needful 3 years, Music 3 years, Violet 2 years; second of £15, and £2 to the huntsman, to Mr. H. S. Lucy, Charleote (The Warwickshire)—Raglan 5 years, Bounny 3 years, Rapid 3 years, Royal 1 year, Nester, Newsman 1 year; third of £10, and £1 for the huntsman, to Mr. O. Milne, jun., Leanington (The North Warwickshire)—Guider 2 years, Ranter 2 years, Costly 3 years, Rosy 2 years, Royal, and Nancy.

Couples of unentered puppies, one of each sex.—First prize of £10, and £2 for the huntsman, to the Hon. R. C. Hill, Hawkstone, Shrewsbury; second of £5, and £1 for the huntsman, to Mr. J. B. Starky (Old Berkshire).

*Hon. Steward of Fox-hounds:* Mr. R. L. Hunt, Edgbaston.

## THE REPRESENTATION OF COUNTIES.

At a meeting of the West Suffolk Chamber of Agriculture, the following resolution was passed:

"That in the opinion of this meeting the counties are not adequately represented in Parliament, either with regard to population or property; that a large addition ought to be made to the number of county members; that the counties of Suffolk, Norfolk, and Essex especially, comprising together a large area, from their importance in population and property, and having, since the passing of the Reform Act in 1832, lost seven members, are entitled to additional representation, and ought in future to return each six knights of the shire instead of four."

It was further determined that the chairman should sign a petition embodying the resolution on behalf of the meeting, and send it off by that night's post.

THE HORSE SHOW  
AT THE  
AGRICULTURAL HALL, ISLINGTON.  
(Concluded.)

The judging of the harness horses commenced at three on Monday, with those not exceeding fifteen hands two inches high; the first prize going to Violet, the third-prize mare in the park hacks and ladies' horses not exceeding fifteen-one. Violet looked better in a collar, and more in her element for which her action is more suitable; and as her strong harness forehead is anything but symmetrical with the other part of her frame, the more it is hidden the better. Beauty is worthy of her name, and far excels the stout Violet in looks, though not in strength; but then she has again far the best of it with her grand flourishing reaching action, which, in the fond words of a dear friend and a great lover of the good things of this world, is "magnificent." Mr. J. Rock, of High-bury, showed a neatish pair of blacks, who had a hard-working look about them that struck us as more work than victuals. Polly, the first of the ponies under fourteen hands, was good in shape and action; whilst Camper-down Lass was not very taking with the public, being a dirty dun in colour. Dot is a stout well-made pony, but rather thick at the points of her shoulders. Mr. Spence had a very nice one in Venus, with breed and action; and Mr. Milward's Harmattau is a pony of great character but much worn. Of those not exceeding 13 hands, Pink was the picked, a very oily capital stepper all round, but having rather a ragged look, and being of a bad cream colour and with a very mean tail, all this greatly damaged her in point of appearance. Uncle Tom, the first prize in riding ponies under 12½ hands, and second here, is a neat cobby little fellow with plenty of pluck, rather big-headed, though not showing this much in harness. Little Ruby, a chestnut roan stallion, 11 hands high, in colour, action, and shape is a perfect gem. There were several others very nice ones, and many that with a little trimming up and better harness would so much improve that their owners would hardly know them again. The judges having left the circle, the "order of the day" was the parading of the different prize horses, but the management, like Benjamin Disraeli, yielding to the gentle pressure of the House, and more particularly to that of the ladies, this was suspended, for jumping when chaos reigned, and continued during the week amidst cheers, laughter, and infantile shrieks of delight. Mr. Jonas Webb's Brunette was awarded the gold medal as the best cob up to 16 stone, but she stands something over 15 hands, and consequently scarcely comes within the definition. There was trotting against time on Friday, but this, with the space, and the cattle in harness was, as everybody expected a complete farce. Then followed "miscellaneous jumping," the prize going to Mr. Patmore's Bishop Stortford. "Izzard," a very temperate horse and clever fencer, well handled by an unassuming young fellow, who, we imagine, will much astonish the good folks at Bishop Stortford when he tells them—that is, if he can manage the word—that he got the first prize as the "best miscellaneous jumper." "Accomplished huntresses!" "Miscellaneous jumpers!" Well may the world have its laugh over the Horse-show.

THE HORSE-JUMPING BUSINESS.—At a special general meeting of the members of the Manchester and Liverpool Agricultural Society, Mr. D. R. Davies, Merc Hall, Knutsford, in the chair, in considering the prizes for horses, the meeting agreed with the suggestion of the chairman that the jumping of hunters should not be compulsory, inasmuch as the most valuable horse in the show-yard, having a peculiar temperament, might refuse to jump on account of the excitement

which generally prevails while the hurdle-leaping is going on. Mr. Nield: Some old circus horse will always be ready to jump. (A laugh). A discussion followed as to whether the jumping prizes should be distinct from those for hunters. The opinion of the meeting was that jumping was essential to the success of the show. Several members desired that the prizes for hunters should be as large as possible. Eventually, Mr. T. W. Tatton's motion was passed as follows: "That two special extra prizes, of £10 for the first, and £5 for the second, shall be awarded to the two hunters which shall be proved on trial to be the best jumpers over hurdles, &c." The prizes for hunters were increased so as to make the show as attractive as possible.

THE JUMPING BUSINESS.—The jumping nuisance was as rampant as ever: horses refused oftener, and men, we thought, rode them worse: in fact, such a scene as was exhibited at the conclusion of the judging, when the prize horses should have been paraded, we fancy was never matched out of Bedlam—it might be inside, if the inmates were supplied with the cattle. People were galloping round the ride, and jumping the hurdles the reverse ways at the same time; whilst a few actually rode amongst the stallions. Some fell off, because their steeds did not jump, others because they did; while one nondescript brute preferred the entrance-gates to the gorse, and landed in the crowd. We rather wish there was a chance of this disgusting farce being done away with altogether. The energetic gentleman in the middle, who tried to help over the unwilling, wanted but a long whip and a couple of clowns to make a regular circus affair of it. But the absurdity is not the worst part. Horses, as we have before shown, suffer in this pantomime business. On Monday poor old Gay Lad was ridden round and jumped so often that he must have had the leaping of two or three days' hunting compressed into a very short space of time; and though the old horse jumped freely and well till disgusted with the business from repetition, his white sides were scored with spur-marks. We are no sentimentalists, and think little of seeing a horse "pricked" in a close finish, or to save himself and rider from worse harm by making him use extra exertion at a "rasper;" but there can be no occasion for using the rowels in this place. Others were galloped and jumped until streaming with sweat; and a light-fleshed black was apparently let by the hour in the morning, for he introduced several different gentlemen to public notice, some of them not very favourably. A foxhunting friend with us could scarcely keep his seat, so indignant was he to see hunters thus degraded and ill-treated. In fact, it is the plague-spot that mars what should be one of the pleasantest exhibitions in London.—*The Sporting Gazette.*

SALE OF THE ROYAL YEARLINGS AT  
HAMPTON COURT.

Bay colt by Young Melbourne, dam (foaled in 1855)	Gs.
Sister to Bay Rosalind by Orlando (Mr. A. M'Donough)	65
Chestnut colt by Orlando—Trickstress by Sleight-of-Hand (Capt'n Machell) ... ..	100
Bay colt by Wild Dayrell—El Dorado by Harkaway (Mr. Thellusson) ... ..	110
Bay colt by Wild Dayrell—Ariadne by Newminster (Lord Vivian) ... ..	100
Chestnut colt by St. Albans—Eulogy by Euclid (Captain Machell) ... ..	250
Chestnut colt by St. Albans—Lady Ann by Touchstone (Captain Machell) ... ..	260
Chestnut colt by St. Albans—Sister to Little Lady (foaled in 1857) by Orlando (Captain Cooper) ... ..	460
Chestnut colt by Orlando—Ossifrage by Birdcatcher (Mr. A. M'Donough) ... ..	75
Bay colt by Orlando—Ayacanora by Birdcatcher (Captain Machell) ... ..	830
Chestnut colt (brother to Cambuscan) by Newminster—The Arrow by Slane (Captain Machell) ... ..	1,000
Bay colt by Newminster—Lady Palmerston by Melbourne (Captain Machell) ... ..	180
Bay colt by Young Melbourne—Julie by Orlando (Duke of Newcastle) ... ..	220
Chestnut colt by Blair Athol—Rosabel by Newminster (Mr. Welsby) ... ..	270
Bay filly by Wild Dayrell—Rosaline by Orlando (Mr. Williams) ... ..	65

Bay filly by King Tom—Garnish by Faugh-a-Ballagh (Mr. W. Reeves) ...	110
Bay filly by Newminster—Lady Gough by Launcelet (Duke of Newcastle) ...	300
Bay filly by Stockwell—Hepatica by Voltigeur (Mr. Ten Broeck) ...	180
Bay filly by Stockwell—Bay Celia by Orlando (Lord Hastings) ...	750
Bay filly by Voltigeur—Doralice by Alarm or Orlando (Mr. J. Day, jun.) ...	100
Bay filly by St. Albans—Blister by Bay Middleton (Mr. Harlow) ...	50
Bay filly by Orlando—Flight by Jereed (Duke of Newcastle) ...	210
Black filly by Mentmore—Rosebud by Ratan (Mr. Mytton) ...	35
Chestnut filly by Mentmore—Jacqueline by Don John (Captain Machell) ...	50
Chestnut filly by St. Albans—Amazon by Touchstone (Duke of Newcastle) ...	220
Bay filly by Newminster—Lady Melbourne by Melbourne (Colonel Price) ...	400
Bay filly (sister to Attraction) by Orlando—Nun Appleton by Bay Middleton (Lord Vivian) ...	420
	<hr/> 6,810

SALE OF THE MAMILED YEARLINGS ON HAMPTON GREEN.

Bay colt by The Dupe or Crater—Butterfly by Bantam (Mr. Villiers) ...	50
Bay colt by Crater—Volition by Voltigeur (Mr. Morris) ...	45
Bay colt by Crater—Repatee by Pantaloon (Mr. Reynolds) ...	50
Bay filly by Macaroni—Olympias by Pyrrhus the First (Lord Feversham) ...	70
Brown colt by Crater or Gemma di Vergy—Botany by Melbourne (Duke of Newcastle) ...	100
Bay filly by Dupe—Gazelle by Ion (Mr. Nightingall) ...	50
Bay filly by Gemma di Vergy—Scalade by Touchstone (Mr. J. Dawson) ...	135
Bay colt by Crater—Petticoat by Pantaloon (Mr. M'Donough) ...	75
Chestnut colt by Crater—Columbine by Derby (Mr. W. Reeves) ...	75
Bay colt by Crater—Start Point by Weatherbit (Duke of Newcastle) ...	350
The Duke of Edinburgh by Stockwell—Queen of Beauty by Melbourne (Mr. Ten Broeck) ...	600
Bay filly by Gemma di Vergy—Equity by Sweetmeat (Mr. W. Reeves) ...	85
Bay colt by Dupe—Madame Clicquot by Burgundy (Captain Machell) ...	600
Bay filly by Dupe—Couleur de Rose by West Australian (Mr. Ten Broeck) ...	150
Brown filly by Gemma di Vergy—Rita by Flying Dutchman (Lord Londesborough) ...	145
Bay filly by King Tom—Jetty Trefz by Melbourne (Mr. Ten Broeck) ...	420
Bay filly by Newminster—Belle by Slane (Mr. Blenkiron) ...	100
Bay filly by Broomfield—Lady Audrey by Pantaloon (Mr. Jackson) ...	110
Brown filly by Crater—Ventre-à-Terre by Pantaloon (Mr. Jackson) ...	75
Bay filly by King Tom—Lady Blanche by Epirus (Mr. G. Reynolds) ...	330
	<hr/> 3,615

THE MIDDLE PARK YEARLINGS. MR. BLENKIRON'S ANNUAL SALE.

Brown filly, by Claret—Elinor by Sweetmeat (Mr. C. Brewer) ...	230
Brown filly, by St. Albans—Lady Vernon by Poynton (Lord Hastings) ...	155
Brown filly, by Weatherbit—Rosati by Alarm (Lord St. Vincent) ...	280

Bay colt, by Ruby—Pride by Archy (Mr. W. Reeves) ...	100
Brown colt, by Weatherbit—Fanfaronade by Gameboy (M. de Montgomerie) ...	430
Bay colt, by Blair Athol—Theresa by Touchstone (Mr. Thellusson) ...	900
Chestnut filly, by Oulston—Eda by Birdcatcher (Mr. Padwick) ...	155
Bay filly, by High Treason—Lizzie by Orlando (Mr. Padwick) ...	165
Bay filly, by Dundee—The Belle by Birdcatcher (Lord Hastings) ...	100
Bay filly, by Weatherbit—Triangle by Epirus (Lord Hastings) ...	360
Bay filly, by Newminster—Lady Elcho by Sleight-of-Hand (Sir F. Johnstone) ...	250
Brown colt, by St. Albans—Actress by Annandale (Mr. Padwick) ...	360
Bay colt, by Dundee—Blackbird by Voltigeur (Mr. G. Angell) ...	120
Bay colt, by Marsyas—Curse Royal by Mildew (Mr. Grimshaw) ...	130
Chestnut colt, by Stockwell—Marseillaise by Bay Middleton (Lord Hastings) ...	1,650
Bay colt, by Voltigeur—Tib Tacket by Knight of Avenel (Lord St. Vincent) ...	520
Bay filly, by The Flying Dutchman—Merlette by The Baron (Mr. Padwick) ...	1,000
Brown filly, by Dundee—Pandora by Cotherstone (Mr. Padwick) ...	550
Brown colt, by Dundee—Mrs. Fowler by Heron (Lord Ailsa) ...	80
Black colt, by Weatherbit—Tested by Touchstone (Sir F. Johnstone) ...	300
Chestnut filly, by Stockwell—Governess by Chatham (Mr. G. W. Bennett) ...	320
Chestnut filly, by Dundee—Shot by Birdcatcher (Sir F. Johnstone) ...	1,000
Bay filly, by Dundee—Reconnaissance, by Stockwell (Mr. Chaplin) ...	490
Chestnut filly, by St. Albans—Elspeth, by Birdcatcher (Mr. Padwick) ...	750
Bay colt, by Dundee—Eltham Beauty, by Kingston (Mr. C. Brewer) ...	165
Bay colt, by Marsyas—Goldfinch, by West Australian, (Mr. Padwick) ...	250
Chestnut colt, by Weatherbit—England's Beauty, by Birdcatcher (Mr. Padwick) ...	950
Brown colt, by Weatherbit—Athena Pallas, by Birdcatcher (Mr. Thellusson) ...	750
Bay colt, by Newminster—Madame Stodare, by Sleight-of-Hand (Lord Hastings) ...	520
Chestnut colt, by Newminster—mare by Hampton, her dam by Muley Moloch (Mr. Padwick) ...	2,000
Chestnut filly, by Thunderbolt—Lady Kingston, by Kingston (Mr. W. Reeves) ...	250
Chestnut filly, by Weatherbit—Sacrifice by Voltaire (Mr. Lee) ...	180
Bay filly, by Dundee—Q.E.D., by Kingston (Mr. Thellusson) ...	650
Brown colt, by Musjid—Symmetry, by Gemma di Vergy (Captain Machell) ...	410
Chestnut colt, by Marsyas—Leprosy, by Mildew (Mr. J. Watson) ...	160
Chestnut colt, by Marsyas—Beatrice, by Birdcatcher (Mr. Padwick) ...	520
Chestnut filly, by Newminster—Diomedea, by Weatherbit (Mr. Chaplin) ...	1,000
Brown filly, by Weatherbit—Butterfly, by Knight of the Whistle (Mr. Chaplin) ...	750
Bay colt, by Amsterdam—Lady of Eltham, by Kingston (Mr. Ten Broeck) ...	100
Bay filly, by Amsterdam—Marchioness, by The Marquis (Mr. Thellusson) ...	150
Brown filly, by The Prime Minister—Alma, by Flatcatcher (Mr. W. Reeves) ...	370
Bay filly, by Wild Dayrell—Restless, by Burgundy (Lord Ailsa) ...	85

## TEXTLESS NOTES.

BY A CROTCHETY FARMER.

IN PARIS AND AT ITS EXHIBITION OF 1867.

I am in the habit while in Paris, and if the weather is good—and when good it is so there—by no means, good reader of the *Mark Lane*, a crotchety statement, as those of our readers know who have experienced the balmy air and the glorious sunshine, which we in this country do not often enjoy—in such weather I am in the habit of generally spending a few hours, after my dinner, in the open air, seated in one or other of those delightful gardens or open spaces with which Paris abounds, and which combine so happily a quiet seclusion with abundance of cheerful company. The gardens I most affect are those of the Palais Royal and the Luxembourg. I sit and study whilst I smoke, for I am crotchety enough “to follow the multitude to do that evil,” just because I suppose it is so much denounced by quiet, good, and orderly people, who are I presume not crotchety. Of the two gardens named above, I probably give the preference to the Luxembourg, because it is more thoroughly Parisian in its characteristics, being frequented more by the Parisians themselves than by the English, who live as a rule within hail of the gardens of the Palais Royal, or whose numerous restaurants and cafés attract them there. The gardens of the Luxembourg are situated on the Boulevard St. Michel, some distance from, but easily enough reached by ‘bus by those who live in the English or fashionable quarter. These gardens are now undergoing a process of great alteration and improvement, although there are those who, remembering the fine old-fashioned arrangements, do not think these are improvements. Be this as it may, even with the disturbance created by alterations, there is quite enough of the old place left in which to enjoy oneself very comfortably and characteristically in the Parisian fashion. The Luxembourg gardens are often called the servant-girls’ or nurse “garden,” and this from the immense number of those who turn out to make a play-ground for the children they have in charge. It is probably because this is so that I like to go to those gardens. Let not the reader be uncharitable, and attribute motives not due to me; although I am free to confess that I *do* like to see tug-tight lassies dressed in the neat costumes which distinguish all servants, and which mark them at once for what they are, and for what they are not ashamed to be; and then I am also crotchety enough to love children—so that of both the little darlings and the comely lasses who wait upon them there are enough to be met with, in these summer gardens I now write of, and at all hours, from “early morn to dewy eve.” I have just said that the dress of the servants is one which marks at once the class to which they belong, and of which class their greatest ambition is to be the best member and the most highly esteemed by master or mistress—not to dress out of it, and to be ashamed to belong to it, as do our servants. As in my last paper under the present title under which I write, I took occasion to make some remarks as to cooking, it surely will not be deemed altogether out of the way if I do the same on this subject of “servantgalism,” as it exists in France and on the continent pretty generally. It is a subject with us so surrounded with unpleasant reflections, as conveying a notion of how very helpless we are in the matter, and how much we are the slaves of the evils attached to it, that, as a rule, we are glad to think as little as we can about it: albeit to

some, especially the ladies, there is no end to the discussion to which it gives rise. But although this servant-girl question is—or, as some one has said it is—one which “no fellah can possibly understand,” it is one which, nevertheless, concerns us all, not less, but perhaps more, the readers of this journal than others; and if I were asked what sign or index is there which is observable without much trouble, that will show or prove that the continental servant is different from the English servant—different, I mean, in the sense of being better (I speak here, of course, as a class, not as individuals)—I should at once, and without hesitation, say it is that to which I have already alluded, namely, the fact that the servant-girl as a servant-girl is known at once as belonging to that class, and to no other, by the peculiar dress, remarkable for its plainness, its clean and tidy neatness, and, above all, for the utter absence of any attempt it makes to ape the appearance of the dress of a lady. With us, our girls ape the dresses of their mistresses, and do their best or their worst to look as little like a servant as they can. Now, to those who look beneath the surface of things, this difference is just indicative of the difference there is between the servants of the continent and those of our own country; for I take it as an incontrovertible rule that where one acts so as to show himself or herself, as a rule, ashamed of their calling, it is not possible that they will take a pride in it, and, not taking a pride in it, will never excel, and do not wish to do so. I lately heard, during one of those discussions which, with us, are now pretty frequent upon the question, a lady make the remark, “It’s a strange thing that the good servants have died out with the old servants’ dress.” Just so! and I could not help feeling gratified at the support this gave to my opinion as above stated. For no sooner did the dress die out, than the servants who wore it disappeared also, and this just because the feeling of pride in their place, which the very wearing of garments indicated that they occupied, and which naturally made them have, more or less, a pride in doing their work well, died out, and had no longer a place in their estimation. Depend upon it, whenever there is an incongruity between the work to be done by any one, and the general doing and behaviour of the party who does it, or who is supposed to do it, that work will never be well done. Not long ago, while at church—not here, but in my own country; and I need scarcely make this last statement, for the sight could not easily, if at all, be seen here. Well, at church in my own country, my neighbour’s servant came marching up the aisle in a dress absolutely better, at least more handsome looking—for I am not well enough acquainted with the value of ladies’ gear to say it was better—than the dress of my neighbour’s wife; and yet my neighbour is a rich man, and keeps his carriage and all things thereto appertaining. Now, my common sense told, as it now tells me, sitting here and knowing what I have within, the last hour seen in the gardens of the Luxembourg, more forcibly than ever, that there was an incongruity between the work which that servant of my neighbour had to do, and the habits of a person which she was so cultivating; such an incongruity in fact, that made it quite plain to me that if she did her work well, which I have good reason to doubt, she did it not in virtue of, but rather



in direct opposition to, the influence which her habits brought into operation. Certainly it is a fact suggestive, withal, that the servants of the continent are much more like what our old servants used to be, and that they dress as becomes their station; and I am crotchety enough to believe that this latter fact has a remarkable influence upon the hearings of the whole question. Wages are, to say the least, better spent upon something else than dress, and they are, where the love of dress does not exist, more likely to be saved than spent in any way. The *morale* of a servant must be lowered, and is lowered, by the very attempts she makes to ape a position which she knows she cannot maintain, and which every time she handles a broom or polishes a grate, or attends to the duties of the nursery, her inner conscience tells her she is not entitled to. Shams and make-believes are at all times despicable; but in the majority of cases, in the one I am now considering very markedly, they are more than despicable—they are dangerous, alike to the victims of them, and those who are brought in contact with them. I do not speak upon this subject from the authority only which a Luxembourg Garden view of the question gives me, although I might with all confidence maintain that that view is exceedingly suggestive, but I speak upon it with other experience to fall back upon. It has been my lot to travel much abroad, and, what is more to the purpose, to see much of the domestic life of the peoples, and on all sides the testimony to the worth of the servant-girls as servant-girls—and, more than that, as trustworthy helps, friends I might say—was as complete as it was gratifying. Fancy a mistress amongst us complaining, as I have heard a mistress complaining, that her servants worked too hard, were too industrious, and were almost too cleanly! and fancy, moreover, the astonishment of a mistress amongst us, at a servant about to be engaged stipulating that once a day she should be allowed to attend Divine service, even although that attendance involved the rising at a remarkably early hour in the morning! and yet all this, and more than this, I have heard. We may shake our heads at what we may be pleased to call the idolatry or the superstition of a servant-girl attending mass daily; but I will at least be crotchety enough to say that I would sooner trust that girl—hearty and, as I hope, sound Protestant as I am—than one who is careless of ever going to church or chapel, and who rather chooses to waste the hours of that Day of Rest she has at command, in brushing the pavements with the long train of her fashionable dress, and astonishes, or tries to astonish, her companions with the secondhand airs of the lady she aimes to be. I do not say that this attention to church attendance in itself, and for the influences which it brings to bear upon good character, is what the Parisian servant-girls marked or notorious for; it may be, and the probability is, that the great laxity of discipline in this and other departments of morality induced by great cities, especially such as Paris, is existent amongst them; but I do know that this attention to what I am crotchety enough to call a good thing, even although it is going to hear a mass, does exist amongst the servant girls of the provinces on the Continent. I have taken up much space by my remarks upon this question, but not too much, for it is one which concerns us all; and as a corollary from what I have said, I may deduce this—that when we get our servants back to live in the simple style of former days, we shall get back much of the single-heartedness of service, which is not a characteristic of the class in our times. I believe this most heartily, and am careless whether I am condemned for being very crotchety in believing it.

From cooks to corn, from servants to seeds and saving machines, is a marked change of subject; but then, if I am not privileged to do marked and strange things, who

is? About corn first—or shall I quote the more high-sounding, if not more scientific, title “cereals”? How are they represented in the Exhibition? It is not easy—or rather it was not easy for us—to make the investigation which enables us to answer this question. Not that the difficulty lay (and this statement will convey to the smart reader a pretty conclusive answer to the above question) in the direction of having so many samples to examine, as to find where such samples as were to be examined were placed; for in spite of the high-sounding announcements of the classification of subjects, I may venture to say that that classification was not carried out in the matter of the cereals. Very much scattered indeed were the samples, difficult to find, and—shall we at last say it?—not in many instances very much worthy of examination when found. One thing was suggested to me when I came across specimens of wheat, oats, and rye stowed away in what I would call a very out-of-the-way unclassified place—namely, amongst some machinery in one of the buildings or sheds of the Park, if I recollect rightly devoted to the machinery of the Swiss department; and it was this: they purported to be specimens grown with the aid of phospho-guano as a manure; but no information was given as to the quantity used per acre, the nature of the soil, and other points connected with their culture, nor any information as to what had been the produce under similar conditions without the aid of this manure, nor were specimens of the same crops so grown without it shown. Exhibited there as they were, they yielded no practically valuable information—were indeed worthless as affording any lessons. But the fault here noticed is no new thing in other, and even in our own Exhibitions, where specimens of cereals are shown. Comparative observations are above worth in such cases, and it is greatly to be regretted that the fine opportunity which the Exhibition offered for bringing together a truly good collection of cereals should have been lost. That this has been lost, may be gathered from the fact that I know it is the opinion of one who is officially connected with this department, and whom, if I named, the reader would at once recognise as an authority, that the collection of seeds and cereals is, upon the whole, a poor one. Some perhaps would go the length of adding the word “very” to this. In view of this condition of matters—and which, as I have hinted at above, is that generally of all exhibitions, markedly of all agricultural ones—one is apt to ask oneself how is it that such an important department of agriculture is, to use a sporting phrase, “nowhere” in the estimation of the getters up and supporters of these exhibitions? Far be it from me to decry the importance of attending to the stock of the farm; but are the crops from which we obtain their supply of food altogether unimportant? One would think so, if one were to judge from the position which the crops take, or rather do not take, in our exhibitions and our shows. One would suppose that it seems to be the opinion of the managers of these that every question connected with the culture of the crops is defined, and that we have no need further to investigate any points connected therewith. But that this is not so, every reader of this Journal knows well enough. There are at least a round dozen of questions connected with the subject, to which it is not possible for us to say that the definite answer is Yes or No—not possible, I mean, so far as our real practical experience is concerned. Such considerations as these are worthy of being attended to; and they arose in my mind as I examined the very few specimens of seeds and cereals which I saw on my travels through the Exhibition. At all events, the reader has them, and can take them for what they are worth.

As closely connected with cereals, a word as to manures. A fairish number of these are embraced in the

Exhibition, France showing the greater number of them. I must confess that I never can learn much from bags and barrels of manure exhibited at these exhibitions and our shows, not by any means inviting either to the touch, the taste, or the smell. Their somewhat odoriferous contents have so much of a general sameness of something or other, that when examining them, and to speak more honestly when looking at them, I am always reminded of the exquisitely ludicrous jumble of ideas exhibited by the nigger who, when asked which of two things or men he liked best, replied that "Tother was so like which, he could not distinguish both from whom." I could say a good deal more as to the lessons which both of these departments of the Exhibition would or can teach; but the rapid closing of my space tells me I must conclude; and

I do so by saying that the conclusion I have come to is, that we have a good deal yet to learn as to the mode of so disposing and classifying specimens of agricultural produce in our exhibitions, so that they really can give us something practically valuable; and that the "Great Paris Exhibition, of 1867 does not do much—possibly does nothing—in the way of teaching us in this direction; if it teaches at all, it appears to me that it is more in the way of teaching how not than how to do it. Pity it is that this is true, but true it appears to me to be; but then my opinion being sure to be a crotchety one, it must be valued accordingly—that is if it has any value at all: it is just as likely that it has none as that it has some.

### THE PARIS UNIVERSAL EXHIBITION OF 1867.

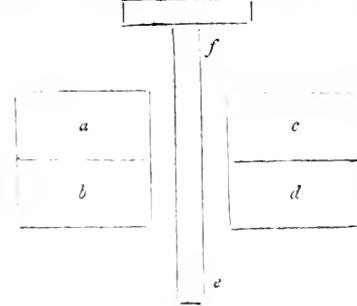
In one of our papers we have drawn the attention of the reader to the fact that throughout the building at the Champ de Mars, the park grounds, the buildings thereon, and at the Island of Billancourt, a goodly number of inventions are exhibited in the department of hydraulic mechanism and appliances which are in many respects worthy of notice. Some of these we have already described, and we have now to add a brief notice of one invention which bids fair to be extensively used, as in truth in many districts it is extensively required, and which by the way it may be said that it is curious it has never been before thought of, or if thought of not carried out into practice. It is an invention of M. Dormet, of Lyons, and has for its object the increase of the supply of water in wells which are either too shallow, or into which the springs send supplies so sparingly that they are soon exhausted in pumping. To aid the gravitation of the water in the well M. Dormet employs the power of a vacuum more or less complete, obtaining this by the simple means of closing the top of the well by a close-fitting cover, which is made as airtight as possible by the employment of clay or other luting. Through this cover the pump-barrel or the suction-pipe is passed to the interior of the well; and when the pump is set to work, the air is pumped out if the supply of water is deficient, and the partial vacuum formed in the interior causes the water to be forced through the various chinks and crannies in the bottom and sides of the well, and to add of course to the supply of water in it. At first sight one would have some difficulty in supposing that the vacuum would either be so strong, or that air to destroy it would as readily find its way through the upper portion of the ground surrounding the well, where little or no water would be, as to bring about the desired result. But in practice the result is found to be as above stated, and the vacuum in the well is all the more easily made, just as the supply of water is less and the demands of the pump upon it not consequently met. There is, of course, the extra labour to be done in making the vacuum; but as this brings the water which is required, it is equivalent to deepening the well, and as this is generally a costly process, the extra work of pumping is cheaper. We have said that the trials of this contrivance have been very satisfactory, and, as the inventor has taken out patents for this country, we may probably hear of its advantages being illustrated amongst us.

While on the subject of water mechanism, we may notice here an arrangement exhibited as the invention of a Mr. Behrens, which is at once applicable as a centrifugal or

rotatory pump and a rotatory steam-engine; in fact, the apparatus as exhibited is on one side arranged as a rotatory steam-engine, the other as a pump, the details being in both cases the same. The main receptacle is an iron case, which represents the cylinder of an ordinary steam-engine, and which is bolted so as to lie horizontally on the top of a framing. This casing is finished at each side with semicircular ends, and in the centre of each of these ends two cylindrical shafts or studs (*a b*) are placed. The pistons (*c d*) are segmental in form, their outer periphery being of the same curve as the interior periphery of the casing ends, and revolving in contact with them, while the inner ends are hollowed out to a curve, the same as the outside curve of the shafts or studs (*a b*), round which they also revolve. These pistons (*c d*) are provided with shafts, which pass through the casing cover, and are provided with toothed wheels of equal diameter, which, gearing into each other, revolve at equal speed, but in opposite directions. Steam is admitted to the casing by a pipe (*e*), at a point in the upper side midway between the two shafts (*a b*), and, as it presses upon the edge of one of the segmental pistons (*c*), it causes it to revolve, and when done working this, it passes off by the exhaust pipe (*f*), placed in the outer side of the casing, and situated as the supply-pipe (*e*) in the centre. By means of the gearing, the other piston (*d*) is made to revolve in the opposite direction, and its position is so arranged that, while the one piston (*c*) is receiving the impulse of the steam, the solid portion of the other (*d*) acts as a cushion or abutment, thus enabling the other piston (*c*) to have the full pressure of the steam upon it. The space on the other side of the piston (*d*) is filled with steam, which in its turn will pass through the exhaust-pipe, when the revolution is complete. The other half of the arrangement, as above stated, is where the pistons act as lift pumps—the exhaust-pipe (*f*) forming the ejection or supply, the steam-pipe (*e*) the suction. Thus when the pistons are used as force pumps their positions are reversed, together with the motion of the revolution of the cylinder. The whole arrangement is very compact, and is said to be very efficient in practice, although the objection which has been applied to all forms of rotatory steam engines applies to this, namely—the difficulty of keeping the rubbing surfaces between the piston and the cylinder tight.

While on the subject of steam engines it will be well to notice here the most novel—certainly the most compact—form of steam engine to be found in the machinery department: it is exhibited in working order in the American department, near to the Corliss engine, which, from its beautiful workmanship, is the most attractive

feature of the American collection of machinery. The engine we refer to is the invention of Mr. Hicks, and its general arrangement is indicated in the following rough type diagram, where *a b c d* are four single-acting cylinders placed

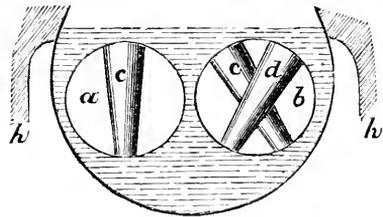


opposite to each other, the piston-rods of the moveable pistons of which are all directly connected to the fly-wheel shaft *e f*; these are the only moveable parts of the engine, and, being all boxed-up, form an exceedingly

compact arrangement. By means of ingenious details, but which are too complicated to be explained here without diagrams, the pistons are so constructed as to act in the capacity of the ordinary slide-valve, the parts being in connection and combination with parts in the cylinders; so that all the complicated mechanism of slide-valves, eccentrics, levers, &c., of an ordinary engine are dispensed with, and the whole of the moving parts reduced to a minimum. By an ingenious arrangement of parts, each piston acts as a slide-valve to the cylinder immediately contiguous; and it is also capable of being so adjusted that it cuts off its own supply of steam at any desired point, thus enabling the engine to work on the expansive principle. By arranging also for each piston to take its own supply of steam before the next one has finished its stroke, a perfectly uniform motion is produced, the dead points being passed over easily. The engine runs at very high speed, and is in every way worthy of special notice by the visitors interested in steam machinery.

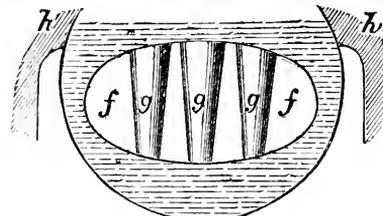
In our last we described a form of donkey pump, which was and is to be seen in the boiler-house of the British Commissioners. In that place the visitor will also see an apparatus which will be interesting to him, not only because it is the invention of one who is well known to our readers, but because we believe it introduces and exemplifies a principle in boiler arrangement which we conceive of the greatest importance: we allude to the "water-tube boiler" of the Messrs. Howard, of Bedford. There was in the history of the steam-engine a long period or era in which the attention of engineers was paid to the perfecting of the engine, to the almost complete exclusion of the construction of the boiler which was to supply it with steam—so much so, that matters came to this point, to quote the words of one authority, "that while engine making had progressed, boiler making had stood still;" and was indeed for long the disgrace of the profession, "as it was a prolific source of danger to the public who used boilers." Yet very little consideration was required to show that the boiler was just as important a part of steam motive-machinery as was the engine, proving, in fact, as it was then not inaptly termed, "the lungs of the engine." From the efforts, however, made of late years by practical men, who have seen the absurdity of directing all their attention to the perfecting of the engine which was to use, to the exclusion of the apparatus which was to make or furnish the steam, boiler engineering has taken a much higher status than it has for many years back possessed; although it is but only just to say that there is yet a vast deal to be done before boilers are, in point of efficiency, up to the same standard which regulates the designing and construction

of machinery. The Exhibition now being held at Paris proves this pretty conclusively; for while there is much to be seen worthy of praise and of imitation in boiler making, there is also much to be condemned and to be avoided. We class the boiler mounted by Mr. Howard under the first of these two categories, as believing that it is a real and a great advance in the right direction. Previous, however, to describing it, it will be well to glance at the boiler of the Messrs. Galloway, of Manchester, which is also in the British boiler-house along with that of Mr. Howard's, and used to supply steam to the British section of the machine gallery; not only because it is a boiler held in high estimation, but because it exemplifies some points bearing upon the principle which Mr. Howard has adopted. For a long period the principle of allowing the heated products to pass through tubes surrounded by water, which had its first exemplification in the boiler of the locomotive made by Stephenson for the Manchester and Liverpool Railway—although by the way it may here be named, as giving honour where honour is due, that this principle owed its introduction not to Stephenson, but to Booth, the then secretary of the railway—was that to which nearly all boiler makers and designers gave their attention; and it was not until some continental engineers took up the subject that the value of a principle the very converse of this was understood, namely, that in which heated air surrounded the tubes, while the interior was filled with water. The best exemplification of this principle, in this country, is in the boiler of the Messrs. Galloway above alluded to, which is a combination of the large internal flued and furnaced cylindrical boiler (*a b*, fig. 1), with the water-



(Fig. 1.)

tubes. These water-tubes (*c d*) connect the upper part of the internal cylindrical flue with the lower, and are placed in such position that the heated air and flame which pass from the furnace to the chimney come in contact with the outside of these tubes, and rapidly raise their contents to the boiling point. These tubes are not parallel-sided, but conical; this form and arrangement of tubes are found to facilitate very much the circulation of the water in the tubes. In fig. 2 a section of boiler is shown at the



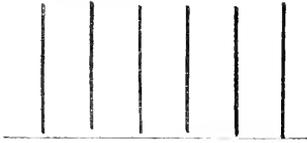
(Fig. 2.)

part where the two flues (*a b* in fig. 1) widen into one at *f f*, *g g* being the tubes, and *h h* part of the furnace. Such have been and are the advantages of this water-tube system, that Mr. Howard was led to consider whether an extension of the principle so as to

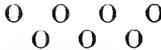
make water-tubes the feature and the only feature of the boiler would not tend to an extension of the advantages. The result of his cogitations we now have in the boiler, a specimen of which is at work in the boiler-house of the British Commissioners at the Paris Exhibition, and in which the large outer shell or cylinder which distinguishes almost every boiler yet introduced is entirely done away with, and the whole is made up of an aggregation of tubes arranged and put together in an exceedingly ingenious manner as follows, stretching across the furnace and lying horizontally. Mr. Howard places a series of pipes, nine in number, and in groups of three, as thus :



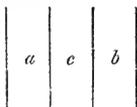
and by a very ingenious yet simple joint he connects with these a range of vertical pipes, six of which are given to each horizontal pipe, as thus :



These vertical pipes are not arranged in line, but are placed so that the spaces of one row have placed opposite to them the pipes of another row, as thus :

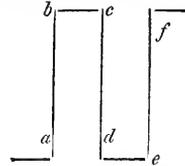


so that the heated air and flame from the furnace is compelled to pass as much as possible in contact with the pipes. The vertical pipes are welded at top, being of wrought-iron; the horizontal ones are of cast-iron, and the steam from each pipe is led as it is generated by a small pipe, which leads into a transverse pipe, running along the heads of all the pipes in each row; which transverse pipe leads again into a larger cast-iron pipe, running along the top of the furnace from end to end, from which the steam is taken to work the engine in the usual manner. Inside of each vertical tube is placed a tube of galvanized-iron, so much less in diameter than the vertical outer tube as to admit of a space all round between them, up which the water circulates. To admit of this circulation within the galvanized-iron tube, angular spaces are made at the lower part, where the lower end rests upon the cross horizontal tube; and at the upper end slots are cut. By this arrangement the water circulates very freely down the interior of the galvanized tubes, and up the annular space formed by their exterior and the interior of the wrought-iron tubes which enclose them; as thus : up the spaces *a* and *b* outside, down the space *c* in the inside of the galvanized tubes.



This arrangement has this further advantage, that the slots in the upper end of the galvanized tubes admit of the level of the water within the series of tubes to have a very wide range of limit, so that in the event of the water supply not being kept up, the safety of the boiler is ensured up to a point far beyond that which would be the

case in an ordinary boiler. Further, as the vertical wrought-iron tubes are extended above the upper end of the galvanized tubes, and consequently above the normal level of the water, spaces are given in the tubes, which are found to act as superheaters, so that very dry steam is passed, a very great advantage in practice. To promote the circulation of the water thoroughly in the horizontal tubes, to which the vertical ones are attached, they are connected at their alternate ends by short pipes, as thus :



The water is thus compelled to pass up in the direction from *a* to *b*, then to cross over to the pipe *c d*, then from *c* to *d*, then to cross from pipe *c d* to *e*, and from *e* to *f*, and so on. Between each pair of pipes a cast-iron plate is placed, resting upon flanges cast on the outside of each pipe, which plate forms what may be called the floor of the furnace, and is so arranged with relation to the surface of the pipes that the heated air, &c., from the furnace, which are made to pass under the floor, in the lower flue, to the chimney, heat the under-part of the pipes, a small portion only of the surfaces of the pipes being above the level of the floor. The whole of the pipes, vertical and horizontal, are enclosed in a brick chamber, the upper part of which is formed of a series of cast-iron plates, upon the upper or outside surface of which a layer of sand is placed, forming a good non-conducting surface. The front of the furnace is encaused with a neat cast-iron ornamental plate, to which the usual appliances can be attached, and which forms a neat finish to the whole. From the small diameter of the pipes, they can stand very great pressures; and they have, in fact, been worked at pressures exceeding by several hundred pounds to the square inch anything they will ever in practice be put to, and without the slightest leakage; while the steam is got up with great rapidity—so great, indeed, that steam of 75lbs. to the inch has been raised in twenty minutes, from cold water. We would recommend the visitor to the Exhibition to visit the Boiler House of the British Commissioners, and inspect this boiler and the other appliances there to be met with. One thing only is wanting to make this place complete, and that is, working drawings of each boiler, &c., &c., shown; and what would be also good, full-sized specimens of the leading parts, in detail. These are necessary, to explain to un instructed visitors the peculiarities of the boilers, &c., exhibited; for nothing can be learned of these from the outside only. And here, by the way, we may take the opportunity of drawing the attention of the visitor to the fact that the Boiler House is covered with an open roof, supported on terra-cotta pillars, which are designed to show the applicability of this material to various structures. We may further remark that the chimney-stalk is the ugliest in point of design to be seen in the Park, and contrasts unfavourably with many of the others and of the models and drawings of engine chimney-stalks which are to be met with in various departments, some of which are amongst the finest, if not the finest, designs we have seen in the department of architecture.

Those who carefully read at or about the period of the opening of the Exhibition the official announcement of the arrangements and the exhibition of stock and the trial of implements, in connexion with the agricultural annex, at the Island of Billancourt, would, we think, be constrained to feel that the whole promised great things—

promised indeed, if realized, to be something, if not quite what a Universal Agricultural Exposition should be, at once comprehensive and cosmopolitan in character; for not only was every department directly connected with agricultural practice well represented, but many others were also so, which were less directly, but still practically enough; while the classification of each department was well considered, and the period over which the trials of implements and machines was to extend was of such an extent, that trials something like what trials should be were likely to be the result. If those, however, who read of all this managed, despite the difficulties of locomotion, to find their way to Billancourt during the first weeks of the opening, they would see, with feelings of considerable regret—if, indeed, no stronger and harsher feelings did not take possession of them—that all this promise was not then realized, nor, indeed, was likely at all to be realized, so far as any evidence of energetic management on the part of the officials was concerned. When we made our first visit, the island presented a contrast to the well-tilled showyards of our societies, with their splendid array of stock and implements, and their still more remarkable crowds who assembled to inspect them, as striking as could indeed be well conceived. At this distance of time, we should not like to be positive as to the number of visitors we counted, but we may safely say that they did not number a dozen; and of these, the most of them had that appearance of bewilderment which people have who find themselves in a place which had been reported to them as very attractive, but which turned out to have no attractions at all. But if there were few to look, there certainly was not much to look at—certainly not all the objects which the official announcements somewhat pompously proclaimed would be there to be looked at, many of them being, in fact, conspicuous for their absence. What wonders, time then, has since worked, in inaugurating a better order of things, and what chance there is of the remaining part of the programme of proceedings being carried out, we shall see when next we take up the report of the doings at Billancourt, at a time when the busiest part of the season comes on, and when the whole arrangements may be said to be completed, using this term in its usually official sense. Meanwhile, we shall give the reader a few notes as to the whereabouts of the island, how it is to be reached, and what are the general arrangements of the Exhibition which occupies its surface.

The Island of Billancourt—with the pronouncement of which, by the way, the most extraordinary liberties are taken by English exhibitors: we may lengthen out the parenthesis somewhat usefully if we say that the expression *B-an-koor* gives the French pronouncement as near as English can give it.—Well, the Island is some four miles, or thereabout, from the Champ de Mars, or site of the Great Exposition Building: it is not very easily, certainly not quickly-reached. Steam-boats are the easiest mode of conveyance: they are said to leave the quay at the Exhibition every hour, and when caught on the point of departure will turn out to be the quickest way also of reaching the Island—The railway-station at the Pont de Jour, about three-fifths of a mile from the Champ de Mars, will also take one down to the station Meudon, which is about a mile-and-a-half or so from the Island; but the trains run very slowly, and the times of starting are at pretty long intervals—an hour or so. Probably the best way is to take the 'bus of the American Railway or Tramway, which passes the end of the bridge leading to the grand entrance of the Exhibition; and which will set down the passenger at the end of the road leading to the Island, and which is an easy twenty minutes' walk distant. This 'bus leaves the Place de La Concorde and also passes the Palais Royal every hour. This tramway 'bus may be distinguished from the crowd of other 'busses

which pass by or stay at the Palais Royal, not only by its great length, its dirty yellow colour, but by being drawn by three horses. These directions seem trifles, but they are not so as the reader may find out if he gets into the wrong 'bus, or has to get into two 'buses—paying two separate fares—in place of one, by getting into the proper 'bus.

The extent of the island is somewhere about 50 acres, and it is divided into two parts by a road, which is a continuation of the new steel bridge which has been erected across the Seine for the special service of the Exposition, on the side of the island connecting it with the left bank of the Seine, looking towards Paris. The largest portion of the Island is given to examples of different modes of culture, and to an exposition of the implements and machines used in connection therewith. The entries in this department are not numerous, but they are represented by names well known amongst continental agricultural savans. Thus M. Deerombecque, of Lens, Pas de Calais, enters an exposition of his system of ridge cultivation—not by any means new to us, but of which by the way a good deal has been said on the continent, as if it was new; a collection of cultivating and seed-sowing machines are also entered in connection with this system. MM. Vilmorin and Cie also enter in this department different systems of culture. M. Hary, of Oisy-le-Vergers, Pas de Calais, also enters his mode or system of culture of wheat and beet-root, and for using the refuse of distilleries as a liquid-manure in the way of irrigation. M. Vallerand, of Moufflaye, near Vic-sur-Ausne, enters his system of deep culture adapted for beet-roots, with deep-soil ploughs adapted to the system. M. Bignon, of Theuville, enters a number of plans of farm-buildings, rural constructions, and an exposition of his system of culture. In addition to these systems or modes of culture adapted to the ordinary farm crops, part of this division of the Island is also devoted to the exposition of modes of cultivating tobacco, hops, and vines, the entries are not numerous, but give promise of being practically useful and attractive. Of course, at this early part of the season, these expositions make no show. We may probably return to this department, and try to pick up some information in connection with them which may be suggestive or useful to our readers. The smaller portion of the island is devoted chiefly to the sheds for the shelter of the stock exhibited, and for that of the implements and machines; but a space near the entrance to the left, as you enter, is devoted to specimens of different modes of cultivating and training fruit trees: those being placed in front of the Grand Restaurant, to which, as a beautiful specimen of ornamental wood-work in the Chalet or Swiss style, we would draw the particular attention of the reader. The sheds for the exhibited stock are at the farthest end of the ground, and are well worthy of attention as good and economical specimens of timber constructions, well adapted for many kinds of farm structures, and in localities where home-grown timber is easily had. We were struck with the mode adopted of giving an ornamental appearance to the open gables of the roof, by using the branches of the homegrown timber in their natural condition. In fig. 1, we give a rough sketch of the arrangement adopted; fig. 2 being part of the side view of the same. It will be also worth the while of the visitor to take a note of the modes of fitting up the stalls, as some hints may be obtained by which to utilize timber. The sheds for the shelter of the implements and machines occupy the spaces on each side of the main alley or walk; those containing the English exhibits being on the right-hand side of the alley or walk as you go from the main entrance to the grounds, those of

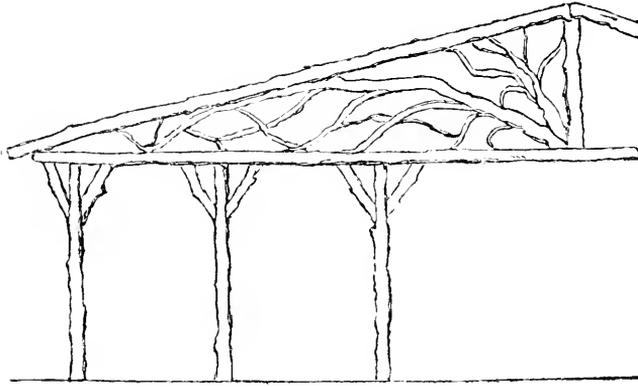


Fig. 1.

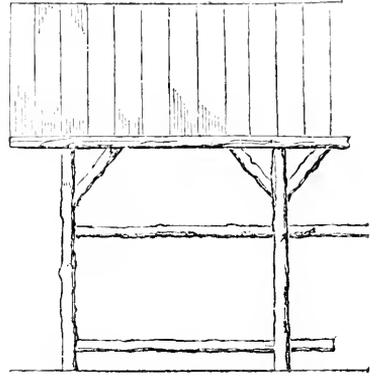


Fig. 2.

the French being on the left-hand side, although there are one or two of their sheds on the English side. Spaces of the ground in the open air and the sheds are devoted to the exhibition of implements and machines which can stand, or are supposed to be able to stand, exposure to the air, those of a more delicate or costly construction being sheltered under the sheds; which in themselves, by the way, afford a variety of excellent specimens of shed construction worthy of notice. The number of machines and implements is not very considerable, as compared at least with the grand displays of our Royal Society's shows; but they are interesting in many respects, not only as being the best specimens of their kind, and as therefore affording by this, and also by their near proximity to each other, a good opportunity to make comparative observations between the "makes" of English and of continental manufacturers, but also as exemplifying specimens of machines and modes of working, and arrangement of what are called "agricultural industries;" and of which we have, as a rule, no example in the practice of farming. Thus, in this department there are examples of beet-root sugar and distilling and fecula-making apparatus, the entries being under the well-known names of Leplay, Joly and Camus, Veillon, and Egrot. To some of whom we shall hereafter return.

Our English makers are well represented, if not by the number, at all events, by the excellence of their implements. Prominent amongst these are: James and Frederick Howard, of Bedford; Samuelson and Co., of Banbury; Hayes and Son, of Stamford; the Beverley Iron Works; Smyth and Son, of Peasehall; Bentall, of Heybridge; Amies, Barford, and Co., of Peterborough; James, of Cheltenham; Brigham and Bickerton, of Berwick-upon-Tweed; Coleman and Morton, of Chelmsford; Pickles and Sims, of Leigh; Garrett, of Saxmundham; Ransomes and Sims, of Ipswich; Nicholson, of Newark-upon-Trent; Clayton, Shuttleworth, and Co., of Lincoln; Robey and Co., Lincoln; Ashby and Jeffrey, Stamford; Burrows and Carmichael, Banbury; Marshall, Son, and Co., Gainsborough; Ruston, Proctor, and Co, Lincoln. Under these well-known names are entered a variety of those machines and implements for which the makers are everywhere celebrated; so that the Continental visitor, not otherwise instructed as to what the maker can do, will have for his examination, if a small, yet a most satisfactory exposition of what are the machines and implements concerned in the practical carrying out of the daily work of British agriculture, both in the field—as in all manner of cultivating implements—and in the steading, as in all manner of machines

for the preparation of food for stock, or of farm produce for market.

In the French department, there are some very large and valuable collections of implements and machines. Amongst the entries made, we may notice that of the leading makers, as Peltier, of Paris, of 10, Rue Fontaine-au-Roij, Paris; Garnier et Cie., of Redon, Ile-et-Vilaine; Pernollet, 116, Rue Saint Maur-Popincourt, Paris; Panlvé-Millot-Troyes, and Rue de la Citie; Lejeune Gerard, 16, Passage Briard, Paris; Piltier, 9, Rue Fenelon, Paris; Vilcoq, Meaux, Seine-et-Marne; Ganneron, 56, Quai de Billy, Paris. Amongst the exhibits of these and other makers we noticed some novelties which we shall describe and illustrate from time to time. We have now only space to do this office for an appliance which we came across in a very out-of-the-way corner of the ground, but which is nevertheless worthy of notice as promising to afford what is very much wanted in farm practice, a ready means of making a tight joint in a steam or water-pipe. It is the invention of MM. Normandy and Marli, and, as shown in fig. 3 and 4, consists in the use of vulcanised India-

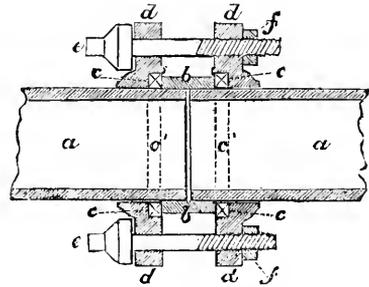


Fig. 3.

rubber rings, in conjunction with iron bridles and collars. In fig. 3, *a a* indicate the two pipes, between which a good joint is required; *b b* is a loose iron ring shown in perspective at *D* in fig. 4, which is passed over the two pipes, and is placed in position continually over their junction; two india-rubber rings, *c c* fig. 3 *B* *B* fig. 4, bear up against the outside of the ring *b b*, and the two bridles *d d* fig. 3, *B* fig. 4, are secured together by means of the screw bolts *e e* and nuts *f f*, these screwed equally, so as to secure an equal pressure upon the rings *c c*. A space is left between the two pipes *a a* to admit of air expansion. This form of joint has been largely used both in

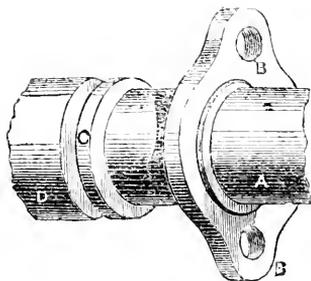


Fig. 4.

public and private works on the continent; and is most favourably reported on by eminent authorities. The agent is M. Lurdet, Rue de Rivoli, at the corner of the Rue de l'Arbre Sec.

On one side of the ground a space is devoted to the

exposition of various appliances connected with bees (apiculture) and insects useful or noxious. And on the side next the Seine and ranged along the bank there is a very interesting collection of pumps and hydraulic apparatus, in practical operation. Such is a general view of the arrangements of the goods of the agricultural annexe at the Island of Billancourt, and what is or should be shown there; we shall return to the subject in a future paper, and give the reader the result of our special examination of the most noticeable things there met with. Meanwhile we conclude by saying that, independent of what is to be seen in the island, this is worth visiting in virtue of its own attractions: for it is beautifully situated, and commands views of the rising grounds on both sides of the Seine; the restaurants are numerous, as well as other attractions, and the visit may be paid, without much loss of time, as, after seeing what is to be seen, the day may be finished by going on by rail or by the American Railway to Versailles, which is at all times an attractive place to visitors to the gay city of Paris.

## CALENDAR OF AGRICULTURE.

The sowing of turnips is finished without delay, in the eastern counties. This month is preferred, as being more free from the fly, and mildew is not so frequent on late-sown turnips. Sow the turnips as directed last month. Horse and hand-hoe potatoes; plough deeply in the intervals of the drills with the one-horse miniature plough, at least in two operations; afterwards the light scuffler will destroy the weeds. The small plough is the most effective of all scufflers, especially on stiff soils; the narrow-pointed share penetrates the sides of the drills by two furrows in each interval, and though more time is spent than by the scuffler, the true economy of all work consists not in getting things cheaply and quickly done, but in being well executed. All drilled crops must be constantly scarified and hand-hoed, and most beneficially in dry weather, by raising moist evaporations to be imbibed by the growing leaves. All tall-grown weeds must be pulled by hand. Beetroot and the earlier-sown Swedish turnips being grown on stiff lands are scarified by ploughing in the same way, by which the intervals will be thoroughly fallowed, cleaned from weeds, and the soil very finely comminuted. When lime has been applied to the land previous to the planting of the crop, a minute blending of the soil and the lime is produced by the frequent movement of the earth by the horse and hand hoes.

Plough, harrow, and roll the fallows of clay lands, and remove from the surface of the ground every stone and weed. A reduced surface of land from lumps and clods must receive the dung and lime, which is now got ready for application.

Draining of wet lands, in grass and in fallow, will be advantageously done during this month. The state of grass is the most preferable condition, from the cleanness and neatness with which the work can be performed. The course of the drains being marked out during wet weather, when every wetness shows itself, the cavities can be cut to half the depth, and the other part excavated and

the drains filled at this season, and the grassy turf forms a ready and efficient covering to the stones or tiles that are used as filling materials. On lands in an arable condition, the work is often filthy from wet weather, and a covering must be fetched.

Wean the latest lambs, and give them the best encouragement in the pasture. Continue the folding of store flocks on arable and grass lands: it is a cheap and an effectual improvement. Scatter over the carcase of the sheep the contents of the dredging-box, to prevent the maggot fly depositing its larvæ. Dress clean by scissors the posterior parts of the animal from the adhesions of excrements. The precaution of dredging is required only within a few miles of the sea. Thatched cots formed with stakes and thatch, and low to the ground, are very usefully placed in corners of the field, to shelter by retreat the animals from excessive heats and stormy rains.

Attend that the cattle enjoy water in the pasture grounds, and they also should have shelter. No gaps must be allowed in fences; but instantly repaired, with all gates and wickets kept in the thorough order of use. Not any neglect shows more clearly the faulty arrangement and slovenly attention of any occupier of land for the use of animals.

Put mares to the stallion regularly.

Vetches and clovers will now be abundant. Cut the herbage every forenoon, to be fresh for the horses at noon; and cut in the afternoon for the cattle and milch cows in the yards. Vegetables lose quality by separation from the earth, and must be used as fresh as possible from exposure. Provide ample littering for the sheds and yards: the quantity of dung made will amply repay all expense and trouble.

The hay harvest will be ended this month. Build the dried herbage into long stacks or round ricks; lay it lightly together, and allow it to settle by its own weight: it is a mistake to tread it closely together. Pull nothing from the sides of the ricks till the state is settled, then dress the building into

any form, and thatch it without delay. The covering must be provided in readiness with ropes, or other means of fastening the thatch on the rick. For the purpose of getting up the hay to a high stack when building, use a scaffold raised on four upright posts, resting below on a four-wheeled platform, and elevate or depress the scaffolding by means of pulleys to any height that may be required. Lay some loose straw on the extreme top of the rick till it be thatched. When the hay is damaged by rains, salt is beneficially strewed among the layers of herbage. When the building of the ricks is interrupted by the intervention of one or more nights, spread over the rick a waterproof tarpaulin cloth, which will defend it from rain, and remove in the early morning to escape the sweating of the grass. To defend the rick from day showers, suspend over it a light sail-cloth, by means of a rope passing the length of the rick, and attached at each end to an upright pole.

Grain harvest will commence this month in early localities of dry warm lands. Peas, barley, and rye will be first cut. Tie the rye and barley into

sheaves, and set the bundles into shocks of twelve sheaves; lay the peas in loose bundles, to be turned over frequently. Carry the grains quickly when dry; build on rick stands, or lodge in barns. Peas must lie light, without any superincumbent pressure.

An early application of lime to fallow lands is most beneficially done by breaking the stones into the size of a goose's egg, burnt as usual into cinders, which are spread over the ground and ploughed under. The cinders are dissolved by the moisture of the soil, when damp heats and moist exhalations are emitted, that penetrate the earthy mass, and confer a very large benefit to the growth of vegetation. The subsequent ploughings or grubblings and harrowings of the land will mix the lime with the land in a very superior manner—the entire method forming a mode not yet equalled for using the incinerated mineral; of all substances known, the most valuable for raising the temperature of the land—a most essential condition to the prosperity of vegetation.

## CALENDAR OF GARDENING.

### KITCHEN GARDEN.

In the earliest days of the month sow peas again—any short kinds—the crop may be fine, and therefore acceptable in September; kidney beans, endive; and again the third week round-leaved spinach (early), and the winter or prickly sort at the close of the month; turnip-radish, turnips, for succession; York cabbage—about the middle for coleworts, and at the close, in some situations, for early-heating spring cabbage; small onions to be drawn young, and in poorish ground a few of the large bulbers to stand the winter, and subsequently to be transplanted for an autumn crop.

After the second week sow cabbage-seed for coleworts, called "greens"—one of the sweetest of our spring vegetables; sow a full crop of turnips (the early Dutch, white and yellow), to come late in the year and through winter; sow endive twice in the month; sow early the last crop of scarlet-runners and French beans, a row or two of cos lettuce, radish (white and red turnip varieties), a sprinkling of carrots, and onions, and salading as required.

Transplant celery—the last crop: earth up the plants carefully, and in doing this the first and second times hold each plant compactly with one hand, while the other applies fine earth close around the lower part of the leaves, but not so high as the growing heart; give water copiously along the trenches if the weather be dry, for the first good start is most important.

Transplant broccoli at various periods for early and later spring supply, choosing if possible a moist state of soil, otherwise if the weather be dry every hole must be filled with water. The ground ought to be rich in nitrogenous manure, and therefore some soot, mixed with spit-dung, would be useful, as it contains salts of ammonia. May-sown cauliflower may be treated in the same manner.

Transplant leeks: dig and manure richly a plot for a row or two, and try with the dung 2 oz. of sulphate of ammonia to the small barrow. Very pure guano to the extent of a pint to the same bulk would confer phosphates of ammonia and of lime, several ammoniacal and nitrogenous compounds, common salt, and neutral sulphate to the soil. It is the comprehensiveness of pure guano which stamps its value, and therefore we would always add it to our more exhausted manure as a restorative. In planting leeks, make deep, case-like holes, and drop them in, applying water in a small stream, so as to fix the roots of each.

Transplant vegetable marrow and cucumber plants rarely raised in heat. Dig a hole for each in a warm, open spot of ground; put in a barrow or more of leafy, rich manure, and cover it with some light, rich soil; plant, water, and cover with hand-glasses, till growth be established, and then gradually train out the runners; stop the points occasionally to obtain laterals.

Propagate herbs by slips, and collect camomile flowers.

The following operations are required at all seasons while crops are growing:

Stick peas, top them; also broad and kidney beans; earth up legumens and potatoes; train and peg down the regular advancing shoots of vegetable marrows, gourds, and cucumbers; hoe and move the surface among crops; give weak guano-water to plants of the cabbage family and to all broad leaves in thin sprinklings, frequently and regularly applied.

### FRUIT DEPARTMENT.

At the end of the month plum and cherry trees may be trained, removing all wild, ill-placed, and superfluous wood. Apple and pear trees are untouched till next month.



Budding is now performed on wall-fruit trees when the bark rises freely, owing to the exudation of proper juice between the new wood and bark. If the operation be timely and skilfully performed the fluids attract each other, solidify, and cause a union between the two secreting surfaces. The art is best learned by employing and watching the mode practised by a jobbing gardener or workman, of which there is one or more in most places of the country.

FLOWER GARDEN.

Take up bulbs, dry them; pipe and layer pinks and carnations; propagate geraniums by cuttings in sand and leafy mould, plunging the plants in a gentle hotbed; they soon root, and may be transferred in larger pots to a richer soil—loam, sand, and decayed dung of animals.

Budding of roses is soon acquired by observation of stock and scion being in a moist condition, when the bark detaches freely from the wood. Success depends on attraction between the vital organizable juicy membrane, which exudes or is deposited between the yearling wood and the inner bark.

Layer strawberries at the first joint into small pots of free loam; they will root speedily in moist weather or if watered when dry.

Keep all walks, flower borders, lawns, and shrubberies in neat order, free from weeds, and duly regulated.

THE ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

The annual general meeting was held at the Salisbury Hotel on Wednesday, June 12, Mr. Mechi in the chair.

Mr. SHAW, the secretary, read the following report, which was unanimously adopted:

“It is most gratifying to the council, at the close of a year of great social distress and national alarm, to be able to report the unabated prosperity of the Royal Agricultural Benevolent Institution. The number of pensioners on its books at Christmas last was sixty-two; and the total sum received by them from its funds during the year amounted to £1,249 10s. The number of pensioners on the list of the Institution, since its establishment in 1860, including those now about to be admitted, amounts to one hundred and four. The accounts for the year ending the 31st December, 1866, show a balance of receipts over expenditure of £3,236 9s. 4d., of which sum £2,615 have been invested in Government securities, thereby increasing the accumulated fund of the institution to £16,090. And here the council desire to impress on the supporters of the Institution the wisdom of investing capital, as a means not only of imparting strength and efficiency to its position, and enabling it to develop new and enlarged sources of relief, but as a safeguard also against those contingencies to which all societies deriving their income from uncertain and unreliable sources must necessarily be exposed. The council beg to report that they have had under their consideration the all-important subject of providing for the maintenance and education of farmers' orphans; and they hope to be able at the next annual meeting to elect ten orphan children to the privileges now proposed to be conferred by this Institution, in addition to the granting of pensions. In thanking the contributors for the aid bestowed upon the Institution during the past year, and the hon. local secretaries for their kind and successful exertions, the council have thankfully to acknowledge a legacy of £500 bequeathed to the Institution by their late esteemed colleague, Mr. Fisher Hobbs, whose death, they

regret to add, has been preceded by that of Mr. Richard Garrett, one of the earliest and most liberal supporters of the Institution.—(Signed) SPENCER.”

Lieutenant-Colonel Loyd Lindsay, M.P., was elected a member of the Council, in the room of Mr. Saddle.

Messrs. Shackel, Vivian, and Batcock, the retiring members of the Council, were re-elected.

The thanks of the meeting were voted to Lord Spencer, chairman of the executive council; to Lieutenant-Colonel Loyd Lindsay, M.P., president at the anniversary festival of the Institution; and to Mr. Shaw, the secretary.

The council then proceeded to the election of pensioners; and the following is the list of the successful candidates:

MALD PENSIONERS AT £26 PER ANNUM EACH.

	Votes.
Heffer, Robert ... ..	471
Franklin, James Harris ... ..	394
Goodwin, George ... ..	386
Carrington, Maifen ... ..	363

MARRIED PENSIONERS AT £10 PER ANNUM EACH.

Thomas and Hannah Godfrey ... ..	990
James and Sarah Ford ... ..	605

FEMALE PENSIONERS AT £20 PER ANNUM EACH.

Fitch, Sophia ... ..	593
Hustwait, Hannah ... ..	585
Bryaut, Sarah Anne ... ..	564
Pierce, Susannah Wolton... ..	522
Bartholomew, Ann ... ..	505
Ashlee, Harriott ... ..	458

THE MILK TRADE—A case of considerable importance has recently been heard at the Manchester County Court. A provision dealer named Thomas Rogers claimed to recover £50 damages from Edward Broomhead, farmer, of Medlock Vale Farm, near Ashton-under-Lyne. The particulars of claim stated that in January the defendant sold to the plaintiff a milk round, goodwill, and shop and appurtenances in Long Millgate, Manchester, for £90, and agreed to supply him with good new milk at 2d. per dozen quarts below the market price, but had failed so to do, and had supplied instead thereof a compound of milk and water, or other fluid or substance, whereby the plaintiff had lost the price paid by him to the defendant, together with the profits which he ought to have derived from the business, and had otherwise been injured in his business and reputation. There were also two counts for misrepresentation. Mr. Higgin, for the plaintiff, said that soon after his client took the business complaints were made by his customers of the quality of the milk. At length one of the customers, named Travis, being possessed of an instrument called a lactometer, tested a quantity of the milk. The process was to get the milk to a temperature of 60 degrees, and to place in it this instrument, the index of which showed the proportion of water in the liquid. In the instance in question the lactometer showed that there were three quarts of water in a dozen quarts of the liquid sold as milk. On the plaintiff remonstrating, the defendant's wife said her husband would not supply milk without water to the plaintiff or any one else. The plaintiff confirmed his counsel's statement, and added that, though at first he sold a daily average of 36 dozen quarts, at the end of April he sold not more than 14 dozen daily, and he finally sold for £20 the business for which he had given £90. The wholesale profit was about 1½d. a quart, and the retail profit 2s. per dozen quarts. Cross-examined by Mr. Leresche: When the milk came from defendant he (the plaintiff) added water in the proportion of one quart to the dozen; but he did so only to make up the measure of 13 quarts to the dozen, which one of his customers required. He also got milk from another farmer, and in this he (the witness) put three quarts of water to the dozen. He did not add any water to the milk supplied to Travis. Joseph Travis, milkseiler, Cross-street, Swan-street, proved the testing of the defendant's milk. He at first denied that he had heard of annatto; but afterwards inadvertently remarked that a druggist had told him that it was a colouring matter, and on being questioned he said he had used it to give milk a rich cast. The defendant, in answer to the judge,

said he did not know what was the usual proportion of water in milk sold by farmers to milk dealers. Sometimes they rinsed their cans, and then put a few quarts of water in them. The Judge: What did you mean by agreeing to supply good new milk? Defendant: Milk to suit customers. The Judge: The plaintiff was a wholesale customer of yours, and you had no right to put in all the water; you ought, you know, to have given him a chance. Defendant: He should have suited himself in that. I didn't tell him to put in any water. The Judge: Then you put in the same water for your wholesale customers as for your retail customers, three quarts to the dozen? Defendant replied that he did not put in that quantity of water, but he would not say that in his milk there were not two quarts of water to the dozen. The defendant's son said that when he had delivered the milk he had seen the plaintiff take out a dozen cansful, and then put in their place a dozen quarts of water. The plaintiff's late housekeeper gave similar evidence. Of the defendant's milk, she added, the plaintiff used on every occasion to take four dozen quarts, put it in a churn, and then add fifteen or sixteen quarts of water, a little salt, and some annatto to colour it. Witness used to keep a milk-shop, and when the milk was pale she used to add some annatto to it. Mr. Leresche: "That's my case, your honour." The Judge:

"And a very nice case it is." In giving judgment, the Judge said he had no doubt the plaintiff's real complaint was that the defendant had put more water in his milk than he ought to have done, and that thereby the plaintiff had not had a fair chance of making a further addition. As to the proportion, from the experience he had had, he did not believe that four quarts of water to the dozen was sufficient to prevent customers buying the milk. It was simply impossible to get at the truth in the present case. If the plaintiff had come into court with clean hands, he (the Judge) would have awarded him the £50 he claimed; but this was not the case, for, in his opinion, he put in the milk as much water as the defendant put in it. By the contract "good new milk" was to be supplied by the defendant, and he should consider the words to mean pure milk. Mr. Leresche said the words only meant the milk of commerce, which, he contended, the defendant had supplied. The Judge said he should not take it that there was a recognized practice of supplying adulterated milk. The result of his judgment would be that both parties would in effect be fined. The plaintiff had already lost considerably, as he only got £20 for what cost him £90; and the defendant would be a loser of £20, for which sum he now gave the plaintiff a verdict. Each must pay his own costs. He (the Judge) wished he had the power to fine the plaintiff and defendant £100 each.

### SMITHFIELD CLUB.

At a Special Council Meeting, held by order of the President, June 14, 1867; present, Major-General the Hon. A. N. Hood (in the chair), Messrs. B. E. Bennett, J. Clayden, Brandreth Gibbs (Hon. Sec.), C. Howard, J. Painter, H. Thurnall, J. S. Turner, and Thos. Twitchell.

The following report of the committee appointed to recommend as to the proposed alterations at the Agricultural Hall was received and adopted: "The committee recommend that the resolutions communicated by the Agricultural Hall Company be acceded to, with the following conditions: 1st. That the whole of the space for the small (or supplementary) pig-hall be covered over, to be used either for cattle or pigs. 2nd. That in the event of the Agricultural Hall Company not being able to finish the new pig-halls and dining-room in time for the next Show, the present pig-hall shall not be interfered with until the new halls are ready."

The following are the resolutions of the Agricultural Hall Company referred to: That the Smithfield Club be informed that (subject to the consent of the shareholders of this Company) the directors are prepared to carry out alterations in the building and arrangements, as set forth in the following conditions: 1st. That the Smithfield Club shall cede the present pig-hall with the exception of 25 feet wide on the north side. 2nd. That the Agricultural Hall Company shall build to the satisfaction of the Smithfield Club a new hall on the south side of the arcade. 3rd. That a dining-room shall be erected over the new hall, and that the Smithfield Club shall have the free use of it for a dinner on such a day during the Show as the Club shall determine. 4th. That in the event of the new hall not being large enough, an additional building shall be erected by the Agricultural Hall Company on the spare ground, on the north side of the arcade, sufficient to accommodate not more than 50 extra pigs, and that there shall be access left to it from the arcade and through the 25 feet left on the north side of the present pig-hall. 5th. That accommodation for the food for animals belonging to exhibitors shall be built by the Agricultural Hall Company to the satisfaction of the Club. It is proposed to erect this on the vacant ground belonging to the Company, on the south side of the hall. 6th. That in consideration of the above, the Smithfield Club shall pay the Agricultural Hall Company £1,000, in order that the galleries may be increased as proposed, for the exhibition of machinery, &c. 7th. That the alterations in the galleries shall be completed by the 30th November next; the other alterations shall be carried out by the Club in 1868.

REPORT ON SHOWS.—That 15 guineas be given for a report on the animals exhibited at the Club's Show, and that the President, Stewards, and Hon. Secretary be requested to select a Reporter, and to arrange this matter.

His Grace the Duke of Marlborough was elected a Member of the Club. His Grace the Duke of Marlborough and the Right Hon. the Earl of Powis were elected Vice-Presidents in place of Lord Feversham and C. T. Tower, Esq., deceased. The thanks of the Meeting were voted to the President.

THE SALE OF THE MARQUIS OF HASTINGS'S HUNTERS AT QUORN.—On Wednesday, June 12, a stud of hunters that have been regularly hunted with the Quorn hounds, the property of the Marquis of Hastings, were submitted to public auction in a field adjoining the kennels, Quorndon, Leicestershire, by Mr. J. Payne (Messrs. Tattersall), London. There was a large company, amongst them being Lord Yarborough, Lord E. Cavendish, Captain Barlow, Mr. Tillotson, &c. The animals, which were in excellent condition, were all sold, with the exception of two lots, for which no bid was made. Mr. Oldacres was the principal purchaser, five animals falling to his bids, for 1,085 guineas, or an average of 217 guineas each. The total amount the stud realized was 2,875 guineas, or an average of 99 guineas. The following is a list of the horses and purchasers, with the prices: Blue Beard (Mr. Oldacres), 175 guineas; Emperor (Mr. Dodson), 68 guineas; The Duffer (Mr. Oldacres), 300 guineas; Pilgrim (Lord E. Cavendish), 60 guineas; Cautie (Lord Yarborough), 260 guineas; Will o' the Wisp (Captain Barlow), 70 guineas; Magistrate (Mr. Ward), 40 guineas; Ellen (Mr. W. Paget), 95 guineas; Mystery (Captain Barlow), 51 guineas; Jezebel (Mr. Beaumont), 82 guineas; Tipperary (Mr. Oldacres), 260 guineas; Wanderer (Mr. Oldacres), 250 guineas; Your Steel (Lord Conbermere), 56 guineas; Bantam (Lord Cavendish), 125 guineas; Bird Lime (Mr. Oldacres), 100 guineas; White Face (Lord Curzon), 67 guineas; Trapper (Mr. Page), 155 guineas; Achievement (Lord Conbermere), 110 guineas; Vaultress (Mr. W. Beaumont), 61 guineas; Apollo (Lord Harrington), 85 guineas; Shooting Star (Mr. Dodson), 50 guineas; Park Lane (Mr. Legard), 50 guineas; Beacon (Mr. Shields), 40 guineas; Rocket (Lord Harrington), 59 guineas; Charnwood (Mr. T. Tillotson), 55 guineas; Lockington (Mr. Martin), 36 guineas; Cockatoo (Mr. King), 36 guineas; Yorkshire Lady (Captain Barlow), 40 guineas; Garry Owen, 48 guineas.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR JUNE.

The weather having been seasonably fine, the wheat crop has made considerable progress towards maturity in all parts of the United Kingdom. In the southern and western counties the wheats are now in full ear, and promise a most abundant yield; indeed, we may say that we have never seen them look finer. It is, of course, too early to judge of actual returns to the growers, because the crop has yet to pass through the blooming period, and because we have sudden changes in the weather—such, in point of fact, as may greatly interfere with both quantity and quality. As yet, however, the wheats have suffered next to nothing from unseasonable weather.

Barley is looking well; while oats, now in ear, promise a large return. Both beans and peas, especially the former, will, no doubt, yield largely.

The stocks of wheat now held by our farmers are greatly reduced. The supplies, therefore, brought forward have been very limited, hence the transactions have been trifling at about stationary prices. The imports of foreign and colonial produce have been on a full average scale. The country owing to the want of adequate home supplies, is now chiefly dependent upon foreigners for a supply of grain. We have very few changes to notice in the value of either barley, oats, beans, or peas; but flour has had a drooping tendency.

In our forward counties the cutting of hay has been commenced, and already some quantity has been stacked. The growth, this year, is enormous, and some quantity of old hay still remains in stack. The trade, therefore, has continued in a sluggish state, and the quotations have been with difficulty supported. Meadow hay has sold at from £3 to £4 5s., clover £1 to £5 10s., and straw £2 to £2 6s. per load.

In the early part of the month the hop bine suffered somewhat from frequent changes in the weather. Since then, however, it has grown rapidly, and it now promises to give an average quantity of hops. Holders have been very firm in their demands, and many of them have refused to sell except on higher terms, which have not been realised. The quantity of hops on sale is barely equal to last season.

Potatoes have come on rapidly. As yet, very few traces of disease have been met with, and the general opinion is that the crop will be a very large one. For old potatoes, which have appeared in average abundance, the demand has ruled steady, at from 100s. to 150s. per ton. There is an unusually large extent of land planted with potatoes this season.

The wool trade has been in a most inactive state, on rather lower terms. The public sales of colonial wool, though well attended both by home and foreign buyers, have closed slowly, at, compared with the previous series, a decline in the quotations of from 1d. to 2d. per lb. About 55,000 bales have been disposed of to Continental houses. The next sales will be commenced in August, when very large supplies will be brought forward. Evidently the production of the world has overtaken consumption.

The turnip crop is looking well, while swedes and mangolds promise a heavy return.

In Scotland the wheat trade has been in a most inactive state, and prices have ruled in favour of buyers. For Spring corn the demand has been somewhat heavy, at late rates.

The Irish markets have been moderately supplied with all descriptions of produce, which have sold slowly at barely stationary prices. The shipments to England have been moderate.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

The supplies of beasts on sale in nearly the whole of the leading markets having been only moderate, the demand for most breeds has ruled steady, and the quotations have been well supported. The weight of the English stock brought forward has not equalled the previous month; but the supply from Scotland has come to hand in first-rate condition. In the Metropolitan Market the best Scots and crosses have realized 5s. 4d. to 5s. 6d. per 8lbs.

The numbers of sheep brought forward have fallen off; but their general quality has been good. On the whole the mutton trade has ruled firm at extreme rates to a slight advance. The best downs and half-breeds have produced 5s. 4d. per 8lbs.

The sale for lambs have been far from active at from 6s. to 7s. per 8lbs. The number has been on the increase.

Calves have moved off slowly, with full average supplies on offer. The top figure has been 5s. 6d. per 8lbs.

Prime small pigs have moved off steadily; large hogs slowly, at about stationary prices.

It is satisfactory to find that the depastured stock has fared remarkably well. In all parts of England the supply of grass in the fields has been very large, and there is a most abundant hay crop. In the forward districts it is being rapidly secured in prime condition, whilst the prospect is that the turnip and other heavy crops will prove very large.

The total supplies of stock exhibited in the Great Metropolitan Cattle Market have been as follows:

	Head.
Beasts ... ..	16,270
Sheep and lambs ... ..	146,650
Calves ... ..	2,609
Pigs ... ..	2,048

COMPARISON OF SUPPLIES.

	Beasts.	Cows.	Sheep and Lambs.	Calves.	Pigs.
June. 1864 .....	25,890	550	138,450	2,786	3,280
1865 .....	24,050	616	165,720	4,278	3,210
1866 .....	18,820	130	139,880	1,864	1,782

The imports of foreign stock into the United Kingdom have been on a full average scale, as will be seen from the annexed return, which refers to London only:—

	Head.
Beasts ... ..	5,489
Sheep and lambs ... ..	40,148
Calves ... ..	1,911
Pigs ... ..	960
Total ... ..	48,508
Total in June, 1866 .....	47,425
"    1865 .....	61,935
"    1864 .....	38,029
"    1863 .....	30,059
"    1862 .....	22,841
"    1861 .....	33,751

Advices from Holland state that disease is still prevalent amongst cattle. On other parts of the continent, however, disease appears to have assumed a mild form. In Germany, as well as in Denmark, full average numbers of stock are in process of fattening for the English markets. France has sent us some really good beasts; but it is evident that our importations from that country will gradually fall off, as the supply of native breeds is wholly inadequate to meet consumption. A few cases of disease have been reported in England; fortunately, however, the losses have been trifling.

The comparison of the arrivals of English Scotch and Irish breeds is as follows:—

	June, 1865.	June, 1866.	June, 1867.
From—	1865.	1866.	1867.
Norfolk, Suffolk, &c. ....	3,400	9,000	5,570
Lincolnshire .....	2,000	—	400
Other parts of England .....	2,250	1,930	2,240
Scotland .....	2,215	59	787
Ireland .....	270	20	20

Beef has sold at from 3s. 4d. to 5s. 6d.; mutton, 3s. 8d. to 5s. 4d.; lamb, 6s. to 7s.; veal, 4s. to 5s. 6d.; pork, 3s. 4d. to 4s. 6d. per 8lbs. to sink the offal.

#### COMPARISON OF PRICES.

	June, 1863.			June, 1864.		
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Beef from.....	3	4 to 5	2	3	4 to 5	0
Mutton .....	3	8 to 5	2	3	6 to 5	2
Lamb .....	5	4 to 6	8	6	0 to 7	0
Veal .....	4	0 to 5	0	4	0 to 5	0
Pork .....	3	6 to 4	0	3	6 to 4	0

	June, 1865.			June, 1866.		
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Beef from .....	3	6 to 5	2	3	10 to 6	0
Mutton .....	4	4 to 6	4	4	0 to 8	0
Lamb .....	6	0 to 7	8	6	8 to 8	0
Veal .....	4	0 to 5	4	5	4 to 6	4
Pork .....	3	6 to 4	10	4	0 to 5	2

Owing to the prevailing warm weather, the supplies of country-killed meat on offer, in Newgate and Leadenhall markets, have been very moderate; whilst the quantities received from Scotland and the Continent, have fallen off considerably. The trade, therefore, has been steady, as follows:

Beef, from 3s. 4d. to 4s. 10d., mutton 3s. 6d. to 5s., lamb 5s. 4d. to 6s. 4d., veal 4s. to 5s., pork 3s. 4d. to 4s. 6d. per 8lbs. by the carcase.

#### SOMERSETSHIRE.

We have now reached the commencement of hay harvest, and the crops of grass are a fair average; some have been well secured, but it has been rather too cold for the feed pastures, and the grass there has not been very abundant; the same cause, such sudden changes in the weather, have kept back the grazing stock. We do not hear of much complaint of disease amongst the stock, either in cattle or sheep. Altogether it has been a fair season for the mangel plant, but complaints are made of the fly having attacked the early-sown swedes. The early potatoes were cut down by the frost. It is long since snow and ice characterised the latter end of May, and this has made old potatoes dear, and put back the new ones three or four weeks. Kidney-beans were cut down, and many shrubs that used to stand our winters we have now ascertained are about the full extent, much beyond average seasons. I find some difficulty in reporting on the growing wheat, but there are many good and promising pieces where large crops with a fine season may be produced, but there are also many pieces where it is hardly likely there will be an average crop. The changes of the last ten days have been unfavourable to the bloom, and the rain we last had will help to increase the size of the ear, but I do not calculate under the best circumstances more than an average per acre on a less number grown this year. The spring crops of all kinds progress well with very few exceptions. No doubt some of the early winter beans in bloom were a little injured by frost, but the spring ones look very good indeed. A very small crop of apples, in many cases a failure. Cheese has not sold so well as it did some time since; and all dairy produce is lower. Poor stock at the market was not so high as last year, but there is evidently a large number in this county; of sheep the same may be said, as prices have been coming down all

the spring a little, and they are now 6s. to 8s. per head lower than last year, and a very large supply at fairs and markets. Wool 15d. to 16d. per lb., and not much sought after at these prices. Fat stock, not plentiful have sold quickly at 12s. to 13s. per 20 stone; prime mutton 7½d., lamb 10d., and not over well supplied, but we expect soon to have the markets better filled. Pigs very low, 15s. to 20s. per head, worth 50s. to 60s. last year; pork, 6s. to 7s. by the pound; fat pigs, 8s. 6d. to 9s. per 20lb. Very short supplies of wheat, whites went up as high as 9s. to 9s. 1½d. per 62lb., now sell at 8s. 4½d. to 8s. 7d., nursery 7s. 6d. to 8s.; flour, 47s. to 48s. per sack, with a very large consumption. Beans have advanced, and are now worth 6s. to 6s. 1½d., but very little corn of any kind offering. Stock very nearly run out, more so than for many years past. Harvest cannot now be early, and may be, with the average heat as it has hitherto been, very late.—21st 6th Month.

#### SUFFOLK.

The wheat crop promises to be an average one, and on every description of soil the plant is coming into ear and looking healthy and well; upon a small extent of good land the wire-worm has done harm, but with a suitable temperature theyield will be satisfactory. Barley also bids fair to be an average crop, and on the mixed soils and better class of light lands looks specially well, but on the poor, thin-skinned, half-drained, half-farmed, heavy lands the prospect is miserable to a degree; the plant is yellow and starved, and scarcely able to push itself from its dwarfed state into the ear. Beans and peas are very luxuriant, are blossoming well, and if not injured by insects promise to yield far beyond the average of years. The clover and rye grass crops are unusually heavy, and both upland and lowland grass will be abundant. Cutting has generally commenced, and some clover and hay have been carted in good order. From the scarcity of labour, grass-mowing machines are much more generally used this season. Mangold wurzel are rather a thin plant, but swedes do better; both have been late sown, the weather throughout the spring having been too wet and unfavourable for cleaning and preparing the land; a large breadth has even yet to be prepared and drilled with swedes, and but few clean fallows have been made. Ewes have lambed freely and done well, and we know of instances of just thirty lambs to the score, which is satisfactory; good lambs make 30s. each, which cannot be called low in price. Sheep grazing has been a sad losing game, the heavy fall in the price of mutton and wool having prevented any profit, and in many cases the buying in and selling out prices have been such that but a fraction has been paid for the food consumed. Beasts have paid better for fattening, especially those recently sold at higher prices; many have been sent to the metropolitan auction sales, and great satisfaction has been generally expressed. Store beasts have increased considerably in prices, and large numbers have been sold at Norwich Hill and elsewhere for summer grazing. But a small quantity of wheat is held in the county, and higher prices are looked for by such holders. Great preparations are being made to welcome the Royal Agricultural Society in the county, and a successful meeting is anticipated.

#### AGRICULTURAL INTELLIGENCE, FAIRS, &c.

**ABINGDON FAIR.**—The number of horses was not so large as on several former occasions, but good animals fetched their price. The sheep fair was larger than usual, and the prices were much cheaper. For a fine pen of lambs several dealers asked 30s. a head, but did not sell; and from 40s. to 42s. were asked for some fine pens of sheep, but without changing hands.

**AYLESBURY FAIR** was fully attended, notwithstanding haymaking has commenced. There was a good supply of sheep, and considerable business was done. There were a great many horses, and good cart-horses fetched high prices.

**BANBURY FORTNIGHTLY FAIR.**—Supplies short, and trade flat, though most of the stock was nevertheless cleared off. Beef made from 4s. to 5s., and mutton from 4s. 6d. to 5s. 6d. per 8lbs.

**BANNOCKBURN FAIR.**—The cattle market was a large one, and high prices were obtained, although buyers were

scarce. Of horses there was a moderate turn-out, some very superior draught animals being shown. Sales on the whole, however, were considered dull. Milch cows sold at from £9 to £13. Mr. Duncan, Keir, sold a cow at £10. Fat cattle sold at about 10s. 6d. per Dutch stone, sinking the offal. Generally speaking, the market was not satisfactory.

**BIGGAR FAIR.**—There was a good turn-out of horses, and a good demand in the earlier part of the day; but towards the close very little business was done. Milch cows brought from £10 to £15. Draught horses, for which there was most demand, brought from £10 to £35.

**BOSTON SHEEP MARKET.**—A fair supply of fat sheep, which met with a tolerably brisk demand at the previous week's rates.

**CHEPSTOW FAIR.**—Such horses as were exhibited were generally of an inferior quality, though high prices were commanded, and many horses exchanged hands. Buyers for good animals were plentiful, and horses possessing merit were quickly bought. Tidy hacks sold at 20*l.* to 25*l.* a head, draught horses 25*l.* to 30*l.* each, full-size ponies from 10*l.* to 18*l.* The following were the prices for stock, which was rather limited: Mutton from 7*d.* to 7½*d.* per lb., lambs from 17 to 17 10s. each, pigs from 18s. to 2*l.* each.

**DONCASTER FORTNIGHTLY MARKET.**—Largely supplied with sheep, which, pastures being good, came to market in excellent condition. Trade, however, was very slow, little business being done, and many lots being left over unsold. Heavier weights may be quoted as making 7*d.* per lb., with light weights at 6½*d.* to 6¾*d.* per lb.

**INVERNESS MONTHLY MARKET.**—Prices ruled much the same as at the Muir of Ord on the previous day. The chief demand was for fat, which was not to be had, and the principal purchases were young store cattle, especially Highlanders, for hill grazing. At the close of the market a large number of animals were left unsold.

**KNIGHTON MONTHLY MARKET.**—There was a large quantity of animals. Cows and calves sold at good prices; barrenness dear.

**LEDBURY FAIR.**—Of sheep there were a good number of fat and store, and many of them were sold by auction. The price realised was about 7½*d.* per lb. Fat beef was scarce, and the demand was not brisk; store cattle was in better supply, and sold more freely. In the pig trade there was very little business doing.

**MAIDSTONE HORSE FAIR.**—The supply was large. There were a few good-looking cart-horses, for which very high prices were demanded. The trade was dull, at large figures, namely, first-class (agricultural) from 40 to 50 guineas, second class from 30 to 35 guineas.

**MUIR OF ORD MARKET.**—Blackfaced and half-bred hogs were more numerously represented; and, indeed, for this class the supply was greater than the demand; and for anything approaching to fat, particularly in half-bred hogs, owing chiefly to a superior demand for their wool, fair prices were obtained. A good many lots remained unsold late in the evening, but these consisted of ewes and lambs and shot hogs. Fat cattle were most in demand, and sold freely at from 65s. to 70s. per cwt. For lean cattle there was no great demand, principally owing to the fact that grass is cheaply occupied by sheep. It was considered that this class, selling last year at from £12 to £14, would be about £2 down at this market, but fat fully maintained last year's prices.

**NEWARK FAT STOCK MARKET.**—The supply of sheep was unusually large, 1,025 being penned, notwithstanding which there was a slight advance in price, demand being brisk. Fully 6½*d.* per lb. was the average. Lambs 26s. to 30s. each. Only 19 beasts were penned, but the quality was remarkably good, and there was an advance of nearly 1s. per stone in price: fully 9s. per stone was realised.

**ROTHWELL FAIR.**—There was a moderate supply of Southdown, Lincoln, and Leicester sheep, and a brisk sale for all store sheep, ewes, and lambs, also a fair demand for fat wethers and lambs. Ewes made from 50s. to 55s. each, lambs from 24s. to 40s. each, fat wether sheep from 5s. to 5s. 8d. per stone of 8lbs., and fat lambs from 6s. to 7s. per stone. First-rate three and four-year-old colts were sold at from 30 to 35 guineas each, second-rate do. at about 20 guineas, useful little cobs from 20 to 25 guineas each, ponies from 9 to 13 guineas each, and cart-horses ranging from 25 to 47 guineas each.

**SALISBURY FORTNIGHTLY MARKET.**—Beasts were again very short in number, and mostly of inferior quality. For the best previous quotations were paid. In the sheep department there was a falling off as regards numbers, only about 1,100 being penned, best qualities being a limited offer. Generally speaking, sales were but slowly effected at an average of from 7*d.* to 8*d.* per lb.

**SOUTHMOLTON FAIR.**—There were about the average number of steers, cows and calves, and sheep. We do not quote prices for anything except cows and calves, which fetched from 10*l.* to 16*l.*; besides, there were not transactions sufficient to test prices, and but few offers made for either sheep or cattle.

**TAUNTON FAIR** was a tolerably good one. Fat sheep fetched from 45s. to 50s. each, grazing sheep 40s. to 45s., store lambs 20s. to 28s., ram lambs 45s. to 52s. 6d. The horse fair was poorly attended, and really good animals were scarce. Hunters fetched from 18*l.* to 40*l.* each, carriage-horses 40*l.* to 45*l.*, ponies 12*l.* to 18*l.* A tolerably fair business was transacted.

**USK FAIR.**—Not much business was transacted, there being no great show of either sheep or pigs, no fat or store stock being allowed to be brought in. Sheep went off at a decline in price.

**IRISH FAIRS.**—**NAAS:** Grass fed beef was in small supply, but in active demand, best quality reaching 70s. per cwt., second best 60s., and inferior 55s. There was a very large show of springers. The best descriptions were bought up for exportation, as high as 20 gs. each: springers and milch cows from £10 to £15 each; three years old heifers sold from £13 to £16 each, two years old ditto brought from £5 to £11, and yearlings from £5 to £7. Best wedder mutton was a shade over 7*d.*, and ewe 6*d.* per lb. Lambs rated from 25s. to 31s. 6d. each. The pig fair was small. Bacon sold at fully 48s. per cwt.; stores and bonhams also sold well.

**CORK:** Prices ranged as follows—Milch cows £12 to £18, yearlings £4 to £6 10s., and two years old £7 to £10. Coarse beef from 50s. to 55s. per cwt., and fat beef about 70s. Store hoggets from 30s. to 40s.; fat sheep 6*d.* to 7½*d.* per lb.; lambs 14s. to 20s. each. Colts from 10 to 18 guineas each. **STROKESTOWN:** Prime stock and good prices. Beef advancing, and mutton receding in value. The following will show the rates given: Three years old stores £13 to £16, two years old £8 15s. to £12, one year old £5 15s. to £8, milch cows £11 to £18 10s., springers £12 to £20, dry beasts £10 to £15, calves 60s. to 85s. each; fat beasts £18 to £24, fat wethers 5s. to 6s., ewes 50s. to 58s., lambs 24s. to 30s., hoggets 35s. to 41s. 6d., a few fat hogs from 40s. to 41s. per cwt., stores 30s. to 40s. each; bonhams 20s. to 22s. per pair. **CAMLUGH:** All kinds of cattle, except those suited to the butcher, were promptly sold at from 72s. 6d. to 75s. per cwt.; two and three-year-old heifers, of good quality, went at from £12 to £15 10s. per head; bullocks of the same age were from £11 11s. to £15 15s.; yearlings from £4 10s. to £7 10s. Mutton sold at from 7½*d.* to 8½*d.* per lb. Lambs went freely at from 20s. to 30s. per head. Horses from £12 to £25 each.

**NEWTONBARRY:** Prime beef was scarce. Sheep were in good supply, and were bought principally for home consumption; demand dull. Prime beef 65s. per cwt., inferior 48s., three-year-old bullocks brought from £10 10s. to £13; two-year-old bullocks £7 10s. to £8 10s., yearlings £3 to 4*l.* 10s.; three-year-old heifers £14 5s. to £15 17s. 6d., two-year-old heifers £8 to £9 5s., yearlings £4 to £5 10s.; new milch cows £10 to £16, springers £11 to £14 10s., strippers £9 to £12 10s.; mutton 5d. to 6½*d.* per lb., store sheep 30s. to 35s. each, lambs £1 to £1 2s. 6d.; bacon pigs 5s. 6d. to 5s. per cwt., stores 30s. to 45s. each, bonhams 20s. to 30s. per couple.

**MULLAGHREW:** Top lots of beef, of good quality, brought fully 68s. to 72s. per cwt., sinking offal; one lot fetched £26 per head. Well-conditioned store heifers went off at late rates. Three-year-olds brought from £11 10s. to £14 10s., two-year-olds £9 to £10 10s., yearlings £4 to £7; two-year-old bullocks from £8 to £10, yearlings (off) £5 to £7; yearling calves £2 10s. to £4 each, springers £9 10s. to £15 10s. Wether mutton (clipped) 6d. to 7d., ewe 5d. to 6d. per lb. per lb. Lambs 21s. to 30s. Bacon 50s. per cwt. **DUNDALK:** The supply of lambs was the largest ever witnessed, and some good ones sold for 20s. each, and the best bringing only 3s. There was also a large supply of inferior mutton, which brought no higher than 5d.

per lb.; good full-grown and well-fed wethers, however, fetched 7d. to 8d. Milch cows scarce, and not in demand. Young stock rising two years old were rapidly purchased, but older and larger cattle were not so readily sold. Beef in request, and the better class brought 7d. per lb. There were no bacon pigs, but a very large quantity of suckers were sold as low as 1s. per pair—what used to be 30s.—BALLYDAISE was not as

good as usual. Springers £8 to £14 10s.; yearling bullocks £4 5s. to £7; sheep 20s. to 35s.; lambs 30s. to 50s. a-head. Mutton 4d. to 5d. per lb. Six black-headed horned sheep sold at 25s. apiece.—FIDDOWN: Young bulls brought from £8 to £15 10s.; milch cows from £12 to £18, two and three-year-old stores £7 10s. to £13, yearlings £3 10s. to £6 15s.; lambs 18s. to 24s., and hoggets 32s. to 43s.

## REVIEW OF THE CORN TRADE DURING THE PAST MONTH.

The month of June has been tolerably dry, though in the second week there were flying showers and storms. The temperature has varied, it having sometimes been so cold as to require fires and to place the corn in danger of renewed frost. Fair progress on the whole has been made by vegetation, though not rapidly. The usual influence of such a time has therefore been felt, notwithstanding very limited supplies of English wheat, and with foreign arrivals below our estimated necessities. The fact is that farmers fear a reduction in prices after harvest in the anticipation of fine weather, and have therefore generally been determined to sell out, notwithstanding the very limited stores. The reduction in prices has scarcely exceeded 2s. per qr., and this would be more than recovered in the event of any disasters in the time of bloom or in the gatherings. Foreign countries also, like ourselves, with small stores in granary, have been willing to part with them for shipment here, and yet with the best exertions they have sent less than what we appeared to want. In Germany the rye has generally suffered, and in Southern Russia it is reported a total failure, while many southern countries have partially suffered from drought, and in Algeria very severely, so as to make the necessity of large foreign imports obvious. On the other hand, the Pacha of Egypt has again turned the fertility of the Nile to account in the reproduction of corn; and the new crops are gathered and of good quality, with arrivals increasing at Alexandria. In the Southern States of America the wheat has been stacked, but will soon be moving off for the Midland States and the North, the high rates of New York stimulating farmers to make the most of their transient opportunity. It must however be remembered that the first impressions of the new harvest are generally exaggerated. In France and Germany nothing great is expected; and if the reports were true as regards this country as to the thinness and weakness of much of the wheat, it is hardly reasonable to look under any circumstances for more than an average crop—perhaps not so much; and when a month or two has passed, and the true state of the case is ascertained, the fears of low prices will pass away; for all the world—California, Chili, and Australia excepted—will have begun the season almost with an empty hand, and quite unprepared for diminished supplies. One fact to be noted as against very low rates exists already, and that is the state of the rye crop on the Continent. The yield of hay is fair, and making well, but not

rapidly. The following rates were recently paid at the several places named: White wheat at Paris was 64s. 6d., red 62s. 3d.; at Louvain the price was 65s. 6d.; Liege quoted 64s. 9d., Rotterdam 67s. At Maestricht the price was 62s.; Wahren red at Hambro' 68s. 9d., Marks 65s. 6d., red from the Danish Islands (freight included) 65s. per qr.; choice high-mixed Danzig, 61½lbs. per bushel, was worth 73s., freight and insurance included; good high-mixed 67s., free on board. At Frankfurt red wheat was quoted 61s.; at Stettin 60s.; Cologne 56s.; at Berlin 60s.; at Manheim 61s. At Algiers new soft wheat was quoted 64s. 6d., hard 61s. 2d. Spring wheat at Kingston (Canada) 63s. 4d. per 448lbs.; at Milwaukie, No. 2 55s. 6d. per 480lbs.; at Chicago, No. 2 48s. 3d.; the best Ghirka wheat here has been sold afloat at 60s.; Banat at 50s. 6d. per qr., and for autumn delivery at 42s. 6d. per qr. f.o.b. New York, as Californian shipments keep arriving, and there are expectations of shortly seeing some new samples from the South, has been in a panic, and prices constantly falling heavily.

The first Monday in Mark Lane commenced on a very small supply of English Wheat, but there was a liberal arrival from abroad. Very few additional samples were exhibited during the morning in the Essex and Kentish stands; but the growing weather was against the trade, as well as the good foreign supplies, and sales were slow, at the previous quotations. There was no disposition to press foreign on the market, which would have certainly made some concession to buyers an absolute necessity. With but few floating cargoes arrived, business was very quiet. The weather subsequently proving fine, there was a general dulness in the country markets, and though a few were so scantily supplied that holders here and there obtained 1s. per qr. more, there were more that submitted to a similar reduction, and at the end of the week the tendency was decidedly downward. The first market at Liverpool noted white wheat 3d. to 4d. per cental lower, and a further decline of 2d. was noted on Friday. Edinburgh was very dull, and Glasgow down 1s. per qr. Dublin gave way 6d. per barrel for foreign qualities; and though native was scarce it was not inquired for.

The second Monday had a better English supply, though there was rather less foreign. Scarcely any English samples appeared on the Kentish and Essex stands during the morning. The weather having become brilliant and forcing, factors were willing to take 1s. to 2s. per qr. less money, but

found a very limited demand. Some sorts of Russian were inquired for, at the previous rates, but to have forced sales generally would have lowered prices 1s. per qr. With few floating cargoes arrived, there was very little disposition to do business; factors, however, held at former terms. The influence of continued fine weather was everywhere felt throughout the week. Stockton-on-Tees, Gloucester, and Frome were down 2s. Many were as much lower as London, and among them were Hull, Bury St. Edwards, Bristol, and Spalding; while Birmingham and several more were 1s. per qr. cheaper. Liverpool was 3d. per cential lower on Tuesday, and dull on Friday, and the Saturday's markets varied from dullness to a decline of 1s. to 2s. Glasgow was 1s. per qr., and Edinburgh 1s. to 2s. per qr. down. At Dublin the fine weather quite unbinged the market, and prices were nominal.

On the third Monday there was another moderate English and good foreign supply of wheat. Very little was then seen on the Kentish and Essex stands, and the weather having changed from Friday to unseasonably cold, more tone was generally evinced in the trade, and the previous rates were fully maintained. With an arrival of fine white wheat from Melbourne, some of the best coloured realized 72s.; other descriptions of foreign, though not in lively demand, were held on previous terms. There was also more confidence among the holders of floating cargoes, not many being on offer. The country advices this week, on the whole, exhibited little change. Some places were dearer, Boston 1s. to 2s., Rotherham and a few other places were 1s. per qr. higher, many were firm, but towards the close, including several of Saturday's markets, rates were more in favour of buyers. Liverpool was down 2d. per cential on Tuesday, and recovered 1d. on Friday. The Scotch markets slightly varied, Edinburgh being rather higher, and Glasgow without change. Dublin found a fair demand at unaltered rates.

The fourth Monday commenced on moderate English and good foreign supplies. Scarcely anything appeared on the Kentish stands, and but little on the Essex; yet, with the weather more genial and plenty of foreign offering, there was no disposition to buy on the part of millers, and as little on the part of factors to force sales. The foreign inquiry was strictly retail, and limited by actual necessity, but in the transactions passing the previous currency was maintained. Floating cargoes in some instances obtained rather more money for fine quality wheat, there being but few vessels off the coast.

The imports into London for the four weeks of June were 14,947 qrs. English, 103,975 qrs. foreign, against 14,554 qrs. English, 80,545 qrs. foreign for the same period in 1866. The general averages have varied little, commencing at 65s. 3d., and closing at 65s. 9d. London commenced at 67s. 1d., and closed at 68s. 5d., but this upward movement was wholly traceable to the better quality of the samples sold. The exports from London were 820 qrs. wheat 341 cwt. flour. The imports into the kingdom for four weeks ending on the 15th June were 2,330,211 cwts. wheat, 370,603 flour.

The flour trade has been very heavy, with a downward tendency, bakers holding off as the weather became settled, but the positive decline has not been quoted more than 1s. per sack on country made samples or foreign sacks. The stock of barrels is too inconsiderable to make quotations reliable: Norfolks closed at about 44s. per sack, the best French and Spanish 51s., Australian 53s. per sack. The imports into London for four weeks were 69,977 sacks country-made, 20,643 sacks foreign, against 63,882 sacks country, 8,977 sacks foreign for the same time in 1866.

The barley trade, with some firmness at the commencement of the month, as foreign arrivals afterwards increased, and the weather improved, rather gave way, say 6d. to 1s. per qr. New barley has already appeared at market in Algeria, but prices there have been high from the drought, as well as for other corn. No quantity of foreign, however, can be expected this side harvest, and we may yet remain comparatively dear, with a retail demand for a month or so. Grinding foreign is now worth 32s., weighing 50lbs. per bushel. The imports into London for four weeks were 2,075 qrs. British, 24,934 qrs. foreign, against 1,866 qrs. British 33,095 qrs. foreign in 1866.

The malt trade has been heavy through the month, with a constant tendency to decline, the actual reduction being about 2s. per qr.

Beans during the month have given way about 2s. per qr. in consequence of good foreign supplies. The cultivation of corn in Egypt has been resumed by the Pacha, from a reduction in the value of cotton, and its probable further decline. Spring-sown beans in this country are reported as promising in several places, but the winter beans were cut up by successively severe frosts. We are therefore likely to see prices yet lower as the demand slackens in summer, and the new Egyptian are of good quality. The imports for June into London were 2,037 qrs. English, 7,924 qrs. foreign, against 1,479 qrs. English, 1,334 qrs. foreign in 1866.

The supplies of maize have been liberal, amounting in all to 17,660 qrs., and the value has fallen fully 2s., useful corn being procurable at 38s. per qr. In America also prices have given way, the quotation at New York being only 29s. 6d. per qr.

There has been a very scanty supply of English peas for the month, but a fair arrival from Canada in the second week, which prevented any advance, though there has been a fair demand for old white for feeding purposes, and Montreal by last advices noted higher rates; but importers here are not likely to send orders under these circumstances. The June imports into London were only 294 qrs. English, 1,333 qrs. foreign, against 700 qrs. English, 6,840 qrs. foreign in 1866.

The linseed supplies have been very short; but the high rates of seed have very much limited consumption, and there has been no positive advance during the month, reports being also favourable as respects the crops in Russia. Cakes have moved off pretty freely for the time of year, there having been so much cold weather.

The seed trade generally has been in abeyance, neither the stocks of clover seed nor the qualities







**BREAD.**

WHEATEN BREAD, per 4 lbs. Loaf ..... 9½d. to 10d.  
HOUSEHOLD BREAD, „ ..... 7d. to 9d.

**CHICORY.**

DELIVERABLE FROM WHARF IN BAGS, EXCLUSIVE OF DUTY.  
Haringen..... £9 10 to £10 10 | Antwerp..... £10 10 to £0 0  
Bruges..... 9 5 | 10 15 | Hamburg..... 10 0 | 11 0

**WINES.**

Port, very super. old, 7/2 pipe	£5 60	Clarets, 1st grth, '62's & 63's	£5 75
Good old	50 60	2nd do.	35 50
Fair light	30 40	Other qualities	12 25
Do. young	20 25	Cargo	5 10
1863's	50 55		Per 115.
1865's	45 50	Masdeu	45 25
Red Wines, from Oporto	15 18	French, red	12 16
Do. do., „ Lisbon	—	White	11 12
White do., fine dry	28 36		Per ann.
Do. do., „ rich	32 38	Hook, superior	45 60
Bucellas	35 44	Other qualities	6 30
Caracvelos	38 42	Moselle, fine	20 30
Figuera	—	Other qualities	6 16
	Per butt.		Per pipe.
Sherry, fine	100 180	Madeira, direct, good	75 105
Good	60 80	Common	45 60
Common and fair	20 30	Marsala	16 17
White wines from Cadiz	—	Cape, white, good and fair	0 0
Bay	—	Common	0 0
	Per pipe.	Teneriffe, London particular	34 45
Malaga, 1st quality	—	2nd quality	25 30
2nd quality	18 20	Hambro, red	12 16
Lower do.	—	White	10 13
Spanish, red, good and	—		Per hhd.
fine	11 18	Hungarian, red	7 18
Common and fair	10 12	White	7 18
White	11 13		

**HAY MARKETS.**

	Smithfield.	Cumberland.	Whitechapel.
	s. d.	s. d.	s. d.
MEADOW HAY, ..	47 6	80 0	87 0
CLOVER .....	80 0	112 6	80 0
STRAW .....	40 0	46 0	40 0

**FLAX, HEMP, COIR, &c.**

Hemp, Petersburg	£ s. £ s.	Coir yarn	£ s. £ s.
clean, per ton	35 0 to 0 0	Junk	0 0 0 0
Outshot	33 0 0 0	Fibre	29 0 45 0
Half-clean	31 0 0 0	Flax, Riga	40 0 61 0
Riga, Rhine	36 0 38 0	St. Petersburg, 12	—
Manilla	48 10 30 0	head	37 0 40 0
East Indian, Sunn	15 0 19 0	9 head	30 0 0 0
	7 15 23 5	Egyptian	0 0 0 0

**BARK, &c.**

English, per load of 45 cwt. delivered in London	£ s. £ s.	Cork Tree, Barbary	£ s. £ s.
Copice	16 0 17 10	Do. Sardinia	6 0 to 6 10
Dutch, per ton	5 0 6 0	Valonia, Smyrna	10 0 10 10
Hambro	5 0 6 0	Do. Camata	16 0 20 0
Antwerp Tree	6 10 7 0	Do. Morea	15 0 18 0
Do. Copice	5 15 7 5	Terra Japonica	17 15 18 10
French	0 0 0 0	Gambier in bales	25 0 26 0
Mimosa Chopped	8 0 9 0	Ditto tree cubes	11 0 13 0
Do. Ground	9 0 10 0	Cutch	43 0 45 0
Do. Long	6 0 8 0	Divi Divi	10 0 12 0
		Myrabolans	10 0 16 10
		Sicily, Sumach, p. cwt.	25 0 27 0

**ENGLISH WOOL MARKETS.**

CITY, MONDAY, June 24.—The amount of business doing in English wool is very moderate. The clip being large, the trade presents a somewhat depressed appearance, and although no actual fall has taken place, the tendency of prices is downwards.

**CURRENT PRICES OF ENGLISH WOOL.**

FLEECES—Southdown hoggets	..... per lb.	s. d.	s. d.
Half-bred ditto	.....	1 6	1 7
Kent fleeces	.....	1 5	1 6
Southdown ewes and wethers	.....	1 3	1 4
Leicester ditto	.....	1 6	1 7
Sorts—Combing	.....	1 2	1 8
Clothing	.....	1 2	1 6

**BRACKLEY WOOL FAIR.**—The annual wool fair was held yesterday. The amount of wool pitched was quite an average, as will be seen by the following enumeration of the number of fleeces: Mr. Bolton, Banbury, 1,940; Mr. Bartlett, Whitfield, 1,871; Mr. Hopcraft, Brackley, 1,690; Mr. Millington, Ardley, 701; Mr. Horwood, Steane, 594; Mr. Bygrave, Aynho, 430; Mr. Chapman, Westbury, 381; Mr. Barford, Lanton, 374; Mr. French, Whitfield, 399; Mr. Holton, Brackley, 258; Mr. T. Chapman, Westbury, 217; Mr. Butterfield, Halse, 260. Mr. Russell held the usual sale, when Mr. Nossiter of Birmingham bought the wool of 540 tegs and 110 ewes, at an average price of 48s. a tod. Mr. Butterworth bought 1,910 tods of Mr. Bolton, at 10s. Other

wool fetched 39s. 6d., 38s., and 37s. 3d., the average being 38s. The total number of fleeces was 14,000, but a good deal was unsold.

**BRADFORD WOOL MARKET, Thursday.**—There is but little animation in our market to-day. Since last Thursday the tendency of prices in the wool trade has been downwards; and, with the ascertained fact that the clip is very heavy and that the stocks of last year's growth are partly unsold, staplers and spinners have become very cautious in their transactions.—*Bradford Observer.*

**DONCASTER WOOL MARKET, (Saturday last.)**—An immense quantity of Wool here to-day—the largest this season—being 1,400 sheets. Business commenced slowly, and buyers had the turn in their favour; the best lots were worse to sell, and parcels not well hogged were 6d. per stone lower, and some left over for next week. It is evident from the quantity brought forward this year before the end of June that Wool is passing rapidly out of the growers' hands. Ewes and Wethers 18s. 6d. to 19s. 6d., mixed parcels 20s. 6d. to 21s. 6d., all Hogs 23s. to 23s. 9d. per stone of 14½lbs.

**GLASGOW WOOL MARKET, (Saturday last.)**—There is no new feature to report in this market during the present week. Lustre wools are still in active demand, and prices remain firm. Laid wools are still neglected, and buyers are purchasing only for present requirements.—*F. H. McLeod.*

**LEEDS (ENGLISH AND FOREIGN) WOOL MARKETS, (Friday.)**—The demand for English wool is confined to the sorts going into consumption, and the market does not show great confidence in prices being fully maintained. The stock of wool is greater than it has been for several years. The tone of the market for colonial wool is better, and prices of some sorts have improved at the public sales.

**BERLIN WOOL FAIR, June 20.**—This fair, being the last and most important as to quantity, has been generally looked for with great interest, and proved by its result to have surpassed all expectation. Business commenced already on the 18th, when considerable purchases had been effected, both on store and at the producers. It was briskly continued on the 19th instant, and completely concluded to-day, with a perfect clearance of first-hand flocks and large transactions at the dealers. The sole purchasers were the manufacturers and combers from the Zollverein; foreign firms kept away. The whole amount offered for sale arose to about 157,000 cwts., more than three-quarters of which have been taken at an increase of 15 to 20 thalers per cwt. above last year's June fair, quotations being about 25 to 30 per cent. Good clothing wools fetched at from 75 to 80 thalers, ditto combing wools 60 to 72 thalers, ditto good ordinary descriptions 60 to 64 thalers per cwt. The demand is far from being satisfied, and a further lively trade is universally expected.—*GUNSBURG BROTHERS.*

**MANURES.**

**PRICE CURRENT OF GUANO, &c.**

Peruvian Guano direct from the importers' stores, £12 5s. to £12 10s. per ton.  
Bones, £26 to £6 5s. Ditto Crushed, £6 10s. per ton.  
Animal Charcoal (70 per cent. Phosphate) £5 per ton.  
Coprolite, Cambridge, whole £2 10s., ground £3 to £3 2s. 6d. per ton.  
Suffolk, whole £2 to £2 10s., ground £2 10s.  
Nitrate of Soda, £12 5s. to £12 10s. per ton.  
Gypsum, £1 10s. Superphosphate of Lime, £5 5s. to £6 5s. per ton.  
Sulphuric Acid, concentrated 7845 lb. per lb., brown 1712 03d.  
Blood Manure, £6 5s. to £7 10s. Dissolved Bones, £6 15s. per ton.  
Lime-Seed Cakes, best American brl. £12 to £13, bag £11 to £12 10s.  
Cotton Seed Cake, £6 15s. to £7 10s. per ton.

**E. PURSER, London Manure Company, 116, Fenchurch Street, E.C.**

Guano, Peruvian	£12 7 6 to 30 0 0	Lime-Seed Cake, per ton	—
Do. Upper Do.	6 10 0 0 0 0	American, lbs. 25 to 60	£9 15 0
Malden Island	0 0 0 0 0 0	Do. in brls.	0 0 0 0 0
Bone Ash	4 2 6 4 5 0	English	10 0 10 10 0
Brimstone	2d 3d 0 0 0 0	Cotsd. Cake, decort.	0 0 0 0 0
Saltpetre, Bengal	0 0 0 0 0 0	Linsd. Bomby, p. q. r.	8 0 3 9 0
2 per cent.	0 0 0 0 0 0	Rapeseed, Guzerat	2 15 0 2 17 0
Nitr. of Soda, p. ct. 10 3	0 10 9 0	Niger	2 12 0 2 13 0
Cloversed, N. Am.	—	Tallow, 1st P.Y.C.	2 7 0 2 0 0
red, new per cwt.	0 0 0 0 0 0	super. Norfs	2 4 0 2 4 6

**SAMUEL DOWNES AND CO., General Brokers, Exchange Court, Liverpool.**

Prentice's General Manure for Corn Crops	per ton	£8 0 0
Prentice's Turbip Manure	.....	8 0 0
Prentice's Superphosphate of Lime	.....	6 0 0

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**THOMAS BIGG**, Agricultural and Veterinary CHEMIST, by Appointment to His late Royal Highness The Prince Consort, K.G., Leicester House, Great Dover-street, Borough, London, begs to call the attention of Farmers and Graziers to his valuable SHEEP and LAMB DIPPING COMPOSITION, which requires no Boiling, and may be used with Warm or Cold Water, for effectually destroying the Tick, Lice, and all other insects injurious to the Flock, preventing the alarming attacks of Fly and Shab, and cleansing and purifying the Skin, thereby greatly improving the Wool, both in quantity and quality, and highly contributing to the general health of the animal.

Prepared only by Thomas Bigg, Chemist, &c., at his Manufactory as above, and sold as follows, although any other quantity may be had, if required:—

4 lb. for 20 sheep, price, jar included	.....	£0 2 0
6 lb. 30 " " " "	.....	0 3 0
8 lb. 40 " " " "	.....	0 4 0
10 lb. 50 " " " "	.....	0 5 0
20 lb. 100 " " (cask and measure	0 10 0	
30 lb. 150 " " included)	0 15 0	
40 lb. 200 " " " "	1 0 0	
50 lb. 250 " " " "	1 3 6	
60 lb. 300 " " " "	1 7 6	
80 lb. 400 " " " "	1 17 6	
100 lb. 500 " " " "	2 5 0	

Should any Flockmaster prefer boiling the Composition, it will be equally effective.

### MOST IMPORTANT CERTIFICATE.

From MR. HERAPATH, the celebrated Analytical Chemist:—  
Bristol Laboratory, Old Park, January 18th, 1861.

Sir,—I have submitted your Sheep-Dipping Composition to analysis, and find that the ingredients are well blended, and the mixture neutral. If it is used according to the directions given, I feel satisfied, that while it effectually destroys vermin, it will not injure the hair roots (or "yolk") in the skin, the fleece, or the carcass. I think it deserves the numerous testimonials published. I am, Sir, yours respectfully,

WILLIAM HERAPATH, Sen., F.C.S., &c., &c.,  
Professor of Chemistry.

To Mr. Thomas Bigg,  
Leicester House, Great Dover-street, Borough, London.

He would also especially call attention to his SPECIFIC, or LOTION, for the SCAB, or SHAB, which will be found a certain remedy for eradicating that loathsome and ruinous disorder in Sheep, and which may be safely used in all climates, and at all seasons of the year, and to all descriptions of sheep, even ewes in lamb. Price FIVE SHILLINGS per gallon—sufficient on an average for thirty Sheep (according to the virulence of the disease); also in wine quart bottles, 1s. 3d. each.

### IMPORTANT TESTIMONIAL.

"Scoulton, near Hingham, Norfolk, April 16th, 1855.  
"Dear Sir,—In answer to yours of the 4th inst, which would have been replied to before this had I been at home, I have much pleasure in bearing testimony to the efficacy of your invaluable 'Specific for the cure of Scab in Sheep.' The 600 sheep were all dressed in August last with 64 gallons of the 'Non-Poisonous Specific,' that was so highly recommended at the Lincoln Show, and by their own dresser, the best attention being paid to the flock by my shepherd after dressing according to instructions left; but notwithstanding the Scab continued getting worse. Being determined to have the Scab cured if possible, I wrote to you for a supply of your Specific, which I received the following day; and although the weather was most severe in February during the dressing, your Specific proved itself an invaluable remedy, for in three weeks the Sheep were quite cured; and I am happy to say the young lambs are doing remarkably well at present. In conclusion, I believe it to be the safest and best remedy now in use. "I remain, dear Sir, your obedient servant,  
"To Mr. Thomas Bigg." "For JOHN TINGEY, Esq.,  
" R. RENNÉY.

Flockmasters would do well to beware of such preparations as "Non-poisonous Compositions;" it is only necessary to appeal to their good common sense and judgment to be thoroughly convinced, that no "Non-poisonous" article can poison or destroy insect vermin, particularly such as the Tick, Lice, and Scab Parasites—creatures so tenacious of life. Such advertised preparations must be wholly useless, or they are not what they are represented to be.

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No. 2, Vol. XXXII.]

AUGUST, 1867.

[THIRD SERIES.

THE  
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AND

MONTHLY JOURNAL

OF

**THE AGRICULTURAL INTEREST.**

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**Dedicated**

TO THE

**FARMERS OF THE UNITED KINGDOM.**

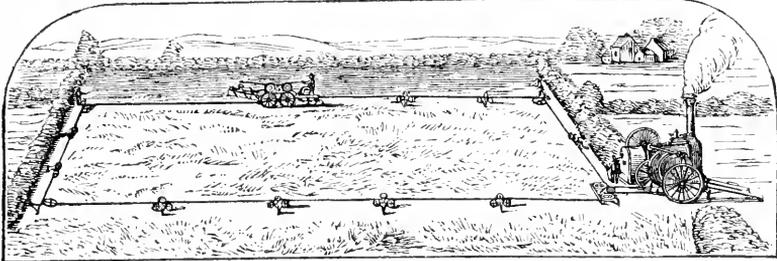
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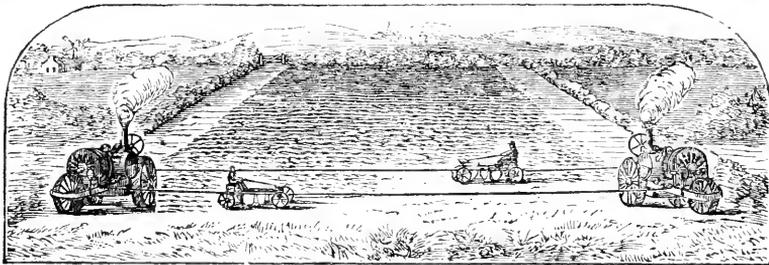
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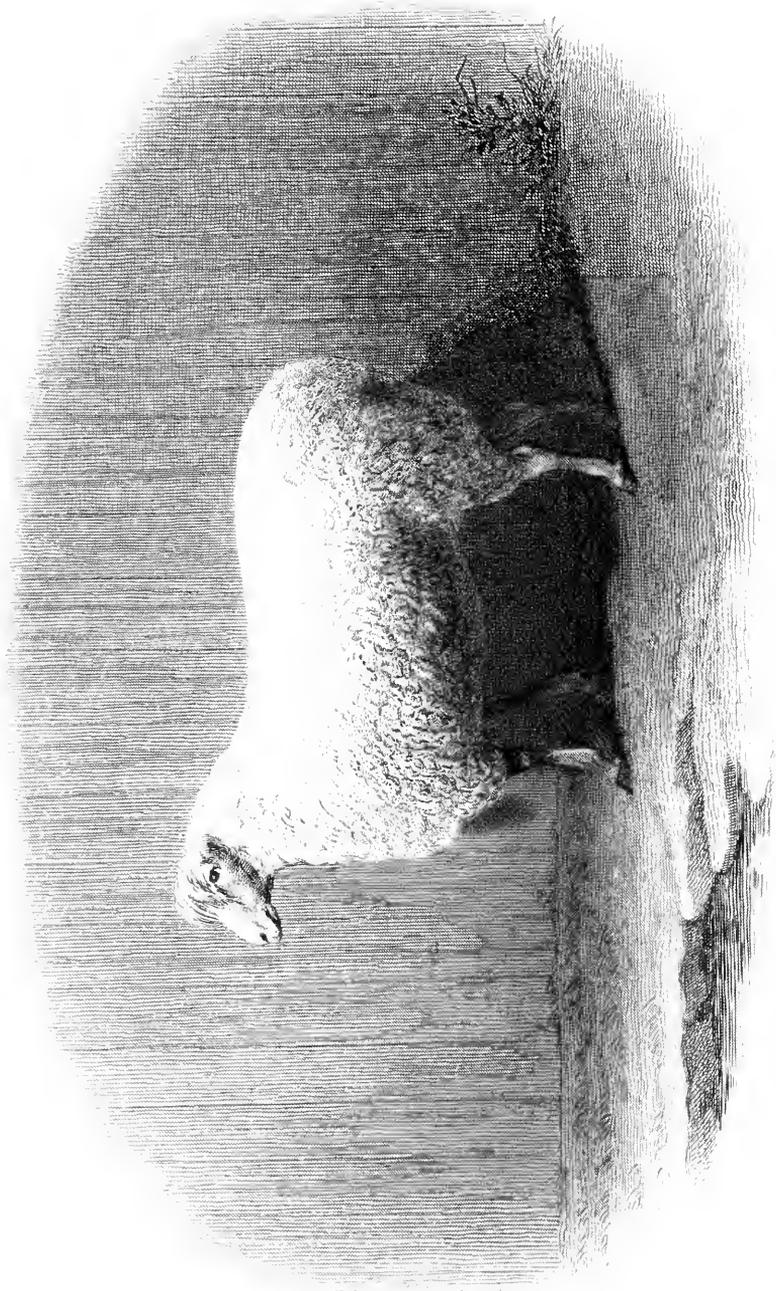
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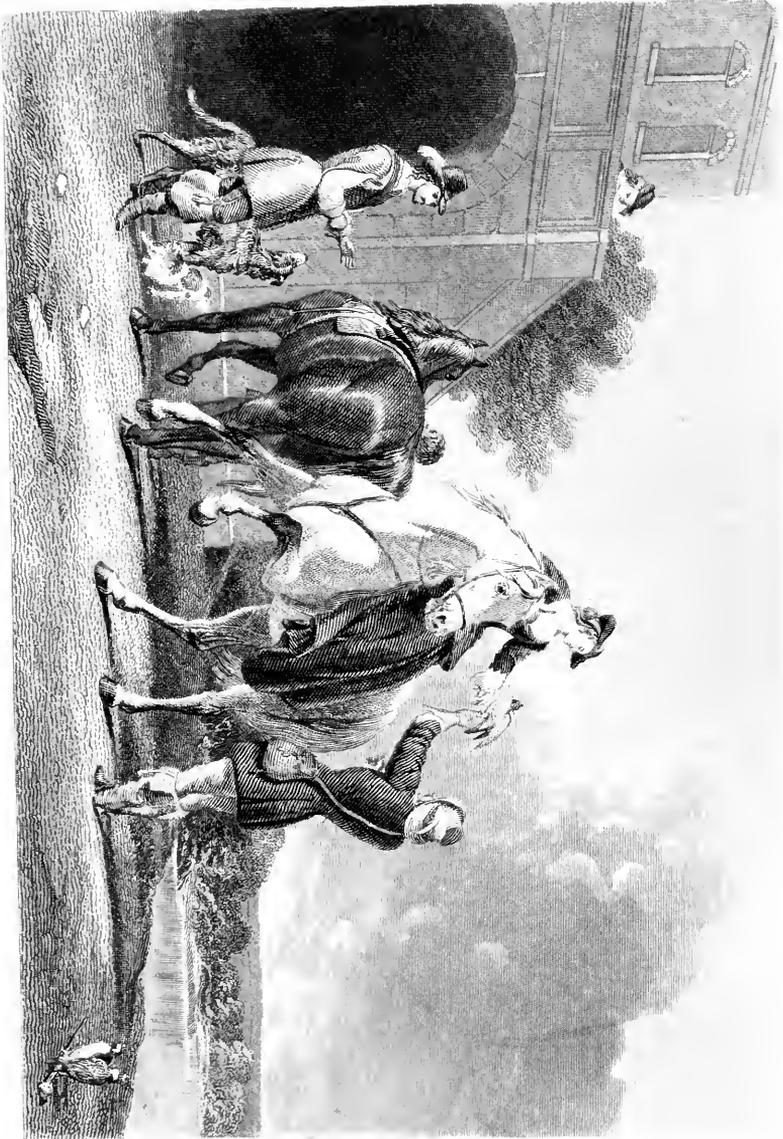




*A Cobswold. Ram*

London: W. Wood, 25, Abchurch Lane, 1841.





*17. 1840. 11. 1840.*



# THE FARMER'S MAGAZINE.

AUGUST, 1867.

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## PLATE I.

### A COTSWOLD RAM.

THE PROPERTY OF MR. J. KING TOMBS, OF LANGFORD, LECHLADE.

“The Cotswolds had the call of the sheep, and Mr. King Tombs the call of the Cotswolds; his first-prize old ram combining great size and weight, and his second-prize shearling having yet better looks than his sire, just mentioned. The pride of the Langford flock, however, was in the extra stock, where Mr. Tombs exhibited a ram ‘bred by Mr. Lane, of Broadfield, bought by his present owner for 210 guineas, who has since refused 240 guineas for him, fed on vegetable food *only* since the season.’ This sheep had never previously been exhibited; nor is he entered for any of the great meetings of the year. He was consequently not in show condition; but is, however, very handsome, though in no-ways a big sheep, but rather a light, smart, compact animal, beginning with a capital kindly head, and all over full of style and

fashion. By mere weight or inches, there are, no doubt, many which would beat him, as, indeed, Mr. Tombs’ prize ram here measured more in his girth; and symmetry with quality, rather than size, must tell the tale of the 240 guineas *refused*.” The above is from our own report of the recent meeting of the Hants and Berks Agricultural Society at Basingstoke, and there is but little to add to it, except that the judges awarded the ram an extra prize, and that Mr. Tombs might have had 250 guineas for him on the ground—the highest price ever offered for a Cotswold, or, indeed, as we believe, for any other sheep.

Mr. King Tombs has long been famous for his Cotswold flock, some of which, unlike other leading breeders, he is not above exhibiting.

---

## PLATE II.

### MY LADY'S HOBBY.

It is well that the lady and her cavalier are put in a bygone costume; for hawking is a sport that has almost died out from amongst us. In these breech-loading days and bags of hundreds and thousands, the sportsman would be scarcely content with the doings of the best-trained falcons, whilst the gradual inclosure of the country is of

itself inimical to the practice of such a pastime. It has so happened that in place of being prized as heretofore, the beautiful Peregrines and Merlins have come to figure as vermin on the keeper's tree, and the Grand Falconer of England, like the Champion of England, is not over-burdened with the business of his department.

## THE CLOVER CROP.

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

Amongst the many difficult facts which the farmer has to encounter must be included the failure of our clover crops. It is well known, indeed, that on many soils this plant, which not many years since could be profitably grown every fourth year, now needs an interval of eight to twelve seasons before it can be again grown with advantage. For this refusal of the soil to produce a remunerative crop, various reasons have been assigned: such as (the old one) that the land is "tired" of clover—that the young plants are more injured by frost than formerly—that the seed now used is procured from warmer climates than our own—and that the plant has, by repetition, deprived our soils of some essential constituent, which needs to be restored before the clover-plant can again be grown on the land with its former luxuriance.

To aid the farmer in solving the last-named and apparently reasonable suggestion, Professor Way, some time since, analyzed specimens of red clover hay grown on a siliceous sand, and also on a clay soil. (*Jour. Roy. Ag. Soc.*, vol. ix, p. 139.)

He found that the amount per cent. of their mineral matters, or ash, was as follows—viz.:

In the clover grown on a siliceous sand soil	6.77
„ „ „ clay soil...	7.12

The next important question was to ascertain of what these ashes consisted. Their composition was determined by the professor to be as follows—viz.: 100 parts of the ashes of clover hay from the siliceous and clay soils contained—

	From the two soils.	
	Siliceous.	Clay.
Silica ... ..	4.03	2.66
Phosphoric acid ... ..	5.82	6.83
Sulphuric acid ... ..	3.91	4.46
Carbonic acid ... ..	12.92	20.91
Lime ... ..	35.02	35.76
Magnesia ... ..	11.91	10.53
Per-oxide of iron ... ..	0.98	0.95
Potash ... ..	18.44	11.30
Soda ... ..	2.79	—
Common salt ... ..	4.13	0.58
Chloride of potassium ... ..	—	5.92
	99.95	99.98

From this analysis we learn of what mineral substances the clover-plant deprives the soil; and we may note that in this case the clay-produced clover (a soil on which clover commonly succeeds better than on light soils) contained nearly 6 per cent. of chloride of potassium—a chloride which was totally absent from the clover grown on the sandy soil; but then the clay-produced had not any soda in its mineral constituents, whilst that from the siliceous soil yielded 2.79 per cent. The amount, then, of mineral matters removed from a soil (according to this analysis of Mr. Way) in a ton of hay is as follows—the weight being given in pounds and tenths:

	Red Clover.	White Clover.
Silica ... ..	5.2	6.3
Phosphoric acid ... ..	10.0	12.9
Sulphuric acid ... ..	6.6	12.4
Lime... ..	55.6	45.5
Magnesia ... ..	17.7	14.0
Per-oxide of iron ... ..	1.5	3.4
Potash ... ..	23.2	24.7
Soda ... ..	2.2	6.4
Common salt ... ..	3.7	8.5
Chloride of potassium ... ..	4.7	—
	128.4	141.1

These facts would naturally appear to lead to experiments with dressings of the alkaline salts, such as those which have recently been applied to clover by Professor Voeleker. To these I propose to direct the reader's attention.

The field-experiments with clover seeds instituted by Professor Voeleker were made in the seasons of 1864 and 1865, and are thus alluded to in his valuable report (*Jour. Roy. Ag. Soc.*, vol. ii, N.S., p. 472):

"In the beginning of the spring of the year 1864, I sent the manures designed for use to a number of intelligent men personally known to me, and for the greater part former pupils of mine. They were willing and competent to carry out my instructions with every possible care. It was my intention to have tested in the field, under as great a variety of conditions, as regards soil and situation, as it was possible for me to secure, the effects which nitrate of soda, or salts of potash, or ammonia, are capable of producing on a crop of clover seeds. Unfortunately the season entirely spoiled most of the experiments. It is useless to record in detail all the failures that have been reported to me, both in 1864 and 1865. There are few matters so disappointing to a farmer as having an experiment entirely spoiled by an adverse season, on which more than ordinary care, pains, and expense have been bestowed. Such disappointments, however, are inseparable from experimental farming, and, therefore, every one who wishes to engage in it with heart and soul must be quite prepared to experience many failures through no fault of his own, and to realize but few successful and satisfactory results.

"It appeared to me probable that although the exclusive use of potash might not be marked by any very striking results, in conjunction with soluble phosphate of lime it might produce a more beneficial effect, and enhance the utility of the latter. We know from experience that the exclusive application of ammoniacal salts to the land does not produce nearly so good an effect on many crops as their combination with superphosphate, and the supposition that a mixture of phosphatic and potash manures would have a similarly beneficial effect, therefore appears not unreasonable.

"Considerations of that kind determined me to suggest the application of potash in the form of two salts, widely differing from each other as regards their solubility in water. The first, chloride of potassium, or muriate of potassium, as it is commonly called, is a highly soluble and deliquescent salt; which, moreover, is the cheapest form in which potash can be purchased. The second,

sulphate of potash, is a salt characterized by its slow solubility in cold water. Bearing in mind that simultaneously with potash we present to the growing plant chlorine in one of these salts, and sulphuric acid in the other, and that chlorine, as well as sulphuric acid, are normal and essential ash-constituents of plants, I desired, if possible, to eliminate in separate trials the share in the manuring effects which the acid constituents of the two potash salts used in the experiments might have. To this end I recommended separate trials with chloride of sodium, and with sulphate of lime. In chloride of sodium we possess a readily soluble salt, which compares well in this respect with chloride of potassium, whilst the chlorine is united with soda, of which we know that it does not produce any distinct fertilizing effect upon vegetation. In order to eliminate the share of sulphuric acid in the total manuring effect of sulphate of potash, I might have suggested sulphate of soda for trial, but my choice fell upon sulphate of lime, because in one of the experiments soluble phosphate of lime was to be used, which compound can only be practically used in conjunction with sulphate of lime, inasmuch as the preparation of soluble phosphate of lime is necessarily accompanied by the production of much sulphate of lime. The experiment with sulphate of lime thus answers the twofold purpose of eliminating the share of sulphuric acid in the total effect of sulphate of potash, and that of sulphuric acid (used in combination with lime) in the total effect which superphosphate of lime may be supposed to produce.

"Sulphate of ammonia favours in most marked degree the growth of cereals; and as clover is commonly sown together with Italian rye-grass, I was desirous to ascertain, by experiment, whether the probable effects of potash on clover were at all comparable with the well-known effects which sulphate of ammonia produces on cereals, and for this reason recommended a separate trial with that salt.

"The manurial properties of nitrates in many respects resemble those of ammonia salts. Although this is true in a general way, some leguminous crops—for instance beans—are decidedly stimulated in their growth by nitrate of soda, whilst ammoniacal salts, in most seasons, either produce no effect on them, or sometimes exert an injurious influence. There are grounds for believing that nitrate of soda in some cases may be usefully applied to clover; hence a trial with this salt was suggested.

"Believing that the effects of potash-salts would be most perceptible on light sandy soils, I got the majority of the experiments tried on such soils; but, I regret to say, both in 1864 and 1865, the clover seeds on the light-land farms turned out more or less complete failures. It affords me, therefore, particular pleasure to be able to put on record at least one successful series of experiments, which were carefully carried out by my friend Mr. Jacob Wilson, of Woodhorn Manor, Morpeth, in 1864.

"The field selected for the experiments was thoroughly drained four feet deep in the year 1857, and otherwise in a good state of cultivation. It grew a heavy crop of wheat in 1863, upon which mixed clover and rye-grass were sown by a broadcast drill, and horse-hoed by Garrett's horse-hoe. The whole field was one of 24 acres, and had a gentle slope towards the south-east. From a part where the plant was most regular, half-an-acre was measured out, and divided into ten equal plots of 1-20th of an acre each.

"The artificial manures were applied on the 23rd of April, and the clover was cut on July 6th, 1864, and the produce from each of the ten plots was carefully weighed, when the results contained in the subjoined table were obtained:

Plots	Manure.	Rate per Acre.		Weight of Clover per Acre.		
		Cwts.	Tons.	Cwts.	Libs.	
1	Nitrate of soda .....	4	8	0	110	
2	Sulphate of ammonia .....	4	9	0	20	
3	Dissolved bone-ash (soluble phosphate) .....	4	6	7	1	
4	Common salt .....	4	5	7	91	
5	Unmanured .....	—	7	3	84	
6	Muriate of potash .....	4	6	7	1	
7	Sulphate of potash .....	4	6	12	95	
8	Sulphate of lime .....	20	7	1	88	
9	{ Dissolved bone-ash .....	4	9	6	8	
	{ Nitrate of soda .....					
	{ Dissolved bone-ash .....					
10	{ Muriate of potash .....	4	10	2	36	

"The preceding figures, in the accuracy of which every confidence can be placed, are curious in many respects. They show, amongst other things:

"1. That neither muriate nor sulphate of potash gave an increase; on the contrary, both forms in which potash was used appeared to have diminished, to some extent, the produce.

"2. That the unmanured plot (No. 5) gave about the same produce as that to which sulphate of lime was applied.

"3. That mineral superphosphate, or dissolved bone-ash, has had a less beneficial effect than sulphate of lime.

"4. That common salt diminished the produce to a considerable extent.

"5. That nitrate of soda alone, and still more sulphate of ammonia, produced a very considerable increase in the grass-crop.

"6. That the addition of soluble phosphate of lime (mineral superphosphate) to nitrate of soda had a very beneficial effect.

"7. That the highest produce was obtained on plot 10, on which mineral superphosphate and muriate of potash had been used. The produce of 10 tons 2¼ cwts. per acre is large. It is remarkable that whilst plot 3, manured with mineral superphosphate, and plot 6, manured with muriate of potash, gave precisely the same produce, which was somewhat less than that on the unmanured part of the field, the mixture of both manures on plot 10 gave the largest weight of mixed clover and grass per acre of any of the 10 experimental plots."

These experiments were repeated by Mr. J. Wilson, in the following season of 1865: "The same top-dressings which were used in 1864 were applied again in 1865, on May 8th, to 10 plots of clover-seeds in precisely the same quantities as before.

"In 1864, the crop was reaped on the 6th of July, when it did not appear to make any further progress; in 1865 it was left twelve days longer on the ground, as it was all the while in a growing condition. The results obtained are incorporated in the following table, which gives per acre the manures employed and the green produce from 10 plots of clover-seeds of the second year's growth:—

Plots.	Manures.	Produce per Acre.		
		Tons.	Cwts.	Libs.
1.	Nitrate of soda .....	8	0	65
2.	Sulphate of ammonia .....	9	5	70
3.	Mineral superphosphate (dissolved bone-ash) .....	8	5	0
4.	Common salt .....	6	9	72
5.	Left unmanured .....	5	13	49
6.	Muriate of potash .....	6	17	1
7.	Sulphate of potash .....	6	6	78
8.	Sulphate of lime .....	5	3	14
9.	Mineral superphosphate and nitrate of soda .....	9	8	64
10.	Mineral superphosphate and muriate of potash .....	5	19	37

"On looking over these results, the small produce on plot 10 must create considerable surprise. In the preceding year the heaviest crop was reaped from this plot, and the result in 1865 is the more remarkable. Mineral superphosphate alone applied to plot 3 gave nearly 2 tons and 6 cwt. more per acre than the same quantity of superphosphate and muriate of potash added to it. There is, however, generally a good reason to be found for such striking anomalies as this.

"In the case before us the anomalous result obtained on plot 10 is entirely attributed by Mr. Wilson to a bed of coltsfoot, which sprung up at one end of the plot. The effect of the top-dressing was very marked at the other end, where the crop to all appearances was very heavy. It is much to be regretted that the failure occurred just on plot 10, for there is strong presumptive evidence that muriate of potash is most usefully applied to clover in conjunction with superphosphate. Indeed the experience of the previous year seems to afford a substantial evidence for the correctness of this view.

"The effect produced by muriate of potash, it will be seen, was slightly better than that of sulphate of potash. In either case, however, the increase over the unmanured plot is not sufficiently great to repay for the outlay. It will, moreover, be seen that chloride of sodium (common salt) gave nearly as great an increase as muriate of potash, and slightly more clover than sulphate of potash.

"Nitrate of soda, and, in a still higher degree, sulphate of ammonia, produced heavy crops; but of the mixed clover and rye-grass the latter predominated, and the grass was coarse, as it always is when nitrogenous manures are applied to it in considerable quantities.

"The most favourable result, it will be noticed, was obtained by the mixture of nitrate of soda and superphosphate on plot 9.

"In comparing the weights of green clover-seeds in 1865 with those obtained in the preceding year, it appears that, excepting the anomalous result on plot 10, the general experience gained in 1865 accords well with that of the preceding year. The comparison, however, brings out some differences, which appear to me to involve points of practical interest.

"In the first place, the unmanured plot 5, as might have been expected, produced a good deal less seeds in the second than in the first year.

"In accordance with the experience of the preceding year, sulphate of lime (gypsum) had no beneficial effect; the actual weighings, indeed, showed a slight diminution in both years on the plots to which it was applied. It is possible that the employment of so large a dose of gypsum as 1 ton per acre may have had some share in depressing the produce; but more likely that the differences in the unmanured plots and plot 8 (gypsum) are not greater than those which would have been exhibited on two separate unmanured portions of the same field.

"At all events the experience with gypsum in both years proves that on the soil of the experimental field it had no beneficial effect. I mention this specially because gypsum is frequently recommended as a manure for clover, and because this is not a solitary instance in which I have failed to get the least indication of its favourable action on clover-seeds.

"In the next place I would direct attention to the much better effect which superphosphate produced in the second year than in the first. This I believe is attributable to the greater rainfall in 1865, especially in the early part of summer."

Professor Buckman, in another valuable paper "On Clovers," very justly places the red clover at the head of

all the ten varieties of agricultural clovers (*ibid.*, p. 447). He divides them into three sections, as follows:

SECTION 1.—Flowers Rose-red or Purple.			
No.	Botanical Name.	Trivial Name.	Duration.
1	<i>Trifolium pratense.</i>	Broad clover .....	Biennial.
2	<i>Trifolium pratense.</i> var. <i>perenne</i> .....	Perennial clover or cow-grass.....	Perennial.
3	<i>Trifolium pratense.</i> var. <i>medium</i> .....	Zig-zag clover or marl-grass.....	Biennial or Perennial.
4	<i>Trifolium incarnatum</i>	Carnation clover...	Annual.
SECTION 2.—Flowers Pink.			
5	<i>Trifolium hybridum</i>	Alsike clover .....	Biennial.
6	<i>Trifolium striatum</i>	Soft-knotted trefoil	Biennial.
7	<i>Trifolium fragiferum</i>	Strawberry-headed trefoil	Perennial.
SECTION 3.—Flowers White.			
8	<i>Trifolium repens</i> ...	Dutch clover .....	Perennial.
SECTION 4.—Flowers Yellow.			
9	<i>Trifolium filiforme.</i>	Small-flowered or	
10	<i>Trifolium prostratum</i> leaves .....	suckling clover... Hoop trefoil .....	Annual. Annual.

As the Professor adds, "the *trifolium pratense* of the meadow is met with in most parts of England, and seems to flourish in the drier pastures if not too often mown, for the scythe not only robs it of manure, but hinders the growth of fresh seed. In this case the plant is soon renewed by dressings of any kind of compost, provided lime be present in sufficient quantity, a mixture of road-dirt—the scrapings from a road whose material has been mountain or even oolitic limestone, worked up with roadside parings, hedge-refuse, &c., answers best.

"This clover, to the cultivated forms of which the names of Broad-leaved clover, Annual clover, and Red clover are indifferently applied, differs greatly from the wild examples; principally, however, in the larger growth, rounded *hollow* stems (this latter is caused by the pith not quite filling up the centre), and by the general smoothness of its different parts.

"This hollowness of stem has given rise to some absurd theories. It is well known that sheep put into a fresh clover-field in a hungry ('leary') state are liable to become 'blasted,' and this effect is sometimes attributed to the wind in the stalks of common clover! It is, however, a sufficient answer to the assertion, to state that the clover at an early stage of its growth, before the hollow-ness of the stem is established, is much more dangerous than when the wood is hard and the stem most hollow. So much, however, do some of our west-country farmers think that this condition is brought on by the introduction of wind into the stomach, that they often attribute it to the animals being driven against the wind; and it is quite true that the driving starving sheep in the face of a cold, easterly wind to some early clover, may greatly aggravate the mischief that may ensue, but from a very different cause from that generally supposed.

"*Trifolium pratense*, broad-leaved or red clover, both when wild and when cultivated, is, perhaps, as protean in form as any plant the farmer has to deal with. Some are more permanent than others; all are more or less hardy, and all more or less productive, and these differences have a high significance. However, it seldom happens that any particular type can be obtained pure, though the value of the seed varies just in proportion as it is so; for if you have in a field three sorts of clover, one of which flowers a fortnight before the other, one of which has a tendency to vigorous growth while the other

is stunted, the more prolific will take possession of the soil, and overpower its rivals; while it may incline to become an annual, and so, after awhile, leave the ground to the dominion of weeds.

“There are, then, three desiderata with regard to clover:

“1st. A good sort or sorts.

“2nd. Pure seed of the sort.

“3rd. Seed from a known and suitable climate.

The remark of the Gloucestershire farmers, as to the value of road dirt as a dressing for clover, is supported by the practice in certain portions of Surrey. In my own neighbourhood (Croydon) we have a mixture of strata—our soils resting on the London clay, the plastic clay, and the chalk. The streets of Croydon are mostly formed of broken flints, gathered from the fields of the chalk formation; the sweepings of the streets, therefore, are chiefly composed of a mixture of fine siliceous dust and horse droppings, with a small portion of chalk, soot, &c., &c. Now these sweepings are largely used by the holders of the land on the plastic and London clays, as a very beneficial dressing for their artificial grasses and pastures. These facts might, perhaps, lead to the conclusion that the finely divided silica, or the carbonate of lime, of our soils, has more to do with the preservation or restoration of the clover plant than we yet understand. We will know the necessity of our commonly-cultivated plants being supplied with silica—a fact which long puzzled the owners of the deep peat-lands of Lincolnshire, who are in the habit of dressing these soils with the clay on which they rest.

From observations such as these, we may fairly conclude that there is far *more useful* information yet to be obtained, with regard to the failure of our clover crops. That “resting” the land, on which clover ceases to be productive, is at present the only cure for “clover sickness” is well understood, and this, in some degree, is a similar result to that experienced by deeply *stirring* the land, as by the steam plough. Here we open, as it were, a new soil to the deeply penetrating roots of the clover.

It is, after all, the most reasonable conclusion that the plant exhausts the soil of some matter essential to its growth; but what that substance is, we are as yet unacquainted. It is probable that there are certain substances, either mineral or organic, living or dead, matters in our soils in very minute proportions, whose presence has not yet been ascertained, but which still exert a most important influence upon our cultivated plants. We know full well how minute are the emanations which are the cause of diseases—how small, yet how essential is the amount of certain mineral substances existing in a plant. This remark is of common application to other crops. It was only towards the close of the last century that it was ascertained that turnips required a supply of phosphate of lime for their luxuriant growth; this was long supplied to them in crushed bones; another half-century elapsed before, at Liebig's suggestion, that salt was furnished to the young turnips in a soluble form. It is still more recent that the value of ammoniacal salts for cereals has been well understood. We have every reason, therefore, to hope that by still more extended researches we shall succeed in discovering, not only the origin of the clover failure, but its prevention.

## THE EDUCATION OF FARMERS' SONS.

BY A PRACTICAL FARMER.

It is indispensable to the maintenance of his position, and his successful progress, that every farmer's son should receive a good, sound, and satisfactory education. It is not indispensable for him to devote much of his valuable time to the higher branches of learning, although that is very commendable; but he ought to be well grounded in every department of a practical character—*i. e.*, mathematics, physiology, geology, entomology, botany, and chemistry; and if these can be combined with a pleasant smattering of classical lore, all the better. Why, every Union-House boy is now receiving a good elementary education! Farmers' sons must keep ahead of them; hence the necessity of the middle-class education movement. There is also this further inducement to aid in this movement: Parliament is endeavouring to establish a system of education for the children of our labouring classes, based upon factory regulations. Quite right in its object, the difficulty will be in carrying it out. But it will ultimately be effected, so that all classes of our labouring population will become educated up to a certain standard. If the middle classes are to keep their high station in the upholding and direction of our country's affairs, and in preserving it from a dubious democracy, the liberal education of their sons must be proceeded with by all possible means and celerity. It is upon the good common sense and intelligence of the middle classes that every Government must now rely for support. The aristocracy, the country gentleman, and the great monied and commercial interests have all to bow to the power of public opinion as promulgated by the intelligent middle classes. How important then that this public mind shall

be properly taught and directed! The Reform Bill will let in a power for governing the country, which may be for good or evil, according as intelligence and right principles predominate. The transition will be an important and doubtful one, and will require great watchfulness, and also closely guarding against any hasty and impulsive legislation. As the middle classes advance in knowledge, and power the result will doubtless be highly satisfactory, and eminently conducive to promote the country's advancement in every department of productive industry. “Knowledge is power,” and ever will be.

We hail, then, these praiseworthy movements for their education. The Commission some time ago instituted for inquiring into the condition and usefulness of the numerous grammar-schools throughout the country are doing a noble work. Many glaring evils and inconsistencies have been brought to light, and their comparative inefficiency, not to say uselessness, has been so manifest that it has led to the idea of suppressing them, and from their many charitable foundations to form a plan for building and endowing a large number of middle-class schools—schools capable of lodging from 300 to 500 boys, together with masters' apartments, and all the necessary accessories for carrying on first-class schools. No doubt each district, possessing a sufficient number of schools and requisite funds, will be entitled to one of these establishments; and if their present masters are competent, they will doubtless have the first appointments in them. It will not be requisite to efficient working that the income shall be large. The pupils will be charged from £25 to £30 per annum each; so that, if all is managed with moderate

care and economy, there will not be a large surplus, but there will be sufficient to supplement the incomes of the masters and to provide for the requirements of the buildings.

However happy may be the conception of a positive good, however comprehensive and commendable may be the effort to carry it out, all may be marred by the working and management of the scheme. The plan is an admirable one, worthy of all commendation and every help.

Well, how is it to be properly and successfully worked? We say Government must appoint a permanent Board of Education, having their office in London. To this board shall appertain the power and direction of all that relates to these schools and their management, in accordance with the laws and regulations to be enacted by Parliament, precisely as under similar regulations the Poor-law Board Acts. To aid this board above, local boards should be elected, consisting of equal numbers of churchmen and dissenters, who shall have the general superintendence and management of the schools, the endowments, the management of the estates, the selection of masters, indeed all matters of detail and general direction, but all subject to the approval of the board above, as provided by act of Parliament. We say half the board shall be churchmen, half dissenters, for this reason: the schools ought and must be open to every class, without distinction of creed: nothing sectarian must be known in the schools. The only religion taught therein must be direct from the bible, which should be regularly read. The schools should be opened every morning by prayer, the form to be chosen by the local board. These local boards might be elected in the same way that guardians are elected, and at a cost regulated by the board of guardians, *i. e.*, from the poor-rate: they might hold office for a course of years. I shall not go further into petty details: they are easily arranged. It may be objected that a Board in London would have so little to do. That is perhaps true, but I don't know with what other department to combine it. Could it be divided

between commissioners selected equally from the National and British and Foreign School Society? I repeat, these schools must be unsectarian; if not, but little good is done; continuous strife and agitation will otherwise be generated. In Protestant England we must have the Bible—that is the *sine quâ non*—but what need for catechisms? Schoolmasters are not teachers of religion. These schools must all be founded or established near to towns provided with churches and dissenting chapels. Thither let the boys go for religious instruction, according to the desire of the parents or guardians. It is superfluous quite, to point out hardships and invidious distinctions that might arise—everybody knows them. Churchmen insist upon their catechism: let their sons attend upon the clergymen of the locality near to their schools as often as desirable, for the advantage of their teaching. Dissenters—*i. e.*, Presbyterians, Independents, Baptists, Methodists, and all other bodies of dissenters—cannot truthfully repeat the Church catechism. Baptists believe only in adult baptism, and that upon a profession of faith: they never baptize their children. Nor do the other bodies of dissenters, although in the simplicity of Scripture teaching they practise infant baptism, adopt godfathers and godmothers; consequently, when their children are asked "Who gave you that name?" what are they to reply?—not their catechetical answer, certainly: it is perfectly ridiculous. In a broad national question like this, when a nation is to be taught, the Church of England must only be one amongst the many; she must drop her high pretensions in these schools, but not by any means her religious teaching. This she must provide for in every school district, as named above, and possibly in class, subject to small payment according to number. Dissenters require only Bible classes. There would be but little difficulty in arranging for such teaching amongst themselves. For Roman Catholics I can make no special provision. I cannot give up the Bible—the only true guide to heaven—the only correct rule of faith and practice for all Christians.

## THE NEW FARM.

Well, the proof has come! The excellence of the pudding is found in the eating. Although, some weeks back I was apprehensive that I had erred in diverging from the regular local practice of feeding down the young clover in the autumn and spring, with a view to consolidating, as it is thought, the soil through the treading of the stock, I am rejoiced to ascertain, now that harvest has arrived, that no one in the neighbourhood has anything like such "seeds" to mow. The gang, strong men as they were, fairly groaned under the weight of work, the gaffer declaring that they should not get their 2s. per day. One shrewd old neighbour, who is never above learning, and by observation of whose excellent practice I have certainly been greatly instructed, has determined to follow in my wake for the future. All honour, however, to him by whose hint I profited myself. Years ago, when I first took a fancy to farming, among the books I perused was "Nesbit on Agricultural Chemistry," an excellent little volume of the sort. I may then have been struck with the sentence, "Every leaflet upwards has a rootlet downwards; and if the leaflet be taken off, the rootlet will not grow," for the fact has stuck as a burr to my memory ever since. I have to-day referred to the passage, which I find in its entirety so useful and interesting, that I transcribe it for the use of those who may not have the work itself to refer to. Mr. Nesbit writes: "Now what

does the clover do? Every little leaflet which it shoots up into the air sends a rootlet downwards, so that in proportion to the upward growth of the clover is the downward growth of the root; and when you have taken the clover away, you retain, in the shape of roots, several tons per acre of valuable vegetable matter which, by its slow decomposition, affords nutriment for the narrow-leafed wheat; so that by employing in the first instance turnips for the barley and clover for the wheat, you accumulate in the soil a large quantity of material absorbed from the air, for the benefit of the after-crops. This may be clearly seen, if you consider the difference between cutting clover and feeding it off. It is generally believed that a man who feeds his clover off, with a little oilcake, &c., will get a better crop than one who takes the hay. I know I am here treading on tender ground; but, at the risk of being accused of heresy, I will aver that the man who spends his money on oilcake, feeding it off upon clover, is committing an error, unless he can realize benefit in the shape of mutton. If you cut clover at Midsummer, and let it grow again, and then take another cutting in the autumn, you will afterwards obtain a far better crop of wheat than you would secure by feeding with oilcake, unless you choose to go to an enormous expense. Every leaflet upwards has a rootlet downwards, and if the leaflet be taken off, the rootlet will not grow; so that if the sheep be fed



upon the surface, the under-production is diminished. In exact proportion to the increase of the upper, is the increase of the lower; and if you are always feeding-off the former with sheep, you will have but few rootlets below, and the small amount of nutriment you give in the shape of oilcake will produce little or no effect." He proceeds to relate the issue of an experiment that was tried for him by a friend in Northamptonshire. "A field of clover was divided into two parts. The whole was cut at Midsummer; half was left to grow again, and the other fed off. In October two pieces were staked out as regularly as possible, all the roots dug up, carefully cleaned and weighed. The result was, that where the clover had been cut once and eaten once there were 25 cwt. of roots per acre; and where it had been cut twice there were 75 cwt. per acre, being a difference of 2 tons of roots per acre," which, containing so much nitrogen as these roots do, constituted an exceedingly good dressing for the wheat crop to follow. The whole of this little volume is full of the most valuable information for the sucking agriculturist.

Talking of oilcake, the other evening, as I was watching the gang busy cutting the "seeds," I happened to remark how much the manure showed that came from the boxes of the best fed animals. One of them, who until recently had been in the service of a notoriously cross-grained farmer of the neighbourhood, who treats his animals as ill as he does his human *attachés*, said that if he does ever get a ton of oilcake in, he gives his shepherd out one piece daily to be divided amongst the flock. He is of opinion that half-an-ounce a day is plenty for a sheep, and that if a portion of the lot should consume more than their due proportion one day, it will only make the rest nimbler at the troughs the next feeding time.

Walking the wheat field yesterday on which I had observed the rooks so busy in the spring, I find that the stems have tillered out gloriously to cover the weak spots, and that, in fact, the plant in that portion of the field looks almost healthier than in any other. We had a *butte*, however, of the young rooks the other day,

which, made into tarts, were pronounced excellent by those who ate them. It was surprising how quickly the old birds moved off all their offspring that could fly, into some elms across the river, beyond our reach. The very day the firing ceased they seemed to comprehend how matters stood, and returned, notwithstanding that several young scions of the noble family lay dead in the various nests to which they had managed to flutter when only wounded by the shot. Paley, in his interesting work on "Natural Theology," remarks upon the wonderful provision of Nature, whereby the sounder a bird sleeps the faster gripe his claws take of the perch. This seemed the case, too, with the wounded rooklings.

There had been a small hawk about for some days, which we desired to exterminate, seeing that the young pheasant broods are abroad now. I fancied I saw him alight on the topmost branch of a silver fir, fully eighty yards off. Taking aim, without the least expectation of success, I fired, and brought down, sad to relate, a lovely turtle-dove, one pellet having pierced the brain. There was, of course, much reprobation of this slaughter, in the nursery; and they were right too, although the time is approaching when the pigeons will have to be warned off the pea crops.

The rook-skins I have cured and stuffed, to be hung as *in terrorem* over the ripening fields. One shrewd friend, who is free to acknowledge the benefit these birds do by destroying the grubs is rather "riled" that they let alone eleven acres close to their and his abode, which are alive with wireworm. My conclusion and mode of consoling him is, that the prudent colonists reserve that nearest home against a rainy day, just as one keeps an extra five pounds always in the house against difficulties unforeseen, through wife's bonnets, &c.

But I can write no more. A pet half-Alderney, a magnificent milker, has, despite precautions taken, fallen with milk fever, as her mother did before her. The ailment is clearly constitutional. This implies retrenchment of cream at the approaching strawberry period, no less than immediate sorrow and sickness of heart.

VIGIL.

## THE SCYTHE AND THE SICKLE, MOWING AND REAPING MACHINES.

The familiar legend of Saint Swithin is of special import to the agriculturist, who watches the atmospheric phenomena of that day, or of anywhere about that time, with anxious attention. The legend itself is exploded, but the fact on which the philosophy of the story rests is another affair altogether, and requires an explanation, if indeed it be capable of a solution. The genial pertinacity with which the lachrymose saint continues to pour down his flood of tears for the forty days, if we treat with contempt the assumed cause, must have a natural one. Certain it is, that, if at or about the middle of the month of July, after a season of dry weather, a sudden change should take place, the chance will be in favour of a continued succession of wet, and that for a period including the usual weeks of harvest. It is this latter fact that gives such importance to the state of the barometer on the 15th July with the farmer, who dreads (and well he may) the breaking up of the weather at that time; for, in five cases out of six, it is followed up by continuous downfalls, more or less heavy, of pitiless rain upon his ripened corn. We do not pretend to account for this result; but we have ourselves, in numerous seasons, found it agree with the legend even to a single day. The eventful rainfall is usually preceded

by a symptomatic disturbance of the atmosphere, such as the rapid fall of the barometer, a clouded and misty moon, sudden squalls of wind from a southerly point, and frequently thunderstorms; all indicating an impending change in the weather, which, from experience, the farmer has reason to fear, will be likely to blight his prospects for the year. The six weeks, we say, include those of the harvest, and such a prospect is indeed a dreary one, and in former times frequently a fatal one, when the utmost efforts of the sickle and the scythe were insufficient to enable him to house his crops in even tolerable condition. Many seasons occur to our recollection in which the husbandman has had the vexation, after cutting his corn, to see it remain in the field day after day, and week after week, sodden with moisture, with not a sufficient cessation of rain to bring it to a condition of dryness yet to allow of its being carted to the barn or stack-yard. The process of cutting the corn with the ancient implements is tedious, and, if additional hands are taken on, it is at a great expenditure of money, while even such extraneous aid fails to remedy the evil occasioned, as the intervals of sunshine are so transient as to be of little or no benefit.

But the days of the scythe and the sickle are fast passing away, and giving place to the mowing and reaping

machines, which may be taken as a remedy, at least to a certain extent for the evils entailed upon the farmer by a wet St. Swithin's. The celerity with which a couple of men and a boy can cut down from ten to thirty acres of corn per day with these machines, according to their size and power, afford the farmer the opportunity of availing himself of those lucid intervals in the weeping Saint's paroxysms to cut his ripe grain and cart it at the instant, as this may be safely performed if he takes care to cut it *above* the weeds or clover, otherwise the corn will require a long time in a catching season to weather. The price of these most useful implements is now brought within the means of every small farmer; and it is to be hoped that to be without one will soon be the *exception* rather than the *rule*. They will be found invaluable, either in a wet or dry season, by the saving of time in either, and by the quickness with which the ripened grain may be cleared off the field in the short intervals to be made the most of at unfavourable ingatherings. A single season will often repay the outlay. In a wet season, as the present one threatens to be, we would recommend not cutting either wheat or other grain on wet days, but seize, as we have said already, the opportunity which from time to time may occur. There will be some loss by shelling in the case of wheat; but this would be as nothing compared with the injury it would sustain on the shock from rain. Barley is not liable to be separated from the straw, and may therefore, with still more propriety and safety, be allowed to remain standing after it is ripe, until a dry day allows of its being cut, when it may be carted at once, if only free from weeds and clover. We once knew a man who occupied about 500 acres of land, and who, upon the occurrence of a wet St. Swithin's, would not cut any of his corn until the forty days were expired. His neighbours ridiculed him, but at the same time had their crops of all kinds damaged by the rain. On the contrary, the farmer in question began cutting his corn at the end of the period of forty days, and housed it all

in good order. This was certainly an exceptional case, while the employment of the modern machines renders it unnecessary for any one to resort to so extreme a measure for the safety of his crops, if he be but prompt in availing himself of those chances which occur in even the most rainy seasons, to put the whole force of the farm in motion.

We referred a short time since to the American plan of employing coverings of calico for preserving hay or corn from rain after it is cut. In France the farmers use the *mayette* for the same purpose. This is nothing more than covering the shocks with sheaves bound near the butt, and placed in a divided and reversed state over the shocks, the ears hanging down on each side. This saves the wheat to a great extent from the effects of the rain; but we apprehend that the American "caps" would be more effectual, and would answer for all kinds of corn crops; while the expense would be trifling compared with the benefit derived in saving the grain from the effects of the rain. We would remind our readers that, with a possibility, if not a probability, of a fickle harvest, there are means, if they choose to employ them, of at least, to a certain extent, neutralizing the effects of the rain, and housing crops in good order.

The employment of machinery on the farm, in connection with or without steam power, is the great question of the day; and the prominence given to this department of the Royal Agricultural Show at Bury St. Edmund's proves that it is viewed in that light by the general body of agriculturists. The small number of hands required by machinery for performing the operations of husbandry gives a man the opportunity of getting other work necessarily executed by hand-labour far more efficiently done. It is machinery that will enable the British farmer to compete successfully with the foreigner in the markets of the world, by increasing his produce without adding to the expense of cultivation; as such aid will make him comparatively independent even of the elements.

## THE BEST AND MOST ECONOMICAL MODE OF HARVESTING GRAIN.

Mr. CUNNINGHAM, of Shields, recently read the following paper at the Ayrshire Farmers' Club:—This is a subject which somewhat affects the general public, but is specially interesting to the arable farmer, and all the more so to us here in the West, who have to contend with a moist, precarious climate. The season of harvest varies somewhat in different years, according to the comparative backwardness or forwardness of spring and summer. Sometimes it happens that the crops are matured and can be reaped in regular succession, while sometimes the change is so rapid and precipitate as to claim the most prompt and sweeping exertions, and the season for any or all of the crops may either be highly favourable to their being gathered in fine condition or so exceedingly adverse as to render the saving of them surpassingly difficult. A farmer's cares, in reference to harvest, therefore, are many, and sometimes oppressive; but of late they have been wonderfully alleviated through the successful operations of the reaping machine. No invention in our day has proved so beneficial to the agricultural world as this. I look upon the time of their introduction as being quite providential. I mean the time when they became practically useful; for were we still obliged to cut our grain exclusively by scythe and sickle, there are not half sufficient hands in the land to do so in the appointed time for harvest. All honour, then, to the rev. gentleman who is acknowledged as the inventor of the first practical reaping machine. He justly merits a rich reward from agriculturists of every country. It has been said that "when a man has cast the seed into prepared ground at the proper season, he thenceforth leaves it to itself. He sleeps by night and attends to other affairs by day; often looking to it,

indeed, and oftener thinking of it, but never touching it till harvest"—

"The work is done, no more to man is given,  
The grateful farmer trusts the rest to Heaven,  
Yet oft, with anxious heart, he looks around,  
And marks the first green blade that breaks the ground."

This is so far true; still man may and can do much, previous to sowing, and also during the springing of the plants, that will have an important bearing on the harvesting of the crops. The land should be thoroughly dried before ploughing, and should be ploughed dry; much mischief is often done to land, even dry land, by being wrought too wet. Then, I am afraid, some heavy-land farmers have erred in laying their land too flat, so as to be better adapted for reaping by machinery. The best plot of wheat I had last season was on a piece of land not too well drained, which was gathered up into ridges of 14 feet. Doubtless it takes a little more time and trouble to reap it, but better than sacrifice part of the crop to accommodate the machinery. We certainly ought to second the efforts of makers by putting our land in the best possible state for reaping, but there is little difficulty in cutting over ridge and furrow with the small manual delivery machines, which are mostly used in this country. Then, if the land is not manurally rich through the droppings of sheep or cattle, a liberal application of guanos or other substances would bring the crop ten days earlier to cutting, which is something considerable in this fickle climate of ours. Then, if the seed has been drilled in (there is too little of that done in this country) the growth of the plants may be stimulated by horse and hand hoeing.

During the summer months, whilst the cereals are progressing towards maturation, and the ploughmen are not fully occupied amongst the green crops, thatch should be prepared, ropes made for the stacks, and, in fact, everything that can be should be done beforehand, when wages are lower, and time is not so valuable. Reaping machines should also be overhauled, and put into the best possible order. We are very fortunate in having local makers who spare neither time nor trouble in turning out really useful machines with all the latest improvements. I am a thorough free-trader, ready to acknowledge and encourage every improvement in science or art from whatever quarter it comes: still I think it of vast importance in the case of reaping machines to have a good maker at no great distance, where, in the event of breakages, repairs can be executed efficiently with little loss of time. It is worthy of observation here that I am afraid makers do not get justice at our hands in the manner in which machines are used while working, but more especially the way they are kept afterwards. While conversing with one of our makers lately on this topic, he said he had just been meditating addressing farmers through the *Agri. Advertiser* on the careless manner in which they kept their machines when not at use. I cannot do better, gentlemen, than read you a brief extract taken from an American paper bearing on this point:—

#### “MOWERS AND REAPERS.

“The official report of the national trial of mowing and reaping machines at Auburn, State of New York, contains the following important directions:—

“**DURABILITY OF MACHINES.**—The report states that it has been found, from examination, that the average duration of life of a mowing machine, as commonly used, is five years. There is no doubt that this period might often be extended if the owners would give them better care. It appears that a sub-committee, on visiting farms after harvest, found several machines with no other protection than that afforded by the lee side of a fence. One which had last cut on a marshy piece of ground had indeed been placed under a shed, but portions of the bog were still adhering to the points of the guards, and the fingers and knives were covered with rust. In no case did they find the journals and bearings carefully wiped, nor the machine placed in the best situation for its preservation. The committee think that carelessness in this respect is rather the rule than the exception in New York and the Western States. There is no question that this want of care is the most wasteful course that the farmer could pursue, as a few minutes' labour would prolong the durability of a costly machine, and greatly lessen the force required to run it, by keeping it in order. The work would also be done in a better manner, and the waste of grain prevented. The report, in allusion to this common carelessness, remarks—“It is unjust to the maker, whose reputations suffers in consequence; it is unjust to the agricultural interest, because the rapid deterioration in the value of the machine lessens the real economy in its use; it is unjust to the consumer, because everything that enhances the production necessarily adds to the price of the product. We therefore desire to avail ourselves of the circulation of this report, to advise a reform in this respect. As soon as the last work is done, the journals and bearings should be wiped, all dust should be removed from the exterior, and the machine should be placed under cover, in a level position, where no part is subjected to strain. We are surprised that such advice should be needed; but as it clearly is, we can assure our readers that they will profit greatly by taking heed to it.”

The next point to be considered is when to commence reaping. My own opinion is, that, as a rule, we allow the crops to be too far advanced before cutting. Last year I cut a few acres of wheat in a greener state than usual (partly from having nothing else quite ready, and partly from the fear of loss through shedding, they being on the most exposed part of the farm). After we had got the plot opened up, and fairly started, I could not help thinking we were doing wrong, and wasting a good crop; so I took advantage of a good shower about mid-afternoon to call a halt when there were 4 acres cut. I thrashed this portion out of the stook, and was agreeably disappointed both with quantity and quality; it weighed then 62 lbs. per bushel. The greater portion of my wheat was cut last year rarer than usual, from which cause I was a considerable gainer in more ways than one. Perhaps some of you may have seen an interesting account of experiments

made by Mr. Hannam, in Yorkshire, as to the proper time to cut grain. He first cut a portion of wheat a month before it was ripe; he then cut a similar portion a fortnight thereafter; and a third portion when it had become ripe. The results shewed a gain of 4 per cent. in the portion cut two weeks before being ripe over the ripe portion, and this gain was all in the superior quality of the grain—it being thinner and clearer of the skin, while the ripe was thicker and rougher, giving more bran and less flour. In addition to this benefit as regards the grain, Mr. Hannam alleged the following additional advantages:—1, Straw of a better quality; 2, a better chance of securing the crop; and 3, a saving in securing it. I must say that I experienced all these advantages last season in regard to my wheat crop. Having now fixed on the time to commence reaping, and everything being in readiness for action, let us go to work (but it is worthy of observation here, that personal superintendence of the master is essentially requisite during harvest). The field is first opened up all round with a scythe or sickle, so that we at once see which is the most suitable direction for the machine to go to do the work best and speediest. We generally cut only one hand, and do the work with four hands of people—three in each hand—two women to lift and strap the grain, and a man to bind and set up. Where the straw is of sufficient length we do not make straps, but simply bind with the one length. Care must be taken to see that the stubble end is used in making the knot, for, if the other, part of the grain would be stripped off in the operation. I find it more difficult to get machine-cut grain set up to stand well than that cut with the sickle, the bottom being square, so that when the tops of the sheaves are brought together they have but a very slight hold on the ground, and are thus more easily toppled over by a passing breeze. I suppose “hooding” would tend to keep the stooks better, but not having practised that mode myself I will leave it to some one else to speak of its properties. I also find that machine-cut grain, especially oats, are worse to win or dry when once wet than when cut by scythe or sickle, and all the more so if the straw be short, so that it is of great importance to have the sheaves made small and as little as possible cut damp. I also found last season, when the crops were laid and twisted, great benefit from having a man with a pole going along before the machine, raising the heads of what was laid, and bending back any stalks that were leaning the wrong way. Without this, considerable loss would have been sustained from cutting the heads off what was lying in the wrong direction, and stoppages from choking would have been unavoidable. The usual cost of cutting with us is 4s. per imperial acre—that is, reckoning the manual labour only. When everything is favourable, and the crop mostly standing, we cut from 7 to 8 acres a day of ten hours. Our land is mostly long, and we change horses every quarter, so as to keep all doing a little and oppress none. The next process is the getting of the grain stacked. I do not know but we might with considerable advantage take a leaf from the book of our brethren south of the Tweed on this head. Doubtless it is a fine sight to see a large, neat, well-filled stack-yard; but I question very much whether it is the best and most economical mode to collect all the grain on the farm into one particular circumscribed place near the steading, and that place not the best adapted for having a free circulation of air. In many parts of England the grain is stacked on the field where it grew, or in some adjacent ground where it is easily got at with the portable mill for thrashing. By doing so, fewer hands would be required; or the same hands who are employed to carry it home to the barn-yard would secure double the quantity in the field, which is often of great consequence in fickle weather, and the grain would come much sooner into condition for thrashing than when crowded together in a close place, and you get sooner quit of any extra hands, thus lessening the expense. But you may tell me that the work of taking home will have to be done sometime. True; but it may be done during a tack of frosty weather, when there is little else to do for either men or horses, while your roads will be in a better state of carting. Had I taken time last season to cart my wheat crop home to the steading, it would have required three days longer than it did to complete the operation, while the weather broke a few hours after it was secured. The stacking in the fields thus prevented a considerable loss from sprouting and discoloration. I do not know that there is much else to notice, unless this, that it is very essential to have a good

supply of light wood at hand, to boss your stacks with in the event of the grain being in doubtful condition when carried. I have no difficulty with wheat, but often considerable trouble with the stacking of oats. The land in our district, being of a weak sandy nature, is very liable to be overrun with couch-grass; and clean it as you may, when it is again broken up and a crop of oats taken there is always more or less of that pest to annoy you, so that we seldom now stack oats without

what we call bossing, and it is rarely that anything goes wrong when that is done. Our plan is this: The diameter of stack being 12 feet, we erect a triangle of wood in the centre, then lead a 6-inch fire-clay pipe from the outside to the centre of the triangle, and when the grain has reached near the top of the wood, a sheaf of straw is set on end and drawn up to the top of the stack, thus leaving a considerable open space for the air to penetrate freely.

## THE CENTRAL CHAMBER OF AGRICULTURE AND THE CATTLE PLAGUE.

A general meeting of the members of the Chambers of Agriculture was held in the Athenæum at Bury St. Edmund's on the Tuesday evening in the Show week. The meeting was called for the purpose of urging the Legislature to enforce the slaughtering, effectual separation, or quarantine, of all imported animals at the ports of landing; as also for considering what steps can be taken to obtain compensation for those persons whose cattle were destroyed by order of inspectors between Nov. 23, 1865, and February, 20, 1866.

Mr. ALBERT PELL, of Hazelbeach, Northampton, Chairman of the Central Chamber, presided, and the attendance included representatives from Kent, Yorkshire, Leicestershire, Staffordshire, Warwickshire, Worcestershire, Suffolk, Norfolk, Lincolnshire, Shropshire, Herefordshire, Middlesex, Essex, and Hertfordshire.

The CHAIRMAN said that, instead of making a speech, he would lay before the meeting some materials which would be useful to subsequent speakers. The members of the Royal Commission which sat on the subject of the Cattle Plague were men of the first ability, and they had before them the best evidence which a Royal Commission could command; and all that he himself asked, and all that the gentlemen before him would require, was that the resolutions adopted by them, and the measures which they thought desirable and advantageous a year and a-half ago, shall be put in force by Parliament, instead of being left to the discretion of the Privy Council or any other department of the State. The Chairman proceeded to quote from the Reports, and then called upon

Mr. CLARE SEWELL READ, who moved the following resolution: "That the Cattle Plague owes its introduction into Great Britain from foreign sources, and that to guard against its continuance or recurrence, all foreign animals imported for slaughter should be killed at certain ports of landing in places provided for their reception, sale, and slaughter, apart from all other animals." He said that at the great meeting on the subject of cattle plague, held at St. James's Hall, London, no member of Parliament was allowed to speak, and that was a great success; and such an impression was made by the meeting on the House of Commons, that the measures which were proposed for the suppression of the cattle plague were carried by a majority of 80 against the Government of that day. He had been told since he had been in this town that the present meeting was surely unnecessary, for everyone knew the origin of the cattle plague, and the Government would at once yield to the just demands of the cattle-owners if they were placed before them. He was sure there could not be a greater mistake. When he went to school he learnt in the catechism that it was the duty of the Government to govern the people; but we learned in these days that it was the duty of the people to govern the Government. The Government would yield to pressure, and to pressure only. He said this advisedly, and he did not apply the remark to one Cabinet or Privy Council more than another. The last Privy Council were very much blamed for the course they pursued; but we must remember how ignorant they were of the difficulties they had to contend with. The present Government and Privy Council, with all the popular feeling they had to back them, were very reprehensible in not giving the farmers their assistance in this matter. They seemed to treat the cattle plague in the worst possible manner, stopping certain markets and opening others which were most dangerous. The absence of cattle from the present Agricultural Show was a result of their action. The Government seemed on this subject to do anything and everything but what they ought to do. They were like a nervous

man with the toothache, who tried all sorts of dodges and remedies to ease his pain, and thus injured his health, when he knew that the only effectual remedy was to have his tooth out. The Government had imposed upon English farmers all sorts of fetters and restrictions and inconveniences with regard to native stock; but they had not got rid of the cattle plague, because there were no effective restrictions put upon the importation of foreign animals. Within the last two months the disease had occurred in London through imported stock. At the present time the Metropolitan Cattle Market was a great trap, into which our English cattle got, and from which they could not get out. This caused loss to the grazier and the consumer, and the only person who was benefited was the butcher. It might be asked where the opposition to the just demands of the English owners springs from? His answer was that it came almost entirely from a few who had the monopoly of the foreign trade. He believed they were members of the Israelitish persuasion and the Corporation of London (laughter). The only proper course was to have a riverside market for the sale, slaughter, and lairage of imported animals. It was not advisable to kill them immediately on their arrival before they had recovered from their sea-sickness and the injuries received on the voyage. The English producers were not seeking for "protection." They were content to be free-traders; but while they were subjected to the competition of every country under heaven which liked to send them cattle, they protested against being also subjected to the importation of every foreign disease.

Mr. JOHN CLAYDEN seconded the resolution, and in doing so urged the absolute necessity of the isolation of imported cattle from English stock for the extermination of the cattle plague. It was unfair to allow foreign animals to mix with the English herds and decimate them. The loss to the grazier was comparatively small, but to the breeder the loss was incalculable. The slaughter of foreign fat animals at the landing-place would be a great gain to the consumer, and it would save the animals from exposure in the open market either to a scorching sun or the freezing cold. If the scheme urged in the resolution were once established the English herds would be free. British farmers were fairly entitled to receive from the Government those provisions which had been recommended by the Royal Commissioners.

Mr. HITCHCOCK agreed with the killing of fat cattle at the port of disembarkation, and the making of others perform quarantine. He had witnessed the sort of inspection which imported animals underwent at Harwich. A curious kind of farrier went on board the boat, and examined the animals by the light of a candle lantern. Was that the sort of inspection to satisfy the English cattle owner? He hoped that if a quarantine were established it would be for a sufficiently long period.

The resolution was carried unanimously.

Mr. COREANCE, M.P., moved the next resolution, which was—"That foreign store animals should be imported only at ports or parts of ports appropriated to their reception, apart from all other animals, and should not be removed thence except after sufficient quarantine." He said he confessed that he was not surprised at the tone in which this subject was discussed. He regretted that it could be said with truth that neither by the Government nor by Parliament had the subject of the cattle plague been fairly met. On the 23rd of August, 1865, the order of the Privy Council came out, making the slaughter of animals compulsory, and no compensation was given. He believed that that order was illegal and unjust (applause). He looked back with some satisfaction to the fact that he was the

first person in the county, and he believed in the kingdom, who pointed out the monstrosity of that order for the slaughter of the property of private persons for the public good without compensation. On the 23rd of November of the same year there came out an order revoking the former one, and making the slaughter of the animals permissive, instead of compulsory. There were few persons who knew the reason for that order; but from inquiries which he had made he believed that the second order was made because the Government had discovered from their own law officer that the first order was unjust and illegal. Adequate means were not taken to make the second order known, and inspectors continued to go, under the orders of the magistrates, into the cattle yards, and slaughter the cattle as under the first order, without any knowledge of the second order having been made, and the owners of the animals submitted as before, they being equally ignorant of the altered state of the law. This continued until February, but when in that month the Cattle Plague Act was passed by Parliament it did not include compensation for cattle slaughtered between November 23rd, 1865, and February, 1866. A Bill was now going through the House of Commons, the 26th clause of which related to the importation of cattle. The clause provided that the Privy Council might from time to time regulate the importation into Great Britain of foreign animals as regarded the ports or parts of ports at which they should be disembarked, and the slaughter or removal of the animals. This clause, as it stood, was unsatisfactory, because the power was left at the discretion of the Privy Council, and the regulations would be open to continual alterations. It was obvious that if there were to be certain fixed ports for the landing and quarantine or slaughter of cattle, there must be suitable provision made for isolation and slaughter. Sheds would have to be erected for the purpose; and it was quite clear that persons would not erect the necessary buildings for the accommodation required merely on the guarantee contained in an order of the Privy Council, which might be revoked at any moment (Hear, hear). He would therefore recommend the adoption by the meeting of the resolution he had proposed.

Mr. MASPEN, in seconding the resolution, said that the arrangement it contained was a right one. The restrictions on the English trade were a most grievous nuisance, and they were the result of the importation of foreign cattle into this country. Nothing would entirely eradicate the cattle disease from this country but the establishment, by Parliamentary enactment, of such a proposal contained in the resolution.

The motion was unanimously adopted.

Mr. HAWLEY moved: "That this meeting approves of the amendment proposed by Mr. Ayrton, in the Contagious Disease Animals Bill, to the effect, that the slaughter of all foreign animals at the port of landing shall be made imperative, and shall not be left to the discretion of the Privy Council, as well as Mr. Ayrton's proposed new clause for establishing a riverside market for the convenience of the metropolitan cattle trade." The amendment of Mr. Ayrton referred to in the resolution was as follows: "That the Metropolitan Board of Works shall be required with all possible dispatch, after the passing of this Act, to provide within the metropolitan district a riverside market, with proper lair slaughter-houses and other appliances, and that all animals, except as hereinafter provided, imported from places out of the limits of the United Kingdom, except from the Channel Islands, shall be taken forthwith to the said market and slaughtered there. Provided always that, until the completion of the said market, slaughter-houses and other appliances, the Privy Council may from time to time, by order, license places for the slaughter of such animals in the district adjoining the said market. Provided also that the Privy Council may, by order, in all cases in which said animals are not intended for immediate slaughter, permit the same, after having been submitted to a quarantine of such period as may be specified in the order, to be moved from the said quarantine grounds." He felt that in adopting the resolution the meeting would only be asking for themselves as Englishmen what was accorded to others. At present when they became possessed with animals they had to keep them 28 days, and hence there would be no unfairness in placing a similar restriction on the importer of foreign stock. It was certain that unless a quarantine was made a statutory enactment it would not be taken any notice of. The resolution did

not ask for anything which would tend to raise the price of meat. The English owners were only desirous to protect their own stock from getting diseased by foreign cattle being sent to the markets throughout this country, almost direct from diseased places on the Continent. The demand was a just one, which the Government ought to concede.

Mr. WILSON, from Leicestershire, seconded the resolution. He said that he did so because he did not like anything permissive. A large amount of compensation would be lost through the permissive order in force before February, 1866.

The resolution was carried.

Mr. GREENE, M.P. for Bury, briefly moved: "That copies of the foregoing resolutions be sent to the metropolitan and county members, with a request that they will support the same." He said he believed that the meeting had only to make its voice heard in the House of Commons in order to secure a response, and that if the House were divided on the subject which had occupied attention that evening, the cattle owners of England would get what they desired.

Mr. G. SMYTHIES, Herefordshire, seconded the resolution. He said he believed they could only get what was wanted by means of pressure on the Government, and the best way to secure that was to show that it was the unanimous opinion of the English farmers that the measures now advocated were desirable. There was no chance of a consumer suffering any damage by the fat stock being killed where they were disembarked, for it was well known that a large portion of the meat sold in the metropolis arrived there in a dead state. With regard to store animals, the guarantee afforded by a sufficient quarantine would be most acceptable to purchasers.

The motion was unanimously agreed to.

The CHAIRMAN said that he and the Vice-Chairman had been asked to allow a resolution to be submitted on the subject of the compensation of owners for the slaughter of cattle during the period when the order of Privy Council was not provided for by legislation.

Mr. MOORE then moved and briefly supported the following resolution on that subject:—"That the Central Chamber of Agriculture warmly sympathizes with those persons whose cattle were killed by order of inspectors between Nov. 23, 1865, and the passing of the Cattle Plague Act in Feb. 1866, and from whom compensation is withheld; and this Chamber hereby respectfully invites Mr. Clare Sewell Read to take the earliest opportunity to urge the claim of these sufferers upon the attention of Parliament."

Mr. HERMAN BIDDSELL seconded the motion. He said that if the sufferers could convince the Magistrates that they were exceeding the limits of their authority in ordering the slaughter of cattle during the period named in the resolution, the magistrates would soon find out the way in which compensation could be obtained.

The CHAIRMAN asked Mr. Read whether he would accept the position to which the resolution invited him.

Mr. C. S. READ said that he had no idea that he should be called upon to fulfil such an extremely arduous task as that involved in the motion before the meeting. Why should not their own member Mr. Corrance be asked to perform it?

Mr. EVERETT said, the resolution would emanate from the Central Chamber which had no representative in the House of Commons.

Mr. READ said it had a representative in Mr. Moore. He (Mr. Read) should be very sorry to shirk any duty, but until he was better informed on this subject he could not comply with the invitation. The only thing which the persons concerned had to do, was to ventilate the question during the recess, and then appeal to the justice of Parliament in the next session.

Mr. CORRANCE said that as he had been directly appealed to by his friend Mr. Read he felt that he must offer a reply. There was no doubt hardship in the case, but it arose from a want of knowledge of the order of the Privy Council, and a grievance could not be founded upon that. In addition to that, the matter of compensation was fairly discussed before Parliament, but no action was taken as to the cases referred to by the resolution. Nothing was included in the estimates for

compensation in such cases, and an interval of two years had almost elapsed from the time the illegal acts were committed. As a county representative he would undertake whatever duty his constituents pleased to impose, but he did not wish to be hereafter recognized as an impracticable man. He must leave

it to the discretion of the meeting to say whether he was to perform the duty required in the resolution before them.

The motion was negatived.

A vote of thanks was then accorded to the chairman, and the proceedings closed.

## ON ARTIFICIAL MANURE.

Although artificial manures are now extensively used by the agriculturists of this kingdom, there is still abundant room for their more extended application; there being probably no mode of investing capital on the culture of the land, that gives a speedier or more certain return than that which is devoted to the purchase of the various fertilizers at present imported or manufactured in this country.

When used judiciously and regularly for a number of years, the poorest land becomes enriched, and the crops heavier each succeeding season. This permanent improvement does not, of course, take place through the direct agency of the artificial manure, but indirectly, inasmuch as it greatly increases the bulk of the crop to which it has been applied, and with more food and more litter the farmer has the opportunity of increasing his supply of farm-yard manure to an almost unlimited extent.

However rich land may be naturally, or however rich it may have become through good management, a dressing of artificial manure will always be productive of beneficial results, as it starts the crop at once into active growth, and thereby materially shortens that period of its existence during which it suffers from the attacks of insect enemies. Even with those crops which do not usually suffer from such attacks, it is of great consequence that the plants should have food placed within their reach which they are capable of assimilating the moment rootlets have been formed, as they thus obtain a good start; and not being permitted to languish, which under less favourable circumstances they are apt to do for a short period until strong enough to catch the manure, a good crop may nearly always be reckoned on.

Their use in conjunction with farm-yard manure makes the farmer in a great measure independent of the season, as unless it is an unusually cold and backward one he can easily make up for lost time in getting in his crop by giving a more liberal dressing than he otherwise would, had the season been more propitious and the seeds got in at the proper time.

All crops are benefited to a greater or less extent by artificial manure, and when it has been applied at the time of sowing the seed the young plants show its beneficial effects as soon as they come over-ground. What a difference there is between a field of turnips which has got nothing but manure from the yards, and one which has perhaps got scarcely such a liberal dressing, but has got a few hundred-weights of artificial manure in addition! While the one, particularly during such a season as the present, is struggling for existence, the other pushes rapidly a-head, and very soon gets into the rough leaf, when it is to a great extent out of danger either from the influence of a protracted drought or the attacks of the fly. It is most vexatious to have to watch and wait for weeks before the slightest attempt can be made at thinning the crop, when it is well known to the owner that every day's delay lessens his chance of a full crop, first by stunting the plants, and secondly by shortening the period of growth. On the other hand, it is a real pleasure to watch the progress made by plants when quickened by a little artificial manure. The intense green of the leaf is the first indication of healthy and vigorous growth, and forms a distinguished and marked feature in all crops so treated. In the case of the turnip, quick growth in the early stage is most essential, as the plant is thereby carried out of the reach of the fly; and so important is this, that if it were the only benefit to be derived from their use, it would be well worth while to use them. Give the plant a good start, bring it to the hoe with a broad and healthy leaf, and the most trying and dangerous period of its existence has been successfully surmounted.

A manure which possesses a considerable amount of ammonia in addition to the phosphates is eminently suitable for growing a heavy and healthy crop of turnips; and this com-

bination of properties can be had in the exact proportions which science and practice have demonstrated as most suitable, under the name of Phospho-guano.

A great many farmers now use Peruvian guano and superphosphate mixed together in the proportions of one-third guano and two-thirds superphosphate, which make a capital turnip manure, costing about £10 a-ton. Four cwt. of this mixture to the statute acre, in addition to a dressing of farm-yard manure of from twenty to twenty-five tons, grows an excellent crop, of first-rate keeping quality, if the soil is a healthy one for the turnip. This is a consideration not to be overlooked, as, on the most favourable soils, this plant will not bear to be forced beyond a certain extent, becoming spongy, and many of them decaying long before the lifting season has arrived. On land not favourable for the growth of sound turnips, artificial manure must be used with great caution, its application being generally more with the view of hastening beyond the reach of the fly and the influence of dry weather, than adding materially to the bulk of the crop.

To test the merits of the phospho-guano sold as such, and the mixture of Peruvian guano and superphosphate, which may be styled a phospho-guano also, although a home-made one, we tried the two auxiliary manures in a field of seven acres, about twenty-five tons of dung being used to each acre in addition. The amount of each in money-value was the same, viz., forty shillings; and the season (1863) being an exceedingly favourable one for turnips, the plants came up beautifully, and did not experience the slightest check during the entire period of their growth. The bulbs were finely shaped, and, in both lots, very equal in size and weight. Several portions of each piece were carefully measured, and the crop weighed, after being topped and tailed, and every particle of earth removed. The result was as follows: phospho-guano, 37 tons; home-made do., 3½ tons to the statute acre. The difference was slight, but still it deserves to be noted, more especially as the experiment was instituted with the full expectation of showing the superiority of the home-made. These turnips kept remarkably well, having been pitted on the field, with no covering but earth, and were not used until the month of April.

It is a simple matter to find out the exact benefit a crop of turnips has derived from the application of artificial manure; and every farmer ought to experiment with the different varieties, until he has ascertained which is the most suitable for the soil he cultivates and returns him most money.

Half-an-acre with nothing but dung, and an equal amount with guano, phospho-guano, and super-phosphate, is amply sufficient for experiment; and when the different manures are used with an equal money value, and the produce carefully weighed, noted, and compared, the result forms in the mind of the farmer a more convincing argument for or against any particular manure, than any published experiment could possibly have the power of doing. The extra weight of roots secured by the aid of the artificials is seen at a glance, and the cost of each extra ton of turnips so grown can be calculated to almost a single penny, the labour of screening, breaking, and spreading being so little as to be scarcely worth calculating. The most suitable and best-paying manure for a particular soil being thus found by the most truthful and certain of all processes, practical experiment, it remains with the farmer still further to find out the largest amount of artificials the soil will bear, and whilst yielding an increased weight of crop, continue to produce roots of sound keeping quality, and the valuable nutritive properties unimpaired.

This can also very easily be done, and a pretty certain conclusion arrived at in the course of even one season. To do this correctly, two different fields are requisite: one manured with the usual quantity of solid dung, assisted by the portable

manure; the other with the latter alone. Or if a separate field is not available, a small portion of the other can be set aside for this purpose. A certain number of drills being counted off, and the number of perches in each lot ascertained, three cwt. to the statute acre may be used for the first portion, less being scarcely worth losing time with, especially if the manure experimented with is pure superphosphate, or even the mixture of guano and superphosphate already described. To each succeeding lot of drills one cwt. to the acre can be added, until it amounts to eight or nine cwt. for the one experiment and from twelve to thirteen on the other. It is not every soil that will permit the turnip to be pushed thus far; but still there are plenty that will carry a sound crop with such a dressing, and well repay the outlay. During the most unfavourable season for turnips, one cwt. of superphosphate, or its equivalent in money-value of Peruvian guano, or any other of the approved fertilizers used for green crops, will cause an increase of one ton of roots, which is therefore produced at an expense of about seven shillings. Although we take this as the minimum increase, it still well repays the farmer for his extra trouble and outlay, as a ton of turnips is worth never less than that amount when used in sheep and cattle feeding; and when sold off the farm, three and often four times that—with this disadvantage, however, that in the latter case nothing is returned to the soil. Pastures that have for a long time been carrying dairy-cattle, horses, and young stock, can stand a large dressing of phosphatic manure, when broken up and put under a system of alternate husbandry, and give a rich return for the same. The green crop does not exhaust the benefit derived from the liberal application of phosphates, the succeeding white crop being largely improved, both in corn and straw; so that a double advantage is gained, and both important ones in a pecuniary point of view.

Before leaving this part of our subject, we may notice a point of great importance in the feeding properties of the turnip, and to which sufficient attention is not paid by feeders of cattle. Some lands produce turnips of greater specific gravity than others, and consequently of greater feeding property; a given weight of the one containing a larger amount of nutritive matter than the same weight of the other, the difference being considerably more than is generally believed. As with land in its natural state, so with manures, the specific gravity of the turnip varies considerably according to the manure that has been used in growing it.

Farm-yard dung grows the soundest crop, half dung and half artificial next; and when the crop is altogether grown with portable manure, the nutritive properties of the roots declines considerably. This feature in the character and nature of the turnip ought never to be forgotten or lost sight of by the feeder, and the difference made up to the animals by an extra quantity of cake or corn. If this is neglected, both cattle and sheep take a much longer time in getting ripe for the butcher than they otherwise would, and a certain amount of loss is the unavoidable result.

The mangold is a rare feeder, and differs from the turnip in this most essential point, that it stands any amount of forcing. Experiments carried out in the same way as already described for the turnip crop fully confirms this, and lead to the conclusion that there is but little danger of any one, however devoted to high farming, over-dosing his mangold crop with manure.

We have in our own experience seen this exemplified both ways; viz., first, the crop deteriorated by a good many tons per acre, when moderate treatment was substituted for what had previously been extremely liberal, and this on land of the best quality, reclaimed from the sea, the permanent resources of which were of the highest order. The second and most important instance that came under our notice, illustrative of this subject, was on thinish soil, resting on a poor and hungry limestone gravel, capable of great improvement when liberally treated, but relapsing almost into absolute sterility if for any time neglected. With ordinary management the bulbs averaged from four to seven pounds weight, and the crop from twenty-eight to thirty-five tons to the statute acre when the season was favourable. Many farmers would think this a very excellent crop, and so it undoubtedly was; but with a change in the system of management, the mangold crop was nearly doubled on the average of years, and in an exceptionally favourable year for their growth more than doubled. The chief points in the change were—first, the use of large quantities of oilcake

and crushed corn in feeding cattle, thereby enriching the manure to an extent previously unknown, when turnips were the principal portion of the food, and the consumption of cake and corn but trifling; second, discarding the plough altogether in the spring working of the land, and substituting the grubber, worked by four powerful horses—a change which, we believe, exerts a great influence for good, not only on the crop, for which it is the immediate preparation, but also on succeeding ones. The third and last important change, and the one, too, more immediately connected with our subject was a great increase in the quantity of portable manure per acre. After the drills are almost filled with dung, from 10 to 12 cwt. of superphosphate, or its equivalent in value, are sprinkled on the top of it, the drills closed, and the seed sown. On coming to the hoe, the plants are thinned out to the distance of from 16in. to 20in., and even at that distance apart they speedily cover the ground. The result of such liberal treatment when autumn arrives is bulbs of immense size, many of them weighing over 14lbs., and the crop, as previously stated, running frequently up to 60 tons to the acre. Sixty tons of roots is an immense crop, and where 10 or 12 acres are grown creates great wealth of feeding, and an immense amount of manure is returned to the soil from their consumption. It is exceedingly difficult to conceive of any place not paying where such crops are grown, as a field liberally treated for green crop shows its gratitude through every crop in rotation. Again, liberal treatment in one department of the farm leads quite naturally to liberality in all; and, in farming, generous treatment in feeding the animals and nourishing the land is a sure and certain road to success. If success does not follow, the management must be otherwise defective. The application of artificial manure to the cereals is productive of excellent results, and the profit accruing from their use is sooner secured and easier calculated than when applied to green crops. On light land, where there is no great danger of the straw being too heavy, and so sustaining injury from getting laid, no grain crops should be put in without a dressing of portable manure, greater or less according to the manurial condition of the soil. Whilst all the grain crops well repay the expense incurred by a considerable increase of both straw and grain, wheat is probably the most grateful of all, and gives the most overflowing return. The influence of the top-dressing shows plainly at every stage of growth. Immediately on coming over ground the blade is stronger and the colour richer—two points of excellence which it maintains up to the period when the changing colour, which betokens approaching harvest, destroys all such distinction. The crop litters stronger and more abundantly, thereby increasing the strength and quality of the straw; the corn is sooner in ear, and the harvest is hastened by several days—sometimes even a week—which in this variable climate is a most important consideration, the risk of injury being much lessened. Manures containing a large amount of ammonia are very suitable for dressing wheat; and on this account Peruvian guano answers extremely well. Special manures are manufactured for this purpose, most of them containing a considerable per-centage of guano; but a very excellent dressing can be made by the farmer himself, by mixing superphosphate and guano in the proportions of two of the guano to one of the superphosphate—the mixture costing about £11 a ton. Three cwt. to the statute acre will, in most cases, prove sufficient, as if too much is put on there is some danger of inducing too great a growth of straw, which, particularly in a wet season, renders the application useless, and the money to a great extent thrown away.

If anything over three cwt. is intended to be given, it is a good plan to divide the dressing, giving half when the seed is sown, and the other half about the end of March or beginning of April, according to the character of the season and the prevalence or otherwise of moist weather.

When the plant gets a good start it seldom fails to maintain a vigorous growth on up to harvest; but it is a good plan to keep a portion of the top-dressing in reserve for spring use, as at that period a little fresh manure with a stroke of the light harrows, the whole finished off with the roller, tends greatly to reinvigorate the young plants, and materially assists the tillering. In this case, as well as in that of the turnip and mangold crops, every farmer should experiment for himself, by leaving a land in several portions of the field without dressing, and afterwards carefully comparing the difference in amount of produce, with equal portions of that which had

been dressed. After this has been done for a few years in succession, there is little further occasion for taking this trouble, as the results will by that time have been so successful as to have convinced the most scrupulous.

Although artificial manures are valuable aids in growing heavy crops in conjunction with farm-yard manure, it is not in this respect alone that they are so; as on fresh land excellent crops are grown with portable fertilizers alone. Light land is peculiarly well adapted for this purpose; and the crop being afterwards eaten off with sheep, the soil is not only enriched by the droppings of the sheep, but improved in firmness and body, and rendered much more suitable for the growth of the succeeding white crop.

It is not alone to the upland or hill-farmer that this is a boon, the lowland-farmer being also greatly benefited; inasmuch as, if an extensive farmer, all the fields at a distance from the homestead can be manured in this way at a great saving of time and money. Every portion of the farm can thus be kept under a systematic rotation, and no portion of the green-crop break need be put out of hands without being highly manured.

The leading fertilizers are guano, phospho-guano, superphosphate, and ground bones. Peruvian guano possessing a large amount of ammonia induces a quick growth, and is considered by many practical men to be the cheapest manure available to the British farmer at the present day. Although this opinion is held by a large number, still there are plenty of others who are rather sceptical on this point, and prefer the nitrophosphate or blood manure for wheat, and ground bones, pure superphosphate, or a mixture of it and guano, for turnips, in preference to guano itself. In holding to this opinion, and acting upon it, they are guided and sustained by the demonstrations of science, as the analysis of all the leading manufactured manures show a considerably higher value than the price charged to the farmer.

The most of these manures are guided in price by the relative proportions of ammonia and phosphates they contain in comparison with Peruvian guano; it is therefore, we may say, the standard of comparison. Supposing the price of ammonia by this standard to be £56 a ton and phosphate £28, the analysis of phospho-guano, which is sold at say £11 10s. a ton will show a value to the farmer of probably 30s. or 40s. more. Superphosphate, which is now sold for £7 net cash, almost invariably shows the comparative value to be at least 30s. more than the price charged by the manufacturer. This fact has given a great impetus to the sale of these manures; and by many of the most celebrated houses now in this trade much difficulty is frequently experienced in fulfilling their orders in time to catch the season. When guano is used alone it is necessary to mix it with some weightier substance, so that it may not be blown away when being sown upon the drill. Even a mixture of superphosphate and guano, although not quite so liable to be carried off by the wind, is all the better for having some weightier substance

mixed with it. Some recommend salt for this purpose, and use it; but salt being a very dangerous ingredient when placed too near any kind of small seeds, often causing a very unequal hit in carrots, mangolds, and turnips, something else should be chosen instead.

Of all the substances used for mixing with guano, the best is pure vegetable mould broken fine, and passed through a screen previous to being mixed. If very damp when dug out of the heap, a few hours' exposure to the sun will bring it to the required state of dryness. This mould not only incorporates satisfactorily with the manure, absorbing the fine particles, and enabling it to be spread on the drills, whatever the state of the wind, without the slightest loss, but it is an excellent topdressing itself, and if used in any perceptible quantity to the acre, assists the crop most materially. The ashes of weeds that have been burnt make also an excellent material for mixing with portable manures, the earth that is unavoidably mixed with them helping to swell the bulk, and forming in itself no mean fertilizer. The presence of weeds, or roots of weeds, in such quantity as to be convertible into a useful manure, argues such slovenly and indifferent farming, that it may, however, be supposed few people in these days of improved husbandry are in a position to avail themselves of its aid, however valuable it may be.

There is one point in the use of artificial manures which we cannot close this paper without noticing, and that is the danger of trusting too much to their efficacy, and raising crops by their aid alone, which are to be cleared off the field in which they grew, and perhaps off the farm altogether. This is a fruitful source of injury, and if continued for a few years entails heavy loss, and often absolute ruin on him who thus grossly transgresses the laws of good husbandry. It can be done for a few years, more or less, according to the manurial condition of the soil, and with some show of success and appearance of prosperity; but by-and-bye the permanent resources of the soil become impaired, and it no longer responds to the action of stimulants; the crops become worthless, and the farmer is ruined. This is the dark side of the picture, but true nevertheless, every succeeding year giving ample evidence that Nature will not permit her laws to be transgressed with impunity. On the other hand, when artificial manures are used with judgment, prosperity seldom fails to crown the labours of the husbandman; his crops are invariably good, and his home the abode of comfort and even elegance.

The most prosperous farmers in every district are those who use most manure; and as the most prosperous men are generally the most clever and far-seeing, the valuable aid which science disclosed to them in the shape of modern fertilizers was quickly taken advantage of, and used with immense success in enriching and permanently improving the land, increasing the weight of crops year after year, and enabling the farmer to live in a style which without such aid could neither be thought of nor attempted.

J. S.

## AGRICULTURE IN AUSTRIA AND DENMARK.

The exhibitions of the Imperial Agricultural Society of Austria, and of the Royal Danish Agricultural Society, held respectively at Vienna and Aarhus during the summer of last year, have been reported upon by Professor Wilson in a small blue book, which has just been published, and will doubtless be read with considerable interest by the agriculturists of this country. The writer has not only given a minute and faithful account of both exhibitions, but he has also collected a mass of valuable information in reference to the leading physical and economic features of the two countries in which they were held. A few extracts from the two reports may not be out of place.

The Vienna exhibition appears to have been upon a far more comprehensive scale than that which we are accustomed to in this country. It comprised not only machinery, live stock of all sorts, including fish and agricultural and forest products, but also specimens of industries based upon them. The groups were arranged under nine different heads, viz.,

machines and implements used for field or forest cultivation; agricultural products and industries; products of forest-management; beverages, and fruit-tree cultivation; illustrative collections of agricultural construction and engineering, and of materials and appliances for agricultural teaching; specimens of the manufactures required for household purposes; farm stock, including horses, cattle, sheep, swine, and fowls; fish and fish-breeding appliances, and dogs.

The machinery department was well illustrated, and comprised the manufactures of other countries besides Austria. We are told that "the demand for first-class agricultural machinery and implements has been for several years past largely supplied by England, and the trade has been so encouraging as to induce some of our leading houses to establish themselves regularly in Austria." The writer adds that much disappointment was caused by the fact that there were no trials of the machines exhibited, as is always the case in this country; but, notwithstanding this omission, several of our



English exhibitors carried off prizes. The agricultural and forest products and industries were also well represented. Besides the grain, potato, and turnip crops, the vine is largely cultivated in Austria, the average annual produce being 40,000,000 eimers (an eimer is 12.76 gallons) of wine. Tobacco is also extensively cultivated, the annual produce being 1,000,000 centners (133,000,000lb. English). The woodlands form more than one-fourth of the entire productive area of the country, and yield 30,000,000 Vienna fathoms. Besides the timber, the forests produce annually about 500,000 centners of gall nuts, 4,000,000 centners of tanning bark, 250,000 centners of resin and turpentine, and 100,000 centners of crude potash. In addition to these inanimate productions the wild game produce forms an item of considerable importance. The average quantities returned annually amount to 50,000,000 of hares, 50,000,000 of winged game, 5,000,000 of water-fowl, 60,000 roe-deer, 3,000 stags, and 10,000 wild hogs, giving a dead-weight return of about 1,600,000 centners, and having a money-value of about 50,000,000 florins.

Numerous specimens of the beverages and fruit-tree cultivation of Austria were exhibited.

In reference to the illustrative collections of agricultural construction and engineering, and of the means and appliances for agricultural teaching, the writer says:—

“If there be one point connected with agriculture which, more than another, excites the surprise of the intelligent traveller, whether he be one of our own countrymen visiting the Continent, or one coming from the Continent to visit us, it must be the great difference in the value placed upon agricultural education, and the public estimation in which it is held in the country he came from and in that which he is visiting. In Austria neither the State nor the public can be charged with indifference to this important claim. Throughout the empire special institutions exist for agricultural education, carefully adapted to the several grades of students, and also to the different branches of rural economy. These are supported chiefly by liberal subsidies from the State—by the provinces or districts in which they are located—and (to a small extent) by private means. Publications bearing upon farming matters have been promoted and supported by the Land-tags of the several provinces; and premiums have been offered by the State for treatises and text-books suited to the requirements of the respective subjects. Agricultural societies were introduced into Austria by the Empress Maria Theresa in 1763; and the first regular society was established in Carinthia in the following year. There are at the present time in the different provinces of the empire 119 agricultural societies and unions, with about 80,000 regular members. Of these 52 are specially devoted to husbandry, 10 to forestry, 21 to garden, fruit, and vine culture, 10 to horse and cattle breeding and management, 15 to silkworm breeding and management, 6 to bees, and 5 to fish cultivation. There are at the present time 50 regular agricultural periodicals published, either monthly or weekly; about one-half of which are in German, and the other half in the national language of the province in which they are carried on.”

Among the articles required for household purposes coal seems to have been the most prominent item. Of farm stock there was a large show, and Professor Wilson prefaces the information he furnishes on this subject with statistics which show that at the beginning of 1865 the number of the several descriptions of stock, exclusive of Venetia, were:

Horses (of all sorts) .....	3,389,876
Mules and asses .....	77,661
Cattle (of all sorts) .....	13,660,348
Sheep do. ....	16,573,459
Swine do. ....	7,914,485
Goats do. ....	1,458,591

The value of the stock thus enumerated is estimated at 1,000,000,000 florins, or £100,000,000. Their annual produce is computed to average—

Cows' milk .....	100,600,000 Eimers.
Goats' milk .....	9,013,000     ”
Butter .....	2,410,386 Centners.
Cheese .....	1,387,980     ”
Wool .....	491,566     ”

Of the horses shown we are told that the various classes formed a good representative collection of the horseflesh of the empire. The writer adds:

“There do not appear to be any very distinct native breeds in Austria; the character and value of the horses exhibited being mainly derived from the foreign blood with which they had been crossed, the most prominent being that from our own country. Some of the agricultural horses greatly resembled our Suffolks, both in shape, size, and colour; with, however, better feet.”

The cattle classes were generally well represented. The principal breeds were those of Bohemia, Styria, Salzburg, the Tyrol, Carinthia, Moravia, and Hungary. Of the latter it is stated:

“The oxen are esteemed everywhere for their hardiness and working qualities; they are quick walkers, and equal to heavy draught. They are generally worked up to nine or ten years old, and then put up to feed (!)”

Of the sheep classes we are informed—

“That they constituted the chief object of attraction of all the live stock to the higher class farmers and those directly interested in the objects of the meeting. Sheep monopolise to a great extent the attention of Austrian farming. The careful manner in which the sheep were displayed, and their respective pedigrees and good points made known, showed at once how much they were valued, and clearly indicated the position they occupied amongst the live stock of the farm. Although the sheep stock of the empire is almost limited to a single breed, the ‘Merino,’ still by attention to breeding and crossing with the same sheep of other countries, a number of varieties have been established, which are very distinct in their characters, and are kept so by that attention to selection as regards purity of breed, form, and constitution, that has led to such good results in our own flocks and herds. These good results have not been wanting to Austria: for many years past she stood in the first rank amongst the fine-wool producing countries on the continent, and the specimens exhibited fully represented the quality of her flocks, and showed how well they deserved the high reputation they had achieved. Although no statistics are given as to the relative numbers of the males, females, and young sheep, it is estimated that the number of lambs dropped is about 5,000,000 per annum. In Austria the value of the sheep is centred in its wool produce, the flesh being but little esteemed, and rarely used as an article of food. But a small amount of attention is therefore paid to the shape and structure of the animal; a large loose skin well covered, even down to the very hoofs, with wool is the desideratum, and that has been satisfactorily obtained. Among the small farmers the pernicious practice of regularly milking the ewes still prevails; this, while stinting the offspring, not only has a tendency to check the physical development of the ewe, but also to deteriorate her wool produce in its quality as well as quantity.”

The swine classes appear to have been badly represented, and to have been of an inferior character to our English pigs. Fowls were also scarce. Fish and fish-breeding appliances constituted an interesting portion of the exhibition. Of the dogs little is said, except that the entries were numerous, and that the animals were shown in three classes, viz., sporting, useful, and fancy dogs. Among the conclusions drawn by the writer from what he saw at the Vienna exhibition, we are told that—

“Although, to one accustomed to the advanced farming of this country, the exhibition presented no marked novelties or improvements, either in the process of tillage or the practices of breeding, still he could not but mark with satisfaction the estimation in which agriculture is held in Austria by the highest in the land, and be gratified by the encouragement that is given to it by the State, not only as regards its practical development, but also as regards the inculcation and diffusion of the principle upon which a sound and successful practice can alone be based.”

The Danish exhibition, which is the subject of the second report, is also dealt with at some length. It comprised five departments, viz., machines, implements, and tools; butter and cheese; seeds—agricultural and forest; fish, and fishing appliances, and live stock.

“The machines and implements department was well illustrated, the machines and implements generally being well constructed, of good materials, and evidencing a practical suitability for the work they were intended for. The ‘butter and cheese’ department was, as might be expected, upon a much larger scale than we are accustomed to at ordinary agricultural meetings. Both the larger and the smaller class of dairies

were well represented; and the samples of their respective produce in butter and in cheese were so numerous as not only to occupy much time, but to give the judges considerable difficulty in making their awards. In the third department, 'agricultural and forest seeds,' the samples exhibited were too limited in quantity to admit of any fair comparisons or judgment of what their quality would be in bulk. The 'fish and fishing appliances' exhibited were also of a very meagre description, certainly not equal to what a seagirt country like Denmark was capable of furnishing. The 'live-stock' department was, as usual, the great object of attraction of the meeting. The several 'horse' classes were very well represented, and contained some very well-shaped useful animals, whether for road or purely agricultural work. In the 'cattle' classes prominence was duly given to the breeds best suited for dairy purposes, of which several excellent specimens were exhibited, both of the native Jutland and the Slesvig breeds. The Jutland dairy breed is of a small size, generally black and white, or of a dun colour, with coarse heads and muzzles, not at all prepossessing in appearance, but presenting great opportunities for improvement by judicious selection in breeding or by crossing with other suitable breeds. The Angel (Slesvig) breed is darkish-red in colour, small in size, but well-shaped, with fine symmetrical heads and necks, good quarters, and all the characteristics of good milkers. There does not appear to have been at any time much infusion of foreign blood into the native breeds of the country, neither did the stock exhibited indicate that careful selection in breeding which we consider so important at home. The sheep classes contained nothing calling for special notice."

### THE AGRICULTURE OF CORNWALL.

At the dinner of the Penwith Society, Mr. Bolitho, the Chairman of the day and High Sheriff of the County, said the Government had succeeded in obtaining statistics in England. He need not tell them that this had been attended with great difficulty, for the prejudices of the agriculturists were great. He held in his hand returns, and they rather surprised him. On looking to that part referring to Cornwall, he found that on an average throughout the kingdom there were fifteen bullocks to each hundred acres, excluding hill-pastures. Cornwall had thirty, which was exactly double the average of England. Seeing this, he thought Cornwall must be behind in sheep. In Great Britain, however, he found there was an average of 68, and in Cornwall he found that there were the very same numbers. Cornwall contained 573,000 acres, of which nearly one-half was uncultivated. He believed that these returns would be the means of exciting a spirit of improvement, and that a considerable quantity of what are now called waste-lands would be brought under the plough. There were many things which ought to be corrected. Although much had been done, the farm-buildings in Cornwall were not what they ought to be. A tenant induced his landlord to put up a large shed for the young cattle; and when the landlord next saw the tenant the latter told him that instead of using it for the young cattle he had put his sheep in it. No one until lately had thought of covering sheep, but the day was coming when all sheep would be housed. They must have improved buildings, more draining, better fences, more sheep, more artificial manure. Their dairy-cows were a disgrace. On the first of May, if they went through the neighbourhood, they would see that the poor cows that were then turned out to grass were little better than bags of bones. The truth was that many small farmers attempted to keep too much stock. The emigration that was going on was a great misfortune. How could it be remedied? It did not depend upon agriculture altogether, but agriculturists might advantageously employ many of the men who were going away—men who left the bone and sinew of the country—in cultivating waste lands.

Mr. HODGE, one of the judges, said that some of the sheep were very good. Mr. Rosewarne's Leicester ram was a very superior animal, and if retained in the neighbourhood for breeding purposes for some time they would be much indebted to him. He remembered the exhibition thirty-five years since, and he believed the show of pigs that day eclipsed anything that had ever been seen before. Among the implements there was a novelty in a drill for general purposes, exhibited by Hawkes and Spencer, of Tiverton.

Mr. BURGESS, in referring to the horses, said that the

duties of the judges in this class were not arduous, owing to the small number of horses exhibited, but the animals that had taken prizes were good ones. In the course of his speech he urged them to try to breed horses in the county which could, if required, travel fifty miles a day, and referred to the insolence of the groom in charge of the thoroughbred stallion which gained the second prize, who when he had the ticket for that prize handed to him, threw it away, saying that he would not take second prizes from him or anyone else. All he could say was, that if grooms took more care of their master's property than of giving insolence, it would be better. He had on one occasion seen that very groom riding the horse on the road from Truro, when, with his weight, he ought not to have been on the horse's back.

Mr. ABBOTT, of Hayle, in responding, referred to the marks of brutality on some of the colts' heads exhibited, and he hoped that all would join in putting a stop to it, for the beauty of the horse, as well as his temper, was spoilt by such enlargements and treatment.

[Stewards of the show should have at once ordered the ill-conditioned fellow referred to off the ground.—Ed.]

### RYEGRASS SEED.

The farmers of Ayrshire are indebted to Mr. Dalglish for directing attention to a subject which ought to be of very high importance in a county where the bulk of the agricultural land is sown out for two or three years of pasture in each rotation. Mr. Dalglish thinks it is a mistake to ripen rye-grass before cutting it, with the view of making the seed heavy. He has tried seed of 12lbs. per bushel, and even of less weight, and found that it sent up a good braird of grass. If the immature be as good as the plump seed for growth, it must be a waste to harden the hay and make it less palatable and nutritious by ripening, and at the same time weaken the grass root and injure it for subsequent production. If farmers, as a rule, merely grow seed for their own use, they would soon learn to take it at the most suitable stage; but in Ayrshire great quantities are raised for the general market of the country, and the producer naturally looks for the most profitable return. Although it were a recognized fact that 12lb. seed is as good as 24lb. seed, the grower would still have to consider whether he can have as much to sell by taking it at the lighter weight. And it is pretty clear that he could not. When the first part of the seed of a good crop reaches this 12lb. stage, a large proportion of the seed is not filled at all. He must therefore either allow it to come nearer maturity or take a very small produce. There are other points which should also be taken into consideration. Although 10lb. or 12lb. seed from Guelt did well with Mr. Dalglish, it does not follow that light seed from a low country farm would do equally well. Guelt is in a high district, and 12lb. seed grown upon it in a late season would be much nearer maturity than 12lb. seed grown on a farm in the neighbourhood of Kilmarnock. Equality of weight under widely different circumstances of climate cannot be taken as indicating similar reproductive power. But it is ascertained that thoroughly matured seed-wheat gives a larger proportion of well-developed stems than greenish wheat, and it may be regarded as probable that exhaustive experiments would lead to an analogous result with the whole of our cereal plants. At the same time there is reason for believing, with Mr. Dalglish, that in ordinary practice the anxiety for heavy seed leads farmers to delay cutting too long, and thus to incur loss by shedding of seed, by the inferior quality of the hay, and by weakening grass roots for the subsequent two or three years of pasture.

Unlike the other cereals, the weight of a bushel of rye-grass seed is of no importance beyond the indication which it may give of reproductive quality. Wheat and oats are grown for food, and the heavy bushel gives most nourishment. But rye-grass seed is gathered merely for growing grass again, and the heaviest bushel may not produce plants which give the largest growth of blades and stems. It is well known that the heaviest varieties of wheat and oats do not produce so much fodder as the longer and coarser kinds, and it is not improbable that the longer and lighter varieties of perennial rye-grass seed may also give the largest growth of grass. It is rather a curious thing if the desire to raise what, under a mistake, is supposed to be the best seed, is leading gradually to the extinction of the most valuable varieties of perennial rye-grass.

## THE FARMING OF THE SOUTHERN COUNTIES OF ENGLAND.

The following paper was read by Mr. E. P. SQUAREY, at the Mayor's reception of the Bath and West of England Society, at Salisbury, on the Wednesday evening in the Salisbury Show week.

My object this evening will be to endeavour to place before you a short sketch of the farming of the Southern Counties of England (having especial reference to that of Wilts, Hants, and Dorset), during the past 70 years; to seek to measure the advance, which, under present conditions, may be admitted to be definitely fixed and accepted; to take stock, as it were, of the progress during these singularly eventful years. The almost entire absence of any written sources of information on the subject of this sketch is much to be regretted, and it is not until this aid is sought, that the great dearth of anything like farming literature becomes apparent. No doubt Arthur Young's book, the clear and interesting essay on the agriculture of Wilts by the late Mr. Davis, of Longleat, the *Journals* of the Society which now honours this city with its presence, and other sources of charming and agreeable information are open to us; but for the most part their object is to describe what should be, not what is, and especially we wish to know what *was*, that from a sound datum point may be measured the advance from that past to this present. The recent valuable essays in the *Journals* of the Bath and West of England and the Royal Agricultural Societies, on the farming of the various counties of England, meet this requirement very perfectly for the present time, and yet an agreeable and most useful addition to these essays may be made in the shape of detail histories or descriptions of occasional parishes in each county. There are doubtless many present who would be interested in their various localities to note down the statistics of their parish; into how many occupations it is divided; the general course of cropping; the number and character of cattle, sheep, and horses kept; the rate of wages, &c.: indeed, a minor sort of Doomsday Book. This may be of little present interest; but place such a story into the parish chest, and after the lapse of 100 years it would (unless the English mind change its character) be regarded as a treasure. So it is that which everybody sees, knows, and practises, though in the truest sense history, fails to be remarked or noted as such from its every-day presence. Let me now try to bring before you an outline picture of agriculture about the end of the last century. In the counties of Wilts, Hants, and Dorset the farms were held for the most part as copyholds or leaseholds for lives, under the large proprietors. The area of the occupations ranged from 30 to 100 acres, and they remained for generations with singular uniformity in the same family. The renewal for comparatively moderate fines took place at intervals, and the whole burden of erecting and maintaining the dwelling-house and home-steads fell with scarcely an exception upon the copyholder or lessee. The cottages of the few labourers employed were generally of a similar tenure, having too frequently been built on waste spots for a nominal acknowledgment to the lord. The land was for the most part farmed under the tenantry or common-field system, of which a few instances yet remain—a striking example being found in the wonderful Fordington Field, near Dorchester. This tenantry or common-field system appears to represent the earliest aggregation of lands for the joint and yet separate use of the tenants of a manor. The entire area of arable land in a manor thus came to be divided according to its character and quality into the three or four field course of cropping according to the system adopted. To each copyholder or freeholder belonged strips of arable and meadow land of various areas, dispersed at irregular intervals over the whole field, so as to retain as far as possible uniformity of quality. On the arable portion the occupier exercised his discretion in sowing wheat, barley, or oats. He took the hay crop, and thereafter his lands were fed and folded over by the sheep of the whole manor, whose numbers were regulated by the old-established rights attached to each holding. To these common fields were added a large down pasturage, over which the flocks of the manor fed during the whole summer. Fre-

quently, too, meadows formed part of this system, where each occupier took the fore share, or first cut of the grass, whilst the after-feed was consumed by the cows, horses, or oxen of the manor. The roads of this period were, according to tradition, scarcely useable for carriages, except in the immediate vicinity of the larger towns. To illustrate this, it may be mentioned to those who know the locality, that within the last forty years the roads between the villages of Broadchalke and Ebbesbourne were impassable except by market waggons, and that the whole intercourse of that district was carried on on horseback. It may interest some of my younger audience to know that the bells which they still occasionally see on the teams of horses were originally adopted for the purpose of giving notice of the approach of a waggon, so as to warn advancing waggons to halt at a spot where a passing might be effected. A story is told of a carter in this neighbourhood, who, specially proud of a new set of bells, harnessed his horses before daylight to take a load of corn to Warminster, and so occupied and charmed was he with the sweet music discoursed by the bells, that it was not until dawn, when he had proceeded three miles on his journey, that he discovered he had started without the waggon. The sheep of the period in this district was the Wiltshire Horn, although the Southdown had just been introduced as fashionable novelties. It is a strange but singular illustration of the rapid but silent changes which occur in all mundane matters, that of the breed of sheep which fed over the wide pastures of this and the adjoining counties not more than 70 years ago, there is now not one single specimen left—nay, more than this, not even a single picture or engraving exists, so far as I can ascertain, by which its character and appearance can be handed down. Those of my audience who have seen Sir Edwin Landseer's picture of the Chillingham cattle in this year's exhibition, will regret that the humbler but scarcely less interesting sheep of these counties should have failed to secure an artist's attention before they became extinct. It must not, however, be accepted that these sheep were swept off before the advancing tide of the Southdowns. As in most other cases, compromises were effected with the new comers, and some of the best and most highly-reputed flocks of the Hampshire and West Country Downs, now the successors of the Southdowns, doubtless owe a large portion of their size and hardihood to a decent from the old Wiltshire blood. The horned Dorset ewe may be taken as the indigenous but wonderfully improved sheep of that country. Doubtless in some of its characteristics, like the old Wiltshire sheep, it has through the care and skill of its breeders been improved into its present high position. For the soil and climate of its home it is specially adapted, and a nobler or more useful animal can scarcely be found in England. The cattle, too, have undergone changes very analogous to those described amongst sheep. The Longhorn was the dairy cow of the district. This breed is still to be met with in isolated cases in the southern counties, and when the fine character and quality of good specimens of this breed are considered, one is almost tempted to regret that an imperfect adaptation of the Shorthorn, and other mixed breeds, should so nearly have superseded it. The character of labour and its remuneration is singularly interesting, because at a period not long preceding that which I am attempting to describe, the line between the copyholder or leaseholder and the labourer was very faintly marked, and the character of the holdings was such as to enable a thrifty labourer to emerge from his condition into the small farmer. At this period it was the custom to board and lodge the younger men who were employed on the farm, and at certain times, such as harvest, haymaking, shearing, the whole body of labourers were fed by the farmer. But the altered condition of the farmer and his family has tended to a complete abolition of this practice, but not possibly without some loss of the good feeling which traditionally is stated to have existed between the master and his men. It is not for us to discuss the policy or otherwise which reduced a class so valuable as these yeomen to a "quasi" servile condition; however much we may

regret this consequence, and sympathise with those affected, I cannot but believe that a largely increased power to produce food for the whole population was developed by the action of the circumstances which I have attempted to describe. It was the painful but inevitable conclusion of a condition of things right enough, it may be, for three or four preceding centuries, but inapplicable to the wants of an increasing or wealthier population. The transition state was one of acute suffering to the dispossessed yeoman and labourer, and agricultural annals of the period are full of schemes for the relief of the distress which prevailed amongst the labourers of the agricultural districts, or its prevention by emigration, or application to new sources of industry. The wages were largely subsidised by supplies of corn and other necessaries, at prices generally below the market value. An examination of the available sources of information led to the belief that during the first decrease in prices of corn, &c., incident to the war which terminated by the peace of Amiens, the condition of the labourer was worse than at any other period of our history, and from its very desperation arose the system of parish relief, which, until the recent just and sound legislation, contributed much to the demoralised and dependent condition of the present farm labourer. The implements of this period were simple in the extreme, and had but little advanced during the preceding century. The plough with two wheels (to which principle, after a multitude of trials and failures, we have now returned) the drag, harrows, and a nine-share plough constituted the means by which tillage was as perfectly, though possibly not so rapidly, achieved by a good farmer as it is now. Waggon and carts were built more heavily than at present, and the use of iron for axles was quite unknown. But I have yet to touch upon the great feature which revolutionised the farming of this country. I refer to the system of enclosure, and the consequent abolition of the common field system which has been previously described at length. A reference to the Journals of your society and other sources indicate that a few parishes only were enclosed prior to 1780. It would seem about that period that the advantages of enclosures, the greater economy of management, the increased quantity of stock which might be kept, and the individual benefit resulting to the farmer from improvements which he personally effected were fully recognised, and stimulated by the increasing prices of corn, they were pushed on with great energy. Up to 1836 the number of enclosures were—in Hampshire, 21; Dorset, 18; and Wilts, 85; and it is probable that a large number of parishes were enclosed by agreement, of which no record is kept. The change in the character and position of the occupier is indicated by the fact that the rentals of farms after enclosures had taken place ranged generally from £100 to £400 per annum, whilst the rental of the lands held anteriorly varied from £15 to £40 per annum. It is obvious from this that a wealthier class was found to rent the enclosed lands, and it is equally obvious, as has been suggested, that the dispossessed and small occupier sank generally to the condition of the labourer instead of migrating to other districts to farm or otherwise apply his powers. During this period and the subsequent 25 years the continuous high prices of grain stimulated the conversion of the down pasture into arable land. In many cases this was most judicious, and profitable alike to the farmer and the nation, but often the selection of land for this purpose was indiscriminate and unwise. A terrible reaction followed, for much of this type of land, which for years remained uncultivated, until the introduction of bone dust, guano, artificial manures, and the like, at length awakened a faith (resulting from practice) that these previously ill-treated and starved lands might be usefully cultivated. Of the produce per acre of the corn crops of this period, and quantity of stock kept, there is no reliable information whatever. But the experience of those with whom I have conversed on these subjects leads to the belief that the yield per acre on the ordinary soils has increased very considerably, while the greater production of corn and its consequently decreased price has resulted in an equal extent from the larger area under cultivation. From one point, however, there is little doubt that on the stronger wheat lands which underlie the chalk, the mode of cultivation for the staple commodity, wheat, was as perfectly (probably more perfect) 60 years ago than at the present time, and consequently the yield from these lands was equally large. It must, however, be borne in mind that the pro-

duce from this type of land in mutton, wool, and beef has enormously increased, for, at the date referred to, the system of growing artificial food for stock was scarcely practised. Let us now glance at what has been the progress out of the mass of theories, inventions, and systems, successes and failures which, more or less occupying men's minds, have endured or disappeared according to the good that was in them. By progress is meant those practices, those implements, and those breeds of cattle, which, without claiming for them finality, are yet intimately and inseparably welded into and bound up with the present modes of farming. During the interval which it has been attempted to bridge over the most marked feature appears to be the enormously increased production of stock, and this increase is not only numerical, but in an equal if not larger proportion it consists in the improved quality and earlier maturity of the individual animal. Many of my audience can measure the wide difference in the size and quality of the lambs brought to Britford and Wilton fairs thirty years ago, with those which now occupy their places. The far-seeing ability of a comparatively few men, whose names will at once occur to the flockmasters of these counties, has conduced to this national benefit. Consequent upon the larger numbers and improved condition of sheep is the increased production of grain. No means are open of measuring what such increase really has been, but in the collective form of larger produce and wider area it may be estimated probably at something like 40 to 45 per cent. during the last 60 years. The application of machinery to farming operations during this period has been singularly extensive and useful. At about the commencement of the century a Scotch mechanic was struggling to develop the thrashing machine, and it is marvellous to think that only thirty-five years ago this neighbourhood was disquieted by riots arising from the introduction of these implements. What an interval of time, human thought, and invention lies between cattle treading the corn from the outspread sheaves in the far-off Palestine, and the locomotive engine now meets, dragging its own complicated but effective thrashing and winnowing machinery to the next homestead! Nor is this the only application of that giant power in the service of agriculture. After years of laborious thought and careful trials, and an immense expenditure of money, as yet peculiarly unrewarded, Fowler, Smith, Hloward, and other patient inventors, have brought into the domain of practice and fact the dreams of thoughtful men—steam cultivation. Perhaps in no district has it been as yet more widely applied than in Wilts; for on the estate of one nobleman only, no less than nine steam ploughing or cultivating apparatus are in work. Those who have used them constantly concur in one most valuable result, viz., that whatever doubt may exist in the economy of these operations as compared with horse power, there is no doubt of the superior excellence of their work. Every reflective man must see in their application another source of extending production for an increasing people. The legislation of the past sixty years affecting agricultural matters has been of an exciting character. During that time arose, flourished, and fell the system of protection to agriculture. More silently, but provoking grave discussion amongst those interested, was introduced and passed the Tith Commutation Act, which more largely conduced to the increased production of England than any previous legislation, except possibly the Enclosure Acts. Lastly came the gradual enfranchisement of agricultural labour by the modifications of the law of settlement, which, as a measure at once of justice and policy, may be expected greatly to benefit the labourer himself, whilst its operation will undoubtedly contribute to the development of superior and more skilled labour for the farmer. A long postponed but certain result of the inclosure system has been the erection of homesteads and residences adapted for the enlarged character of the farm and for their comparatively concentrated arrangement. A similar action had also operated on the wretched cottages which had grown up under the system before referred to, and of which too many yet remain. Looking round this neighbourhood, and seeing the immense improvements effected in these directions on various estates, it is interesting to reflect that, large as the outlay has been, it is fully represented in the annual improved value of the farms, in the high character of the tenantry, and their liberal management of the land, and lastly, by the increased comfort and happiness which it has brought home to the labourer. Of the great questions affecting the present, and to a possibly larger ex-

tent the future of farming, that of the supply of manual labour is almost paramount. The action of laws interfering with the natural and healthy distribution of labour in the earlier period under consideration, aggravated by other causes before referred to, tended to reduce the remuneration for farm labour to its lowest known point in these southern and western counties. This excessive supply of labour tended to a uniformity of wages, in which the value and capacity of the most unskilled and inferior servant was too often the measure of payment to the best. The stimulants to energy, industry, and skill were thus neutralized: in too many cases a dead level of incapacity resulted. But in the tide of advancing wages for labour of whatever character, no exception will be found in the future remuneration of the farm labourer. Such advance will probably be less abrupt than in other types of wages, because a good cottage and garden in the sweet country air, with a sufficiency of plain food and no excessive exertion, is more attractive than iron puddling or cotton-spinning, though the money-wages may be double or treble in the latter cases. The

influence of mother earth seems to operate alike on landlord, tenant, or labourer. They each love what has been their home—the field, the meadow, the breezy down in which they have sported or worked; and this insensible, but strong influence, is not to be omitted in considering the causes which have governed, and will govern yet further, the future question of wages. The capital required for farming in those days is in great contrast to the requirements of the present day. Considering the value and number of stock of all descriptions at that time, and the mode of entry on the management of farms, I am disposed to think that the increase of capital now invested in farming (partly due, of course, to the larger area under cultivation) is probably doubled. Let me conclude this outline sketch of a grand subject with a regret that its treatment has fallen into such incompetent hands. I feel that if this paper has failed to interest you, that it is due to the incomplete manner in which it is put before you, rather than from any lack of importance or charm attaching to the subject.

### THE EMPLOYMENT OF WOMEN AND CHILDREN IN AGRICULTURE, AND PROPOSED LEGISLATION CONNECTED THEREWITH.

A special meeting of the Central Chamber of Agriculture was held at the Salisbury Hotel, Fleet-street, on Tuesday, June 18, for the transaction of the general business, and for the consideration of the above subject.

The chairman of the Chamber, Mr. ALBERT PELL, presided, and the following "deputed members" from various local chambers were present: Mr. Jasper More, M.P., vice-chairman; Mr. C. S. Read, M.P., East Norfolk; Mr. Banks Stanhope, M.P., North Lincolnshire; Mr. A. L. Goddard, M.P., Cricklade; Mr. F. S. Corrance, M.P., East Suffolk; Mr. G. Tomline, M.P., Lincolnshire; Sir George Jenkinson, Bart.; Mr. J. Smith, Herefordshire; Mr. J. Hemsley, Mr. W. E. Long, Kent; Mr. W. R. Robinson, Essex; Mr. J. Byron, Lincolnshire; Mr. T. Chandler, Wiltshire; Mr. R. L. Everett, East Suffolk; Mr. J. Ford, Warwickshire; Mr. E. Smyth, Beds; Major F. Maitland Wilson, West Suffolk; Rev. W. B. Garnett, Botfield, Shropshire; Mr. B. Swithin, Worcestershire; Mr. T. Trinder, Worcestershire; Mr. J. Buck, Worcestershire; Mr. Owen Wallis, Northamptonshire; Mr. H. J. Little, Northamptonshire; Mr. J. Howard, Bedford; Mr. J. H. Burbery and Mr. J. Brown, Midland Farmers' Club; Mr. W. Gardner, Bekesbourne, Kent; Mr. J. R. Evans, Hants; and Mr. J. H. Hodsal, Kent.

Mr. ALGERNON CLARKE, the secretary, having submitted a statement of the financial position of the Chamber, which the meeting approved,

The CHAIRMAN called attention to the proposal for holding a meeting of the Chamber at Bury St. Edmund's during the Royal Agricultural Society's show in that town in July next, and suggested that the members of local Chambers should be invited to attend the gathering and speak thereat, though not to vote. It would be in vain to call such a meeting, however, without some particular object in view. He proposed, therefore, that it should consider and discuss the expediency of landing all foreign fat cattle at ports distinct from those appointed for the landing of foreign store cattle, and killing the former and subjecting the latter to the laws of quarantine. The assembling of a large number of farmers and agriculturists at Bury would afford a capital opportunity for bringing forward the question, especially as there was now a bill on the subject before Parliament, and he thought that with a little legitimate pressure brought to bear upon the Government, they might be induced to take steps for carrying out such an arrangement. There were several gentlemen prepared to sign a requisition for the meeting at Bury; but they were willing at the same time to waive their own individual opinion in deference to the general feeling of the Chambers at large.

Mr. JASPER MORE, M.P., observed that the only question with him was whether that was the subject which had best be discussed at the meeting. In his judgment it would be pre-

ferable to seize such an occasion for making the principles and objects of the Chamber more widely known.

Mr. R. L. EVERETT (East Suffolk) urged that the meeting should have some practical aim, and not be confined to mere talk. The matter referred to by the Chairman was one to be dealt with legislatively. The agricultural community was unanimous in opinion respecting it; and he would suggest that the meeting might also consider the steps that should be taken with the view of obtaining compensation for cattle destroyed by the order of the inspectors in the interval between the 24th of November and the 26th of February.

Mr. JASPER MORE: There had already been legislation on the subject of compensation.

Mr. TOMLINE, M.P.: Yes, but the grievance remained.

Major MAITLAND WILSON (West Suffolk) saw no reason why both subjects should not be discussed. As to the slaughtering of foreign cattle at the port of entry, there was but one opinion among agriculturists. It had lately been discussed at a meeting at Bury, and the conclusion arrived at was, that foreign beasts ought to be slaughtered at the port of entry, and that their slaughter should not be left to local authorities, but entrusted to officers of the Government, for he was sorry to say that at a great many ports the law was not so strictly enforced by the local authorities as it ought to be.

It was then agreed that the meeting should be called to consider and discuss, *inter alia*, the importation and disposal of foreign cattle, and the question of compensation referred to by Mr. Everett.

Mr. CORRANCE, M.P., feared that the discussion of the question of compensation would involve a sad waste of time. Everything that was possible had already been said respecting it, and he was convinced that they had no chance whatever of getting their claim allowed.

Mr. OWEN WALLIS (Northamptonshire) then moved that a petition in favour of slaughtering foreign fat animals at the port of entry and quarantining foreign store animals under the inspection of Government officers, should be drawn up for the signature of the members of the various local Chambers, to be afterwards transmitted to their county members for presentation to the House of Commons. He added that, in the opinion of the breeders and graziers of cattle, such a law was absolutely necessary for securing the health of the stock produced in our own country.

Mr. SWITHIN (Worcestershire) seconded the motion, which was put from the chair, and agreed to unanimously.

The CHAIRMAN said his next duty was to refer shortly to the work that had been done by the Chamber since it last met; and he should do so because questions had been put to the secretary and letters written to himself which implied that the Chamber had been lying on its oars, and that greater things were expected from it than were reasonable, considering

that it was a very young institution, and not over-powerful at present. Since its formation certain subjects had been brought definitely and distinctly before it, to which he should like to refer; and first of all he would take those which were perhaps of least interest. One of these was the assessment of mines, woodlands, and plantations to local rates; also the assessment of game. But the latter part of the subject they had dropped, conceiving that it would be impossible to carry such a measure, and that they could no more assess a hare than they could a sheep. It remained for them, however, to advocate the assessment of mines, woodlands, and plantations. And, subsequently, though he would not say as the result of their exertions, a bill had been brought into the House of Commons by Mr. Percy Wyndham for the purpose of carrying out that object. This bill appeared on the whole to be a very fair measure, excepting in one respect, namely, the proposal to deduct from the assessment on a mine such a sum as accumulating over the whole period of assessment was likely to represent the loss which the fee simple had sustained from the abstraction of the minerals; in other words, if that clause were carried it would amount to assessing mines at the value of the surface land and nothing more; but he could not imagine that such a proposition would ever receive the sanction of Parliament.

Mr. CORRANCE, M.P., said he had given notice that he should move an amendment to that clause in committee on the bill.

The CHAIRMAN: Another question which the Chamber had dealt with was that of turnpikes; and on this they had asked for legislation, because at common law, as the debts of the trusts were paid off, the maintenance of the roads was thrown upon the ratepayers of the district or parish through which they ran. A bill introduced into the House of Commons by Mr. Knatchbull-Hugessen and Mr. George Clive proposed to a certain extent to meet that point, and had gone to a select committee, where it had been so amended as to have come out in a very different shape from that in which it went in.

Mr. JASPER MORE: The committee were going to prepare a report on the subject. They could not agree with respect to all the clauses of the bill. In fact, the bill originally contained 22 clauses, and of these the committee had struck out all but five!

The CHAIRMAN: Another matter which was discussed at considerable length at the last meeting of the Chamber was a Treasury Bill, brought in by Mr. Ward Hunt and Mr. Secretary Walpole, intitled "A Bill to provide for a common basis of valuation for the purposes of Government and local taxation, and to provide uniformity in the assessment of rateable property in England." As appeared from the minutes of that meeting, he had seen Mr. Hunt with the view of tendering the evidence of certain gentlemen connected with this Chamber, because they were disappointed at some of the clauses in the Bill, as indeed they still were, and meant to oppose them as far as possible; but Mr. Hunt replied that there were twenty-one members of the House of Commons on the committee, and he thought they had within their heads all the information that was needed. So the long and the short of it was that the committee declined to take evidence from any persons out of doors, and the gentlemen who were named by the Chamber as willing to be examined would not be called upon for that purpose. No doubt most of the gentlemen present had seen Mr. Hunt's Bill. To his mind there was nothing to lead them to alter the views they had expressed regarding it, or to remove the objections they entertained to the 55th clause, introducing the surveyor of taxes, and the clause making rent the minimum of the gross annual value. Those objectionable clauses were still retained in the Bill. The measure had been modified, however, in one respect. Originally it provided for an appellat barrister; but in its altered form the Judge of the County Court was substituted. The Bill was to have come on for discussion in the House of Commons on the previous night had there been time to deal with it, which, however, there was not, in consequence of the sitting being almost entirely occupied with the debates on the Reform Bill. Last of all, he came to the old recurring question of the cattle plague. On this subject the House of Lords had passed a Bill, which had lately gone down to the House of Commons with certain amendments inserted in it. In the Bill as originally drawn there was a clause to the effect that the Privy

Council might from time to time, by order, regulate the landing in Great Britain of foreign cattle—that was, cattle brought by sea from any place out of the United Kingdom, either as regards the port or ports, or the part or parts, of the port or ports at which such foreign cattle might be landed. A short time ago he accompanied a deputation to the Duke of Marlborough on this subject, and the ground he took on the occasion was that the word "cattle" was not the proper word to be used in that clause, that a wider and more comprehensive one was wanted, and that it should be expunged for the word "animals." In order that the influence of the Chambers of Agriculture might be effectual, he attended at the Privy Council-office a little before the hour appointed for an interview with the Minister, where he met Colonel North and the gentlemen who had prepared the resolutions to be submitted to the Duke of Marlborough. They had inserted the word "stock," which really implied nothing, for it was not used in any order in Council or Act of Parliament. He (the Chairman) therefore suggested that the word "animals" should be substituted for "stock." Colonel North and the other gentlemen were good enough to accede to the suggestion; and the result was that they met the Minister with that important change. Since that, the Duke of Marlborough had stated that the Government (it might have been prompted by their own intelligence, and not influenced by the pressure of this Chamber) had decided upon expunging that clause in favour of another; and it was in reference to this new clause that he had pressed upon the Chamber the desirability of holding the Bury meeting, and that a petition should be circulated throughout the country for the signatures of the various local chambers. This new clause was as follows:—"Foreign animals: The Privy Council may, from time to time, by order, regulate the landing, in Great Britain, of foreign animals—that is to say, animals brought by sea from any place out of the United Kingdom, either as regards the port or ports, or as regards the part or parts of the port or ports, at which such animals may be landed; and may from time to time" (which was all new matter), "by order, prohibit or regulate the removal, and regulate the disposal, by slaughter or otherwise, of such animals from or at any such port, or any part thereof." If the bill were passed into law in this shape, the Privy Council would have the power, by any order, to decide what ports, and what part of ports, foreign cattle might come into. They might say fat cattle should go there, and store cattle elsewhere. Moreover, they would have power to say that fat beasts should not go out of the port alive. Thus the Government had left the question in a position in which the meeting at Bury, and the petition agreed upon that day, would be of exceeding value. Supposing, however, that before the Bury Meeting the bill was passed with this 26th clause as part of it, the effect of a good meeting at Bury would be to encourage the Privy Council to act on the powers so given them, and at once declare, upon any appearance of an increase of the cattle-plague, that foreign animals should be slaughtered at the port of entry, which was just that which the Chamber wanted. On the other hand, if the bill were not passed by that time, the meeting would afford it useful support; and the petition could be placed in the hands of the county and other members, with a request that they would further its object. Such, then, was a narrative of the work (it might not be much) which had been done by the Chamber. He might add that there was one other question on which he had been consulted, he presumed because he was their chairman, and, in that capacity, likely to know what were the feelings of a great many farmers and landowners. It was intended to re-introduce a bill into Parliament which was before the Commons last session, for creating a national rate to meet the losses which might arise hereafter from cattle-plague. The bill was to be brought in by Mr. Laird, the member for Birkenhead, with whom he had had some conversation on the previous day at the House of Commons, when he took occasion to express to the hon. member what he believed to be the feelings of the majority of those who were occupiers of land, namely, that it would not be desirable to carry such a measure into effect. Speaking for the midland counties, with which he was best acquainted, he was sure they would be decidedly opposed to it, and on this ground—that whilst a rate of one penny, or something under twopence, would meet all possible exigencies in that district, in Cheshire and the four dairy counties twopence would be nothing like sufficient; consequently, the losses

in those counties would have to be met by a burden laid upon the other districts. He said, therefore, that he could not consent to give such a measure his sanction; and in so doing, he believed he only echoed the sentiment which generally prevailed in his part of the country.

The CHAIRMAN then observed that the discussion which was about to take place would relate not merely to the gang system, but to the general question of the employment of women and young children in agriculture, and to the bearing of such employment upon education. He should like, before the discussion commenced, to be permitted to say a few words on that question. With regard to the proposed legislation, he would remark that there were two bills now before the House of Commons, one of them having been introduced by Mr. Fawcett, the other by Mr. Bruce. The bill of Mr. Bruce embraced a very wide view of the question; that of Mr. Fawcett was founded on a very narrow one; and he did not think that measure was destined to a very long life. The object of Mr. Bruce's bill was to enable a union, or a parish where there was no union, to raise a rate-in-aid for education. It gave power to the ratepayers of a union to raise money either to aid schools which were already established, or to establish, under certain regulations, schools of their own, which the poor would have an opportunity of attending. There was not a word in the bill as to making education compulsory. All that was contemplated was the provision of an instrument, or apparatus, by which education might be afforded to the poor within a certain district. The bill of Mr. Fawcett was of a very different nature. The fifth clause was, "That no child whose age is less than thirteen years shall be permitted to be employed in agriculture, unless a certificate can be produced which shall certify that the child has attended the school during one part of the year on alternate days." Another clause was as follows: "If a parish with a population exceeding three hundred is unprovided with a school, or if the school situated in this parish should be reported by one of her Majesty's inspectors of schools to be in a condition so unsatisfactory that the certificates of attendance at this school cannot be received as valid or sufficient, the magistrates sitting at petty sessions in the district in which this parish is situated shall have the power to levy a rate either for the building of a school-house or for the due maintenance of a school. The rate which is so levied shall be collected from each owner and occupier of property in the parish, in proportion to the amount at which he or she may be assessed in support of the poor." There was another clause, providing that if any child should be employed contrary to the provisions of the bill, the employer should be fined. Well, now, the distinction between those two bills was a very broad one. The first bill would afford parents opportunities of sending their children to school where they did not already exist—that is to say, it enabled the union or parish, with the consent of a majority of the ratepayers, to provide the means of education. That was a measure which deserved consideration, and in favour of which a great deal might be said. As to the other bill—that of Mr. Fawcett—it was almost synonymous with compulsory education, or, at all events, with an education rate. Now, he should like to say one or two words with respect to the state of education at the present moment in England. Hitherto they had gone on under a system of compromises and arrangements which appeared, after all, not to have worked very badly. On looking at the figures connected with that question, he found that in Prussia, where education was said to be compulsory, one child in six remained uneducated; while in England, where education had been carried on upon the voluntary system, aided by grants from the Privy Council, acting under the authority of Parliament, about one child in 7 $\frac{3}{4}$  remained uneducated. Thus, in Prussia, the proportion of persons educated was only about 1 $\frac{1}{2}$  per cent. increase of the proportion in England. But it must further be remembered that education had of late years been progressing very rapidly in England, while the compulsory education of Prussia had probably done all that it could have been expected to do. The instinctive feeling of Englishmen was strongly in favour of education; their own selfish interests, if he might say so, in their respective districts would lead them in the same direction; and he thought Parliament would not be far wrong in leaving it to the feelings of their countrymen to carry out the existing system to a greater extent than it had been carried out up to the present time.

He believed there were certain gentlemen there who would present resolutions from the Chambers which they represented, in favour of compulsory education, or at all events of an education rate. Now, let it be borne in mind what the effect of an education rate would probably be. He would not go into the theory of such a rate, but he thought the effect of it would obviously be to stop all voluntary contributions. He did not suppose anybody in that room could adduce an instance of a person having given money to secure the better management of a gaol or for the adornment of a police-court; but, on the other hand, he imagined there was not a person in that room who had not subscribed a sovereign or a few shillings towards the support of a school. A prison was as necessary as a school; why, then, did persons give for the one and not for the other. Because in the one case the State took upon itself the whole responsibility, and in the other it did not. The State said in effect, "I will take care of the criminals in gaol; but I will leave the education of the poor to those who are most intimately acquainted with them." Nor did he think that decision was a very unwise one. Supposing that the Chambers were on that occasion, or at some future meeting, to come to a resolution to the effect that it was desirable that a small rate-in-aid should be levied for educational purposes, then would arise the question Who or what was to be rated? There was in 1859 an income of £50,000,000 a year assessed for local purposes, while the general income of the country that might be assessed was about £500,000,000. The general income contributed to the grants of the Privy Council. There was not a pint of beer, a portion of the tax on which did not go into the pockets of schoolmasters. As Mr. Senior remarked, the working man could not smoke a pipe of tobacco without a portion of the cost going towards defraying the expenses of the education given in public schools. So that by adopting what was proposed, Parliament would be abandoning the taxation of an income of £500,000,000 a year, and adopting instead the much smaller area over which local taxation is now levied. Before sitting down, he should like to call the attention of the meeting to the peculiar position in which farm labourers and their children were placed in reference to this education question. There could be no doubt that the want of a perfect education among the children of the poor bound them to a certain extent to take employment in the parish or occupation in which they were born. For example, if in the little parish in which he lived he were instrumental in giving a higher class of education to the boys of that parish—an education which would cause them to write that flowing hand which Lord Palmerston described as so like a series of park railings, and lead them on in arithmetic beyond the four rules; the effect of that would be that they would ultimately abandon the plough-tail and farm, and go to some of those towns where people were crying out for compulsory education, there to receive increased wages as the result of the education obtained at his cost. (Hear, hear.) He would not, indeed, say one word against the advance of education, holding as he did that they had no more right to oppose education than they had to put fetters on the limbs of the labouring population, and reduce them to slavery; but he believed that tenant farmers and landowners could not justly be called upon to advocate the levying upon their own property of a rate in support of education, especially as many employments were left out of the Factories Act, and Mr. Fawcett's Bill provided only for the education of children connected with agriculture. They might possibly assent to a measure which embraced the education of all classes of the poor; but he did not see why they should advocate one which hit them in the particular employments in which they were engaged, and the property which they had to protect.

The Rev. W. G. B. BOTFIELD (Shropshire) said he would at once move a resolution with regard to Mr. Fawcett's bill, and he trusted it would meet with general concurrence. It was: "The Chamber, whilst strongly sympathising with any efforts for the improved and increased education of the labouring classes engaged in agriculture, consider that Mr. Fawcett's bill would not accomplish its object, is impracticable in its details, and totally inapplicable to rural districts." There were two or three points connected with the bill in question to which he wished to invite attention. The first had reference to the age of the children to whom the bill applied. No child was to be employed on a farm while under

13 years of age without a certificate. That was in reality a retrograde movement in relation to the Factories Act. That Act provided that no child should be employed at all under that age, whereas Mr. Fawcett's Bill simply prohibited the employment of the child on a farm. He might employ a boy of any age in his garden, but he could not employ him on a farm without a certificate. That was evidently an unfair distinction. Then, again, there was provision made in the bill for the education of children on alternate days. That was all very well where there was a mill, and the children were all in one place together, and could easily go to work every other day or every other hour; but on farms boys were employed for jobs two or three days or two or three weeks at a time, and on alternate days education would be quite impracticable. And then, again, let them consider how the proposed system would act upon the school. There would be a great number of half-time boys taken away, sometimes for a month, sometimes for two months, and those boys would be perfect clogs upon the school to which they belonged. Instead of progressing they would recede, and great evils would arise from that source. It was proposed that magistrates sitting in Petty Sessions should be able to allow two months' absence from school. That would be a monstrous power to give to magistrates (Hear, hear). If magistrates had the power to take two months at once away from a boy's schooling, the result might be that the lad would only be at school about half the year. In his opinion it would be far better for boys, instead of being at school on alternate days, to go to school till they were fit to go upon the farm; it would be far better to enact that no boy should be employed until he was 10 years of age, than to fix the age of 13 with such limitations (Hear, hear). Again, there were certain districts where there were no schools that were under certificated masters. He knew many gentlemen who would not allow the school with which they were connected to be visited by an Inspector on any account. Then, again, the Bill seemed to him rather to interfere with the management of the schools themselves. For instance, it told them how long masters should give religious instruction, and how long they should not give it. Such things ought, in his opinion, to be left to those who had the management of the schools (Hear, hear). In fact, he objected to this Bill entirely. There was one remark which he wished to make that did not exactly bear upon the Bill itself. He thought that education in the rural districts might be put upon a greatly improved footing. A Bill of this description would interfere with the carrying of one which he hoped to see some day passed. For twelve years he was connected with a school in an agricultural district of Cheshire, a school which was formed for all classes, from the labourer to the squire, and was an eminent success. With the exception of a small endowment of £50 a year, that school was actually self-supporting, and he believed it would be possible, by means of a judicious measure, to make agricultural education generally self-supporting (Hear, hear). With regard to what the chairman had said about boys being led by education to quit agricultural employments, he must remark that in the school to which he had alluded there were lads very highly educated—there were some lads who could have mapped out a farm, and calculated the cost of draining it—and yet during the twelve years that he was connected with the school, there was not a single instance of a boy leaving his legitimate sphere of agriculture; the boys all went to the farms and worked at the plough-tail, and in other ways, just as if they had had no education at all (Hear, hear). He thought that any education short of a broad and liberal system, adapted not only for the sons of labourers, but also for the sons of the bulk of farmers, who would be delighted to secure such education as was given in many of the national schools—anything, he said, that would interfere with that would be a step in the wrong direction.

Mr. TRINDER, in seconding the resolution of Mr. Botfield, as a deputed member of the Worcestershire Chamber of Agriculture, wished to express the sentiments of that body, as enunciated at a meeting held on Saturday last. The discussion on that day turned more immediately on the point bearing upon the education of the children of agricultural labourers as proposed by Mr. Fawcett's bill; and it did so from the simple fact—a fact to which he was only too happy to testify—that the employment of women and children in agricultural pursuits under what was denominated the "gang system" was

quite unknown in his district. That system, in his opinion, was so pernicious in principle, and so demoralizing, that he could only imagine some local cause to exist with which he was unacquainted in the few counties where it was practised, to justify its adoption and continuance, and to require any legislative enactments for its suppression. It would be perceived from the resolution which was passed, and which he believed was in the chairman's possession, that the Worcestershire Chamber pronounced the most unequivocal condemnation on Mr. Fawcett's bill. But although they did that, let it not be inferred that they were opposed to the spread of knowledge; on the contrary, it was with the most unmixed satisfaction he witnessed that in that society, which had only been established a month, yet comprised already upwards of 300 tenant-farmers, such a unanimous expression of opinion in favour of the spread of education amongst our farm labourers. They felt that the interests of agriculture would not be promoted by keeping in the bondage of ignorance those faculties which were implanted by a "Great and Allwise Creator" in the mind of man. They felt that the agricultural labourer ought no longer to remain behind in the march of intellect that was taking place among all grades of society. They felt that, however valuable the strong body might be in the performance of manual labour, yet that, when that labour was directed by an intelligent mind, it became of greater value. They felt that every child in the early days of its youth ought to have placed within its reach the means of obtaining a good elementary education. In short, they felt that the existence of the labouring man was given him for something higher and better than simply to work, eat, drink, and to "die;" and that he formed a link in the great chain of the community, the weakening or strengthening of any part of which affected the whole. He made these remarks lest it should be thought that, in opposing the bill of Mr. Fawcett, the tenantry of Worcestershire were opposed to the education of their farm-labourers. There could be little doubt that Mr. Fawcett was actuated by kind motives; and that, seeing the good which had been effected in the manufacturing districts by the Factory Act, he hoped to ameliorate the condition of the agricultural classes by the passing of his bill. But in what way did he seek to effect that object? Why, the first clause in the bill precluded the employment of any child under the age of 13, unless a certificate could be produced that the child had attended school on alternate days. Now any one at all acquainted with the practical details of agriculture must be aware that such an arrangement was totally impracticable, and that in effect it would prevent the child from being ever employed in agricultural work at all; for if not employed before the age of 13, he never would be afterwards. And what must be the effect of such a clause on the parents? Only let them picture to themselves for a moment the case of a labourer with a wife, and, perhaps, a family of six, seven, or eight children all under the age of 13, and its being made a penal offence for any of those children to be employed! Such an enactment must tend to an increase in the poor-rates throughout the country by pauperising the poor man, and thereby destroying that spirit of independence it was so desirable to foster. Then, again, the sixth clause empowered the magistrates in petty sessions, in any parish with a population exceeding 300, to erect schools and charge the cost of erection and maintenance on the ratepayers. Without wishing to cast the slightest reflection on the magistrates of England, he felt bound to confess that he was one of those who considered that they had already sufficient power vested in them for taxing the ratepayers, without having it increased; and as the clause referred to was only the perpetuation of a system altogether repugnant to the feelings of Englishmen, namely, that of taxation without representation, he entered his earnest protest against it. But, in fact, the whole bill appeared to have been so hastily drawn, and was so impracticable in its details, that the Chamber, which he had the honour of representing in part that day, had declared it to be alike prejudicial to the employer, and injurious to the employed.

Major MATTLAND WILSON said they had heard in that discussion that tenant farmers would not like to increase the powers of magistrates, as it was proposed to increase them under this Bill. As a magistrate, he was sure his brother magistrates did not care for any such accession of power. It appeared to him that Mr. Fawcett's Bill was wholly impracticable. He recognised most fully the duty and importance of promoting the education of agricultural labourers;



but he thought that this Bill, instead of promoting, would impede it. It was quite impossible to insist upon a boy's not being allowed to be employed in agriculture under 13 years of age unless he attended school every day. Those who lived in the country knew that the hardest part of a labourer's life was when he had a large family under twelve years of age, and the effect of such a restriction would be to pauperise the labourer, and make him good for nothing (Hear, hear). Every farmer would testify that if lads were not put to farming occupations when they were young, they would never learn anything afterwards. His practical experience had led him to a conclusion that what was desirable was that the child should be put to farming occupations while young, and when a little older have opportunities afforded to him of attending a good evening school. He had seen lads of from twelve to twenty, including some in a better station than that of labourer's children, attending an evening school regularly when they were well able to appreciate the value of education, and they had worked hard, and with the most beneficial results (Hear, hear.)

Mr. T. HORLEY, jun. (Warwickshire), wished to say a few words in support of the resolution. No doubt Mr. Fawcett brought forward his Bill with the best intentions; but though an exceedingly clever man, he was not conversant with agriculture, or with the position of the rural population. There was no class of men, notwithstanding that the reverse of this was often asserted, who were more alive than the farmers of England as regarded the value of education to the labourers whom they employed. He could bear testimony to the great advantages which were derived from evening schools. In the village where he resided there was a very large attendance during the whole of the winter, some of those who attended being as much as forty years of age, and it was astonishing how much good was done in that way (Hear, hear). He believed that not only the farmers, but the labourers themselves, universally felt the necessity of endeavouring, without any legislation on the subject, to promote education during the time of youth; but it was perfectly impracticable for boys to be kept at school, or prevented from ever going to work until they were thirteen years of age. Every one present must feel that if lads did not go to work at all before that, very few would ever be good for anything after (Hear, hear). Moreover, it was certain that the cost of compulsory education carried on in the mode proposed under Mr. Fawcett's Bill would be levied only on a very small amount of property; whereas the grants now made by the Privy Council came from the national Exchequer, towards which even the poorest persons in England contributed in some form or other. He also agreed with the Chairman that the passing of Mr. Fawcett's Bill would have the effect of stopping the donations and subscriptions raised for education throughout the country. As soon as ever rates began to be raised, the schools supported by voluntary contributions would begin to droop. He believed that compulsory education was not necessary at the present time as regarded agricultural labourers; he believed that the progress which had been made in regard to education in the rural districts during the last 15 or 20 years would continue to increase; and he thought that every one who paid attention to the subject would see before long not only that every one had a chance of being educated, but that the vast majority were anxious to avail themselves of the opportunities afforded (Hear, hear).

Mr. BRAUN (Midland Farmers' Club) thought they were all agreed as to the desirability of their doing all they could to promote the education of the labouring classes; but they were, he believed, equally agreed that Mr. Fawcett's Bill was not the best means that could be devised for accomplishing the object. In the first place the daughter of a labouring man would be absolutely prohibited from working in the fields.

The CHAIRMAN observed that in that respect the Bill had no special reference to female labour, the words used being "no child."

Mr. BRAUN continued: He knew agricultural districts where farmers were in the habit of taking young boys into their house, and feeding and lodging them, and that was certainly a very desirable arrangement for the labouring man and his family. He happened to have a friend who took a peculiar interest in boys of young age, and who had them with him in his house; and he had found that boys whom he had taken under 13 years of age had been more useful to him, because less difficult to manage and less rakish, if he might use the expression, than boys who were older when first taken

in hand. He said that such boys would go through fire and water for him, that he could do nothing with boys of that age who were under his own management. He must admit that he was a very good manager. If the Bill under consideration were to pass, how would it be possible for a man like that to take into his house boys of from 8 to 13, and send them to school for half their time? It might be an advantage to them if the farmer could afford still to take them, but no one could expect him to do so. He believed that such a Bill as Mr. Fawcett's was as entirely inapplicable to agriculture. The operations of the farmer must be carried on in accordance with the seasons and the weather, and could not be carried on continuously, like those of factories, and hence the bill was impracticable.

Mr. BURBERRY (Midland Farmers' Club) said he wished to lay before the Chamber the resolutions come to at the last meeting of the Club which he represented. They were as follow: "That the gang system is in practice most objectionable; and, with the exception of this, the employment of women and children in the ordinary occupations of husbandry does not require any specific legislation. That, whilst admitting the desirability of extending the facilities for the education of the children of agricultural labourers, this Club cannot agree with the provisions of Mr. Fawcett's Bill, and disapproves of any hasty legislation on the subject. That in the opinion of this Club all children between the ages of five and ten years should be required to attend school for a certain period in each year. That, considering the national advantages to be derived from education, it is the opinion of this Club that the expense of providing necessary school accommodation ought in justice to be defrayed out of the public purse."

The CHAIRMAN inquired of Mr. Burberry whether he wished to move that the two last resolutions, or the substance of them, be added to the resolution before the meeting.

Mr. BURBERRY said he merely wished to put the meeting in possession of the resolutions. He dissented from the Chairman's opinion that the levying of rates for education would put a stop to all voluntary contributions. He would rather compare the case to that of rating for the relief of the poor than to that of rating for the support of prisons. Rating for the relief of the poor had by no means dried up private benevolence (Hear, hear), and in his opinion rates-in-aid for education would not have the effect of deterring people from giving contributions for educational purposes.

Mr. LITTLE (Northamptonshire) said he would ask why any legislation at all was necessary in relation to that subject? Was it a fact that children were so much employed in the fields that it was necessary to legislate for their protection? The statistics cited by the Chairman seemed to show that legislation was not required. At the meeting which was held the other day at Northampton it was stated that a travelling commission had been appointed by the Government to inquire into the state of education in the rural districts. If that were the case, surely it would be better for Parliament to wait until that commission had reported.

The CHAIRMAN, as a representative of Northamptonshire, then read the resolution which was passed at the meeting referred to by Mr. Little. It was to the effect that there seemed to the meeting to be no occasion for restricting the hours of field labour generally; that, as regarded education, it was desirable to wait for the report of the Commission which had just been appointed, before expressing any definite opinion; and, further, that the Chamber condemned the provisions of Mr. Fawcett's Bill for the better education of children employed in agriculture."

Mr. J. FORD (Warwickshire) considered Mr. Fawcett's bill one of the most crude, partial, and impracticable measures that had ever been framed. How Mr. Fawcett could have been induced to bring forward such a bill he was at a loss to conceive. In his opinion, there was no need to discuss the matter any longer.

Sir G. JENKINSON, M.P. (Gloucestershire), said, as a deputed member of a local Chamber of Agriculture, he thought the principal use of that Central Chamber was to be a reflex of the opinions entertained in the different counties of England; and he would therefore read the resolutions which had been passed recently at Gloucester, with a view to their being sent up to that place. At a meeting of the Gloucestershire Chamber of Agriculture, held at the Spread Eagle Hotel, Gloucester, on

Saturday, the 15th June, 1867, Captain de Winton in the chair, the following resolutions were carried unanimously: First, proposed by Mr. Higgins, seconded by Mr. Lawrence—"That the gang system, as practised in the northern and eastern counties, where no sufficient attention is paid to keeping the sexes separate, and where women and children have to travel long distances, is, in the opinion of this chamber, highly objectionable." Second, proposed by Mr. D. Long, seconded by Mr. G. Robinson—"That, where proper precautions are adopted, the employment of women and children—the latter of not too tender an age—in acts of husbandry is desirable and beneficial, not only to the farmer, but also to the farm labourer, looking both to the health of the children and the maintenance of the family; and that, at the present time, when manual labour is scarce, and steadily becoming more so, such employment is almost indispensable." Third, proposed by Mr. T. Morris, seconded by Mr. S. Friday—"That, in the opinion of this chamber there is no necessity for any specific legislation on the subject, inasmuch as most of the evils complained of in connection with this matter would be better remedied by the erection by landlords of proper and sufficient cottages for accommodation of labourers on their estates." Fourth, proposed by Mr. Cadle, seconded by Mr. John Drinkwater—"That, whilst admitting the desirability of extending the facilities for the education of the children of agricultural labourers, this chamber cannot agree to the provisions of Mr. Fawcett's bill, and disapproves of any hasty legislation on the subject." Fifth, proposed by Mr. W. Capel, seconded by Mr. H. Higgins—"That Sir George Jenkinson, Bart., be the deputed member to represent the chamber at the council meeting on the 18th instant." It seemed to him (Sir G. Jenkinson) that those resolutions met the feelings of the gentlemen present, and embraced the main features of the resolution which had been proposed. Mr. Fawcett's bill could scarcely have been drawn by any gentleman who was conversant with agricultural pursuits or requirements. The machinery with regard to certificates, harvesting, and so on, and the arrangements as to magistrates doing this, that, and the other, were so complicated and impracticable, that any attempt to lick the bill into shape must entirely fail; and he did hope that if they were to have any legislation on this subject the Government would place the matter in the hands of some gentleman who was conversant with the usages and necessities of agricultural life, and would not for a moment listen to such crude proposals as were now before the House of Commons. He wished to allude to one other important point that bore very much on the question of the education of the labouring classes. At the present time there was great difficulty in the rural districts in obtaining proper teachers for schools. The Government gave, indeed, a grant; but the way in which they gave it greatly diminished its value and utility. They said, "Unless, you have a certificated master or mistress, certificated in accordance with our views, we will make no grant." That arrangement might be very useful in the case of large towns; but in small rural parishes, where the schools were entirely dependent perhaps on one gentleman who lived in the neighbourhood, aided by such grants as might be expected from the Government, if the appointment of a teacher were not thrown open, the grants failed to do that which they were intended to do, and even threw obstacles in the way of education. He could state from personal knowledge of his own locality that the effect of tying managers down to the employment of certificated masters was that the protection granted to a particular class of men often made them uppish and conceited, and useless for the purposes of sound education; so that the evils encountered by those who sought to avail themselves of a master's services exceeded the benefits to be derived from them. All this would be avoided if the Government in giving grants would look only to results. If the Government were to leave it open to the managers to obtain school teachers wherever they could get them, whether they were or were not certificated, looking only for certain results, there would be free-trade in school-teaching as well as in other matters, and the widening of the area from which school-teachers might be selected would, in his opinion, be an advantage. He hoped that that particular aspect of the question under discussion would not be lost sight of by the Chamber.

Mr. CHANDLER (Wiltshire) could not help saying, in reference to the remark that Mr. Fawcett could not understand agricultural operations, that that gentleman's father was a

Wiltshire farmer, and therefore he must know something about them. The labourers of Wiltshire had taken up this matter very warmly indeed.

The CHAIRMAN: In favour of the Bill or against it?

Mr. CHANDLER: Against it. The labourers said they really could not go on if that Bill were carried.

Mr. B. SWITHLY (Worcestershire) observed that at a recent meeting of the Worcestershire Chamber of Agriculture the following resolutions were adopted: "That this Chamber, while recognising the desirability of extending the facilities for affording the children of agricultural labourers the means of obtaining a good elementary education, is of opinion that the employment of children in the ordinary occupations of husbandry does not require any specific legislation (unless with reference to the gang system, which is unknown in this county), and that the legislative restrictions in the Bill of Mr. Fawcett now before Parliament will be prejudicial to the interest of the farmer, and productive of great hardship upon the agricultural labourer and his family; and this Chamber deprecates any hasty legislation on the subject, and is further of opinion that Mr. Fawcett's Bill should be opposed at every stage." As regarded the provisions that children should only be employed on alternate days, he must say that that appeared to him quite incompatible with the employment of children at all in agriculture. Children would during part of the year be of no use on alternate days, farmers wanting them chiefly in summer, while the winter might be left for school. If children did not begin earlier than 13, they would not be able to acquire any skill in husbandry afterwards; a great deal of valuable time would have been lost, and neither in mind nor in body would the children be likely to make good agricultural labourers. Then, again, if the Bill passed, it would, he thought, militate a good deal against the operation of the poor-law system. As a guardian, he could well imagine what would occur when a man applied for relief after the passing of this Bill. On being asked whether he was in health, the man would perhaps answer, "Yes; but I have six or seven children under 13 years of age, and I was not allowed to employ any of them, and I cannot find bread for them." All the Board of Guardians could do in such a case was to reply, "Well, here is the house for you, that is all we can offer." Thus, the Bill would tend to pauperise parents, and to prevent the children from learning to earn an honest living. By section 3, power was given to magistrates to issue an order to suspend the education; but he thought it was not desirable that such power should be exercised. Clause 8 declared that if any child should be employed without a certificate, the employer should be fined not more than £10, and not less than £2." A boy having a greater love for the fields than for school might disregard the alternate days, and thus it might happen that an employer would be fined £10 because a lad had played truant. The Bill appeared to him from beginning to end thoroughly impracticable, and he trusted that the resolution which had been proposed would be passed unanimously.

Mr. BANKES STANHOPE, M.P., thought Mr. Fawcett's Bill was impracticable and mischievous, and had no doubt that it would be defeated. Mr. Little had alluded to the fact that the Government had appointed a roving commission to go over the whole of England, and especially over the eastern counties, to inquire into the state of education among the children in the agricultural districts, and see what could be done to improve it. That fact was alone a sufficient reason for postponing legislation, and he thought it would be well to make some allusion to it in the resolution about to be passed. There was another point which he wished to touch upon, although it was not strictly connected with Mr. Fawcett's bill. There was a very strong feeling in the House of Commons that if women and young females were employed in agriculture, great precautions should be taken to prevent an improper admixture of the sexes. It would be well for the House of Commons to see that such points had not been neglected, and that the Chamber was well aware of what was requisite for the well-being of those who were employed in agriculture (Hear, hear).

The CHAIRMAN observed that that was very much the feeling expressed in the resolutions which had been reported from Northamptonshire. It was there felt that they did not require any general legislation, but that special legislation might be called for in reference to particular districts.

Mr. B. STANHOPE, M.P., said in parts of Lincolnshire, Cambridgeshire, and Norfolk there existed not only what were called "public gangs," but also a system of private gangs, under which a number of children were employed and paid individually, overseers being placed over them. It was necessary to distinguish between the two systems. He thought it might be well to introduce into the resolution a few words with regard to that subject.

Mr. JASPER MORE said it struck him that if Mr. Fawcett were present he would say, "You all disapprove of my Bill, yet you assert that agriculturists recognize the advantage of education. I shall therefore be obliged by your telling me how the work is to be carried out." Before Mr. Banks Stanhope, spoke his own impression was that the Chamber should frame a resolution expressing its own views as to the manner in which the education of these children should be conducted; but if they followed the advice of Mr. Banks Stanhope to withhold an opinion until the commissioners had reported on the subject, perhaps the most judicious course would be to agree to a motion for the adjournment of the discussion until they had had an opportunity of considering that report. Then, with the report in its hands, the Chamber itself might prepare a scheme and embody it in a Bill, which would show that, as agriculturists, they did take an interest in the question of education, and that whilst anxious to destroy Mr. Fawcett's Bill they were in favour of adopting a more reasonable and practicable measure. With reference to the manner in which the children should be educated, one gentleman had advocated the system of night-schools, and he (Mr. Jasper More) had always thought that, if practicable, night-schools would be the best, because it was as desirable that they should be educated after as before they were thirteen years of age, else by the time they were twenty they forgot half they were taught, and even the way to read. He had ascertained from several farmers in his district that they could allow young children to be absent from the farm three times a week for the purpose of receiving instruction. Of course night-schools would be inapplicable to the case of girls.

Mr. BANKS STANHOPE said he understood the commissioners were likely to be three years in carrying on their inquiries. Their duty was to inquire into the private gang system, and how far the Factory Acts could be applied to the employment of children in agriculture. The sub-commissioner, who was a cousin of his own, would be occupied for one year in Lincolnshire, and for two years more he would have a sort of roving commission throughout England. It was therefore almost totally impossible for them to report in less than three years. Under these circumstances he agreed with Mr. Jasper More that the Chamber should pronounce a clear opinion against Mr. Fawcett's Bill, and that no legislation ought to be proceeded with until the publication of the commissioner's report.

Mr. GODDARD, M.P., entirely concurred with the views expressed by previous speakers on this interesting subject; for he sincerely believed that Mr. Fawcett's bill would be both impracticable and injurious to the cause of agriculture generally, as well as to the labouring classes themselves. He lived in an agricultural district, and had ample knowledge of their wants and requirements: and whilst he was disposed to offer every encouragement to the spread of education amongst them, he felt that if it were attempted—as was proposed by the bill—to place restrictions upon the parents with regard to the employment of their children, such a course would be most mischievous in its results. If the boys were not permitted to labour until they were thirteen years old, it would not only be adverse to the interests of themselves and their parents, but, in all probability, they would not obtain the amount of instruction which would be essential to them in after-life. With regard to night-schools for boys, they would meet the difficulty to a very great extent, and should be encouraged in every rural parish. So far as he was concerned, then, he should deem it to be his duty to oppose the bill which Mr. Fawcett had introduced.

Mr. SMYTH, as one of the largest employers of agricultural machinery in Hertfordshire, was of opinion that for many years past there had been a sufficiency of education in the rural districts, at any rate so far as reading and writing were concerned. His own experience led him to this conclusion—that there were two classes of men who were good for machinery, and a third that was very bad. The two first were

those who either had no education, or were merely able to read and write—these were the best; whilst the worst men that could be put to machinery were those of superior education, who were above their position, and did not know their work. Let the philosophers in the House of Commons and elsewhere take that to heart when they were employed in raising these men above their proper level, and making fools of them at the farmer's expense. The agricultural interest was engaged in a world-wide competition, and one prop after another was being taken from it. He maintained, therefore, that all this extra education for the labourer was opposed alike to the interests of the labourer himself, the farmer, and the nation at large. He agreed with the Chairman that they ought not to fetter the minds any more than the bodies of men; but machinery had torn off the fetters from the labourer, and he knew well that men did not go through such exhausting toil now as formerly, but went to their work more cheerfully. Well, machinery had removed the fetters from the body, and there was no desire to fetter the mind; but what he contended for was, that all this superfluous education to the labouring-classes was more likely to prove a curse than a blessing to them. He hoped, then, that the philosophers in the House of Commons, of whom Mr. Fawcett was one, would understand that in promoting this bill they were offering an insult to the agriculturists, which ought to be resented by all who had the welfare of the labourers themselves at heart.

Mr. JAMES HODSOLL (Maidstone Farmers' Club), as an owner as well as occupier of land, was desirous that the Chamber should know the manner in which the education of the poor was carried on in his district, the parish of Staplehurst, Kent. In the first place it was conducted almost exclusively by means of certificated masters and mistresses, aided by the Government grant. There were about 200 children of both sexes in the schools, and last year £50 was received from the Government, whilst liberal subscriptions were made by most of the owners and occupiers of land in the parish, who also exerted themselves to impress upon the minds of the labouring classes the necessity of giving their children sufficient education to enable them to read and write well, the girls moreover receiving special instruction to fit them for their duties in after-life. The result was that the parish was a model to many of those around it, as regarded the education, the care, and the well-being of the labouring classes. The certificated plan was a good one, and he believed that wherever it was tried it would be found to answer every useful purpose. The voluntary subscriptions to the schools in his parish amounted to from £60 to £80 a year, and a considerable sum was also received in pence from the children. Being himself the secretary to the schools as well as the teacher of a class in the Sunday-school, he had ample opportunities of observing what the education was and what were its effects; and he had no hesitation in saying that the system operated most beneficially for all classes of the community, and without being accompanied by any of the mischiefs which some persons appeared to apprehend. Mr. Hodson added that in his district they avoided as much as possible the employment of children under 10 years of age.

Mr. LITTLE then moved by way of addendum to the resolution, "That no legislation on the education of children engaged in agriculture should take place until the commission appointed to inquire into the subject shall have made their report."

Mr. T. HORLEY, jun., having seconded the proposal, Mr. Botfield consented to the words being added to his motion.

Sir G. JENKINSON, speaking from personal experience, was inclined to say, "Put not your trust in commissions, but rather act upon the information before you." With reference to the observations made by Mr. Hodson, as to the system pursued in his district, that might do very well in places where there was a large population. But the point he (Sir G. Jenkinson) wished to impress upon the Chamber was, that in small rural parishes they had not, as a rule, the means of paying for certificated masters. A good certificated master and his wife could not be had for less than from 60 to 70 guineas a-year; and when the number of children varied from 60 to 70, where, he should like to know, were the funds to come from to meet all the expenses? As to night-schools, admitting that they had their advantages, still he could not help thinking that, after a hard day's work, until eight or nine o'clock perhaps, in harvest time especially, the children were scarcely fit either in mind or body to begin to receive instruction, and that in

such circumstances the process must involve severe labour. (A MEMBER: The night-schools should be held in the winter only). Even so, there were more difficulties in the way—the state of the weather, their clothing, and other drawbacks. Although cordially approving of night-schools, then, where they could be established and kept in operation, he hardly thought they were sufficient to meet the difficulty of the case.

The CHAIRMAN: As to night-schools, they were of course desirable institutions; but they required a different class of teachers to those employed in day-schools. Persons acquainted with the parts of the country where large manufactures were carried on, employing unregulated labour, such as the shoe manufacture in Northampton, would tell them that a night-school conducted by a mistress would be a scene of mere riot; that all attempts at instruction would be ineffectual, and that the state of things would most probably be analogous to that of the gang system. In those districts, therefore, there was nothing like carrying on the business of instruction in the broad light of day.

Mr. SIMMONS (of the Banbury Chamber of Agriculture) said that at the meeting of that body held on the 31st of May, they had passed the following resolution:—

“That this meeting deplores the evils of the agricultural gang system as it now exists, and approves of the course taken by the Government in appointing inspectors to obtain more information with a view to such legislation as the circumstances require; but at the same time this meeting considers that there should be no unnecessary interference with the freedom of agricultural labour.”

Mr. BARTLETT remarked that the resolution then before the chamber offered no suggestion with regard to the employment of women and children in agriculture.

The CHAIRMAN: True, they must wait for the report of the commissioners before taking action on that subject.

Mr. BARTLETT thought, however, that it would be useful for the guidance of the local chambers if some expressions of opinion on the question emanated from this Chamber as the centre of agricultural opinion.

Mr. JASPER MORE did not mean to contravene the opinion expressed by Mr. Banks Stanhope, but in speaking to Mr. Fawcett on the subject of his bill, that gentleman always said: “The more my bill is objected to, the more I am convinced of its necessity; because I am certain that agriculturists are opposed to the education of the poor working on their farms.” Mr. Fawcett had that idea in his head, and if he heard of this meeting of the chamber it would only make him more obstinate in adhering to the conclusion. Such an impression might be very easily removed by a simple resolution showing that they were prepared to do something in favour of the education of the labouring classes, and were ready to support a bill on the subject which would embody the views of the agricultural community generally, and not those of Mr. Fawcett in particular.

Mr. BARTLETT inquired whether the Chamber was prepared to discuss any principle as a substitute for the Bills of Mr. Fawcett and Mr. Bruce, so that the local Chambers might take up the question to give it their consideration?

The CHAIRMAN: There was nothing in the resolution before the meeting to prevent that. It only stated that legislation should not take place until the Commissioners had made their report.

Mr. BARTLETT: Education was a word of very extensive signification. And he should be prepared to start with the question, What was the sort of education which should be given to the working classes? Were they to be taught what was beyond their position and requirements?—any thing more, for instance, than reading, writing, and arithmetic?

The CHAIRMAN: It was open to Mr. Bartlett to move that the Chamber should define what the education ought to be.

Mr. BARTLETT had always been of opinion that the instruction given in national and union schools was amply sufficient for the persons for whom it was intended, and that it should not be superior to that which was considered good enough for children of the persons who contributed to the support of the schools, whether by taxation or voluntary subscription.

Mr. J. R. EVANS read the following resolution passed at the Newbury Farmers' Club: “That as the present system of education is going on satisfactorily and surely, it is the opinion of this Club that compulsory education or a general school rate would tend to over throw voluntary exer-

tions, and that it is inexpedient to interfere with the existing laws relating thereto. And further, that in this neighbourhood the employment of women and children in agricultural work is not such as to require legislation thereon.” In his part of the country (Mr. Evans remarked) the system adverted to by Mr. Hodson, as regarded the government grant in aid, worked extremely well, the children receiving just that amount of education which fitted them for the stations which they had to fill. The Club which he had the honour of representing were clearly of opinion that there should be no movement on the subject until the report of the Commissioners had been presented, and pending the preparation of that report they were perfectly satisfied with the existing arrangements.

Mr. HODSON: The certificated system as carried out in his parish just placed the sons of agricultural labourers in this position—that if any of them showed particular talent that required their further educational advancement, they received the necessary instruction so that they might be qualified for any employment that came legitimately within their reach.

The resolution moved by Mr. BOTFIELD, with the rider proposed by Mr. LITTLE attached, was then put from the Chair, and agreed to unanimously in these terms: “That this Chamber, while strongly sympathising with any efforts for the improved and increased education of the labouring classes engaged in agriculture, considers that Mr. Fawcett's bill would not accomplish this object; that the measure is impracticable in its details, and totally inapplicable to rural districts; and that no legislation on the education of children engaged in agriculture should take place until the commission appointed to inquire into the subject shall have given in their report.”

Sir, GEORGE JENKINSON next moved the following resolution—the object of which, he said, was to remove the impression referred to by Mr. Jasper More, that because the Chamber disapproved of Mr. Fawcett's Bill it was therefore opposed to all education of the poor—“That whilst this Central Chamber expresses its disapproval of the public gang system as now carried on in some of the eastern counties, and whilst it approves of the limited employment of women and children in acts of husbandry under proper precautions, it desires at the same time to record its opinion that the education of the labouring classes is a subject which requires careful consideration as being most important in its results to the general community, and it by no means wishes it to be imagined that because it disapproves of Mr. Fawcett's Bill, it is opposed to any well-considered legislation on that subject when full information has been obtained.”

The resolution finding no seconder fell to the ground, it being considered that the motion of Mr. Botfield was a sufficient vindication of the Chamber from such a charge.

A motion by Mr. T. HOLEY, Jun., seconded by Mr. BROWN, for the adjournment of the discussion in order to give the local Chambers an opportunity of further considering the educational question, was negatived by a considerable majority after some discussion.

The sitting then terminated, having lasted upwards of four hours.

#### OLD ENGLISH RULES FOR PURCHASING LANDS.

By BARNABE GOOGE, 1596.

Whoso will be wise in purchasing,  
Let him consider these points following :

First see that the land be cleare,

In title of the sellar,

And that it stand in danger

Of no woman's dowrie.

See whether the tenure be bond or free,  
And release of every feoffee.

See that the sellar be of age,

And that it lie not in mortgage.

Whether a taile be thereof found,

And whether it stand in statute bound.

Consider what service longeth thereto,

And what quit rent thereout must go.

And if it come of a wedded woman,

Think thou of covert baron.

And if thou may in any wise,

Make thy charter with warrantise,

To thee, thine heires, assignes also,

Thus should a wise purchaser do.

## RATS.

SIR,—Has any one ever estimated the number of rats that prey upon the farmer's property? Allowing one to each acre, we should then have about 60 millions in the United Kingdom. As animals consume according to their weight, a full-grown rat would consume much grain in a year. But, unfortunately, it is not only what they consume, but what they destroy, that concerns us. Said an old labourer's wife to me, "A rat has taken away in one night eight of my brood of young ducks, worth 8d. a piece. My neighbour, Mrs. B—, a small farmer's widow, cannot raise any poultry, for under her house is a honeycomb of rats' runs. She took them in a hamper into her sleeping room last night, and even there they tried to get them out."

I can testify to their destructive powers from experience. When they have young they will carry away and store up scores of young chickens, ducks, or turkeys in a single night, much the same as a cat having kittens. A friend of mine who had a little rabbit warren opposite his windows, saw his cat catch a young rabbit. He followed her, and found that she already had laid up 36 that morning near her kittens. I have known of a brace of foxes taking 37 turkeys in a single night, and burying many of them up in some dung-heaps which were upon an adjoining field ready for spreading.

When hard pressed for food for themselves or their young, rats are very daring, and will attack large chickens or good-sized rabbits. I know a case where a youth was awoke in the night by a rat beginning upon his ear. Wherever stock are fed with meal or grain, there the rats will surely come, to share, with the pigs especially, their barley-meal and pollard.

When dining at Vintners' Hall with the late excellent Mr. Green, the great shipowner, he said to me:—"Mr. Meech, I can beat you in pigs; I make a thousand a year by my pigs." I expressed my surprise, and said if I got their manure free of cost I thought myself a lucky fellow. "Well," said he, "I have only 60 pigs; before I kept these pigs the rats used to damage the sails of my ships to the extent of a thousand a year, eating every greasy portion. They now dine with or after the pigs, and never touch the sails." This hint may be useful to shipowners as well as to housekeepers, who find that the mice destroy the greased or stained portions of table-cloths.

Rats migrate, and travel a long way in a night, in search of food. A neighbour of mine told me that he one night met a small army of them, some hundreds together. The carelessness of some farmers or their false economy causes serious loss to their neighbours. They may be called rat-preservers or rat-breeders. I used to pass frequently by two wheat stacks which were completely honey-combed by the rats, whose paths into and up the stacks were visible from the road. Having consumed nearly all the grain, they left the stack for better quarters. When threshed there was plenty of straw, but the corn was nearly "nil." Those who keep their corn in stack for seven years (and I know of some who do so) had need have an eye to the rats. I have used a dozen iron stack frames (Garrett's patent) for the last 20 years, without any rats. The fact is, they cannot do without water, so if one gets into the stack, he must come down to drink, and cannot re-ascend. It is too common a practice to leave carts, ladders, or anything close to the stacks, thus affording access. As soon as these are removed, Mr. Rat must come down for water and cannot return. We always trim or shave our stacks (cost 1s. per stack) to cut off access from below, as well as for economy of corn and neatness.

Mice are more difficult to expel than rats, for they get into the sheaves at harvest time, and are thus carried on to the stack. Unless poisoned by liquid immediately after putting up the stack they soon find out that they can exist by the 12 per cent. of water contained in straw and 11 per cent. in the grain. They also learn to avail themselves of dew and rain. In the spring and summer they will so multiply as to destroy or damage a large quantity of the grain, especially if left over-year. To show how the animals can exist by the water contained in what is called dry grain and its straw, I will relate the case of a horse at Crossing Temple, a few miles from me, where a horse used for treading or consolidating the barley in the barn, being left there all night, slipped down between the closely-

packed barley and the boarded sides of the barn. In vain was search made for him in the morning, and it was concluded that he had been stolen. On Christmas Day, as the ploughmen came to attend to their horses, they heard the neighing of a horse in the barn, and after removing the barley, they found the lost horse as fat and as sleek as a mole. Thinking he must be very thirsty they ignorantly allowed him to go to the pond and drink his fill, and in consequence he died. This is well known to many persons now living. The horse had gradually eaten his way into a comfortable space. But to return to our rats. They are most industrious and destructive burrowers: as they cannot destroy a solid brick wall they will burrow under it, unless the foundation is well concreted; where beams enter the wall they will gnaw the wood. It requires a watchful eye to keep them under. Every hole should be noted, and plugged at once with a piece of tile or brick fixed with cement, or a piece of hard wood dipped in gas tar. Their runs should be tarred, and thus they will soon get disgusted with their quarters. Wherever a small heap of earth is thrown up near a wall, the run should be traced and at once stopped; lime and stones as a concrete conquers them. Loose lime they cannot work in, it blinds and disgusts them. In every barn and shed door there should be a round hole, about eight inches in diameter, so that the cats can have free access in search of the rats. It is at night they work, and they do so as much as possible under cover. They may be easily poisoned by strychnine, mixed with ground barley or oats; but before trying this they must be fed for several nights with the meal unmixed with poison. Rats are very sagacious, and had I space I could relate many instances of their cunning. It is a most dangerous thing to spread poison on bread-and-butter, for they carry it away; and I know of too many instances where valuable dogs, fowls, &c., have perished. Another inconvenience is, that when poisoned they die in their burrows, which are too frequently under your drawing or dining-room, or in the walls. Their decomposition causes a most detestable and too durable stench. There is nothing like plenty of cats. I find male cats castrated when young by far the best rat-catchers, and by blocking the holes you give the cats a better chance of catching them. Traps may also be set, but they are very wary of them. Hollow walls are objectionable, so is thatch on buildings.

Water rats undermined the banks of my pond until I turned in a few pike, which soon converted rats into fish. A pike of 3 lbs. will take a rat and swallow him at once. Beware of pike where you have young ducks, for they enjoy them quite as much as they do rats. I had imagined that there was a chance of the rat biting the stomach of Mr. Pike; but, as an old angler, and examining the condition of the pike's stomach with a bait in it, I found that there is no fear of that, for instantly the stomach collapses like an elastic pitch-plaster, and not a single breath could the rat or any living thing draw. Pike always swallow their prey alive and head foremost. They are very fond of eels, and swallow them alive and head foremost. They always seize their prey under the middle, and, unless very hungry, hold them so for some time.

Rats find abundant accommodation and concealment under the old-fashioned wooden barn floors and dilapidated or thatched farm buildings. The modern system of asphalted upon concrete is an effectual barrier: they cannot gnaw it; their only chance is to burrow under between the ground and the concrete, and this, by a careful examination, may be easily prevented. A very destructive cunning old rat, that could never be trapped, was taken as follows:—Every hole except one was carefully stopped with gas-tar substances, and the trap set at the remaining hole. For two days and nights he declined coming out, but hunger and thirst at last compelled him to face the traps, and he was taken.

I very much commend asphalted floors to my agricultural brethren. It is so cheap and clean, and, above all, prevents any damage to corn, by preventing damp arising from the earth beneath it. Cats such as I have will not only kill rats, but also weasels. The latter will destroy a brood of poultry in a night, if they have access to them. Of course every one knows the value of ferrets and a good rat dog.

J. J. MEECH,

## THE SOUTHERN COUNTIES ASSOCIATION.

## MEETING AT BRIGHTON.

This Society, established, in acknowledged imitation of the old West of England, "for the encouragement of Agriculture, Arts, Science, Manufactures, and Commerce," has been looking somewhat longingly for its opening day. The cattle-plague Orders interfered last year with the arrangements for a meeting, but it was now determined to go on, with the twelve classes and a hundred and fifty entries of horned stock struck out. It would, however, have been far better to have retained the Sussex beasts; as these, like the Polled in Norfolk the other day, would have no doubt furnished a very interesting feature to an occasion that was by no means too strong in other respects. Still, after the fashion of the West country, there were divers collateral attractions, such as an Exhibition of Arts, a grand Flower Show, and so forth. But unfortunately these forces were not united, or the rather they ran in direct opposition the one to another. Instead of the agricultural, the artistic, and the horticultural elements being all disposed upon the same show-ground, where-by-the-bye there was ample room, the Arts Department was right at the other end of the town, and the Flower Show right at the other end of the week. As these two companion sights were, moreover, very handy, and the stock and implements comparatively a long way off, it so happened there were a number of visitors to the Pavilion who never went near Hove, without it was with the double inducement of having a look at the cricket match between Sussex and Kent, as well as at the horses and Southdowns. It is not so that Mr. Jonathan Gray and his friends manage matters with the Orders of the Bath. In place of pulling all ways at once, like pigs fighting, there is an ever-charming variety at a West of England gathering, and you may turn in a moment from Berkshires to geraniums, from landscapes to clod-crushers, or from four-year-olds to sewing-machines; while the same half-crown or shilling franks you through, and the military band discourses sweet music, fair and square, alike to the connoisseurs in bacon, canellias, or Honiton lace. At Hove, on Monday and Tuesday, the Royal Marines played out the programme pretty much for their own amusement, and "The General Chair Company," at two-pence a seat, looked very like winding-up long before Friday night.

In fact, the direction was raw, the preliminary proceedings imperfect, the house divided against itself, and the meeting, so far as we stayed it out, one of the flattest ever celebrated. Not but that the stewards, like Lord Portsmouth and Mr. Woodman for horses, Sir Archibald MacDonald and Mr. Shackel for sheep and pigs, and other gentlemen in the discharge of similar duties, did all that could be done; but there was evidently the want of some "head centre"—of some presiding genius to answer questions, solve difficulties, and keep people straight. The very beginning of the business was signalled by an absurd mistake, the catalogues being kept back until the judging was over, and the interest so far very effectually destroyed. Certainly, through the kind offices of some of the stewards and judges, we were enabled to send off the prizes by telegram for our paper of the same afternoon, though we much question whether this "favour" would have been granted if we had not been personally known to many on the ground. Is there any other Agricultural Society that now withholds the cata-

logues during the time the judges are at work? And can a new Society, of all others, afford to go backwards? As to the complaints about subscribers' and exhibitors' admission tickets never having been issued, of the meeting never having been properly announced, and so forth, we must leave the administrative talent to settle these matters amongst themselves, as to profit by experience that would threaten at best to be a somewhat costly investment.

With the Sussex, the Shorthorns, and the other breeds of cattle withdrawn, the mainstay of the meeting was found naturally enough to be amongst the Southdown sheep, to the entry of which all the chief flock-masters of the county contributed. The Duke of Richmond, Lord Chichester, Mr. Rigden, the Heasmans, Mr. Waters, Mr. Penfold, Mr. Hart, and others were all well represented in this way, although the array of Downs was not altogether so imposing as might have been expected. The opening class for instance, of shearing rams, contained nothing of remarkable excellence. Even Mr. Rigden's first, with his fine size, good back, loin, and leg, and true touch, finishes off so badly behind as to be only half a good one, though a son of the famous 170 gs. sheep purchased by Sir Thomas Lennard at Babraham, and that, if we remember aright, had no such defects as are here discernible in his produce. The Goodwood rams were not so well prepared, or they might have run their old opponents a little closer, his Grace's "reserve number" being a particularly neat smart sheep. Both, indeed, of the High Commendations went in this way, none of the remainder being noticed but a sample of the Moteomb flock. In the old class Mr. Rigden had the honours still more to himself, taking not only the two premiums, but the reserve also, and, at any rate so far as his three-year-old first is concerned, with every justice. This is a really noble sheep, beginning with an almost perfect head, a full, clear, honest eye, and altogether admirable expression; while he by no means belies this grand point elsewhere, try him as you will either to meet or to follow. He stands broad and square, has a good round rib, a firm touch, and should surely be heard of again at Bury. Mr. Woods, in any case, had a fine opportunity of getting a line for Merton, as Mr. Moore may know yet more of the merits of this ram, for he was let last season to Lord Radnor. The second-prize, and another three-shear, showed a very white face, and was otherwise of much the same character as the first-prize yearling; with the Duke of Richmond and Mr. Waters again coming for some commendation. Mr. Rigden did not bring in any ewes, although with his homestead almost on the show-ground, and the Duke succeeded in turn to first and second, but the Goodwood pens did not strike us as being so especially handsome, blood-like, and sorry as we have seen them. Two or three in the two lots might have been readily drafted, and they won against no great competition, the Heasmans, who came out so promisingly some years since, having trained off again, and Lord Chichester and Mr. Gorringe making no head-way. Held as it were in the capital of the Southdowns, the show might have been better, and "bar one," Lord Walsingham looks well for another long lead at the Royal Meeting.

The Messrs. Russell, of Farningham, and Mr. Lewis

Loyd, of Croydon, were the only exhibitors of Hampshire Downs, and both flocks appear to have been cultivated with care and judgment. Two years back, indeed, one of the Farmingham sheep took the prize and medal as the best single entry of any breed at the Smithfield Club, although Mr. Loyd would have been first here but for his best ram showing slugs, the head being otherwise a very kind one, and the Hampshires were, we hear, originally a horned breed. Mr. Loyd's old ram was also quite good enough to take a first prize, if against no competition whatever, and there was not an entry of ewes. The Oxford Downs were in still less force, though the Duke of Marlborough put in an appearance against Mr. Wallis, whose best shearding ram was also first at Salisbury, and his second old sheep first at Salisbury, the best at Brighton not having been out before. The judges considered the Salisbury old sheep too fat for use, and they called in a higher authority in this way, Mr. Newton, before they gave him the place over the commended ram from the same flock, that in more workman-like trim was short of quality. The Blenheim ewes were a big useful lot, but there was nothing to beat, and the class ended in another walk-over.

The Kents are a deal more useful than ornamental. They clip a capital fleece of from thirteen to fourteen pounds: they die well, and the butcher has no better mutton during the summer months. The Messrs. Russell, who can sell them at a year and four months old for 90s. each, also speak to a very telling cross of the Cotswold ram on to Kent ewes; but Mr. Rigden, of Lyminge, and Mr. Murton were the chief exhibitors of the sort at Brighton, the light lathy Smeeth ewes only coming in when they had the entry all to themselves, although this flock has hitherto been pretty generally invincible. There is no animal so easily pulled to pieces as a Kent sheep, what with his plain head and his pot carcase, but then as he grows good mutton and wool there may be reasons for keeping to him as he came out of the Ark.

The horse show was woefully indifferent, and had not Mr. Wyatt sent in Nutbourne, Mr. Gee his collection of prize hunters, and Mr. Mannington a stallion or two, in the way of extra stock, there would have been really nothing to speak of. The great grand chesnut never showed better, for he was just at the very acmé of prize condition, with plenty of flesh, but not too big, and with his rich coat shining in the sun like jeweller's gold. But he had nothing to beat beyond Bedminster, as Durham was changed for O Rest, a crick-backed horse, that nevertheless gets race-horses; and the other one, we believe, was ejected, though whether or no, could be of little consequence. But the sweetest horse of the whole show was amongst the extras—little Merry Hart, a very model of his inches, that the Duke of Beaufort, it is said, is going to send into Breconshire to cross with the Welsh ponies—that is, if his Grace can ever let the little gentleman leave Badminton. Mr. Mannington also introduced Master Fenton, who is getting good hunting stock hereabouts, and the prize mare's foal, a very neat one, is by him. The mare herself is not so good, and the premium should certainly have gone to a short-legged chesnut—Marigold, bred by Mr. Holmes at Beverley, but exhibited by Mr. Gee. There was no more palpable mistake in the day's proceedings, a very nice but rather lathy thoroughbred mare exhibited by Mr. Gates, being also infinitely preferable to the flash coacher they fixed on. Mr. Brown, of Buckham Hill, who takes a deal of interest in the horse-breeding of these parts, showed one from his stud, as truth compels us to add, the old grey was a long way the worst of the lot. As the best of the four hacks had a broken-knee and a-half and a queer hock, the prize was withheld. Then there was no entry of stallion ponies, but the one pony mare was clever, handsome, and

bloodlike, and the return list testifies to her excellence. In truth, amongst "the nags" there was no competition but for the two hunter premiums, open for all ages and any weight-carrying capabilities. Of the dozen entries Mr. Gee furnished four from Wadhurst, viz., Buffoon, Master of Arts, The General, and the black four-year-old, Tom, all too familiar to our readers by this time to require further description. Mr. Mannington, the Veterinary Inspector, drew the attention of the judges to the suspicious appearance of Tom's hocks, and the first prize went accordingly to Master of Arts, though the horse for our own money should have been the other chestnut, The General. He has more blood and pace than any of them, with plenty of power; but he did not show himself kindly, putting his back up, and never quite settling down during the official inspection. About the next best, though entered in the wrong class, was an Irish horse, shown by Mr. Tompkins, of Reading, that went like oil, and that looked more like carrying a man to hounds than anything tried under a saddle. However, the second place was claimed by Mr. Loder's old chestnut, a good, deep, useful animal in his box, but a wooden horse out of it, and, if action be a point, with no pretensions to a prize. The others were mostly common and inferior, and Mr. Mannington and Mr. Brown have a deal yet to do in teaching the Sussex farmers how to breed a hunter.

They do not shine much more with a cart-horse, although Lord Chichester gives them the opportunity of a cross with the Suffolks. His Lordship's second-prize stallion of this breed is only a moderate animal himself, but the sire of a very clever clean filly, also second in her class, where it took a really good one to beat her. This is Mr. Atkins' filly, of which we said, when we saw her at Basingstoke, that she "is so well-grown, so truly shaped, and so full of fine points, that she is bound to do well elsewhere, should her owner have only entered her for Salisbury or Bury St. Edmund's." He appears to have so far preferred Brighton, where the best two-year-old colt, Mr. Newman's Young Champion, was the second at Salisbury, when we wrote of him as having style enough for a carriage horse; but he had only one to beat on his own ground, and that of a very sorry sort. The first-prize all-aged stallion, the property of Mr. Summers, and not of Messrs. Stanford, is a neat compact little horse with quick action, and a good dark brown in colour, Buckinghamshire bred; but the Duke of Richmond's two prize mares are both Clydesdales, as of the two we go all for the old brown put second. She has better looks than the other, has better action than the other, and is of a better colour than the other, but at double the bay mare's age she has gone a little in her back, and so the choice went the other way. But eight year hence, Violet, with her hind-legs drearily dragging after her, does not promise to be half so good as Smiler is at this date. Still the young one had the pull with the foal, and if the prizes had been for foals and not for mares the award would have been right enough. There was only one pair of plough-horses, two very serviceable but not nicely matched Clydes from the Goodwood stable.

The entries of pigs were very limited, more particularly in the Berkshire classes, where Mr. Bailey and Mr. Clark of Maidenhead were Mr. Stewart's only opponents; but the Gloucester pigs are good enough to win in any company, and "Royal" Duke, a one-year-old boar, long, level, and well covered, should fairly earn his full title hereafter. The pens of young breeding sows were also very admirable for both quality and uniformity, and the show of Berkshires, though small, was pretty generally good. In Sussex they have a breed of their own: a long, lightish, somewhat delicate-looking black, or almost grey,

very thin in the coat, and some of them, such as Mr. Gee's sort, with what a houndsman would call narrow, picked, "egg-sucking heads." The Duke of Richmond's entries were by far the best of the sort, and his Grace's first-prize sow, a really good pig, with more depth and breadth, and plenty of nice kindly hair on her back and sides. She was good enough indeed to beat Mr. Duckering's Lincolns, of which the Judges had the taste to prefer the middle-size for second place; the Duke's best boar also defeating another of the Lincolns, that, however, in the all-aged class had it pretty much to themselves, with two premiums distributed over three entries. The young breeding sows made up two pretty prize pens, all from Goodwood, where, what with Southdown sheep, Clydesdale horses, and "improved" pigs, the present possessor of the title clearly inherits all his lamented father's fondness for agricultural pursuits.

Sussex has long been famous for its poultry, and Mr. Bailey, of Mount-street, pays over to one salesman in the county something like £4,000 a-year for chickens; whilst it is calculated that the trade in this way reaches to at least £200,000 per annum. Nevertheless, carefully as he is bred and reared, the Sussex is not precisely a show bird, but tells more on the table than in the prize pen; and though the Dorkings have probably been improved from the old four-toed Sussex, all the premiums went further a-field, Dr. Campbell, of Brentwood, being the most successful exhibitor, with some of his well-known birds. Mr. Matthew, from Suffolk, was first for game with his black-breasted reds and blue duck-wings; while Sussex came in for Spanish with Mr. Jenner's birds; and Mr. Mutton, of Brighton, for Polands. The other sorts were brought in from all over the country, and the judges, Mr. Bailey, from London, and Mr. Loder, of Crawley, spoke highly of the make-up of their department.

There was a tolerable show of implements in one long line, and Ruston and Proctor, Ransome and Sims, the Reading Company, Jackson of Brighton, and Mr. Sutton for Clayton and Shuttleworth, set their steam-engines going; but beyond this, there was not a trial even of a mower or a hay-maker, and drowsy dulness reigned supreme. With Mr. Rigden's farm so handy, something more might smely have been done to give an interest here; though the manufacturers who go against the prize system certainly had their will, as the occasion was made nothing more of than a fair, and, as we should say, a very bad fair too.

## PRIZE LIST.

### SHEEP.

#### SOUTHDOWN.

JUDGES.—(And for Hampshire and Oxford Downs).

J. Rawlence, Bulbridge, Wilton.

H. Woods, Merton, Thetford.

Yearling Rams.—First prize, £20, W. Rigden, Hove, Brighton. Second of £10, W. Rigden. Highly commended: The Duke of Richmond, Goodwood, Sussex; and W. Rigden. Commended: W. Rigden; the Duke of Richmond; and B. Waters, Motcombe, Eastbourne.

Rams of any other age.—First prize, £20, W. Rigden, Hove. Second of £10, W. Rigden. Highly commended: W. Rigden (for two other rams); and the Duke of Richmond. Commended: The Duke of Richmond (for two other rams); B. Waters; and the Earl of Chichester, Stammer Park, Lewes.

Pens of five Yearling Ewes.—First prize, £20, the Duke of Richmond. Second of £10, the Duke of Richmond. Highly commended: Messrs. J. and A. Heasman, Angmering.

#### HAMPSHIRE DOWNS.

Yearling Rams.—First prize, £20, R. and J. Russell, Farningham, Dartford. Second of £10, L. Loyd, Monk's Orchard, Addington, Croydon. Highly commended: Messrs. Russell, Farningham (for three other rams). Commended: Messrs. Russell,

Rams of any other age.—First prize, £20, L. Loyd. No competition.

Pen of five Yearling Ewes.—No entry.

#### OXFORD DOWNS.

Yearling Rams.—First prize, £20, G. Wallis, Old Shifford, Bampton, Oxon. Second of £10, the Duke of Marlborough, Blenheim, Woodstock, Oxon. Commended: G. Wallis.

Rams of any other age.—First prize, £20, G. Wallis. Second of £10, S. Wallis. Commended: G. Wallis.

Pens of five Yearling Ewes.—First prize, £20, the Duke of Marlborough. No competition.

#### KENT SHEEP.

JUDGES.—G. Jenner, Udimore, Rye.

R. J. Newton, Campsfield, Woodstock.

Yearling Rams.—First prize, £20, H. Rigden, Lyninge, Hythe. Second of £10, H. Rigden.

Rams of any other age.—First prize, £20, H. Rigden. Second of £10, Col. W. Deedes, Sandling Park, Hythe.

Pens of five Yearling Ewes.—First prize, £20, F. Murton, Smeeth, Ashford, Kent. Second of £10, F. Murton. No further competition.

#### HORSES.

##### AGRICULTURAL.

JUDGES.—J. Clayden, Littlebury, Saffron Walden.

G. Franks, Tonge, Gravesend.

Stallions above two years old.—First prize, £20, W. Summers, Park Corner, Rotherfield, Sussex (Young Matchless). Second of £10, the Earl of Chichester (Emperor).

Mares and Foals or in Foal.—First prize, £15, the Duke of Richmond (Violet). Second of £10, the Duke of Richmond (Smiler).

Entire Colts, foaled in 1865.—First prize, £10, A. T. Newman, West Dean, Chichester (Young Champion). Second of £5, R. R. Verrall, Fabner, Brighton (Annandale). No further competition.

Fillies, foaled in 1865.—First prize, £10, J. Atkins, Barton, Bishopstoke, Hants. Second of £5, the Earl of Chichester.

Pairs of Mares or Geldings.—First prize, £15, the Duke of Richmond (Clydesdale mares: Diamond and Tippler). No further competition.

##### RIDING HORSES.

JUDGES.—Colonel Thomas.

Lord Vivian.

Thorough-bred Stallions.—A Cup, value £50, J. Wyatt, Nuthourne, Emsworth (Nuthourne).

Mares and Foals, or in-foal.—Prize of £15, H. Gorringe, Southwick Green, Shoreham (Lady Kingston).

Hunting Mares or Geldings.—First prize, £20, T. Gee, Dewhurst Lodge, Wadhurst (Master of Arts). Second of £10, R. Loder, High Beeches, Crawley (Golden Hue). Commended: T. Gee (Buffoon).

Haek Mares or Geldings.—No merit.

Pony Stallions not exceeding 14 hands high.—No entry.

Pony Mares not exceeding 14 hands high.—Prize of £5, Messrs. T. Barker and J. E. Elphick, Waterloo Mews, Hove, Brighton (Miss Teddington). No competition.

##### PIGS.

##### BERKSHIRES.

JUDGES.—R. J. Newton.

G. Jenner.

Boars above one year, not exceeding two years old, on the 1st of June, 1867.—First prize, £5, A. Stewart, Saint Bridge, Gloucester. Second prize not awarded.

Boars not exceeding one year old on the 1st of June, 1867.—First prize, £5, A. Stewart. Second of £3, A. Stewart. Commended: the Rev. H. G. Bailey, Swindon.

Breeding Sows in farrow, or that have farrowed within four months of June 1st, 1867.—First prize, £5, A. Stewart. Second of £3, A. Stewart. Commended: J. H. Clark, Attwood House, Maidenhead.

Pens of three Breeding Sows, not exceeding 12 months old on June 1st, 1867.—First prize, £5, A. Stewart. Second of £3, J. H. Clark.

##### OTHER BREEDS.

Boars above one year, not exceeding two years old, on June 1st, 1867.—First prize, £5, Messrs. R. E. Duckering and Sons.



Northorpe, Kirtou Lindsey (Lincoln). Second of £3, Duckering and Sons (Lincoln).

Boars not exceeding one year old on the 1st of June, 1867. First prize, £5, the Duke of Richmond (Sussex). Second of £3, Messrs. Duckering (Lincoln).

Breeding Sows in farrow, or that have farrowed within four months of June 1st, 1867.—First prize, £5, the Duke of Rich-

mond (Sussex). Second of £3, Messrs. Duckering (Lincoln). Highly commended: Messrs. Duckering (Lincoln).

Pens of three Breeding Sows, not exceeding 12 months old on June 1st, 1867.—First prize, £5, the Duke of Richmond (Sussex). Second of £3, J. Kent, Goodwood, Chichester (Sussex).

VETERINARY INSPECTOR.—J. Mannington, Brighton.

## THE GANG SYSTEM.

STR.—The question of education for the agricultural population, and in connexion therewith the abolition of the "gang system," as it is properly called, in all its forms of injustice, cruelty, and neglect, were the subjects of discussion at the special meeting of the Central Chamber of Agriculture.

The previous correspondence on the subject of the gang system, addressed to you, reflects little credit upon those who so strenuously defend that system, although I cannot suspect them of a desire to sanction or perpetuate the flagrant abuses or the dire consequences attending it. But what I blame and deprecate in the communications of its advocates is, that they wholly ignore, extenuate, or deny the existence of those evils, and confine themselves to an enumeration of the benefits accruing from it, the former being as inevitable consequences of it as the latter. The only just way of viewing the question is by showing if they can that moral degradation of the children is not a necessary consequence, driven, as they are, like infant slaves, to labour, at an age when Nature itself dictates that, if work is to be extracted from them, it should be in a form that interferes neither with their moral, intellectual, nor physical development.

Now, if there is any truth in the reports of those persons who are well acquainted with the gang system, the children who are thus daily driven to their labour are jeopardised in all these respects. Their morals are inevitably debased by the admixture of the sexes, their educational advancement rendered impossible, and their physical powers weakened for life by being thus prematurely forced into systematic and continuous action.

Such I consider to be the inevitable evils attending the gang system. That the morals of both the male and female children are debased by it, is proved by the evidence given, not only by those who have investigated the subject, but by the more decent of the parents of the children, who, while they deplore those evils, urge as their excuse the low rate of their wages, and their consequent inability to support their families without thus sending them out in gangs. This plea is probably well-founded, the wages in those districts where the system prevails being very low. That the education of the children must be wholly neglected under the gang system, is self-evident. And with regard to the physical effects of this prematurely drawing upon the—we can hardly call it "bone and sinew," because these are scarcely formed in the infants who are subjected and driven to it by the lash of their brutal gangers, but—upon the tender and immature framework of children, whose only employment ought to be those amusements which Nature dictates and humanity should allow them. We read of children of four or five years of age being roused from their beds at four or five o'clock in the morning, and driven to their scene of labour—what a horrid burlesque upon the word!—three, four, or five miles' distance, there to be kept under the lash of the slave-driver until six at night, when they are at liberty to drag their wearied limbs (if they can) to the homes of their culpable parents. Will it be

asserted that such a course of treatment can have no deleterious effect upon the physical constitution or framework of the children? or that they are likely to grow up as strong, healthy, and vigorous as they would if allowed to engage in the sports or amusements suitable to their years, or were kept at school part of their time?

The most remarkable and outspoken of the opponents of agricultural education at the late meeting was Mr. Smith from Hertfordshire, who boldly declared that in his experience the best-educated men were the worst machinists, and were exceeded in efficiency best by those who did not know "Great A from the gable end of a house" (to use a homely phrase), or next, those who knew not "the three R's" as Alderman Curtis would have said, but only the two first, reading and riting or writing. This is one of the most marvellous illustrations of the saying of the poet, "If ignorance is bliss, 'tis folly to be wise," that we ever heard or read of, and it ought to be a lesson to those fathers who think of making their sons engineers or machinists. Of what use is an expensive education in such cases, when the less the boys learn the more they will know? In my senile ignorance, I have all along thought that the employment of machinery on the farm would necessitate a better education for the labourer in order to qualify him for its management; but Mr. Smith has put new ideas into my head, upsetting all my preconceived ones. Which way, however, the balance of ideas will turn remains to be seen. At any rate, Mr. Smith must have been astounded at the confession of the next speaker, Mr. James Hodson, of the Maidstone Farmers' Club, who on his own property at Staplehurst, in Kent, has obstinately gone counter to all Smithian doctrine, and absolutely been foremost in the education of all the children of the labouring class; and moreover, he calls that place "a model parish!" What presumption! I am surprised that Mr. Smith did not rise and protest against such a point-blank departure from the principle he had laid down; but I conclude he was too much astonished to be able to do so. In most parishes there are sturdy opponents of education for the poor on any liberal basis, who will endeavour to prevent all legislation on the subject if they can. I hope their endeavours will not succeed, for it is clear that if they do, the agricultural population in those districts will not be educated at all.

Referring again to the gang-system, I was happy to find that at the meeting there was not one who advocated it as it is conducted, and only one who approved it at all, with modifications. But the system admits of no modification, because whatever legislation may do, if it sanctions it at all, the management of the gangs will still be in the hands of a mercenary and probably brutal manager—a drunken dissolute fellow, whose only object will be to gain additional means of indulging his depraved appetite for liquor. Such, as I understand, are the majority, if not of all of the gangers, and such they will continue to be; nor do I believe that a more respectable class would undertake the task, under any circumstances. The only remedy for the crying and cruel evils it entails is, to prohibit it altogether; for whatever restrictions a legislative measure may impose on the system, they would be evaded both by the cunning of the gangers themselves, and by the connivers amongst the farmers who believe that they profit by it.

Yours, &c.,

AN OLD NORFOLK FARMER.

London, June 28th,

## TO SALISBURY AND BACK.

BY A PRACTICAL FARMER.

It is not my intention to say much of the meeting itself. I wish rather to give my impressions of the agriculture of the districts through which I passed on my way down and back, as also some idea of the probabilities and prospects of the coming harvest. We left London on the Saturday, not liking Sunday travelling. The route down is through a country by no means popular for great improvements manifest in its agriculture. The soil for the most part is inferior, and in some localities positively not worth farming. What strong steam-grubbing might effect, no one can tell; nor could we divine what to do with the large tracts of sands, not to say sandy loams. Then, again, we were upon chalky subsoils, with very thin strata of soil upon it, evidently soon burnt through in dry summers. Only here and there—"few and far between"—did we find an Oasis. Occasionally we exclaimed, on passing, "That's good! that farmer buys his crops." "Artificial aids have made those look so promising." Then the absence of flocks surprised us: there is no good farming without cattle and sheep.

Upon the whole, the country does not manifest a fair prospect for the coming harvest. The crops are thin, backward, yellow, unpromising. We attended the Royal Society's meeting in 1857, held at Salisbury. We then complained highly of the bad farming and mismanagement almost everywhere apparent. We now, with great pleasure and sincerity, congratulate our Southern friends upon the great advances they have made within the past ten years. This is patent to any one, on passing through the country. The cleanliness, good order, and intelligent management is evidenced by even a passing glance by railway. There are, however, many minor matters, as well as more important, that yet demand attention. The haymaking is certainly on a bad system. It can't be made too quickly, if the weather permits. More roots and less corn would be advantageous. The judicious expenditure in and liberal application of our best artificial manures have done, and are doing, wonders elsewhere: why not on these soils? We counsel our Southern friends to try them, along with fold-yard dung, to a much greater extent. We use them profusely ourselves; and the more we use, the more profit we get. Every crop in the counties now under our pen should be fed with artificial aids—*i. e.*, Peruvian guano or superphosphates, or other local manures, well approved.

We took our leave of Salisbury with the full persuasion that such meetings as we had just witnessed could not fail of being advantageous to the district, and as we seldom travel the same road back from whence we came, we resolved to take a circuit, *via* Brighton and Hastings, to London. This gave us a favourable opportunity to view the south-eastern part of our country. We found the country much richer and better, and more beautiful too, for a considerable distance along our route. Its capabilities of production in some localities are great, and might be turned to good account in potato or other root culture, taking care to use plenty of artificial aids—yes; not less than from five to seven cwt. per acre, besides good fold-yard dung. We found much more stock grazing along this route than before, and were not long ere we came in sight of "the wide, wide sea" with its bays and indentations of coast. Here and there grazing cattle and sheep abounded, and added much to the business-like

view of the country we were taking. The country through which we are passing is beautifully wooded and very pleasing, and some beautiful residences are passed. We come to Fareham, Botley, Havant, Chichester, Arundel, Shoreham, Brighton. For the most part all is creditably farmed, and many satisfactory crops are seen; but still we could not divest ourselves of the idea that a false economy appeared prevalent. There was not that strength and vigour of plant which the nature of the soil would indicate as possible to attain under a very liberal management. Strong flinty loams certainly were passed here and there, and some inferior and unproductive soils; but all capable of much greater attainments under modern management. If medium loams will yield ample profit by an outlay of from 50s. to 100s. per acre in artificial manures for root crops—the very foundation itself—why should not these loams and loamy clays be made to do so? We commend our Sussex and Hampshire farmers to try them liberally, perseveringly, and judiciously. We can assure them, we again repeat, it is most profitably done elsewhere—yes; much of it in the adjoining county of Kent. Another remark we would make upon folding sheep. On our way we saw many folds containing many sheep, and these so closely packed, as to be obligated to snatch a blade of grass, sainfoin, or clover from under each other's feet. Surely this cannot be first-class management either for the soil or the sheep. To one accustomed to see large flocks leisurely cropping their herbage, and strolling over pasturage at their will, it seemed a novel sight. We preferred our large cattle fold-yards, our deep culture, our ample manuring, our roller consolidation of soil, to sheep trotters and treadings. We of course decided that our Sussex friends were wrong. We did notice variations of culture and management, which met our approval; but in the main we venture—with all due deference to our southern brethren—to think that a new era has yet to dawn upon them. The ploughing is most unprofitably done—four horses (three horses the exception), six good Sussex oxen (in one instance eight), respectively, to draw single ploughs. The eight oxen were ploughing a furrow not larger or deeper than 9 inches by 4½ inches. Messrs. Howard's two Parisian prize horses and plough would do an acre in about six hours far more effectively, and "laugh at it." After a short stay at Brighton, we renewed our journey, *via* Lewes, Hastings, Ryde, Romney Marsh, Ashford, Tunbridge, to London. The neighbourhood of Brighton is not well adapted for superior farming, with partial exceptions. The soil is thin, and the country bleak and open. Nearly adjoining the town it is commendable, and some average crops are growing. Potato crops, too, are looking profitable, and are more abundantly grown (this must be right amidst such a population); but we missed the flocks, and did not come upon any till we approach Lewes and the extensive Sussex Downs. We could not avoid once more expressing our regret to see lazy shepherds lolling on the plains, their dogs keeping watch, and the flocks huddled together, as if in a fold. Surely, upon such broad pasturage they might graze undisturbed and at ease. The arable culture and variety of cropping is more to our mind. The sainfoin crops seen during our whole progress, as here, did not appear to be very productive. In Hampshire, we thought them very

indifferent. Of course, we could not see much of the Sussex Downs, except in the distance: some were lofty—all well grazed. Our only remark upon Down grazing was this: Well, those Downs might be made to carry a much larger quantity of sheep if put under a liberal allowance of artificial foods of the most nutritious character. It will in time come to this generally. The wide world will ere long supply cheap articles of food. The little island of Great Britain will know how profitably to appropriate them in the feeding of stock. This is as it should be. We presently found ourselves in the Pevensey Marshes, an exceedingly fine and extensive tract of rich pasturage, chiefly, if not exclusively, appropriated to the grazing of cattle. We could neither admire the cattle, although in great and singular variety, nor the mode of grazing pursued. The stock of cattle are made up from nearly every breed known in the kingdom, except the best kinds, of which scarcely any can be seen. The grazing is rough in the extreme. Most of the fields are almost knee-deep in grass and rough pasturage—not weeds and thistles: in this particular it is commendable. But grass in such abundance is detrimental to profitable progress in fattening stock: we are willing, however, to attribute such abundance to the peculiarity of the season. Unquestionably it is a grass season everywhere. Upon getting through these marshes, we are at once at St. Leonards, *i.e.* Hastings, a very pleasant and attractive watering-place. The heights and hills behind abound with magnificent views, not only seaward, but even much of Sussex and the adjoining county of Kent, including Dover and the outline of Eastern Kent; and the price of land possessing any of these favourable sites is enormous. The country from Hastings to Winchelsea is undulating fields, small, but fairly farmed; but there is evidently the same indifference to high modern farming. They plough with either four horses or six oxen. Bean crops are bad. Upon approaching Ryde, we come upon a fine grazing country, the western end of the celebrated Romney Marshes. The abundance of sheep was gratifying to see, and these of a profitable character: to us, they appeared to be neither Leicesters, longwools, nor Kents. The Kents, we have always known, are the most ill-shapen sheep in the kingdom bearing long wool. These we are passing are not ill-shapen—nice, compact, profitable sheep: if not Leicesters, the Kents have lost their character, and are greatly improved. This we decided, and so we passed along. We were presently rolling through the broad extent of Romney Marsh to the north-west of it. Such grazing we have seldom seen—the land covered with sheep; no cattle; not a blade of grass running to bent or seed; all level as a lawn, without thistle, rag-

wort, or nettles; in fact, perfectly clean for hundreds of acres together, and void of arable fields—all grass. We could here and there discover the old Kents; but not having seen them since the Lewes Meeting, in 1853, we again said they have greatly improved. We could not credit such admirable grazing without cattle; but there it was. The Marsh looked bleak and cold—neither hedge nor tree for miles. This must be a wretched place in winter for the poor sheep; and in lambing time (for the Marsh abounds with ewes and lambs) how bad it must be! Can't good whitethorn hedges be made to grow and shelter these fine pastures? The fields are of commendable size, but all fenced by ditches, which are supplied by water from the hills, &c. As we approach Appledore, we come upon some arable farming land more varied—some very good; other rushy, and abounding with buttercups. Romney Marsh would be much better appropriated if fattening sheep, instead of breeding them, was adopted. At Hamstreet station we get to the hills and woods, hops and fruit trees. Hops do not present a satisfactory appearance: cold weather has made them backward. The bines look healthy. We notice a few corn stacks here and there: quite a novelty, having seen so few along our entire route. Country unpromising and crops defective; land strong; four horses to a plough. Here we come upon the old unwieldy Kentish plough. Hops everywhere in sight; various in growth and appearance; for the most part admirably cultivated and managed. Hop-growers do not stick for manures. We were told they will use from 7 cwt. to 10 cwt. of rape-cake dust per acre freely, and with capital returns. Why not follow up the like liberality to many other crops? From Ashford up to Red-hill the country possesses no particular phases for especial remark: the same order of culture prevails throughout. The hops healthy; but late corn crops by no means good. Turnips, mangolds, &c., not abundant, nor very promising. The farming as a whole not equal to our ideas of what "The Garden of England" should exhibit; but it does excel in some measure that of Hampshire and Wiltshire. We were deeply-interested with our tour; and if this poor outline of it shall be acceptable and in any way suggestive to our readers, we shall be abundantly gratified. Our impression as a whole is, that the corn crops along our entire route are more than usually defective—beans more especially: the whole looks thin in plant, yellow, and backward. The root crops are in the like condition—very backward in many places: abounding with weeds and stunted in growth. The grass and hay crops are mostly heavy and good. Should the season continue cold and damp, an average corn crop cannot be reaped; and be it never so fine, it cannot be a good one.

#### VISIT OF THE COUNCIL OF THE SMITHFIELD CLUB TO WINDSOR.

The President of the Club, Major-General the Hon. A. N. Hood, having invited the Council to inspect Her Majesty's farms at Windsor, on July 2nd, the following availed themselves of this handsome offer:—Lord Tredegar, Vice-President; Messrs. W. Torr and S. Druce, Trustees; Mr. Brandreth Gibbs, Hon. Secretary, and Messrs. B. E. Bennett, J. Baldwin, J. Clayden, J. Druce, T. Duckham, W. Farthing, J. Giblett, C. Howard, R. Milward, E. W. Moore, E. Pope, J. Painter, W. Rigden, R. Stratton, W. Sanday, J. Shuttleworth, H. Thurnall, T. Twitchell, and J. S. Turner.

The party was met by General Hood, at the Windsor Station, where carriages were in attendance. The visitors proceeded to inspect the Royal Dairy, Aviaries, The Shaw Farm, with the herds of Shorthorns, and the white Pigs, the Royal Kitchen Garden, &c. Thence to the Royal Flemish and Nor-

folk Farms, where the herds of Herefords and Devons are kept, and also the Workshops erected by the late Prince Consort, where all the carpentry for the estate is performed.

After a complete inspection of the stock and machinery, at each of the farms, the party dined at General Hood's residence, Cumberland Lodge.

The General, in proposing the health of Her Majesty, gratified the company by stating that Her Majesty had expressed her approbation of this visit of the Council.

The health of Lady Mary Hood (who was present at the dinner) and that of the President himself were duly honoured.

Nothing could exceed the kind attention paid to the visitors who returned highly gratified with so delightful and useful an excursion.

## A DRAINAGE RETROSPECT.

Time tests many things. It is now more than 24 years since my draining was completed on every acre of the farm (170 acres); and, as I walk over every field and examine every drain, I ask myself, Has this been a profitable operation, and have those 24 years of observation given me additional draining knowledge? It will be satisfactory to drainers to know that not a single drain is choked, but in spite of 24 years' use every one is in thorough working order, and all are now discharging freely.

It will be remembered that about 60 acres of my heavy clay were drained in a peculiar manner with small stones and a 2-inch pipe over them, to prevent the earth pressing in among the stones. My good friend Mr. Morton objected to the pipes being so placed, and I, after seeing Mr. Parkes's 4-foot pipe drainage, stated in my book that I thought I had done wrong, and subsequently in some new drainage I adopted the deep pipe principle, as less costly and more effective. Twenty-four years have elapsed, and I am bound to say that that pipe and stone drainage has been most effective, the furrow corn coming to ripeness equally with the rest, which is a certain test of perfect draining.

My men also find that the land works earlier and more friably in the spring than in the deeper and wider drainage. The drains were placed only 12 feet apart, and 2 feet 8 inches deep, filled with stones and pipes, and cost £10 per acre. But, although this has been very satisfactory, I should not do it so again, but should adopt the deep pipe drainage at close intervals. A good deal depends upon climate and rain-fall; where the climate is late, stones added to the pipes, and close drainage, will very much forward the crop.

I drained 45 acres of very heavy land (which I rent), with 1-inch pipes, at the following depths, distances, and cost:

## CHAPEL LAND, 45 ACRES, DRAINED IN 1846.

	£	s.	d.
9 acres, 42 feet apart, 5 feet deep, with 1-inch pipes : 64 rods of cutting, at 6d. ...	1	12	0
1100 rods 1-inch pipes, at 12s. per 1000 (144 allowed for breakage) ...	0	14	6
Cartage of pipes ...	0	3	0

Per acre £2 9 6

13-acre field same as above.

11-acre field, at 28 feet apart ... per acre 3 2 6

7-acre field, drained 50 feet apart, and 5 feet deep, as above ... „ 2 0 0

Wages were then much lower than now.

If thought desirable, it would be easy to cut a drain between each of the others.

These have been done more than 20 years, and, although so cheaply done, they have been sufficiently effective to remove stagnant water and to permit of excellent crops; for I have several times had 7 quarters of wheat, 7 quarters of beans, and 11 quarters of black oats per acre, besides large crops of mangel, clover, and tares.

The land does not work so well in early spring as my own land, nor does the land walk so dry, but still the water flows to the drains and leaves the land, although not so quickly as the close drained. I can, therefore, confidently recommend tenant farmers, who desire to economise their capital, to adopt that system as an advantageous one under the circumstances. There will thus be no just excuse for non-drainage.

In very humid climates, with a heavy rain and low temperature, I must candidly admit that I believe the late Lord Wharfedale's system of close and shallow drains, combined with deep 4 or 5 feet leaders at reasonable distances (say 50 feet), would be most effective drainage under the circumstances.

The shallow drains, not less than 3 feet, in tenacious soils permit a more ready escape of the water, when you have successional drains at short intervals; the deeper ones drain the whole area in time, but are longer about it. For instance, as I have witnessed on a field of my own, in a very wet winter

I have seen both deep and shallow drains discharging abundantly, like two taps in a full cask, one above the other; the upper drain stops running first, the lower one some time after, and, of course, the lowest drain lowers the level of the water in the soil to its own depth or level; and, therefore, deep drains should always be present, although shallow feeders may come into request for frequent or continuous rainfalls. Water will always pass a shallow drain and descend to a deep one, until it accumulates in the soil, and thus rises to or above the level of the shallow drain, and then both shallow and deep drain will run, the shallow one conducting water to the leader much quicker than it can filter through the soil. The great object of drains is to prevent delay or stagnation near the surface in winter, and thus prevent rotting of the winter roots of wheat, tares, and clovers.

After a dry summer the rains will naturally pass down to the deepest drains and flow away. It is only after the ground becomes super-saturated that the shallow drains are called upon to act. All the foregoing remarks apply to tenacious, bird-lime like clays, through which, when thoroughly soaked, water filtrates very slowly. On friable soils it would be absurd to have either shallow or close drains. On my mixed soil my drains are more than 4 feet deep, and 60 feet apart. All these remarks apply to surface water.

In dealing with waters rising from below, drains should never be shallower than 4 feet—5 feet is the better depth; with shallow drains capillarity would overcome gravity, and so render the drains useless. There are certain soils where the gridiron or uniform principle would be a partial failure, and it is always desirable to lay drains in the old water-way. Where there are sand-pots surrounded by walls of clay it is necessary to cut through those walls, where a mixed spring or sandy soil meets a stiff clay (as in some of my fields); great care is required in laying the pipes at the junction, surrounding them with a little hay, especially if the spring is weak and occasional; and even so, the sand, owing to the drain being occasionally dry, will accumulate and harden in the pipes, which must be taken up and cleared. There is no such danger with a constantly and full running spring. I have three very strong spring-drains discharging from 10 to 25 gallons per minute winter and summer. For 25 years one has never choked, and they all discharge white sand abundantly, especially during winter; therefore, take especial care to have a clear outlet whence the sand can be frequently removed, so that it never rises above the drain. One of my spring-drains was originally 12 feet deep, the other two 6 feet; these latter have always been perfect, except where they come into shallow ground near the outlet. In one case some singular roots, like small brown cabbage leaves, choked it: the other, passing through a neighbour's hedge, filled at that point with roots from the fence, and his field being lower than mine soon became a quagmire.

A very watchful eye is required for all drains, more especially spring-drains, for if not immediately attended to the sand, &c., has time to settle in the pipes, and thus choke them for a very long distance, and you are put to a great cost. It is useless to put spring-drains anywhere near trees or fences; if they must pass through the latter the outlet pipes should be of iron for many yards. It is a remarkable instance of the instinct of plants and trees, that they will surely introduce their roots into constantly running drains—the most minute crevice will suffice—and then the roots multiply and expand until they choke the drains, frequently in masses as thick as one's wrist or arm, and some yards long. But they take care never to enter a drain which is alternately wet and dry for the passage of surface or rain-water. Thistles, mangels, &c., will choke a spring-drain if near the surface.

Experience has taught me to avoid open ditches as outlets for single drains. I am letting my drains into leaders placed a foot deeper than the drains, but connected with them by stones, &c.

Open ditches get dry in summer, and the capillarity of the

dry sides leads back water in the soil; besides, one outlet well exposed to view is far less likely to be neglected or overlooked than a number of them surrounded by or buried in grass or other vegetation. Besides, we save land by abolishing open ditches.

On putting in these leaders I observe that the land, to the depth of the drains, has become more friable, but the extra spit that we had taken out below the drain is like putty or bird-lime, and most adhesive.

It is thus quite clear that depth of drainage, even in the very stiffest soils, is most important. Every additional foot places 1,200 tons per acre of porous earth for the use of the roots of plants; and I know that Wheat and most plants will send down their roots four to five feet deep where the land is drained. All open ditches, as well as drains, require close supervision in dry weather: bunches of rushes, bushes, and other obstructions, should then be removed. It is too late when the flood comes, and your land gets carried away by obstructed torrents.

I know of so much neglect in this matter of clear drainage-way that it should be strictly enforced on leases.

When we have heavy rains I sally forth, in macintosh and water-boots, and see to these matters myself, having especial regard to clear troughing round the buildings, and generally clear water-ways. The projecting "cores" in ditches should be removed in dry weather.

Beware whom you trust to place your draining-pipes, or see to it yourself. A careless unprincipled fellow will put them in anyhow to save himself trouble, and thus ruin your drainage. The loss occasioned this very wet spring by non-drainage is indeed serious. It far exceeds the largest per-centage that could be charged for draining.—*May, 1867.*

The following letter from Mr. Bailey Denton—acknowledged to be one of our very best authorities on drainage—is instructive and convincing:

"Woodfield, Stevenage, June 3, 1867.

"My dear Mechi,—I have read with much interest your letter, and those of other correspondents in the *Times*, as to the present condition of the crops; and if it be at all possible to judge by appearances at this season, we may fairly conclude that the advantage in favour of drained heavy lands, compared with the same character of undrained lands, will quite equal half the cost of draining them.

"Having taken some pains to examine into facts (as far as

one can form judgment now), I write you these lines, that you may, if occasion arise, refer to them with some security.

"Going back as far as five years, I find the average cost of parallel drainage, varying from 24 to 42 feet apart, has been £6 5s. 6d. an acre. I am speaking of the works of the General Land Drainage Company from 1862 to 1866 inclusive. The average charge of the Company to repay the principal (*i. e.*, the £6 5s. 6d., which includes all expenses), with interest, in 31 years, has been £6 1s. per cent., or about 7s. 6d. per acre.

"Now, the difference in the crops of this year—taking the most moderate view of the matter—cannot be less in favour of the drained lands than—

1 quarter in wheat	=	£3	7	6
3 coombs in beans	=	3	3	0
1 quarter in oats	=	1	7	0
1 quarter in harley	=	2	0	0

with seeds and tares to match, saying nothing as to roots, which we shall know better of presently.

"The half of the average cost of draining being £3 2s. 9d., you will see, by comparing the figures I have quoted, that the increase in the wheat and beans, which absorb the larger part of the cropping of the heavy lands, quite equals this moiety, let alone the difference in the cost of tillage, which has been very great.

"If we turn from this comparison to the fact that the cost of draining is repaid by 7s. 6d. per acre, it is indeed difficult to understand how occupiers can withstand the advantage of having their wet lands drained with borrowed capital. But it is true that many would rather lose their crops than pay this small annual charge, because they cannot bear the thought of their rents being raised (as they call it), and of submitting to the obligation of maintaining outfalls and outlets under the 'orders of Government.'

"All those who are obliged to grow barley on heavy land, if they grow it at all, will do well to study the different condition of their fields. Wherever the land has been maled by sheep or plough, they may wish in vain for a crop.

"Yours faithfully,

"J. BAILEY DENTON."

We should have the difference in the Oat and Barley crop at 1½ to 2½ quarters per acre.—*June, 1867.*

J. J. MECHI.

## THE ROYAL GUERNSEY AGRICULTURAL SOCIETY.

This society held its annual Whitsuntide show of cattle at the fair-field on the 11th of June—one of the finest days we have had this year, the weather having been up to that date very cold and variable, notwithstanding which the condition of the cattle was excellent. As is always the case, the cattle formed the principal part of the show: sheep are not generally kept in the island, as owing to the demand for Guernsey cows and heifers in England the rearing of horned cattle is more profitable for the farmers. On this account the laws for keeping the breed pure are very strict; no bull is allowed to land in the island, and all cows and heifers imported, even from Jersey, are branded; importers of such stock being bound either to kill or re-export them within three months. This is done in order that none other but pure Guernsey cattle may, with ordinary precaution on their part, be sold as such to purchasers.

The entries were numerous, consisting of 26 bulls, 32 cows, 83 heifers, besides horses, sheep, sows, teams, and butter. The finest animals were to be found among the bulls and heifers, some of which were remarkably handsome. In the first-class bulls the judges had some difficulty in awarding the first prize, the first two being so nearly equal in points; but Mr. Mahy's ultimately was declared the winner. Although as a class the cows were very good, they could not show a first prize equal to some that we have seen occupying the same place in previous years. In both classes of heifers some very handsome animals were to be seen, promising well when as cows they have attained their full growth. The sheep and sows had nothing remarkable about them; the teams for farm

purposes reflected great credit on their owners; and the butte quite kept up its reputation for colour and richness.

**BULLS, first class, over 2 years.**

JUDGES.—Messrs. J. Rougier, Jas. Alexander, and T. Croft.  
Mr. Mahy 1st prize, Mr. Cameron 2nd, Mr. Ogier 3rd.

**BULLS, second class, over 1 year 3 months and under 2 years.**

JUDGES.—Messrs. Jas. James, John Mansell, and T. Le Page.  
Mr. G. Torode 1st prize, Mr. Ozanne 2nd, and Mr. Parker 3rd.

**COWS.**

JUDGES.—Messrs. H. Quertier, P. Allez, W. Le Ray, and A. Kellow.

Mr. R. Rendell 1st prize, Mr. De Pution 2nd, and J. De Garis 3rd.

**HEIFERS, first class, over 1 year 3 months.**

JUDGES.—Messrs. J. Hocart, N. R. Robin, and J. Le Page.  
Mr. P. Blampied 1st prize, Mr. T. Prialux 2nd, and Mr. N. Oranne 3rd.

**HEIFERS, second class, over 10 and under 15 months.**

JUDGES.—Messrs. Le Huray and Jehan.  
Mr. Geo. Towde 1st prize, Mr. A. B. Le Page 2nd, and Mr. J. Le Page 3rd.

**COLTS, 2 years old.**

JUDGES.—Messrs. J. Guerin and J. H. Parker.  
Mr. Hocart 1st prize, Mr. Cane 2nd, and Mr. W. Frampton 3rd.

Beyond the above, other prizes were awarded in each class, also for sows, sheep, butter, and teams.

## "A WORD IN SEASON" ON BEHALF OF SMALL BIRDS.

BY THE REV. P. DE PUTRON, M.A., RECTOR OF RODMELL.

The mischief done by birds on a fine summer's morning is, alas! so visible and so irritating to farmers, gardeners, and cottagers, and the good they do, early and late, so invisible to the untutored eye, that their death-warrant is sealed at once, without the hope of a reprieve or recommendation to the majesty of mercy; yet experience proves that the presence of birds in our corn-fields and gardens is highly to be desired. We have only to cross from Newhaven to France to lament, as all travellers do, the marked absence of small birds from the landscape, and to learn from our companions how keen is the regret which too late invokes the protection of the law for the feathered guardians of the fields. The following testimony to their value is taken from a public report which was laid before the French senate, and will doubtless be read in Sussex with such interest as the case deserves:—

"It is solely in the interests of agriculture being very seriously endangered, that they affirm that men ought not to be allowed to continue to destroy the only auxiliaries which can effectually stop the increase of insects—the bane of all cultivation. Against such enemies, man is powerless; and if God, in His wisdom, had not provided a remedy, vegetation would have disappeared from the face of the earth.

"This providential mission of birds was, for a long time, considered an exaggeration—now it ranks as one of the best proved truths of science. Yet man, by a strange blindness, shows himself the most terrible enemy of these gentle and useful creatures.

"More cruel than the kite or hawk, who kill to feed, he destroys them for the simple love of destruction. The gun is not murderous enough: it is by all sorts of contrivances—such as nets, bird-lime, traps, &c.—that these charming and indispensable little friends are persecuted by man, to whom they were given by a wise Providence. The amount of mischief done is incalculable. Let us look the matter in the face: the evil is great, and, if we do not take care, it will be beyond a remedy."

So speak our French neighbours, and add, that in one of the eastern departements the value of grain destroyed by insects in one year was estimated at four millions of francs, or £160,000!

With this warning before our eyes, we shall do well to pause in that wholesale destruction of birds in which the members of sparrow-clubs so largely indulge. Still, it is only fair to say that these relics of a barbarous age are gradually dwindling away before the warm-hearted and growing intelligence of yeomen, and respectable newspapers are becoming ashamed to chronicle these periodical massacres.

A country clergyman, who has written some very good words for poor birds, states that "the sparrow probably bears the worst character of all our common feathered friends, and is consequently the most persecuted; and yet a pair of sparrows have been known, during the time they were feeding their young ones, to destroy every week 3,360 caterpillars!" If this result could be achieved by two birds, let our young readers estimate, if they can, the weekly work of the feathered tribe. The goldfinch also stands in need of friends to protect it from the treacherous bird-catcher. The seeds of dandelion, groundsel, thistles, and other noxious weeds are its usual food, and yet we hear of the enormous number of 13,848 goldfinches being sent from Worthing in a single year!

Who has not seen the starling perched on the back of a sheep, devouring the insects which, to use a local word, *terrify* the poor animals, and then finishing its meal on wireworms turned up by the plough? The services of rooks are now more civilly recognised, and, instead of shooting them, as of old, a small boy with a loud voice may be both seen and heard discharging volleys of *shouts* not *shots*, with marvellous effect, in defence of the sprouting corn. Yet that atrocious and cowardly modern invention of poisoned wheat bids fair to lessen these useful birds. Some years ago in Hampshire a war of extermination was waged against them, and the

rookeries were destroyed; the natural consequence soon showed itself in such an increase of various hurtful insects, and especially of the cock-chafer (which is three years in the grub state, and all that time does an immense amount of injury to the roots of grass and corn), that women and children were obliged to follow the plough to pick up these grubs, which the rooks would have devoured had they not been murdered. This practical proof of the utility of rooks opened the eyes of the Hampshire farmers, and rookeries were again established, and rooks protected. The same thing happened in America, where at one time the State offered rewards for their destruction, and in consequence they so much decreased, and noxious insects so greatly increased, as to induce the State to offer a counter-reward for their protection.

Not one word only, but many earnest words of appeal and remonstrance might be written, too, on behalf of the thrush and blackbird, in spite of their persevering onslaught on our tempting cherries and currants in summer. Are they to be murdered for this, when an old net suffices to guard our garden treasures? and shall we plead in vain for the insect-eating birds, such as swallows, martins, swifts, wrens, robins, and blaekcaps? The list is by no means complete, but I hold a brief on behalf of at least fifty families of feathered clients, who either periodically visit or permanently make England their home.

"Live and let live" should be our motto, and the lesson of mercy and loving-kindness should be inscribed on the walls of country schools, and engraven on the hearts of town and country children among their earliest recollections. So different, alas! was the feeling not a century ago, that the cruelty of taking nests and destroying the eggs and young was encouraged by many churchwardens, and head-money for sparrows not infrequently figured as an item in their accounts.

Well may it be asked, How long will it take to unlearn this cruelty, which has hardened the hearts of generations of children, and to propagate the seeds of compassion and tender-hearted kindness towards all God's creatures?

Old traditions are not easily uprooted, as this single fact will show, that during the late frost a party of three sportsmen (!) from Brighton boasted that in one day they had killed 1,700 larks. My informant cries Shame! and thousands cry Shame! Nevertheless I have faith in the manliness of Englishmen, and trust to the brighter intelligence of the 19th century to impose an eternal veto on such unfair and unmanly dealing with harmless birds.

"Can we wonder," says Mr. Roach Smith, with undisguised alarm, "at the increase of the insects which destroy our fruits, and at the great loss sustained by those who have extensive orchards and gardens? The birds are the only possible agents to counteract the deadly unseen insects which are every hour being bred almost everywhere. Nature has formed the bird's eye for detecting insects where the eye of man is useless. Wholly destroy the birds, and the fruit is wholly destroyed. At Hartlip, some years ago, in the face of truths and facts, the sparrows were exterminated entirely as being injurious. The orchards were immediately covered with the webs and nests of innumerable caterpillars and other insects; and in two years it was calculated that over £1,000 was lost in consequence of this insane slaughtering. But far more startling instances could be adduced; and yet we see no steps taking to stay the evil! I, sir, look more to youth than to the hardened man, who has steeled himself into erroneous convictions, and will never part with them but with life. It is not so with boys: they are to be reasoned with; and if the clergy and schoolmasters would make friends with them, and explain the nature and use of birds, and their importance in the great scheme of Providence, I am assured they would soon be induced to be protectors instead of destroyers of the birds; and they would thus find doing good much more grateful and profitable than working evil."

If our cause were as weak as it is strong, it could be propped up triumphantly by recent intelligence from New Zealand, that the colonists are ready to pay one pound sterling for every insectivorous bird that is landed alive in the colony. And why is this? Why their anxiety to purchase for gold the little birds whose value is so little understood in England? The reason is that Australia and New Zealand are becoming corn-growing countries, and absolutely require the services of birds to destroy the worms and insects which invariably appear wherever wheat is grown. The eggs and grubs of these destructive creatures are introduced into the colony with the seed, and thus it is a wise provision of a merciful Providence that birds should find a home and justly claim protection in all places where they can benefit man, by obeying, for his good, their natural instincts.

I commend this subject to the consideration of all parents, teachers, and inspectors of schools, and am not without hope

that these remarks may tend directly or indirectly to encourage the growth of the best feelings of the human heart whilst they enlist the sympathy of all, in holding sacred even the life of a little bird.

“How can I teach your children gentleness,  
And mercy to the weak, and reverence  
For life, which, in its weakness or excess,  
Is still a gleam of God's omnipotence,  
Or death, which, seeming darkness, is no less  
The self-same light although averted hence,  
When by your laws, your actions, and your speech,  
You contradict the very things I teach?”

LONGFELLOW.

M.E.M.—A severe penalty has been made necessary to prevent the destruction of these useful creatures in France and Germany.

## DESTRUCTION OF BRITISH BIRDS.

The author of “British Birds' Eggs and Nests Popularly Described” writes to the *Yorkshire Gazette* regarding the destruction of British birds in the following terms:—

There are several things which church-goers pray against, many people are guilty of, and nobody defends. Like these in the latter points I have fancied rook-bird shooting had been, until a correspondent of yours, with a logic and orthography equally remarkable, lifted up his voice in its favour. I had always thought it fit to be characterized—stigmatized, if you like to print it so—as cold-blooded barbarity in the act, flavoured with wanton cruelty in the accompaniments. Perhaps I am wrong; and there is a difference between sparrows and willocks in the sight of One who, we are told, notices the fall of the former. Not unlike to rook-bird shooting is rook shooting in many respects, almost all those involving cruelty included. Surely it is defended; and the defence in both its parts is enough to amaze a man in his senses. But my object now is not to expose a fallacy so much as to point out a folly. This is the time of year for slaughtering young rooks in the sight of their parents, and for shooting the old ones if they can be come upon the fields. One such, which was shot a few days since, I wish to make mention of. My informant, a respectable farmer, had noticed it following his plough very closely, and not idly. Unluckily, as he turned his horses at the top of the field, it not only flew a few yards out of his way, but into the way of a gunner on the other side of the hedge. The poor bird was shot at, of course, and sorely wounded. Flying with difficulty across the field, it was seen by a third man, vomiting with the sickness of death upon it. Going to the place, he found it had thrown up forty-nine wireworms, and a large number besides of the fatty white grub, such as the plough so often turns up at this season. My informant's subject of discourse had been that “the corn was sairly grubbed” in this neighbourhood; his reflection, “I think

the craws ower mich shot;” and his illustration, what I have just now given an account of. As a pendant to the above, let me record that one of the ablest living English ornithologists told me a year or two since that, seeing a gamekeeper carrying a kestrel he had just shot, and being unable to convince him in any other way that it might be as well sometimes to allow a little inquiry to precede “giving the dog a bad name” and summarily “hanging him,” he requested him to allow the eraw of the bird, evidently well packed, to be opened. The gamekeeper assented, and the ornithologist himself took out a compact ball filling the entire cavity of the eraw. On being resolved into its component parts by a little gentle manipulation, the ball was found to consist of 119 wireworms, and no other article of food whatever. So much for the “mischief” done by the rook and the kestrel.

May I add, as a hint to any who, in the coming fruit season, may be desirous to save their strawberries and currants, and yet spare the blackbirds and thrushes, that many years ago I knew a large garden in Essex, situate almost close under the walls of a park in which blackbirds and thrushes lived utterly unmolested, and consequently greatly abounded, kept utterly free from these plunderers throughout the fruit season. The “dodge” was a very simple one. A cat which had two or three kittens, about one-third grown, belonging to her, was provided with a box to live in, placed in the garden, a collar round her neck with a short light chain attached, and terminating in a small ring. The ring traversed on a long stout wire fixed between low posts some thirty or forty yards apart, and so the cat, when disposed for exercise, padded herself a path along the wire, and the kittens frisked about all over the garden. All of them looked as happy and sleek and jolly as possible, but the blackbirds and the thrushes unanimously voted the fruit in that garden “sour.” They never came near it.

## AGRICULTURAL STATISTICS.

At the quarterly meeting of the Boroughbridge Agricultural Society, the Rev. C. H. SALE said the subject he had to notice was one which they would all admit was of considerable importance, and it had been suggested to his mind because he had had lately some papers to fill up relative to agricultural matters. Agricultural statistics was a question which had long been talked about, and it was one of great importance not only to the farmers, but also the public at large. Statistics respecting agriculture would show the quantity of land under cultivation, with various kinds of produce, the number of cattle and stock in the country, and so on. By obtaining accurate information in this way, the people would know what

stores there were in hand to meet their daily necessities as regarded food. By ascertaining, from the best information at command, the breadth of land under cultivation in every particular kind of crop, and the number of stock in the country, they would only be doing as a nation what every household ought to attend to, namely, to know what flour and meat and vegetables they had for the week in the pantry and larder, so that arrangements might be made accordingly. He thought it could not be denied that it was very desirable to know what the food resources of the country were likely to be. The question was one which affected the whole nation. The prospects of the harvest, whether good or bad, affected very considerably

all our financial schemes, and the prices in the funds went up and down just like a thermometer. According to the weather and the state of the crops, the funds either went up or down, and all our commercial and mercantile transactions were greatly affected. When there was a favourable harvest and good crops, there was great commercial activity, and certain articles increased in price. It was exceedingly important therefore that there should be a system of agricultural statistics, which would form a basis for all trade speculation and dealing. To obtain agricultural statistics would be a difficult task without the hearty co-operation and assistance of the farmer, and he must remark that farmers, as a body, had taken agricultural statistics in anything but a kindly spirit. At first they viewed the matter with very much aversion, for being a new scheme they had no wish to see it carried out. Agricultural statistics were a new idea, and that was perhaps the reason why the project was not liked. The agricultural mind did not readily accept or appreciate new ideas, and he thought it well that it was so, because it showed that farmers as a class were not fond of new-fangled notions and change, and they must be thoroughly convinced of the value and utility of any scheme before they would give their approval to it. Notwithstanding this, however, they all knew what great advances and improvements had been made in agriculture during the last thirty or forty years, proving that farmers were not opposed to change, if it was for the better (Hear, hear). A right thing and a good thing the farmers would adopt, but as the agricultural mind was thoroughly English and pre-eminently practical, farmers generally liked to know what they were about and where they were going (Hear, hear). First, the farmers had an objection to agricultural statistics because they considered them to be of a dictatorial and inquisitorial character, and they did not wish to state how much they grew of this or that particular kind of crop. This objection he thought would vanish, as the statistics obtained were altogether voluntary. Secondly, they objected because the statistics might be used against them by their landlords. This objection, too, he believed would also vanish. Farmers were only asked to state the acreage under particular kinds of cultivation, not to tell the amount of produce. To supply statistics the farmers said was against their interest, but that was really not so. Agricultural statistics were for the purpose of ascertaining what was the amount of the corn and stock of the country generally, and this would have the effect of causing greater regularity in prices. Farmers might say that they would rather take their chance of the ignorance of the country as to the quantity of corn and the range of prices. There might be something in this idea, but it was not a patriotic view to take of the matter. When prices rose to a certain point for want of adequate information, and the pressure became heavy, very few farmers indeed gained any advantage. If wheat rose to 80s. or 90s. per quarter, as a rule it was not the farmers who benefited, but the speculators (Hear, hear). In the next place he believed that if farmers had any advantage at the close of the year before harvest, they lost it at the beginning just after harvest (Hear, hear). Agricultural statistics would have a tendency of equalizing prices throughout the year, and therefore a farmer who was obliged to sell his corn as soon as he conveniently could after harvest would get the advantage of increased prices at the beginning of the season (Hear, hear). The general effect, he believed, of agricultural statistics would be beneficial to all classes of farmers, and in his opinion the average of price of corn throughout the year would rule higher, and repletion and depletion of corn in the markets would be avoided (Hear, hear).

Mr. OUTHWAITE said that he agreed with the general tenour of the observations of the Rev. C. H. Sale, believing that there was no doubt if the quantity of grain in the country were known prices would be regulated. Agricultural statistics would be beneficial to the nation at large, if taken properly. There was a difficulty in ascertaining the quantities of grain produced, as the crops varied in quantity from one year to another, and a farmer who had a good crop just before harvest might have half of it destroyed by a thunderstorm just before reaping. He suggested as a good plan competent persons visiting a district, extending ten or twelve miles round, a fortnight or three weeks before the corn is cut, and preparing a report as to the state of the crops generally and the probable yield (Hear). He did not believe if the exact quantity of grain grown by a farmer was known that it would do him any

harm, as in his opinion when a tenant had a good crop it was a pleasure to his landlord, and any feeling on the part of a landlord to take advantage of it was to his mind now done away with (Hear). Statistics would be to the advantage of farmers, as they would more evenly regulate prices, and as he sold his grain at the beginning of the year he should be a gainer.

Mr. JACOB SMITH (the Chairman) said he agreed in the main that agricultural statistics might work well, and would do no harm, or at least not much harm. Agricultural statistics were taken in France, and yet there was no country in which the fluctuations in the price of corn were greater than in France. He believed that agricultural statistics would be advantageous so long as they were not made compulsory; but he should object to such statistics being obtained under the orders of Parliament.

Mr. BAINBRIDGE was in favour of agricultural statistics upon a proper basis. He showed that estimates were made at Liverpool of the quantities of cotton, and he considered that if the practice was good for cotton it would be good for wheat.

Mr. STEELE remarked that the farmer was not obliged to sell his wheat because he had given his statistics, and he believed that agricultural statistics in this country would prevent those fluctuations in the price of corn which were experienced in France.

Mr. OUTHWAITE stated that two friends of his who were manufacturers were always anxious to know about the extent of the crops at harvest time. If he had a bad story to tell, they would say that their trade would be of no use, as they depended upon the English harvest being favourable. If the wheat crop was good they knew how to speculate in cotton.

Mr. APPEYARD said that he should be opposed to being obliged to give an account of the produce of every acre of corn on his farm, because such a system would have the effect of putting bad farmers upon the same footing as good. A landlord might make the quantity of corn regulate his rents, and he might say that if such and such a farmer could produce so many bushels per acre he could afford to pay more rent, whereas the bad farmer, although he might have better land, who grew less corn per acre, would not have his rent raised. He had no objection whatever to give returns as to the acreage of his crops, but as to the yield no adequate idea could be formed.

The CHAIRMAN said he agreed with Mr. Appeyard that the acreage might be given, but it was difficult to arrive at an average as to the yield. He approved of the suggestion of Mr. Outhwaite that persons should visit districts and make reports of the crops, which reports might be published in the newspapers. With respect to the remarks of Mr. Appeyard about rents, he had no fears upon that head. Landlords now-a-days knew the great value of good tenants, and they were glad to see heavy crops in preference to light. A landlord on seeing bad crops on certain farms would be likely to discharge the tenants, and obtain in their place intelligent and good farmers. He did not see the point in the light that Mr. Appeyard did, but there might be exceptional cases.

Mr. LUND thought that agricultural statistics to be of real value should be made compulsory.

The CHAIRMAN considered that the main points to be ascertained by agricultural statistics would be these—under an average, an average, or over an average, as the case might be.

After some conversation, in which the Chairman, Mr. Outhwaite, Mr. Appeyard, Mr. Steele, and the Rev. C. H. Sale joined, it was unanimously resolved "that the Boroughbridge Agricultural Society was of opinion that agricultural statistics were desirable, and would co-operate with the Government in filling up the returns issued by the Board of Trade."

**HORSES' FEET REQUIRE MOISTURE.**—Nine-tenths of the diseases which happen to the hoofs and ankles of the horses are occasioned by standing on the dry, plank floors of the stable. Many persons seem to think, from the way they keep their horses, that the foot of their horse was never made for moisture, and that if possible, it would be beneficial if they had cow-hide boots to put on every time they went out. Nature designed the foot for moist ground—the earth of the woods and valleys; at the same time that a covering was given to protect it from stones and stumps.—*Ohio Farmer.*



## THE ELDER TREE.

The common elder (*Sambucus nigra*) is so decidedly a household plant that any attempt to describe it would be useless. Its name *Sambucus* is said to be derived from *Sambuca*, a musical instrument made of it. I can well believe this; for, in my boyhood days, its hollow stems were the unconverted timber, out of which our whistles and pop-guns were made. The wood of the elder is very hard, and so like that of the box that foot-rules are made of it. In Scotland, it is called Bower Tree, pronounced "bortree," as in the old ballad:—

"What care I for owlet's cry,  
For bourtrees banks, or walls of Craigie?"

But in the Scottish ballad of the courtship of that doughty knight the "Laird of Cockpen," we find the name of elder:

"Lady Jane she was making the elder-flower wine."

I have tasted the elder-flower wine, but can say very little in its favour; but elderberry wine is certainly a very agreeable beverage when warmed and spiced. The elder is a rapid grower at first, and survives for a long time as a stunted bush or low tree, with a thick shady top; and, being a free flowering plant, it is generally covered with blossom in summer, and heavily laden with berries in autumn. It is a coarse feeder, and thrives best where there is plenty of moisture; indeed, such a plant must have a good supply of raw materials at hand, as it will rush into such a rapidity of growth as is scarcely known among woody plants, frequently producing a crop of strong shoots six feet long in a season, when once it gets established; and it does not take a long time to get that: only let it be planted in season-time—November, December, or January, not later—and no failure need be apprehended. When the elder begins to grow, if one did not know its character and history, it would easily be taken for an herbaceous plant; and its stinking foliage and blackish-green colour would father it upon the worst form of umbellifere, and, if not poisonous, at least so ill-favoured and uninviting, that no one could think of eating any part of such a plant, unless he had got sound information beforehand on the subject. But although the elder has the lurid poisonous look and the hollow stem of the hemlock-brood, it is not an umbelliferous plant, but belongs to the honeysuckle tribe (*caprifoliacea*); and although its stem be hollow, it is, after all, both woody and perennial, forming one of those marvellous links which we frequently find in botany uniting opposite characters. Had the elder been blest with foliage as sweet as that of the walnut-tree, it would not have been half so valuable to the farmer; for it is very rarely indeed that you see the elder-tree touched by hares or rabbits. During long and severe frosts, with snow, I have seen sticks of all kinds bitten, and branches that had been cut off where trees had been felled would be barked as clean as if the woodman had stripped them for the tanner. But, as a rule, hares and rabbits do not bark the elder; and as for the leaves, the smell is quite sufficient to warn either cattle or coney from laying a tooth upon them.

This style of plant is called by planters a "nurse," and they put in such by millions to shelter better trees.

Since the system of bedding-out greenhouse plants for the flower garden in summer became a common practice, everybody has become aware that such plants as the geranium and the verbenas are increased by cuttings of the green wood with more or less of the leaves attached. Now, although the elder is to be increased by cuttings, it being a deciduous tree, it is not to be treated in this manner, and it is not to be propagated in summer, or when growing, as is the case with geraniums, &c. The elder, the

willow, the gooseberry, and the vine, are mostly propagated by truncheons of the stem of the wood of the current year, taken off the parent plant when the sap is down, or when the leaves have fallen, and the plant is in a dormant state. The truncheons of the elder may be one or two feet long, and ought to have one joint in the earth when planted, and one or more out; the truncheons should be cut below a joint with a clean cross-cut, not slanting; the truncheons to be planted at once where they are to remain, and should be not less than  $4\frac{1}{2}$  inches deep in the ground, firmly planted in finely-pulverized soil. It may not be desirable, for many reasons, to purchase costly trees, and plant them at one's own expense upon other people's land, and yet the use and shelter of trees must be had; for stone walls, even if these could be had, are not to compare with trees in breaking the force of wind, for the walls produce eddies and often whirl the wind with great violence against particular points, but trees sift the wind and never gather it. A farmstead unsheltered by trees ought to be a terror to an in-coming tenant, as it ever will be to those who have to do battle with the storm in such a place thus miserably left to its mercy. When our ports and harbours were swept by wind and tide, the breakers seriously interfered with our shipping interests, and we had to erect costly breakwaters, behind which the stately craft could ride at anchor unmolested by the storm. This was sterling wisdom and forethought, well-founded upon dearly-bought experience; therefore let no one think lightly of masses of cheaply-got trees to adorn the landscape and shelter man and beast. But I have another object in view with branches of trees on the farm, for faggot-wood is calculated to do a species of work that no other material can do so well. In the kindling of fires, the heating of bread-ovens, and in various other ways, the faggot-staek is essential to the work; but on a clay farm the faggot-wood, in immense bulk, is particularly wanted to burn the clay with—for there is no other process at all to compare with burning to bring the clay into good working order, for it is chemically changed as well as mechanically when it has passed through the fire; and for want of fuel of the right kind it never could be done. It is only such materials as Pharaoh used in his brick-croft that the farmer can use in burning clay—such as stubble and straw of all kinds, and particularly bean-straw and wood-faggots—for coals, however cheap, is no fuel for farmers to burn ridges of wet clay with. There are only two ways in which elder trees appear to me to be in character, and these are circles and lines. No figure equals the circle, for it has the same front on all sides, and the general appearance is that of one vast bush. It is no waste of land to sacrifice so much for the sake of shelter. Planted in lines as hedgerows, the elder will be quite established in two years, and form a fence; planted against a low stone wall, hurdles, pales, &c., it forms an excellent fence by adding one storey to make up for the deficiency of the wall; and, as it never grows large, it does not rob the land like timber trees. I remember a hedge made of elder-shoots to screen a garden: it was about 100 feet long, and one man cut the shoots from the bushes, carried them on his back half-a-mile, cut them into lengths, and planted them, without any further cost than his own labour, and that was for *half-a-day*! Cottagers and tenants-at-will should take a lesson from this experiment, for it was a tall, strong hedge in two years, and such a wind-guard would be no small benefit to those who rear calves and poultry, and, if they made no use of the elder-berries, the fowls would eat them greedily.

ALEX. FORSYTH.

## C H I P S .

We finished our last paper by glancing at the relative merits of high-crested and rectangular furrow-slices, and promised to glance briefly at other points connected with the working of the plough. That promise we now purpose to redeem. There was in the wide—shall we say, too wide?—range of controversial subjects taken up from time to time in the agricultural world none so hotly discussed as that of the relative merits of wheels and swing-ploughs. In one sense, the point may be considered as settled in favour of the wheel-plough, inasmuch as a very much greater proportion of the ploughs of all kinds now made is made up of wheel. At the same time, it is well to look at the reason why in one place the swing-plough is preferred to the wheel, and *vice-versâ*. The author of the paper from which we take our “clips” goes pretty fully into this point, which it will be suggestive to glance at. He sets out by remarking that although in some points settled, as we have said above, practically, yet there are some considerations involved in the question as between the two forms, which bear so on the economical use of all field implements that it will be well to glance at them. If we analyze, by means of the parallelogram of forces, the action of the draught of ploughs, it is found that a wheel does add some 50lbs. or so to the resistance. But this result implies that the plough submitted to this analysis is working, or supposed to be working, in soil of a perfectly uniform or homogeneous character. But this, we know, is not so easily—if indeed at all, in general practice—obtained; so that modifying circumstances come into play, modifying very materially the action of the plough. These may be summed up as follows: Where obstructions in the soil are met with, they have a tendency to catch the point of the share, cause it to dip, and to raise proportionately the handles of the plough; and it is worthy of note that, in practice, this tendency of the share to dip is much increased through the obliquity of the line of draught of the plough. The progress, therefore, of a *swing*-plough is not uniform, but is made up, so to speak, of a series of risings and fallings, in proportion to the nature of the obstructions met with. The ploughman, in practice, endeavours to modify these abnormal movements, and to reduce them as much as possible, by pressing the handles, or by “tempering” the share, so that it will “take more earth” than is due to the depth of the furrow-slice which the plough is adjusted to take. Now, this increase of earth increases the necessity for the ploughman to press with greater force upon the handles, and, of course, to add to the friction of the active parts of the plough upon the soil, and in proportion to the resistance which the plough meets with. Here, then, in the case of the swing-plough, are causes of loss of power; and the question is, Does the addition of wheels to it obviate these? If we take the indication of the dynamometer—not always, however, to be relied on, as it gives results which are not easily read off—as a guide, we find that wheels do reduce the loss; and certainly the indications of theory would show that to place wheels in the position they occupy in the plough must have a beneficial action, not only as preventing the dipping of the share when it meets with obstruction, but as preventing—if not wholly, certainly to a great degree—the vibration produced by the action of the horses as they walk along, a vibration peculiarly marked in the case of the swing-plough. Again, the wheels must have a tendency to keep the plough-sole flat

on the ground, and, by consequence, the land-side of the plough perpendicular, and thus ensure steadiness of motion, this steadiness being, in the swing-plough, often secured by pressing the land-side so as to throw it a little off the perpendicular; and these causes are of course exaggerated by unskilful ploughmen. It must be evident that the implement must be somewhere defective, in which faults inseparable from its peculiar action have to be corrected by other faults, or by the exercise of much labour or skill on the part of the attendant; and, on the other hand, that implement is the best, which meets difficulties in or faults of operation by means best adapted to overcome them. But it is not a mere question as to whether the addition of wheels to a plough increases or reduces the friction of its working. While experience proves that wheels reduce this, the contrary might with ease be admitted, and yet the wheel-plough be maintained as the better plough of the two—cheaper, as well as easier to work. “In ploughing with a swing-plough, which is the most difficult thing to arrive at—uniformity of depth, or uniformity of breadth of the furrow-slice?” Uniformity of depth, unquestionably. Straight furrows a ploughman can make with comparative ease (with a swing-plough); but uniformly deep furrows is a matter of great difficulty. Now, it is admitted on all sides that a wheel-plough gives uniformity of depth with ease. Skilled ploughmen are therefore required to do good work with a swing-plough; and skilled ploughmen require, and get, higher wages than unskilled who can work a wheel-plough just as well as a skilled man. If, then, the saving effected in the wages department is greater than the loss occasioned by the increased resistance which a wheel offers to the traction-power, then the wheel-plough is cheaper than the swing. But we have seen that the wheel-plough offers less resistance; so that we arrive at the conclusion that it is easier dragged, gives as good work, and is cheaper, because it is better capable of being worked by unskilled labour than the swing-plough. At the same time, while coming to this conclusion, an author does not lose sight of the fact—on the contrary, draws special attention to it—that this conclusion will be very much modified by circumstances of soil, and that the swing-plough will, in some soils, act better than the wheel. This, in practice, is found to be the case where soils are rough, and filled to a greater or less degree with obstructions. It is in such soils that the less-encumbered swing plough is found to be better than the wheel, inasmuch as the ploughman can give it all those adjustments which are, from time to time, demanded by the ever-varying nature of the soil in which it works. It is in fairly uniform soil that a wheel plough best displays its advantages.

As may be supposed, the subject of steam cultivation occupies no small space in the paper now under review. To all the points opened up in this part, we are precluded from lack of space even to allude. We think, however, that a brief glance at what is said on the subject of rotary culture will be suggestive and interesting. While the plough works the soil by inverting it, the grubber by tearing it up horizontally, the rotary cultivator tears up slices or masses and grinds or rubs them down vertically. Another distinction between the three systems is also noticed: first the duty of the plough is to lay the slices even in the position best calculated to enable the atmos-

phere and the harrow to complete the pulverization; second, the grubber partially pulverizes the soil by its peculiar action, and partially leaves the pulverization to be completed by the action of the atmosphere; while in the third plan, or rotary culture, the turning over or throwing up the pulverization of the soil effected by one operation. The system proposed by Mr. Hoskyn, and brought out by Mr. Romaine, had for its object the reducing of the soil by what may be called a species of grinding or rubbing down, so as to bring it into a granular condition. That rotary mechanism can be and has been introduced to obtain this peculiar effect in certain soils is true enough; but it is another question how far this condition of soil is the condition we require for a seed bed. We believe that Mr. Algernon Clarke was the first to draw attention to the importance of attending to this condition of the soil, and to point out that there is a difference between soil comminuted or pulverized by the action of the atmospheric influences in conjunction with the work of tillage by spade or plough or grubber, and the same soil comminuted or pulverized by mechanical agency. In the case of pulverization by the united agency of tillage and the atmosphere, the particles are independent of each other, and are repellent rather than adherent to each other; air, therefore, can have free or comparatively free access between the particles, which is an immense advantage; while in the case of soil pulverized, ground, or rubbed down by mechanical agency, the particles, in place of being repellent, are adherent, so that air cannot freely pass between them, and rain increases this adherent property. This point, so ingeniously mooted, should not be lost sight of, in discussing the question of steam culture, and deserves to be more completely investigated. The practical suggestion drawn from this point is, that the principle of having the rotary cultivator to lift large or comparatively large masses of the soil, leaving them to be afterwards pulverized by the action of the air—not only the best but the cheapest of all pulverizers—would be better than that where the soil is rubbed down or abraded by a peculiar mechanical action such as Mr. Hoskyn proposed. Rotary cultivation, then, we see may be divided, as in practice they are divided, into two classes—those which lift the soil in masses like Romaine's, and those which rub it down or abrade it like Hoskyn's; and as there are two principles, so there are two methods of working out these principles. These are "giving a rotatory motion to the cultivating cylinder or cutter in a direction similar to the motion of the driving wheels;" second, "giving the motion of revolution of the cultivating cylinder or cutters in a direction opposite to that of the driving wheels." It will be interesting to trace the analyses of these two modes of operation as given by the author. In the first of the above modes of working, where the cutters work in a direction the same as that of the driving wheels, they must enter the soil from above; while in the second of these modes, where they run or revolve in a direction opposite to that of the driving wheel, they must enter the soil from below. Let us analyze the action of the first of these modes of working, and, first, let us suppose the ease of a tine or flat bar projecting from the periphery of a cylinder. Now, when the cylinder revolves, the tine, when it comes in contact with the soil, exercises simply a compressive power, and this is increased by the flat face or side which we have supposed it to possess. By making the face of the tine, which comes in contact with the soil angular, we increase the tendency to enter the soil, and if we make the tine-knife edged we still more increase it; but the mere action of a thin knife-edged tine passing into the soil would have little effect in stirring the soil. The tendency then of a cutter or tine worked in the way we have explained is to compress the soil, and to drag down or into

the weeds or herbage which are on its surface; and where a cutter of this kind does enter the soil, it is solely in virtue of the power of the apparatus brought to bear upon it: the softness of the soil has also of course a favourable influence. The compressive action of a cutter or tine of this kind would be seen much more obviously if it came in contact, say, with a piece of iron, which it could not divide or cut asunder—the more the pressure brought to bear upon the cutter, the more deeply only would the iron be pressed into the soil, if, indeed, the power of the engine was sufficient to press it in at all. This compressive power of the tine worked in the way under notice, is of course greatest when it first comes in contact with the soil, with the surface of which it is at this stage parallel; but as it is worked deeper into the soil by the revolution of the cylinder to which it is attached, it assumes an angular direction, and the compressive force is changed into a lateral from a horizontal direction; and the trench or open cut behind, which we suppose to exist in the working of the apparatus, enables still less resistance to be given to the motion of the cutter, as there is less soil towards the side of the trench: the more angular the position of the tine or cutter, the more easily will the mass of earth or of obstructing substances, as stones, in it, be shoved into or towards the trench. In very cohesive or sun-dried hard-surfaced soils, the real difficulty is to get the tines to enter the soil, when they work in the same direction as the driving-wheels; for it is at this point that the compressive tendency of the tine is greatest, while its power to enter into the soil is the least. To aid its entrance then, we curve the tine, and change it from a flat bar to something like the curved arm of a pick, the action of which it resembles, turning the earth towards the machine, so to speak. In this way a change in the action of the tine is brought about, making it from a compressing vertical to a compressing lateral force, and a lateral force fortunately acting in the line of least pressure of soil, that is in the direction of the open trench behind. Up to this point, in the analysis of this class of rotary cultivators, we have supposed the cutter only to have a motion of revolution, and independent of a motion of progression given to it by the machine which works it. But the moment we take into account the progressive motion of the machine combined with the motion of revolution of the cutter cylinder, we see a very different state of matters brought into existence, which are thus explained: If you notice a man working a pick-axe, you will observe that his first operation is to fling it from him and bring it down in a curve, so that the point enters the ground, and being curved in a direction so that it comes toward him: up to this point there is no movement of, but only an entrance obtained into the soil. The movement is made by the man dragging the pick-axe toward him. If he has taken such a forcible hold of the soil, and finds that he must lift it up or sever the part above the pick from the soil below it, he uses the under-soil as a fulcrum, and pressing backwards, he raises the mass and liberates his tool. These two movements are obtained in the rotary digging by the onward or progressive motion given to it. The soil is dragged, so to speak, towards the working machine, that is towards the open trench in which the digger works by the revolutions of its tines, while the tearing away of the mass is aided or effected by the forward motion causing the tines to press upon the soil before and below them, precisely in the same way we have shown the workman handling the pick-axe does. We thus by this arrangement not only get a tearing and moving action, but we facilitate the forward progress of the whole apparatus, the tines, as they enter the soil, dragging forward the machine.

We shall now glance as briefly at the characteristics of

the second mode of working the rotary cultivator, in which the tines revolve in a direction the reverse of the motion of the driving wheels. In this case the soil is lifted from below, and has a tendency to be thrown over to the back of the cutter cylinder. This renders it necessary to have the diameter of the circle of cutting tines small, for, if large, the soil would be lifted too high: this small diameter, therefore, increases the difficulty of working, as it is apt to get choked up with weeds. But, on the other hand, the great advantage of entering the soil from below is obtained, and the removal of obstructions such as stones rendered much more easy, as also the breaking up of the hard upper-crust. The action of cutters in this way resembles very closely that of the spade as well as that of the plough, both of which act by the wedge action. The backward motion of the tines has this defect, that it brings about a movement antagonistic to the progressive use of the machine, as they tend to press it back. This loss of power will obviously be proportionate to the condition of the soil, being greatest when the soil is hard and impeding and least where the contrary condition exists. The author inclines, after a due consideration of the whole point, to think the backward motion of the tines the best calculated to meet the mechanical and cultural requirements of the case. "If," he says, "the objection is made, as indeed it has been made, that the hard pan, or under-crust of the soil, presents the same obstacle to the entrance of the tines, it may be met by the statement that this is no worse than the upper hard crust which the forward cutters have to enter (we may remark, in passing, that in the majority of cases it will be much easier to enter from below than from above). And there is undoubtedly less chance of the compressing action of the tines when they are cutting backwards than when they are cutting forwards—that is, in a line coincident with the motion of the driving-wheels of the apparatus. There is, however,

another point in favour of the backward-motion of the cutters, which has been over-looked as yet in the discussion of the relative merits of the two systems—and that is, the superior mode in which it acts upon the weeds. The compressible action of the cutters acting in the forward direction tends to pull the weeds downwards—that is, in the direction the worst possible for their easy extraction; while the lifting-action of the backward-motion of the tines tears the weeds upwards, as a gardener does in working with his spade or his fork, throwing them up to the surface." The author believes that the best plan of working rotary cultivators would be to have a double set of revolving cutters in a frame, these to be placed in advance of each other, but not parallel, being placed diagonally in the frame, but in opposite directions, and so that the tines of one would work between the tines of the other, and thus bring about a cleaning action. Allusion is also made to the mode of working the cultivators over the lands, the defects being pointed out, of the system usually adopted, in which the heavy apparatus is moved over the land to be cultivated, and on the other hand the advantage of some such system of rope-traction, like that of Fiskin, so that nothing but the cultivating implement or machine comes in contact with the ground. Allusion is further made to the proposal of Mr. Atkins, of Oxford, which is "to have a large fixed engine of 20 or even 30-horse power set down in the centre of a farm, driving by means of endless wire-ropes extending to a great distance, and working at a high speed, so as to diminish the weight of rope required, the rope being carried in standards at some height from the ground, like a colliery rope." This idea was suggested to Mr. Atkin, by seeing a rope manufactory at Bristol, where a rope of two miles in length had been working constantly two years, taking the power from a ten-horse engine, and driving various machines down the length of a mile.

## THE EXHAUSTION OF SOILS.

[TRANSLATED FROM THE "L'ECHO DE L'AGRICULTURE."]

Practical agriculture differs in no way from every other industrial enterprise. The artisan and the manufacturer know that their establishing and working capital must not be continually reduced if they would carry on their business. Thus, the cultivator cannot continue to derive any profit except by restoring to the soil, under the form of manure, what has been taken from it under the form of products.

Such is the grave question which the publication of a book by Baron Liebig, entitled "*Les Lois Naturelles de l'Agriculture*" ("The Natural Laws of Agriculture"), has made the order of the day.

The question is definitely, according to Liebig, What will be the course of events in Europe if the produce of the fields diminishes year by year? for no one can reasonably think that Providence condemned the European nations—now the depositories of civilization, as the Greeks and Romans were formerly—to fall into poverty and barbarism after the accomplishment of their mission, or that it is for that reason the Creator implanted in the people the idea that land is inexhaustible in its gifts, and that the Divine laws watch over the perpetuation of the human race.

That evil is always the greatest, according to Liebig, which does not think itself to be an evil.

The history of all places and times furnishes us with numerous examples of the exhaustion of soils; and we could point to provinces to-day completely sterile, which formerly were noted for their high fertility.

"How is it," said Liebig, "that the countries bordering the Mediterranean have been gradually depopulated? and what has caused the desolation of certain countries, such as Asia Minor, Greece, Italy, &c.? The exhaustion of the soil."

Ignorant people, who are in the habit of attributing the fluctuation of the population to peace and war, explain all these facts in that manner. But peace does not nourish a population any more than war destroys it, for they only exercise a passing influence over them; but what really collects or disperses human societies is, the fertility of land.

Columella and Varro attest the exhaustion of the soil put into the hands of slaves, and render them responsible for the proceeds of its culture.

The cultivator is the free and independent man *par excellence*, when his fields are not too extensive for him to farm by himself, with the aid of his children, and his land is sufficiently fertile to pay taxes, as well as procure his family a sure and certain subsistence; but when, in consequence of the exhaustion or impoverishment of his land, the free peasant disappears, his patriotism subsides, and he leaves the soil which he cultivated—the land which gave him birth.

The means employed by the Roman legislature for contending with this evil, and which were constantly re-enacted in the centuries following, are extremely instructive and interesting; but neither the division of the land, enforced under Caius Gracchus, nor the efforts of Julius Caesar and Augustus to re-establish the equilibrium disturbed between the wants of the population and the production of the soil, or between hunger and the fields which could no longer satisfy it, were productive of sensible results.

A similar phenomenon occurred in Spain, under the reign of the Roman emperors. Spain was one of the richest countries in the world. Titus Livius and Strabo speak of the rich harvests of Andalusia, which yielded a hundred-fold. Under the dominion of the Moors, Spain was the most thickly

populated country in Europe. Tarragona, which was the second city of the Roman empire, then numbered upwards of a million inhabitants; and afterwards, under Abd Errahman, contained 350,000; but now, only 15,000. In several of the Spanish provinces the land only yields a crop once in two years, while in Andalusia it is only every three years.

But, to come nearer our own times, how is it that all the old estates in the East of America, untroubled lands, which have only been cultivated for a comparatively short period, and which astonished Europe by their fertility—how is it, we repeat, that all these countries have become sterile, and yet for all that, the climate has not become inclement, the air which surrounds them, and the water which bathes them, are still the same? It must be that the soil is deprived of a principle which the regulating operations of natural agents cannot reinstate. They have been impoverished by culture.

But we must leave these considerations, borrowed, for the most part, from Baron Liebig's book, to the actual observation of facts; for the exploration of a natural phenomenon is at once an affair of science and observation.

The doctrine of Liebig has been very learnedly treated by M. Malaguti, senior member of the Faculty of Science at Rennes, who made it the subject of a course of lectures on Agricultural Chemistry, 1865.

By the fertility of a soil is meant the whole of those conditions which result in an abundant crop; and by the productive faculty of a soil is meant the whole of those conditions which ensure the continuance of a yield.

A soil is productive, when under its surface, as far as the roots of vegetables extend themselves, it contains all the elements necessary for the nourishing of such plants. It is fertile when it gives a good crop.

Independently of the physical and geological composition of the soil, we see first that a knowledge of the rooting of plants is the basis of agriculture, and under that head it is necessary to say very little is known in general. The working of a soil ought, in fact, to be exactly appropriate to the nature and properties of the roots of the plants you wish to cultivate. Besides, it is the nature of certain grains—such as wild oats, couch-grass, &c., to preserve themselves under the arable bed exhausted by the culture of cereals, and to appear at the surface, there filling the place of seeds to which the soil no longer offers nutritive substances.

This is the cause of the invasion of weedy grasses in a great number of fields abandoned to ruinous culture and a succession of cereals, especially those where the abuse of carbonate of lime has already ruined the temperament of the arable bed.

Nevertheless, it was a conquest of the cultivator who discovered the action of calcareous marl introduced into certain soils, until then unproductive from the culture of several plants, especially wheat.

Vast beds of carbonate of lime, under different names, were discovered thirty years ago in Brittany. Fertility seemed reproduced in certain districts. For instance, we may mention that of Dinan, where Count de Lorges discovered the shelly basins of Saint Pivot, and brought it into use, under the name of "Sandy chalk."

M. de Lorges took care to state that to the knowledge of the inhabitants these beds had never been worked till then. But from the appearance of certain parts, there were visible traces of former openings; and even tradition tells us that the Romans, and perhaps our fathers the Gauls, had used carbonate of lime to a vast extent; and no doubt the same abuses now practised caused its abandonment then.

Sea-mud manures far more completely than sandy lime all lands where a previous abuse of it has rendered the soil sterile.

What must be done, then, to prevent this exhaustion of land?

We must put into it what has been taken from it; and if the intensive culture, so extolled in the present day, is employed in the art of impoverishing the soil, in order to avoid this fatal consequence we must look beyond the products of cultivation for the matters necessary to cover the deficiency between the receipts and the annual expenses of the farm.

The method of restoring to the soil those elements taken from it by cultivation is so simple that it is astonishing it was not thought of in the last century; but still, the knowledge possessed by the farmer of the necessity for manuring land proves that the idea of restitution existed, though only in the germ.

As plants etiolate at once if removed from the action of

light and water, it was thought at first that these two elements were necessary to the existence of them; afterwards it was believed that crops would never be deficient if the land was properly manured.

Later on, it was imagined that the element of production was humus; and consequently, the cultivator who could produce the greatest quantity of that matter was the most successful.

It was remarked, however, that certain agents of a mineral nature, such as marls, plaster, &c., increased the crops, from which it was concluded that these substances were stimulants. As an element of production, humus stood first—it gave a great development to the culture of fodder plants. Besides, it was found that cereals attained to greater perfection after fodder plants, from which fact people drew the conclusion that cereals were exhausting to a soil; while, on the contrary, fodder plants helped to fertilize it.

At that time, practical men attributed all to manure; and, exaggerating the notion of equivalents, they thought if grasses were put into any kind of soil the result would be the same—it would produce an equal quantity of manure, while the contrary effect would be produced by the cereals.

Thanks to these false theories, agriculture was at a standstill, and alarm was felt everywhere, when the use of marl and plaster once more gave good crops; but the productive faculty of the soil soon became extinct.

At that time, although the nature of air was known, scientific men were ignorant of the fact that it is the source of hydrogen and nitrogen.

By analyzing the elements introduced into organization, it was found that the urine and solid excrements were composed of the mineral elements of food, mixed with other matter which did not add to alimentation. This discovery led to some experiments of the action of manures upon vegetables, when it was soon found that dung put upon a soil could not restore to it all the elements that had been taken from it by cultivating cereals.

Now, it is generally admitted that all plants are of a mineral nature. Some of their principles exist in the air—others in the earth, while these two elements always exist in a solid form in the plant. It will therefore be seen that it is only through the decomposition of their mineral elements that manures act upon vegetables.

According to the doctrine of M. de Saussure, it was believed that wild plants derived their nourishment from the carbon distributed in the atmosphere, and cultivated plants from humus; but Liebig taught us that all the carbon contained in plants came from carbonic acid, and it was that idea he expressed by the circulation of oxygen. The carbonic acid is absorbed by plants, which exhale the oxygen and retain the carbon.

Oxygen assists the respiration of animals, and, being exhaled by them, is again appropriated by plants. We also learned from Liebig that plants derive all their nitrogen from nitric acid; consequently the circulation of that element is produced in the same manner as oxygen. Carbonic acid combined with nitric acid transforms itself into the economy of urea; while urea, in its turn, transforms itself into carbonic acid combined with nitric acid.

Theodore de Saussure knew that phosphate of lime was necessary to plants, and it is the same with phosphate of magnesia. Sprengel discovered the presence of alkalies in the vegetable economy; but, as they all admitted that plants drew their nourishment in the soil in a state of solution, it was thought that these elements must enter into them, whether they were needed or not. We see now the fallacy of this opinion; for the cellular tissue can only form itself with the aid of carbon. Without carbon, neither fecula nor sugar could be formed; and without phosphate, albumen could not be formed.

M. Malaguti, in his second lecture on agricultural chemistry, says: "There exists in the remotest part of Asia a vast country presenting the different climates comprised between Central Germany and Lombardy." The land is of volcanic origin. The mountains there are formed of a very stiff clay; the soil of the valleys is nearly sixteen feet deep, and rests upon an impermeable subsoil, where some artificial fens are formed.

From time immemorial, the fertility of that country has never been disputed, and that in spite of the absence of all

agricultural societies, meetings, agricultural communities, &c., and, what is still more, without any cattle market, or the least importation of artificial manures.

This country is Japan.

If these countries enjoy unparalleled richness, it is due to the idea of restoring to the soil those elements which have been taken from it.

The Japanese has no cattle, because he could not sell his milk; and he does not eat meat, and therefore would get no profit from his beasts. All the land belongs to the sovereign and to some nobles of high degree, who give the lands in fiefs to nobles of an inferior class. The latter, in their turn, farm them out to peasants, in lots of five or seven acres or more. As the properties are small, and divided by a great number of canals for irrigation, they do not serve advantageously for milk cattle: they, therefore, only keep sheep.

The Japanese farmer is ignorant of the aphorism, "Much fodder, many cattle; many cattle, much manure; much manure, much corn."

But they say, The principles which constitute a crop proceed partly from the soil and partly from the air. The latter are brought there by the force of natural laws, and the first must be introduced into the soil. Human excrements only represent the part which is derived from the soil; and from that they conclude that those who consume the crop become the producers of manure.

It is, then, because they use human excrements that their crops never fall off. No trace of the manure is ever found on the land; but privies are constructed in every street for the purpose of collecting it.

It must not, however, be supposed that no other manure is used by these people. As there is always some loss of fecal matter in a crop, while respect for the dead deprives the soil of part of its fertilising elements, they employ other manures; and, as they use enormous quantities of fish, they put the *de-tritus* into the soil. They also form a compost with chopped straw, kitchen refuse, and the clearings of fields, which is covered over with earth and cut straw, and moistened constantly. After a certain time putrefaction commences, when they break up the heap, and by that means obtain good vegetable mould.

In order that it may be thoroughly used, they manure each plant particularly—that is to say, they open furrows, sow the seed, and cover it over with manure, thereby avoiding the necessity of spreading it over the whole surface, as we do; and their fields never remain fallow. That is due to human excrements; and it is the same in China.

But let us leave these countries, and see what was passing in Europe in the middle of last century: take France for example:

About 1760, the cultivator had no other winter fodder than carrots, turnips, and a little straw, from wheat or rye. Butter and milk were both very bad in quality. They had to wait till the spring before they could let their cattle into places where the grass was at most only an inch high, and the animals returned as starved as they went out. This is what our agriculture will come to if we do not take care.

About that time Schubert introduced the culture of clover; for a time, this supplied the loss of other fodder, but after a while the yield diminished, till at length they could no longer grow it upon the same land.

Then appeared guano as an artificial manure; I shall not speak of the annual black, the quantity of that used being

much too small to influence the destiny of agriculture. But thanks to the use of this manure, the crop of clover became much larger; France once more recovered her productive faculties, but soon clover again began to diminish in yield, when gypsum (thanks to its action, the nature of which we are still ignorant of) rescued the farmer once more from loss by increasing the crops of that leguminous plant.

Thus clover, potatoes, and guano have hitherto prevented the ruin of agriculture, particularly the potato, as it will grow upon a poor soil, and vegetate where wheat would not sprout. It must not, however, be supposed that potatoes prevent the exhaustion of soils, quite the contrary; but as their roots force themselves to a greater depth in the earth than wheat, they find nourishment where the short roots of that cereal could not reach.

But though the introduction of the potato has been beneficial in some respects, it has also been the source of a great evil on the continent, by favouring the exchange of its manure for gold from England. Besides, the use of potatoes as the sole aliment of certain populations is one great cause of the decrease in stature of the human species. For instance, in France the height of soldiers in 1789 was 5 ft. 6 in.; in 1823 it was 5 ft. 3 in.; and now, the regulation height is only 5 feet.

In Germany, says Liebig, where the people feed almost exclusively upon potatoes, the diminution of height is still more marked. In 1760 it was 1 m. 78, and now it is 1 m. 55. In Saxony, out of 1,000 conscripts there were 716 unfit for service, and 317 rejected as under height.

The bony substance of men has been exported in England under the form of animal charcoal.

Another cause of the slow decline of agriculture is, the discovery of guano. Let us suppose, said M. Malaguti, that 1 cwt. of guano furnishes in five years 5 cwt. of wheat more than would have been obtained without the use of that manure, the importation being about 2,200,000 tons in fifteen years, the result would be that 1,800,000 individuals would be well fed, thanks to guano, for we might put any other production as an equivalent in the place of wheat.

But guano, too, will come to an end, for all that has been discovered is in working, consequently the mass diminishes more and more.

The discovery of fossil phosphates has also brought fresh help to make up for the insufficiency of bones, but that source will soon become exhausted; and besides, phosphate alone will not afford nourishment for plants, it must be mixed equally with potash and soda.

"We must only attend to ourselves," said the poet; and when populations have become familiar with the simple laws of nature, respect to which will guarantee their future well-being for all time, when they learn to know that each cultivator is capable of maintaining the fertility of his land without importing manure, and that if that importation depends upon foreigners, the actual state and increase of crops and subsistences are subject to fortuitous events, over which populations have no control; when, in fact, it is proved by statistics that under the most favourable circumstances the importation of manure must come to an end at no very distant period, they will know how to solve the question of the sewage of towns, upon which the preservation of the riches and well-being of the state as well as the progress of civilization depends.

A. DE LA MORVONNAIS.

## TEXTLESS NOTES.

BY A CROTCHETY FARMER.

### PARIS AND AT ITS EXHIBITION OF 1867.

In the first paper under present title which I sent you, I took occasion to make a few remarks upon cooking, and from thence very naturally adverted to the exhibits of "food" which are to be found in this great, if not grand, exhibition, and to the lessons which might

be eliminated from them, if properly examined and reported upon. Whether that examination be ever made, remains to be seen: I make free to think that I am not the man to make it, in the way it should be made, although I may yet refer to some points connected with it

not altogether devoid of practical utility. There is doubtless one department of this great "food" collection which is the most popular in all the exhibition, and one to which visits are being paid in continued and crowded succession—visits not urged on, be it noted, gentle reader, by a thirst for science or a hungering after knowledge, but prosaically because physical wants necessitate, or seem to necessitate, repeated visits to this department, which, without further paraphrasis, otherwise vulgarly rendered "beating about the bush," is neither more nor less than the great zone or circle which contains the Restaurants, Cafés, or (not to put too fine a point upon the matter) "beer and baccy shops." I call this the great zone or belt—not only because literally it is so, being the outside circle of all the circles of that bewilderingly enchanting Palace of the Arts; but because it is the greatest attraction of the Palace and the Park. Firmly persuaded am I in my mind that it is not a thirsting and hungering after knowledge, but after much more natural things, that brings by far the larger proportion of the visitors to these Exhibitions. Else how comes it that of all the "enchanted circles" this is the one that finds its confines most crowded—its presiding goddesses most adored? And, by the way, talking of goddesses, where did those come from who preside over the altars erected by Spiers and Pond in the glittering temple of Bass and treble X—in plain words, the English refreshment-room crowded by these culinary and thirsty worthies? I ask where do these goddesses come from? I mean those dashing young ladies—or, as a friend at my elbow puts it, those appallingly stunning girls—who, behind the counter, with its range of glittering baubles and curiously-quaint or quaintly-erious "dabs" of sandwiches, dispense the good things to the large crowds before them. Where do they come from, and where have they "raised," as a Yankee would say, those wonderful crops of hair which crown their forms? *Raised* is indeed the very word to use, for what do adorn their heads are indeed stately edifices, composed of most elaborate and intricate convolutions of curls and fierceness of frizzle. Very truly, if these young ladies—there is no such thing now-a-days as a *girl* or a *lass*, there is an honest old-world ring about these words which one loves—have as much *in* their heads as they have *on* them, they must be the very Prussian blues of learned ladies. One has awful forebodings of the mysteries of their nightly toilets, and of the feverish dreams which must haunt their after-sleep, for fear of demolishing those structures, which are really, or seem to be, fearfully and wonderfully made. We believe that it has been for some time "quite the thing" for Frenchmen to do, to bring their wives, their sisters, or their sweet-hearts to see those English ladies, who dispense "pellell and portare," and who are considered—the girls I mean, not the two p's—as thoroughly English institutions. Of course, if they come to look—shall I be considered very rude if I parenthetically remark that the young ladies in question stand the looks very well indeed?—they stay to drink, which result must be in the whole a refreshing thing to the worthy lessees, if not to the Frenchmen and their wives. This zone or ring of restaurants is really a most diverting place to walk round. It is thoroughly cosmopolitan in character, embracing within its tremendous circle the representatives of almost every nation under the sun. You can drink every imaginable drink which the genius of thirst has concocted, from beer of all qualities, to champagne ditto; and eat all manner of edibles which the genius of cookery ever devised, from the stale sandwich of the Exhibition, to the bird's-nest soup of the Chinese—at least we suppose that this delectable dish will be had when these Celestials open their restaurant, which is not yet

ready for business. Amusing, however, as is a walk round this ring of restaurants, and suggestive, in more ways than one, as are peeps into their interior, and examinations of their presiding geniuses, and the crowds they serve, it is not altogether the object of a visit to the Exhibition to spend time thus; although, by the way, such does seem to be the opinion of a large majority of those who flock to it. Knowledge of a useful kind is not picked up precisely in the best of ways by lounging at a counter, or by sitting in lazy listlessness on one of the seats outside; although even there one may pick up something worth knowing, and see something suggestive if they look for it, especially in the direction of the Park. I remember at my first sitting outside the refreshment room of Spiers and Pond—which by the way is called the English Refreshment Room, as if there was no other, which there is, kept by our ubiquitous countrymen, I, looking towards the Park, saw a collection of structures which will probably never be brought together again: nearly opposite was the Emperor's Kiosk, which is "beautiful exceedingly" in interior fitting, if not in exterior design, the style being very difficult to name, I have heard it called "moonisque," although what that means I do not know, unless indeed it has some uncomplimentary reference to the state of mind in which the architect was when he designed it, influenced by that luminary which acts not always in the best of ways on the minds of men. Then, opposite to this, is the English cottage, and put apparently there by way of giving another example of this "moonisque" style; at all events, we may say with safety that it is the "grotesque" style. Struck with the appearance of this marvellous and mysterious structure, I walked over to see if the arrangements of the interior were in keeping with the design of the exterior, so far as the characteristic of grotesqueness was concerned. And I am bound to say I was not disappointed in any conjecture that it would be so, disappointed as I was and am, that any such absurdity should have been perpetrated in the way of giving foreign visitors to the Exhibition an idea of what an English cottage is, which we will venture to say it never does nor will. I confess to having some slight knowledge of what an English cottage is; but I must say I should have had some difficulty in giving a name to the probable uses of such a structure had I been taken to it in ignorance of what its designers and constructors please to call it. It is simply a sham, and the only use I see it can be is as a framework for displaying all the varieties of building materials in use amongst us; and if this was the meaning of the structure arrived at by the designers, they have succeeded in their aim; for over its walls, and the roof, and in it, are collected a most remarkable selection of constructive materials. And, by the way, the sight of one or more, or shall I say all of its interior fittings—cottage fittings—save the mark!—reminds one of the department of the Exhibition upon which much stress was laid before it opened, as being one likely to afford a vast mass of practically useful and suggestive matter, namely, that which was to comprise collections of cheap domestic appliances. This cottage would surely have been an appropriate place for exhibiting some of these. But as they are not so exhibited, are we to suppose that they are not in existence, and therefore cannot be exhibited? We would be disposed to come to this conclusion, more especially as in all our walks in the alleys and rings of the building we came across but one or two collections of appliances likely to be useful, and at the same time economical, in the furnishing of the poor man's cottage, and these we met with in the German and Belgian department. There is, doubtless, a vast selection of objects connected with furniture, clothing, and food; but they are in no way to be looked upon as adapted to the

poorer classes, which was the main object aimed at in establishing the department. There may be in some out-of-the-way corner hitherto unexplored, or just as likely as not, in some cases yet unopened, a great many objects which will really come under the head of cheap appliances; but as for anything like a well-arranged and complete collection, which is within the reach of the ordinary visitor, I have not seen any trace of its existence. The difficulty, however, in this department of social economics, is to get the poor people to use cheap things if there are new things. Their prejudices against anything out of the ordinary track of their experience is something wonderful. The same applies to new kinds of food or to good, and new ways of cooking food, at present within their reach. The Exhibition abounds in much, very much, that is suggestive of the way of the feeding of our poor population, as, indeed, I hinted at in my first paper; but the result of all enquiries amongst the introducers of new and cheap things, either in the way of food or of the appliances by which to cook it, as, indeed, the result of ill experience, is that the difficulty is not to introduce them, but to get them used after being introduced. It is difficult to understand the force of prejudice in some minds, or to conceive of people preferring to starve rather than eat certain kinds of food when no other food is obtainable; yet this is simply the truth, for in various parts of the kingdom along the coast certain kinds of fish are abundant, and yet the people will not partake of them even in times of famine. And yet there is enough, and far more than enough in the food department of the Exhibition to prove that there is a vast wealth of material abounding throughout the world, and comparatively easily got at too, available as cheap food for the poor. Is there no way by which these can be placed within the reach of those people? and second, but not the least important question, how are they to be induced to use them? These are most important questions. I wonder whether this Exhibition will be allowed to pass away, with all its suggestiveness within this very department, without something practical coming out of it! We are a practical people, so we say, and so we believe, yet I am exacting enough to say that in some things this is quite a mistake; we are, on the contrary, essentially theoretical—never getting beyond the region of discussing them, we are indeed, as respects them, always *in nubibus*, never on *terra firma*.

And here I am very naturally reminded of a train of thought which passed through my mind after I had seen a poultry-house, in the annex of the agricultural department of the Seine and Maine, near the entrance opposite the Military School. How is it, I thought, that while every inducement is held out to encourage the French peasant to attend to the rearing of poultry, nothing is done with our peasantry in this way. And yet it really is difficult to over-estimate the importance of the branch of industry thus created in France—how important, let the annals of the exportation of eggs to this country from France tell, and what a source of food to the peasantry

themselves and their neighbours. I heartily wish that something could be done to have, throughout all our rural districts, cottage poultry-keeping carried out: a large result would soon come out of small effects if those were only widely carried out. How would cottage poultry shows do, I wonder? And what would be the effect of prizes for the best efforts made by cottagers? And could there not something be done in this direction also in increasing the supply of dairy produce? I am induced to ask the question by the consideration of certain circumstances arising out of the fact that in one part of the French department there is a collection of cheeses, which really make one think, How is it that we have such a small variety, two or three, to set against the tens of Continental dairy folks? Doubtless some of the Continental varieties are poor, but yet there is a vast deal to be said in favour of the principle of "variety is charming." At all events, the very variety met with abroad shows how large a part cheese plays in the food of the people. Our readers, not otherwise acquainted with the habits of French poor people, would be surprised to know what a vast deal of bread is consumed by them, helped out by "morsels"—this is the very word they use—of cheese. I do not say this is the best kind of diet for our working people, very gladly would I see every means thrown in their way to enable them to increase their allowance of meat; yet at the same time I am equally disposed to wish that they would use more bread—the staff of life—and oh! that I should have to write the words, "Waste less of it!" There must surely be something in Continental air that render large supplies of bread necessary; certainly, not seldom have I been surprised at the much, very much larger weight of bread I use at meals abroad than I do at home—no comparison, indeed, between the two is to be made. No doubt the bread abroad is, in the great majority of instances, very good. And, by the way, I may here name this, that if the visitor to the Exhibition wishes to know what the perfection of bread is, or to know what it will be like when perfection is reached, if ever it is, let him go to the Austrian bakery, and then he will say that he has for once partaken of bread exquisitely fine. The Parisian bakers are celebrated, and justly celebrated, for their fine bread; yet, I am told, that the produce of the Austrian bakery, above alluded to, has made them quite envious, if it has not already given rise to frantic hair-tearings and volleys of "sacrés," in which habits our French neighbours are apt to indulge in times of excitement.

So suggestive is this truly wonderful exhibition, that I could go on in this crotchety vein to discuss, or, at all events, to discourse about a variety of things not altogether useless, but my rapidly-lessening paper-surface warns me that I must conclude; for the present saying no more. But I have space to say to those who have not yet made out their visit to this Exhibition, by all means do so now—do it quickly. "If it were done, then 'twere well it were done quickly."

## THE PARIS UNIVERSAL EXHIBITION OF 1867.

We have in former papers given the reader some idea of the extraordinary diversity of objects of interest in the Park. When these papers were written, even at that early period, it was true, to a certain extent, that the Park in some aspects was more extraordinary and worth seeing than the main building itself. If true then, it is infinitely more so now, when every department is completed,

or nearly so; for to the rule of completeness there are still some exceptions—not, however, numerous or important. Whether the Park and the various treasures in the buildings, which are studded thickly over its surface be not the most attractive feature of this Great Exhibition, we may not now attempt to determine; certainly it is the most novel feature of the whole; and that it is wonder-



fully attractive is easily enough seen from the enormous crowds which frequent it, especially in some of the popularly attractive quarters. The least attractive quarter, judged from this point of view, is, however, or should be, for those visitors who are in any way connected with or interested in agricultural pursuits; few people, as a rule, traverse it; and of these few our countrymen, so far as we have seen, form but a small minority. This quarter is on the side of the Park next the Military School, opposite to that parallel to the Seine, and may be reached, if the Park is entered from the grand entrance, opposite the bridge which crosses the Seine, by walking straight across the building, and up the avenue at the entrance opposite the Military School. Or, if the visitor enters the Park by this entrance, he should turn at once to his left-hand, past the Restaurant Omnibus, or Working Man's Refreshment Room, and before this and on either side he will find a great variety of interesting objects to attract his attention; of these we shall presently "take a note," meanwhile pointing out to our readers that if, while in this quarter, and tired by roaming about amongst its attractions, he wishes refreshment, he cannot do better than enter the Omnibus Restaurant above-named, if for no other reason than to see whether the viands there dispensed are as good as they are cheap. Everything is charged separately; as for instance, table-napkin five centimes, or a sou (this luxury, which even the poorest restaurants afford to their visitors, is alas! unknown to our eating-houses); bread, two sous (or a penny); soup, four sous (two pence); if the ordinary "bouillon," or gravy-soup, three sous; a chop, eight sous; ham, five sous; fish, four sous and so on. You get a good glass of beer for five sous, half-a-bottle of red ordinary wine for eight sous (a sou is a halfpenny of our money). We cannot, from experience, say what is the quality of the viands here dispensed, as we have not yet, while there, had the appetite which might otherwise have urged us to visit the place, and, not having this, did not care to give the time; but we have heard two opinions on the subject, which our readers may take as a suggestive hint that the position between the two is probably the true one. One opinion was given us by a Parisian, and was to the effect that everything was wretchedly bad; another by an Englishman, to the effect that everything; was so good, he had dined as well as he had dined cheaply. Both were men accustomed in their own countries to know what a good dinner was; and the secret may be in this—that the Frenchman, knowing what good French cookery was, knew that that of the Omnibus was bad; while to the Englishman, with his limited knowledge of the subject, the cookery would be good. So much on a subject which is ever interesting, and not the less so to our readers, all of whom we venture to class as, in the best and most comprehensive sense of the term, "good livers."

Within a good stone's-throw of the central entrance to the Omnibus Restaurant, straight forward, to the right and to the left, a variety of buildings and objects are congregated which are specially interesting to our readers. A large annexe, or shed, contains the agricultural products of the various departements of France. Near it, and in a smaller shed, a most interesting collection of objects connected with the Imperial Agricultural School at Grignon may be met with; while outside are facsimiles of the agricultural implements employed in the cultivation of the farm. Near this, and on your right hand, looking towards the Exhibition, there is a row of sheds, in which there are small collections of Merino sheep, and cattle of the race Tarentaise. Walking up from there towards the Refreshment Omnibus, you come upon the caves where the Roquefort cheese-making is displayed—a most interesting and suggestive place, to which presently we shall take our readers. Near this there

are, outside and ranged before the Restaurant Omnibus, a number of collections of agricultural implements, the work of such makers as Peltier, Guilleux, Fusellier, Renaud, &c., &c. Then further on, towards the entrance opposite the Military School, the visitor will find model poultry sheds; and on the left-hand side of the main avenue leading from the entrance to the building, the annexe of the agricultural departement of the Seine et Marne, in which he will find, in the stalls to the left of the entrance, some Merino sheep, and sheep of the same breed crossed with the Leicester; and in the stalls to the left, cattle of various breeds. In the court to the back he will find a small but interesting collection of agricultural produce and appliances. Coming out of this annexe, and still going down the main avenue, the visitor should enter the large Belgian annexe (he will know it by seeing a large steam crane outside), in which he will find a few interesting agricultural machines, some implements being ranged outside along the length of the building. Inspecting these, and going on towards the left-hand, he will come to the workmen's houses, as erected in Bohemia; and near this, towards the building, the annexe of Prussia and the Northern States of Germany, at the entrance of which he will find a large model and explanatory drawings of workmen's cottages erected in Pomerania, and which, if not fine, their arrangements are at least worth noticing for the cheapness with which they are built. In the same annexe will be found a few agricultural implements and machines. Coming out of this annexe, and directing his steps up the Park, in the direction of the Military School, but keeping well to the right, the visitor should strike the *locale* of the Spanish annexe, which is well worth examining, from the varied nature of its contents, many of which have a direct bearing upon agriculture. At the back of this annexe, and ranging with the extreme western barrier of the park, are placed a range of sheds containing a very large collection of agricultural machinery and implements, from such well-known houses as Alvaret, Corray, Pesant Frères, Gantreau, Cholet, Dufour, Freys, Darney, Gerard, and Cumming. Coming out of this annexe, and keeping then to the left-hand, the visitor, walking onwards, will come to the Russian stables, opposite to which is the Russian isba, or peasant's house, in the lower part of which he will find a small, but very suggestive, collection of agricultural machines and implements. We have thus indicated, briefly and roughly, the various objects interesting to the agricultural visitor in the quarter which happens to be the least frequented of all. To examine the contents of all the buildings we have noted will be no small task. Of course the reader will suppose there are amongst these contents a great many things which may well be passed over without loss, while there are others which the visitor should by all means examine. What many of these are we shall take up in due course. Returning to the space nearly opposite the central entrance to the Restaurant Omnibus, the visitor will see a high square building in rough stone, with the word "Roquefort" near the cornices in large letters. In this building the caves of Roquefort, where the celebrated cheese of that name is made, are illustrated, and which are well worthy of a visit. This favorite cheese is made from the milk of ewes, and treated in a peculiar manner in the natural caverns with which the place abounds, and which treatment we shall briefly describe. A few of the race or breed of sheep are to be seen in a small inclosure within the yard or court of the building above alluded to. This race or breed, of which the local name is "Larzac," originally belonged to the plateau of that name and to the environs of Roquefort, in the district of Avignon; but are now met with in other districts, such as that of Saint-Affrique, in Thillan, of Hérault, and of Gard, and are being daily bred in

other districts, although it is right to state that the cheese made from the milk of the breeds in districts other than that of Roquefort lacks the peculiar flavour which the air of the caves of that place seems alone capable of imparting. The breed in the neighbourhood of Roquefort has of late been much improved. Not only has its milking qualities been improved, but the wool also. The general characteristics of the breed of ewes from which the milk is obtained are as follows: the chest narrow and not deep, large flank, heavy belly, shoulders and thighs thin, the skin fine and elastic, and the udder well developed. The height and bulk of the animal varies according to the fertility of the soil—the sheep born and reared on the plateau being smaller than those of the valleys underneath, where food of a better quality is obtained. The average weight of cheese obtained from each ewe for a season varies from about 30 to 60 lbs., the weight of the fleece of the sheep of the upper grounds being averaged at four-and-a-half pounds—that of the sheep of the valleys five to five-and-a-half pounds. The breed even when placed under favourable circumstances of feeding and shelter is very small in size. The ram is capable of communicating the high milking qualities of the race to the sheep of other breeds. The price of a three-year-old ewe may be set down at twenty shillings; that of an old one, from seven to eight years of age, from thirteen to fourteen shillings. The soil of the plateau of Larzac is calcareous, on the oolitic formation. The plateau is at an elevation of upwards of 2,700 feet, and the soil is dry and arid. The pasturage is not abundant; but the grasses of which it is composed are good, and keep the sheep in good health. The herbage improves much upon the sides of the plateau and in the neighbouring valleys, the soil of which is also calcareous, but rests upon the lias formation. Of late years—from the commencement of the century indeed—the food of the flocks has been much increased by the cultivation of artificial grasses—of clover, of sainfoin, and of lucerne, according

to the nature of the soil put under cultivation. Such is the ever-increasing demand for the cheese of Roquefort, which has been called—rightly or wrongly we presume not to say—the “king of cheeses,” that every means have been taken to increase the number of the sheep from which the milk is obtained; but the limit (from the nature of the district) appears now to have been reached, the numbers now standing at somewhere about 400,000, of which 150,000 are rams, lambs, or fattening sheep, and 250,000 milch ewes. On the plateau the flocks have to pick as best they can what the pasturages afford; but in the valleys, where the artificial crops are grown, their feeding is carried out on a careful and systematic plan. In winter they are housed, and fed from the rack upon sainfoin or lucerne, to which is often added drink composed of barley-meal and water, an addition to their food which seems to have a good effect upon the animals. If the weather is good, they are turned out to enjoy the pure air. In the summer they are pastured upon the artificial meadows, being folded there, so that they eat the crop regularly down, one part being allowed to grow while they are feeding upon another part. Great care is taken with the ewes to prevent their being fatigued, and the water which they get to drink is well looked after, the cold, fresh water from wells being avoided, and that obtained from pools which can be warmed by the sun's rays being preferred. In our next paper we shall briefly describe the nature of the cheese-making process, meanwhile recommending our readers that if, by favour or otherwise, they can obtain a portion of Roquefort cheese, they should walk down to the Austrian Bakery, not far from the Russian Cottage (the *locule* of which has been already stated), and buy an Austrian roll. If they do not agree with us that the cheese is the “King of Cheeses,” they will agree with us that the roll is of the race of the “King of Breads,” and that is saying a good deal in Paris, the bread of which is as a rule truly delicious.

## THE PARIS EXHIBITION.

The following is a correct report of the awards for agricultural machinery, the list published in some of the daily papers not being altogether accurate:

### CLASS 48.—GOLD MEDALS.

1. James and Frederick Howard, Bedford, ploughs and other agricultural machines.
2. Albaret and Co., France, traction-engines and agricultural machines.
3. Clayton, Shuttleworth, and Co., Lincoln, portable and traction-engines and thrashing-machines.
4. J. Fowler and Co., London, steam-plough.
5. R. Garrett and Sons, Leiston Works, Suffolk, portable engines and agricultural machines.
6. C. H. MacCormick, Chicago, America, mowers and reapers.
7. Ransoms and Sims, Ipswich, portable engines and agricultural machines.
8. Walter A. Wood, America, reapers and mowers.
9. H. F. Eckert, Prussia, agricultural machines.
10. C. Gérard, France, horse-gears, portable engines, and thrashing-machines.
11. Usine d'Efverm, Sweden, agricultural machines.
12. J. Pinet and Sons, France, horse-gears and thrashing-machines.
13. M. Cumming, France, portable engines and agricultural machines.
14. F. R. Lotz and Sons, France, traction-engine and steam-ploughs.
15. R. Horasby and Sons, Grantham, portable engine, thrashing-machine, and reaper.

### SILVER MEDALS.

1. E. Vidaer, Austria, agricultural machines.
2. Aveling and Porter, Rochester, traction-engines.
3. E. H. Bentall, Heybridge, agricultural machines.
4. Collins and Co., New York, ploughs.
5. Rouffet and Son, France, portable-engines.
6. Samuelson and Co., Banbury, agricultural machines.
7. Tilkin-Mention, Belgium, portable-engines.
8. Borrosch and Eichmann, Austria, hay-press and agricultural machines.
9. A. Danney, France, portable-engines and thrashing-machines.
10. C. Leclereq, Belgium, portable engines and agricultural machines.
11. Marshall, Sons, and Co. (Limited), Gainsborough, portable engines and thrashing-machines.
12. O. W. Palmaer, Sweden, ploughs.
13. P. Renaud Mantes, France, wine-press, portable engines, and agricultural machines.
14. Richmond and Chandler, Salford, chaff machines and corn crushers.
15. Robey and Co., Lincoln, portable engines and thrashing machines.
16. E. R. and F. Turner, Ipswich, agricultural machines and portable engines.
17. Bruel Brothers, France, agricultural machines.
18. Coleman and Morton, Chelmsford, agricultural machines.
19. Picksley, Sims, and Co., Leigh, agricultural machines.
20. Pinaquy, Sarry, and Co., Spain, agricultural machines.
21. Reading Iron Works, steam-engines and agricultural machines.
22. E. Van Maell, Belgium, agricultural machines.

23. E. Farkas, Hungary, ploughs.
24. Lilpop and Ran, Poland, drill and reaper.
25. Penney and Co., Lincoln, corn-screen.
26. J. Smyth and Sons, Peasehall, drills and manure distributor
27. O. Desoer, Belgium, roller.
28. J. Keelhof, Belgium, corn measure.
29. A. Lecler, France, drainage works.
30. J. J. Marot, France, corn screen.
31. C. Peltier, jun., France, agricultural machines.

## BRONZE MEDALS.

1. W. N. Nicholson, Newark, agricultural machines.
  2. J. G. Perry, United States, mower.
  3. Ruston, Proctor, and Co., Lincoln, portable engines, thrashing machines, and agricultural machinery.
  4. W. Smith, Kettering, agricultural machines.
  5. Wallis, Haslam, and Stevens, Basingstoke, thrashing machines.
  6. Woods and Cocksedge, Stowmarket, agricultural machines.
  7. Ashby and Jeffery, Stamford, agricultural machines.
  8. A. C. Bamlett, Thirsk, reaper and mower.
  9. M. Kearsley, Ripon, reaper and mower.
- And 34 foreign exhibitors.

## HONOURABLE MENTIONS.

Amies and Barford, Peterborough, agricultural machines.  
 W. S. Underhill, Newport, agricultural machines.  
 W. Ball and Sons, Rothwell, agricultural machines.  
 Brown and May, Devizes, portable engines and thrashing machines.  
 Fox and Co., Bristol, portable engine.  
 Parkes and Co., Birmingham, agricultural instruments,  
 And 50 other foreign firms.

## BRONZE MEDALS TO FOREMEN AND DIRECTORS OF WORKS.

1. E. T. Bousfield, Bedford, at Messrs. J. and F. Howard.
2. G. Biddell, Ipswich, at Messrs. Ransomes and Sims.
3. D. Greig, Leeds, at Messrs. J. Fowler and Co.
4. George Wilkinson, Lincoln, at Messrs. Clayton, Shuttleworth, and Co.,  
 And 8 other Foremen of foreign manufacturers.

The awards at Billancourt will not be published until October, the object of the French management being to keep people in the dark and in Paris.

## FARM NOTES.

**THE LABOURER'S COTTAGE.**—If built of 4½ or 9-inch brickwork it will be very hot in summer and damp in winter. The clay with which our Essex bricks are made is, when baked, very porous and absorbent. This remark applies to many other counties, but not to all, for I have seen in Staffordshire and elsewhere pipes and bricks so dense as to be nearly impervious to water. But into porous bricks the winter rains will enter, and the moisture naturally draws towards the warm room. I have found that lime wash well worked into the surface of the bricks closes the pores, and thus keeps the house dry. It requires doing annually; the cost is trifling. In summer it has the effect of reflecting the sun's rays instead of absorbing them, and thus keeps the house cool. I have before mentioned that lime-washing slated roofs keeps the house cool. A whitened slate in the hottest summer's day feels cool, the heat being reflected, but one can hardly bear one's hand upon a non-whitened slate. I wonder this is not more often availed of in our towns where attics as sleeping rooms are almost unbearable in the summer heat. All cattle sheds should be so treated. It is a curious fact that heavy rains will not detach or wash off the lime, but the winter's frosts remove it from the slates, and not from the bricks. Where vegetation has begun to establish itself on slated and tiled roofs, lime washing with hot lime destroys it. Frosts remove the lime, and old-looking roofs then look quite new and fresh. The interior of cattle sheds and stables should be lime-washed at least once a year, on the score of health. The land on which the labourer's cottage stands should be always well drained, at least 4 feet deep, with pipes, covered with loose stones. This prevents the moisture of the ground rising up into the walls by capillarity. Capillarity is overcome thus by gravity. Lime-washing brickwork before painting saves much paint.

**BIRDS' NESTS IN CHIMNEYS.**—We were once a good deal puzzled by a smoking chimney that had never smoked before, and was perfectly clean. On opening the trap at the angle or turn, we found half a bushel of birds'-nest materials, completely filling the chimney; what surprised us was that it occurred at least 12 feet from the top, so that the birds must have descended in the chimney. I believe that they were starlings. Swallows also build in chimneys occasionally, and sparrows in gutters, so that one has to take note of such matters, or suffer discomfort. It is desirable to examine the flues before winter.

**AGRICULTURE, A NATURALLY SLOW BUSINESS.**—Ardent, ambitious, and impatient minds, anxious for speedy accumulations of wealth, must not look to agriculture for a realisation of their desires. Nature will have its course. A wheat crop is a nine months' child, and another nine months is taken

in its realisation. One year for sheep and two years for bullocks are the very earliest returns that can be expected, and then we have adverse seasons to contend with. Besides, there is not the opportunity for credit, as in trade—where an honest, industrious, and prudent young man may be trusted and encouraged by manufacturers; fortunately this is so, or else who would submit to the murky confinement of a town life! Agriculture ought to be very intellectual, for there is plenty of time for study and reflection while the crops are growing. No doubt pure country air is a more sleepy atmosphere than that of a town—at least my town friends say so; but, in my opinion, much of this effect is due to the tranquillity of Nature as compared with the noisy traffic, bustle, and flaring gaslights of a crowded city—so we countrymen must be excused for being somewhat dull and stolid. I have remarked frequently how ready my town friends are for an early bed when in the country, and how soundly they repose.

**THE FATTENING OF YOUNG GROWING ANIMALS.**—The days of four and five-year-old beef and mutton are passing away under the influence of modern agriculture, which requires a more speedy realisation; one-year-old mutton and two-year-old beef are becoming the order of the day. To arrive at a satisfactory conclusion in this matter it is necessary to take a review of the conditions required. Young growing animals are like young growing schoolboys—who, always in motion, rarely get fat—so it is with young growing animals; allow them to roam at large, and vain will be your efforts to produce obesity. At one year old my sheep are extremely fat, and at two years old my bullocks are full of fat, the lean being everywhere well mottled with intervening fat. The result is a rich mellow meat, satisfactory to the butcher, because pleasing to his customers. The flavour may be somewhat higher and the colour darker in old meat, but the fibre is hard, and not easy of digestion, unless well hung in cool weather. Large joints, too, are unsuited to small families. Good rich food from their birth, and a limited area for exercise, are essentials for early fattening. In addition to cake, corn, malt-combs, and bran, a small quantity of crushed linseed and a little condimental food are essential to early ripeness. I could never satisfy myself or my butchers until I gave my young bullocks 1 lb. daily of crushed linseed, and about 1 lb. of condimental food. I have this year sold my bullocks (exactly two years old) at £23 each, and my sheep (one year old) at £3 3s. (half-bred Down and Lincoln). Linseed contains 25 per cent. of oil, and in that form it appears to answer admirably as a fattening ingredient. The stimulants in the condimental food, such as fenugreek, ginger, and caraway, prevent flatulence, and facilitate digestion. My bullocks rarely get more than one bushel of pulped

or cut roots daily. Although I have not used it myself, I know of cases where linseed oil, mixed with bean-meal, has been most effective in putting on fat. I again commend a study of the late Mr. Horsfall's most valuable papers on "Fattening and Dairy Management," in the 17th and 18th vols. of the Royal Agricultural Society's Journal. Our lambs, after leaving the ewes, are generally folded; our bullocks kept in sheds. Locoists, molasses, and sugar, being all soluble saccharine substances, promote early fattening.

**THE LABOURER'S FOOD.**—It is instructive to see how a natural instinct has caused the labourer in South Britain to select the most economical as well as the most nutritious food, well adapted to climatic requirements, viz., bread and cheese—much of the former, little of the latter; at night for supper some hot potatoes and a slice of fried fat pork, also some very small beer provided by the farmer (one bushel of malt to the hogshead). Said one of my labourers to me to-day, "There are 11 of us (baby included), and we consume in bread and puddings 5 pecks of flour weekly, equal to 20 4lb. loaves, and we could eat more. As the price of flour is 3s. per peck, this makes a large claim upon the man's average weekly wages of 14s. 6d. per week, and leaves little for rent, clothing, firing, cheese, butter, milk, and grocery. It is true his three eldest children earn a trifle, for without this he could not go on. How unfavourably a deficient harvest like the last tells upon the agricultural labourer! There is less corn to harvest, thresh, dress, carry out; less straw to cut up, and less manure to cart; in fact, with considerably dearer food, the demand for his labour is diminished, and the farmer is no better off than with an abundant harvest and a low price. But to return to the food. We all agree that milk contains all the elements necessary for the formation and support of the human frame, and that before dentition it is the most suitable form of nourishment. In the cheese we have all, or nearly all, the elements of milk; and so we have in bread, though in a less-condensed form; so that we may safely rely upon bread and cheese as strength-supporting food. As to economy, we must also give for it a most favourable verdict. The price per lb. of meat and cheese are about equal; not so their nutritive properties. 1 lb. of cheese contains only 6 oz. of water; 1 lb. of meat about 12 oz. of water. In Mr. Morton's admirable "Cyclopædia of Agriculture," vol. i., p. 1, page 440, under the head "Cheese":—"It will be seen from the foregoing analysis that cheese is an exceedingly nutritious substance, standing considerably higher in this respect than butcher's meat. Dividing the constituents into the principal nutritive groups, cheese is composed as follows:—

Flesh-forming substances.....	31.02
Heat-giving substances.....	25.30
Mineral matter.....	4.90
Water.....	38.78

100.00"

The instinct of growing children attracts them to cheese, and it is a great mistake not to allow them to indulge that instinct. My children have always had free access to bread and cheese, and the result has been a most ample and vigorous development and unobstructed health. We may leave out of the question "curry powder" for the labourer will find a sufficient stimulant in a strong raw onion; the needful salt he gets in his cheese. Unfortunately, I fear that too many labourers' children get a very short supply of cheese. Seeing that cheese is so nutritious, we may reasonably expect that its exportation from the soil is a heavy tax on its fertility. Cow farming requires good natural soil, or very high farming, or we shall grow little corn where cows are kept for cheese or milk.

MAY 2, 1866, AND MAY 2, 1867.—What a contrast! This day last year a heavy thunder and hail-storm, the ground afterwards covered with snow. To-day, a genial temperature, a lovely sunshine, the surface-soil dry and crisp and warm; smoke ascending vertically, light airs fluctuating from all points of the compass. All this gives us hope of a better harvest than last year, when we had severe frosts up to the end of May. Spring crops plant admirably. Now is the time to judge whether the wheat crops are "going to Halstead Fair," which is on the 6th of May. It is a saying in Essex, when the wheats look pale and bilious early in May, that they are going to Halstead Fair, and will never return. How truly plants testify by their appearance to the condition of the subsoil in which their roots ramify! On deeply and clean-cultivated, drained,

and well-manured land they have the colour and bloom of the cucumber. On the contrary, without drainage, with foul and shallow cultivation, and insufficient manure, the thin, narrow, pale, vertical leaf, with its yellow tinge and slow growth, almost reproaches man for his suicidal neglect. A paltry saving of a few shillings per acre, in not eradicating the weeds at the right time, permits them not only to starve the wheat plant, and thus greatly diminish the crop, but also stocks the soil with innumerable seeds of weeds for future and still more injurious competition. When 2s. worth of labour will spud out several hundred docks in a day, who would not readily pay it? After all, it is in the subsoil, below the ploughed land, where most of the mischief takes place, for that subsoil is raw, unacrated, and unmanured. The roots of our wheat crops have already passed through the ploughed land, and as they descend into the subsoil its unhealthy condition affects their appearance and growth. A rank old dock or thistle will plunge its roots deep into this subsoil, without suffering; not so the corn plants. Beans are the most hardy in this respect. Passing at railway speed, we can detect readily those fields of corn that are suffering from the causes I have named. Experience has taught me that the removal of these causes is a profitable operation, and that neglect or want of means for such a purpose results in heavy pecuniary loss. A high temperature of the soil promotes the growth of plants. Drainage, deep and clean cultivation, raise the temperature of the soil. I have in my conservatory a striking instance of the advantage of warmth to the roots of plants, and consequently to their general development. An ordinary bricked flue passes (below the surface) near the roots of some camellia and other trees, and raises the temperature of the soil; the result is a most vigorous development, and very numerous and large flowers at least two months before any are produced by those on the other side of the conservatory. The temperature of the atmosphere is alike for each; but the temperature of the soil being higher in one case than in the other causes the difference. It teaches us that we should by every means in our power endeavour to increase the temperature of the soil. Spring sown crops look remarkably well, and so do clovers, on well-managed farms. Many heavy-land fields of wheat have been destroyed by slug, and are resown with oats or barley. I have only lost about one acre in this way, including a part of my peck an acre. May 14: Since writing the foregoing we have had very hot weather, succeeded by thunder storms and much rain, and the drains discharging abundantly. A strong cold north-easter is now drying the land rapidly. Altogether the crops present a most promising appearance on all well-farmed land.

**A SATURDAY NEW MOON.**—It is a common saying hereabout that a Saturday new moon is always a wet one, and that it comes in harvest time once in seven years—which is once too soon. A very old labourer tells me that he has invariably found that a Saturday new moon is followed by a flood. The Saturday new moon of the month of May was succeeded by heavy rainfall and floods. Assuming that this tradition is correct, we can shape our arrangements more in accordance with it, for in 1865 much corn might have been secured earlier and in good order had the tradition been attended to.

**Dung Heaps** are, in my opinion, breeding places for the insect tribe; not so shed manure, constantly trampled upon by cattle—it is far too pungent for any living thing to exist or breed in it.—*May, 1867.*

**Advertising.**—It is a singular fact that one rarely sees a farmer's advertisement of what he has to sell and what he wants to buy. The result is that he must either employ commission-agents (called dealers), or sell his own stock at the neighbouring market. Many dealers are very conscientious men, but I have known some cases where 30 or 40 per cent. profit has intervened between the seller and buyer. Besides, a single market is a limited one, both for buyer and seller; animals are often worn down by travel from market to market, and too frequently contract and bring home diseases. Advertisements were once dear and heavily taxed; now they are cheap, and would be cheaper still were the farming advertisements more numerous. A newspaper reaches a whole county, and probably beyond that. I find it by far the most ready way of obtaining what stock I require, and at a moderate price, especially during the prohibition of cattle-markets caused by the cattle plague.—*May, 1867.*

**My Steam Engine.**—After 20 years of heavy wear, I still

find it as efficient as on its first purchase, and likely to last for many years to come. Last year I fitted it with a new Cornish boiler, preferring perfect safety, especially as we work at a pressure of 70lb. per inch. The old boiler was allowed for in exchange, and would still do a great deal of work at 40lb. per inch, the water in it having always been kept at a proper level; for two years it was worked at 120lb. per inch. I also fitted shakers instead of rakes to my old thrashing-machine, and put all the machinery, engine, pumps, &c., into thorough repair. The cost of this was £150. The new boiler is 12 ft. long and 4 ft. 6 in. in diameter; the furnace is within the flue, so that all the radiating heat is applied to the boiler. There is thus no brick-work immediately in connection with the furnace, but merely for the flue. We have always an abundance of steam for every purpose, without much stoking, and use the dust-coal, which only costs us 10s. 6d. per ton, and 3s. per ton cartage from Maldon. It is the screenings from the best coal; and, practically, we can keep up more steam with this than with the large coal, because, being in such minute pieces, it is quickly converted into flame when spread over the surface of the fire. During the six winter months, our engine has daily work in thrashing, grinding, pumping, chaff-cutting, cake-breaking, working Bentall's pulper and Gardner's cutter, pumping water, irrigating, and steaming for our cattle, which vary from fifty to seventy head, young and old, besides two hundred sheep. It also raises all the sacks of corn to the upper floors. It earns a considerable sum annually by grinding for my neighbours, when wind or water-mills are at a standstill, for want of wind or water. Our engine (fixed) is nominally of six-horse power; but with an eight-horse boiler, and 70lbs. of steam, no sixteen horses could do its work, and they would have been worn out. Its consumption of coal is from eight to twelve cwt. per day, according to the severity of the work, at a cost of about 6s. to 8s. 6d. per day. We sometimes ask ourselves how it is possible for a farmer of 170 acres (having a regard to profit) to do without an engine, especially where much stock is kept. I paid £150 for the engine and boiler twenty years ago; of course, all the machines connected with, and worked by it, were an additional cost. When barley was twenty shillings per quarter, our millstones (four feet two inches in diameter) ground fifteen hundred quarters in one year for our pigs. Barley is too dear now for pig-feeding. One of our agricultural labourers has driven the engine for twenty years. One can generally find among one's men a handy labourer with mechanical tendencies. The engine soon teaches him to be a handy man, who will learn to dress the millstones, keep the machinery in repair, and do a number of mechanical jobs, such as rough painting, carpentering, smith's work, and even a little slating and bricklaying. It certainly does astonish me that so many large farmers, with means, are without suitable steam machinery. I quite agree with the reporters on steam cultivation, in the latest number of the Society's Journal, that the farmer should himself know something about the steam-engine, to use it with comfort and profit.—*May, 1867.*

*The Difference between Ploughing and Cultivation.*—Deep-ploughing may be ruinous where deep cultivation would be beneficial. This apparent paradox may be easily explained: Where the land, just below the regular ploughed line, is undrained, panned down, and consequently has never been subjected to the ameliorating influence of aeration by exposure, it is, in too many instances, absolutely poisonous to young plants. I know of some cases where, by at once ploughing up and bringing to the surface 4 or 5 inches of raw subsoil, the land has been rendered much less productive for several years; and I warn my amateur farming friends against committing such a costly error. The young growing plants cannot thrive, in the beginning of their growth, in such unprepared mass, and, consequently, are enfeebled before their roots reach the good buried top soil. That able agriculturist, the late Mr. Smith of Deanston, wisely recommended that the subsoil should be allowed to dry a little after being drained before even subsoiling was attempted; and that kind and enlightened man, the Rev. Samuel Smith, of Lois-Weedon, ploughed his top soil together, and then worked his manure into the uncovered subsoil, leaving it bare for a time, and then recovering it with the surface soil. When I deeply cultivate I plough the top soil, and follow in the same track with another plough (minus its breast or mould-board): the next turn of the first plough then covers up this raw subsoil. In this operation a portion of the

subsoil gets gradually mixed with the surface soil, and thus my staple is gradually increased with benefit to the crops. My experience teaches me that from ten to twenty years will hardly suffice to bring into a suitable condition some of our tenacious plastic clay subsoils. It is on these grounds that I should, in the case of using steam-power, commend the use of the grubbers, or cultivators, that stir the soil deeply without bringing much of it to the surface, and that it should be a gradual deepening instead of tearing up at once great masses of the subsoil. I have never seen any implement so suited to the purpose as that which steam-ploughed a portion of my clover in 1856, in the presence of a large company. That deep cultivation showed its good effect for several years. Fowler's plough was supplemented by Cotgreave's subsoil plough. They were attached, so that as they moved along one furrow-slice lay under the other, the top soil being laid on the top of the other; and yet, strange to say, I never have seen this used since. The fact is that this double-ploughing takes much power and cannot be hurried over, but it is the proper and most profitable mode. Many farmers have been ruined by rashly burying their best soil, and covering it with several inches of raw subsoil. There may be some subsoils sufficiently wholesome to permit of their being suddenly brought to the surface. In many cases ploughing is objectionable, leaving long unfilled spaces obnoxious to the roots of plants. The cultivator has many advantages.—*June, 1867.*

*Working out a Farm.*—There are certain persons always on the look-out for a farm that has been highly cultivated and in first-rate condition, with the intent of working it out, very much to the ultimate injury of the landlords. Such persons are generally very bad farmers. They will, probably, offer a higher rent than a known good farmer could afford to give; but, at the end of the term, the land will be in such a foul and exhausted condition that the apparent gain in rent will have been more than lost to the landlord, as he will find when he attempts to relet it.

*Agricultural Sayings.*—

“Saturday's moon,  
And Sunday full,  
Never was good,  
And never well.”

is as old an adage as the hills (in Suffolk). It appears by the foregoing that a Sunday full moon is as likely to be a wet one as a Saturday new moon. “As May leaves the crops, so harvest finds them” is another accepted belief.—*June, 1867.*

*Artificial Condition of Live Stock.*—The necessity for producing a much larger quantity of meat and manure per acre obliges us to obtain early development and maturity by rich and varied food, combined with suitable shelter and temperature. Fat mutton at one year old and beef at two years is the order of the day. This cannot be obtained by the natural and ordinary system of out-of-door field feeding, unaided by rich supplemental food and warm quarters. Therefore, from the very beginning of its growth the animal should be highly fed and well cared for. If we buy in lean stock, and attempt to force them by a too sudden change to rich food, disease and death will most likely follow; and I am more and more convinced that this is one of the main causes of pleuro-pneumonia in cattle. The too sudden increase in the richness and quantity of blood causes irritation and inflammation in the small and contracted blood-vessels: then suppuration follows. In covered yards or boxes, beware of using long unbroken straw too liberally. You will get fermentation and disease. The straw must be short, and broken either by the chaff-cutter or otherwise. When the bedding is in a hedge-podge condition, without heat, health is safe.—*June, 1867.*

*Sprats v. Guano.*—The necessity for comparative experiments is well illustrated in this case. Several acres of barley were manured with 30 bushels of sprats, at a cost of 9d. per bushel and cartage. One acre was dressed with Peruvian guano and salt at the same cost. Judging from present appearances, there will be at least one quarter more barley on the spratted land. The soil is drained, light soil, intermixed with various other kinds of soils. The barley is higher, thicker, and altogether visibly superior to the guanoed portion, although they were both drilled and manured at the same time. On a heavy land seven-acre field, the same comparative trial has been made with black oats. Although the difference is by no means so striking, the balance of advantage appears to be in favour of the guanoed portion. I drill 6 pecks of barley and 8 pecks of

oats per acre. The appearance of the crops, especially the barley, convinces me how wrong it would be to have put in 3 or 4 bushels of barley and 5 or 6 bushels of oats, which is too frequently done. This season such sowing on good or highly-farmed lands will cause a too early laying of the crop, and a very heavy loss. Sprats are much the best before spawning, which takes place at Christmas, or soon after; they then are only worth 7d. a bushel (about 56lb. weight), as they contain so many drops less of oil.—I shall try the same comparative experiments with "five-fingers," as they are called, better known as star-fish. These star-fish are very destructive to oysters. I am also comparing sprats with guano or mangel.—*June, 1867.*

*Advice to Butchers.*—Hot summer weather, especially if accompanied by thunder-storms, causes heavy losses to butchers. If the meat cannot be got cool and stiff after slaughtering, it soon becomes unacceptable to the consumer. A block of Wenham Lake ice, worth a few shillings, may save many times its cost. When I gave my great agricultural gatherings, there was cooking going on for some days previously. The end of July was a time for flies and rapid decomposition. I always, however, succeeded in keeping everything sweet and wholesome. A block of ice, weighing 60 to 100lb. was placed in the larder. The caloric of the atmosphere was employed and absorbed in melting it; the consequence was a low temperature, in which flies cared not to enter. The block of ice disappeared gradually, and if necessary was replaced by another. There were several advantages in this proceeding. The fibre of meat got nicely broken down, rendering it tender, while perfectly free from taint. Every alderman knows that buck venison is in high season in the hottest part of July. Nine times out of ten venison is then spoiled by taint; the very smell of it is disagreeable. A noble duke once sent me half a buck in July. By the plan I recommend, it was kept sweet and wholesome for nearly three weeks. Everyone praised it, and the fat was like marrow. I am induced to make this suggestion because some of the best portions of a fine fat bullock purchased of me were spoiled for want of a little cool air. Blocks of ice travel cheaply by rail (goods train) packed in sawdust and old sacking. If meat cannot be got cool enough to become stiff before packing, sending it in that soft state to a market is a ruinous affair. The same remark holds good for meat that is to be salted. A number of my pigs, when ready, were divided; one-half I sold to a neighbouring butcher; and the other half, slaughtered at home, and placed in my larder, got cool and stiff; not so the others. My pigs realized in London 12s. per head, or 30 per cent. more than those soft flabby ones sent up by the butcher, who thus suffered a heavy loss. I am informed that the Messrs. Harris, of Calne, in Wiltshire (who slaughter 500 fat hogs weekly, weighing from 200 lb. each upwards), import a cargo of ice from Norway, in order to get their meat properly cooled in hot weather, before they salt and convert it into bacon.—*June, 1867.*

*Chaff Cutting.*—We are gradually arriving at the sound conviction that we must, or rather our animals must eat our straw, instead of wasting it in sopping up water in open farmyards. Science and practice have taught us that a ton of straw is worth much more as food than as litter. The only difficulty is the preparation of it as food. The main point is that it should be cut into very short lengths, say  $\frac{1}{2}$  to  $\frac{1}{4}$  of an inch, that it should be clean cut, without "slivers" or long lengths or strips of straw. There is no difficulty in doing this if the knives are kept properly sharpened. Every hour and half the knives should be roughed or sharpened with a file. Every day and half the knives should be ground. The work is thus effectually done, and there is diminished strau and waste of power. Too often labourers get blundering on with dull edges, incurring useless cost and waste.

*Lean Stock, Lean Crops, Fat Stock, Fat Crops.*—Experience has convinced me of the truth of this axiom; therefore those who supply us with lean or store stock must not expect heavy crops, unless they consume much cake, corn, &c., or use artificial manures abundantly. Dairy farming for cheese or milk is exhaustive; for butter much less so.

*Italian Rye-grass Scarped.*—10th June. I am now cutting for hay Italian rye-grass, 4 feet high, from which I calculate on  $3\frac{1}{2}$  tons of hay per acre. Last year we cut it on the 28th May, and on the 31st carted 15 tons off 5 acres. The stubble of the grass is almost like that of corn. How I wish

that I had the command of a sewer! How it would add to the profits of my farm! Sewaged Italian rye-grass hay surpasses in nutrition the very best grass or clover hay. Surely, then, it is the duty as well as to the interest of every corporation to apply all human voidances to the production of milk or other food for the people. The law will no longer permit the poisoning of our rivers.

*Banned Clay Ashes* are true farmers' friends on heavy land; they descend gradually into the subsoil beneath the ploughed lands, fertilizing it, and rendering it more porous and acceptable to the roots of our plants. Twenty years of experience have taught me that nothing pays better than burning our stiff tile clays in dry weather, especially where it is mixed with a hodge-podge of stones. From a state poisonous to plants, it passes, by burning, into a fruitful condition. Worthless pastures ploughed lightly and burned become fruitful and productive fields. How remarkable is the change produced in stiff clays by burning. Cold, wet, heavy, and adhesive or slippery, according to weather, they at once become friable, non-adhesive, warm, and dry.

*Rooks.*—How annoying it appears, to have an eighth or a quarter of an acre of a field of white peas destroyed by clouds of rooks! and yet, if we reflect, how trivial is the cost, compared with the advantage we, as farmers, derive from these birds during the nine or ten months in the year when they live upon grubs, insects, slugs, and worms, destructive to agricultural produce! Their presence at seed-time should teach us to till our land well, so that the drill places the seed, especially on light land, below the reach of their bills. I measured their beaks to-day, and found them to be about  $2\frac{1}{2}$  inches long to the eye; so that if the corn is put in  $3\frac{1}{2}$  inches it would be tolerably safe. Where farmers will sow three bushels of wheat, and four of barley, and five to seven of oats, it would be a great benefit if the rooks could take half of it. I am daily more and more convinced that birds are the farmers' friends, especially now that the broadcast system is nearly given up, and that we are gradually resorting to deep steam tillage and drill culture. It is only in extreme dry weather like the present, when they are distressed for want of worms, &c., that they perseveringly attack the pea crops.—*July, 1867.*

*Asphalted Floors.*—Among the thousand-and-one little matters that tend to make farming profitable, are asphalted floors. In summer, when large quantities of green food, either tares, green beans, or Italian rye-grass, are passed through the chaff cutter, they require to be spread out thinly, or they will heat and spoil, and the cattle will not heat them, they can be shovelled up clean and free from grit on the asphalted floor. The steam-driven chaff-cutter will in two hours prepare food enough for three days, and succulent food is improved by losing some of its moisture, especially in wet weather. For dry chaff and all kinds of corn the asphaltic floor presents the great advantage of perfect dryness; not so with bricked or earthen floor. Therefore all chaff bins and granaries should be asphalted when in contact with the ground. On the score of economy the advantage is immensely in favour of asphalt, for near the ground wooden floors will rot, and are a harbour for rats and mice. Rats cannot gnaw asphalt. One's poultry-house floor is decidedly more cleanly and healthy when asphalted, and more secure from rats. All barn floors should be asphalted. The cost with us is about 2s. per yard of nine feet for one inch in thickness; where heavy carts pass over it should be at least two inches thick. One I have had in use for many years, and very roughly used, is still in good order. Landlords would find it most economical for new buildings. I have not yet used it as a floor for cattle, &c., but hear that it answers well for piggeries. Where sacks of corn are placed against bricked walls, the walls should be smeared with asphalt to the height of the sacks. Where good sifted gravel and some lime are available, the cost of the concrete basis is trifling. Some dry grit or road stuff is required to mix with the asphalt and give it substance, and to prevent its cracking or melting in the sun. In our case about three barrows-full of road grit are used to each copper of asphalt. The asphalt is, I believe, the produce from gas-making. Time seems to have no effect upon asphalt, so far as weather is concerned. I once made a dung-heap on my asphalted barn floor, to enable a foreign gentleman to try his experiments. The mass heated tremendously; the floor, however, only suffered a partial abrasion of its surface, so that it would appear to be safe as an ordinary basis for cattle dung. I presume we are all gra-

dually arriving at the conclusion that if we are to make meat cheaply, it must be by commencing our green and root crops, and keeping our cattle and manure under cover.—*July, 1867.*

*The Critical or Finishing-up Time.*—As the period of protrusion and final development of the ear approaches, then we perceive the difference between drained, deeply cultivated, well-manured land, and others where non-drainage, weediness, shallow ploughing, and deficient manuring prevail. The money contrast must now be estimated by pounds and not shillings per acre, for this year the difference is unusually great, owing to the very wet and cold spring. There are seasons when the difference between drainage and non-drainage is not so perceptible—I mean when a very dry summer cracks the tenacious clays so widely and deeply that the moisture from below escapes by evaporation from the sides of the fissures. The non-cracking of heavy undrained clays this year is an unfortunate occurrence. Saturated mud from the bottom of a pond, when spread out and exposed to the sun, becomes full of wide fissures, and gives one an illustration of the condition of undrained clays after a wet season.—*July, 1867.*

*Agricultural Grenadiers and Riflemen.*—Whenever I notice crops of grain on undrained, ill-cultivated, and over-seeded fields, the irregular height of the stems reminds me of an incongruous admixture of stalwart bearskins and tiny riflemen. This is a sure indication of imperfect farming. We see near the furrows plants with short stems, small ears, and an uncomfortable greenish-brown colour. On well-drained and well-cultivated lands the crops about this time (end of June) present an even appearance, and when the ears are finally developed one may almost lay a rule across them, so regular are they in ample development. I am sorry to be obliged to say that the admixture which I have described is far too general and prevalent for the welfare of the country. In some cases gigantic weeds overtop even the bearskins.—*July, 1867.*

*Within 30 feet of the Poultry House* there is now growing on my farm a wheat crop estimated at from 6 to 7 quarters per acre, produced by 1 bushel of seed per acre. A large number of poultry have had free access to this field, as well as to my others, from the time that it was drilled, and I quote the ease to verify what I have long ago stated, that birds of nearly every kind are the farmer's friends, and that it is a great mistake to discourage them. This very field produced 7 quarters of wheat in 1865, and 7 quarters 2 bushels of beans in 1866—pretty well for strong, plastic, Tiptree Heath clay. It is strange that so little poultry is reared in this country, when the price is 1s. per lb. live weight, and the price of mutton and beef, live weight, being only 4½d. It is true that poultry, like other live stock, require good food, care, and shelter, especially in winter, and that the race or breed should be suitable to the soil and climate; but while we are importing and consuming 1,000,000 of foreign eggs daily (Sundays included) we need

not fear to overstock our market with home produce. Poultry, like sheep or other stock, manure where they go, and, in addition, clear off vermin.—*July, 1867.*

*Wood's Mowing Machine.*—I have just been inspecting the working of this mower in cutting clover. My neighbour, a young farmer, has worked it himself, and, unaided, has just finished 50 acres of clover and grass, the machine appearing none the worse for wear. It is a two-horse mower; the quantity cut, 6 acres per day. Two pairs of horses are required. My neighbour was accustomed to work these machines in the United States. He said the cost of the machine was £22, or, if hired, 11s. per day. It was, when I saw it, working across the furrows and stetches; the ground, a yellow clay, as hard as cast-iron; and as it dropped into a furrow every 7 feet with a sudden dip or "bounce," the machine and my young neighbour were "well shaken," to say nothing of angular and deep water furrows. I have heard him complain of being somewhat tender behind. The wonder to me was that the machine could hold together under such a repetition of violent shocks, the horses walking fully four miles per hour. The first thing my neighbour found out was that the tool-box of the machine was not half large enough, and that as it had no lid the concussions sent the contents flying into the air. These two defects he at once remedied. The maker should take a note of this. The knives are of the same kind and action as Hussey's reaper, which I used for 10 years until worn out: the work was well done. The crop was not heavy. He had cut some very heavy-laid crops. It was necessary to take these in flank, or in an opposite direction to that in which they were laid. The knives had to be ground at least once a-day, so that the two sets only lasted sharp one day. It would be well to have two extra sets. Filing these up won't do for grass. We can easily appreciate the importance of a sharp edge for a clean cut: witness the constant sharpening of the scythe to correct the loss of edge. It is a great mistake to go blundering on with a dull tool, causing severe work to the horses, and an imperfect wasteful cut. The grindstone should be of a fine grit, and a little management is required to bring the knives to the edge of the stone. Great care is required to see frequently to tighten the nuts and screws that have worked loose by the frequent concussions, or they will be lost. In this, as in all machinery, intelligent observation and attention are required. It certainly is most convenient to have such a machine when your ordinary labourers are insufficient for the work to be done. It also checks an exorbitant demand of price for labour, and renders the farmer less dependent in this respect. On level ground the work is easy, and the wear trifling—a wonderful contrast to the rocking, bumping, twisting, and jumping on the deep-furrowed, hard, undrained clays. The oil-can is frequently wanted.

J. J. MECHI.

## THE PROGRESS OF AGRICULTURE.

The monthly meeting of the East Riding of Yorkshire Chamber of Agriculture was held at Beverley, Mr. W. Bainton (the president) in the chair.

The following paper on "The Progress of Agriculture" was read by Mr. W. R. PARK, of Catwick:

An extract from a document\* still extant throws some light on the early state of this neighbourhood, which may perhaps be worth observing. From Poulson we learn that King William I. bestowed upon Odo de Campania the Castle of Skipsa and the Isle of Holderness. Holderness is described as a barren country, bearing no other grain but oats. As soon as his wife had brought him a son, whom he named Stephen, he entreated the king to give him some land that would bear wheat, whereby he might be better able to nourish the king's nephew. The king therefore granted him the lordship of Bytham, in Lincolnshire. The following is an extract from an old conveyance (without date) relating to the lordship of Eske: "Know all men present and to come that I, Peter de Melsa, have given and granted by this my present charter confirmed to Patrik de Caudebeck and his heirs, for his homage and services, six bovates of land in the territory of Eske. I have also given to the same Patrik the services of John de Rus, of

Beverly, for three acres of turbarry; and the services of Richard, son of Ralph, for three acres of turbarry. Moreover, I have given to the same Patrik de Caudebeck, Gilford on the Hill, with his toft, sequels, and chattels, and Godfrey the Fisherman, with his toft, sequels, and chattels." Probably some of the present occupiers in this neighbourhood may scarcely think it possible that only a few centuries ago the labourer was sold with his wife and children and goods at the will of the lord; or exchanged for three or four acres of peat moss. Yet such is the meaning of the above conveyance of the several individuals by Peter de Melsa to Patrik de Caudebeck. Villains were not reckoned as members of the Commonwealth, but as part and parcel of the owner's substance. "In 1428," writes Lord Macaulay, "slavery, and the evils by which slavery is everywhere accompanied, were fast disappearing. The civil war known as the Red and White Roses finally (in this country) put an end to the property of man in man." From the beginning of the reign of Henry VII. to the end of Elizabeth's the great grievance was the practice of laying arable land to pasture, and suffering the farm-houses to fall to ruin. "Where in some towns (says the statute 4th Henry VII., 1488) 200 persons were occupied and lived of their law-

ful labours, now there are occupied two or three herdsmen, and the residue fall into idleness. Therefore it is ordained, that houses which within three years have been let for farms, with 20 acres of land lying in tillage, shall be upheld under the penalty of half the profits to be forfeited to the King or the Lord of the fee." Almost half a century afterwards the practice had become still more alarming, and in 1534 a new act was tried, apparently with as little success: "Some have 24,000 sheep, some 20,000, some 10,000, some 6,000, and some 4,000, and yet it is alleged the price of wool has nearly doubled, sheep being come to a few persons' hands. A penalty was therefore imposed on all who kept above 2,000 sheep, and no person was to take in farm more than two tenements in husbandry." By the 39th Elizabeth (1597) "Arable land made pasture since the 1st of Elizabeth shall again be converted into tillage, and what is arable shall not be converted into pasture." One of the first writers on agriculture was Fitzherbert, Judge of the Common Pleas. In the reign of Henry VIII. (1539) cultivated herbage and edible roots were unknown. He says, "cart wheels were sometimes bound with iron; ploughs were drawn by both horses and oxen." Beans and peas seem to have been common crops. Rye and wheat were usually sown, and barley and oats cut with the scythe. Corn stacks were sometimes built on pillars and frames. "It is the wife's occupation," he says, "to winnow all manner of corn, to make malt, to wash, to make hay, shere corn, and in time of need to help her husband to fill the muck-way; to drive the plough, to load hay and corn, and to go to market and sell butter, cheese, milk, eggs, capons, pigs, and geese." Sir Richard Weston wrote a book in 1645 wherein he recommends 10lbs. of white clover to be sown on an acre, and says it will last five years. He also says he did feed swine on turnips. They were first given boiled, but afterwards he gave them raw. The swine would run after the carts and pull them out when they were gathered." In a periodical work in 1694 we have the first notice of turnips having been eaten by sheep. Some in Essex have their fallow after turnips, which feed their sheep in winter, by which means their turnips are scooped, and so made capable of holding dews and rain, which, by corrupting, imbibes the nitre from the atmosphere, and when the shell breaks it runs about and fertilizes. Some plough the turnips in without feeding. A curious incident respecting draining may perhaps be here worth recording. Arthur Young, in his tour in Essex, in 1770, makes the following observation: "Mr. Pool, of Hook, mentioned to me that near 100 years ago a very large oak, upwards of 200 years old, was cut down at Hook. In digging a ditch through the spot where the old stump was, on taking up the remains of it, a drain was discovered under it, filled with alder branches; and it is remarkable that the alder appeared perfectly sound. On taking them out they presently drop't to powder." It is from hence very evident that underground draining was practised 400 years ago in this kingdom. That this branch of husbandry was common amongst the Romans we learn from Columella. On the 25th of September, 1318, Yorkshire being ravished by Sir James Douglas, a writ was issued to Robert le Constable and others to raise in Holderness all the men between 20 and 60. All persons here enumerated who were not at the appointed rendezvous at the time fixed upon, or should neglect to provide themselves with arms, were to be punished—in the first place, with the loss of a third part of their goods; in the second place, with the loss of the remainder; and in the third, their bodies were to be at the king's disposal. The disastrous retreat of Edward, followed by Bruce to the gates of York, occasioned another commission to be issued to William de Twyre, to raise speedily all the defensible men in Holderness between the ages of 16 and 60. At the end of the reign of Charles I. military tenure of the land ceased. It had been originally created as a means of national defence; but in the course of ages whatever was useful in the institution had disappeared, and nothing was left but ceremonies and grievances. A landed proprietor who had his estate under the Crown by knight's service—and thus most of the land in England was held—had to pay a large fine on coming into his property. He could not alienate one acre without purchasing a title. When he died, if his domains descended to an infant, the Sovereign was guardian, and was not only intitled to a great part of the rents during the minority, but could require the ward, under heavy penalties, to marry any person of suitable rank. These abuses perished with the

Monarchy. That they should not revive with it was the wish of every landed gentleman in the kingdom. They were therefore solemnly abolished by statute, and no relic of the ancient tenures and chivalry were suffered to remain, except those honorary services which are still rendered to the person of the Sovereign by some Lords of Manors. Could the England of 1685 be by some magical process set before our eyes, we should not know one landscape from another. Such landmarks as Beverley Minster, or some of our old churches, would be objects familiar to our eyes, but everything else would be changed. The farmer would not recognise his own fields. Many thousands of square miles, which are now rich corn-land, intersected with green hedge-rows, and dotted with villages and country-seats, would appear as moors overgrown with furze, or fen abandoned to wild ducks. In the reign of Charles II. the traces left by slaughter and pillage were still distinctly perceptible many miles south of the Tweed. There was still a large class of mosstroopers, whose calling was to plunder dwellings, and drive away all herds of cattle. The magistrates of Northumberland and Cumberland were authorised to raise bands of armed men for the defence of property and order; and provision was made for meeting the expense of these levies by local taxation. The parishes were ordered to keep bloodhounds for the purpose of hunting freebooters. The geography of that wild country was very imperfectly known. Even after the accession of George III., the path over the fells from Borrowdale to Ravenglass was a secret carefully kept by the dalesmen. Oxen were penned at night beneath the overhanging battlements of the residence, which was known by the name of the "Peel." The inmates slept with arms by their sides. No traveller ventured into that county without making his will. The judges on circuit, with the whole body of barristers, attorneys, clerks, and serving-men, rode on horseback from Newcastle to Carlisle armed, and escorted by a strong guard under the command of the sheriff. It was necessary to carry provisions, for the country was a wilderness, which afforded no supplies. The spot where the cavalcade was accustomed to dine, under an immense oak, is not yet forgotten. The greatest estates in the kingdom then very little exceeded £20,000 a-year. The Duke of Ormond had £22,000 a-year. The Duke of Buckingham, before his extravagance, had £19,000 a-year. The Duke of Albemarle had £15,000 a-year. These three dukes were supposed to be the three richest subjects in England. The average income of a temporal peer was estimated by the best informed persons at about £3,000 a-year. The average income of a Member of Parliament less than £500 a-year. The average income of a baronet £900 a-year. The fact that the sum raised by taxation in England in a time not exceeding two long lives has been multiplied thirty-fold is strange. But those who are alarmed at the increase of public burdens may perhaps be reassured when they have considered the increase of public resources. In the year 1655 the value of the produce of the soil far exceeded the value of all other fruits of human industry. Yet agriculture was in what would now be considered a very rude and imperfect state. The arable land and pasture land were not supposed by the best political arithmeticians of that age to amount to much more than half the area of the Kingdom. The remainder was considered to consist of moor, forest, and fen. These computations are strongly confirmed by the road-books and maps of the seventeenth century, from which it appears that many routes which now pass through an endless succession of orchards, corn-fields, clover-fields, and turnip-fields, then ran through nothing but heath, swamp, and warren. In the drawings of English landscape made in that age, scarce a hedgerow is to be seen, and numerous tracks now rich with cultivation appear as bare as Salisbury Plain. At Enfield, hardly out of the sight of the smoke of London, was a region of twenty-five miles in circumference, which contained only three houses, and scarcely any enclosed fields. Deer, as free as in the American forest, wandered there by thousands. The last wild boar, which had been preserved for the royal diversion, and had been allowed to ravage the cultivated lands with their tusks, had been slaughtered by the exasperated rustics during the licence of the Civil War. The last wolf that has roamed our island had been slain in Scotland a short time before the close of the reign of Charles II. The fox, whose life is in many counties held almost as sacred as that of a human being, was considered a nuisance. Oliver St. John told the Long Parliament that



Stafford was to be regarded not as a stag or a hare, to whom some law was to be given, but to a fox, to be knocked on the head without pity. To shoot a female with cub was considered a feat which merited the gratitude of the neighbourhood. The red deer were then as common in Gloucestershire and Hampshire as they are now on the Grampian Hills. On one occasion Queen Ann saw a head of not less than 500, on her way to Portsmouth. The wild bull, with his white mane, was still to be found wandering in a few of the southern forests. The badger made his dark and tortuous hole on the side of every hill where the copewood grew thick. The wild cats were frequently heard by night wailing round the lodges of the rangers of Whittlebury and Needwood. The yellow-breasted marten was pursued on Cranbourne Chase for his fur, reputed inferior only to that of the sable. Fen eagles, measuring more than nine feet between the extremity of the wings, preyed on fish along the coast of Norfolk. On all the downs from the British Channel to the Yorkshire Wolds bustards strayed in troops of 50 and 60, and were often hunted by greyhounds. The marshes of Cambridgeshire and Lincolnshire were covered during several months in every year by immense clouds of cranes. Some of these races the progress of cultivation and drainage has exterminated. Of others the numbers are so much diminished that men crowd to gaze at a specimen as at a Bengal tiger or a Polar bear. The progress of this great change can nowhere be more clearly traced than in the statute book. The number of enclosure acts passed since George II. came to the throne exceed 4,000. The area enclosed under the authority of these acts exceed 10,000 square miles. How many square miles which formerly lay waste have during the same period been fenced and carefully tilled by the proprietors, without any application to the legislature, can only be conjectured. But it appears highly probable that a fourth part of England has been in the course of a century turned from a wild into a garden. In 1548 an average crop of wheat, rye, barley, oats, and beans was supposed to exceed 30 millions of quarters. A crop of wheat was thought poor that did not exceed 12 millions of quarters. According to a computation made in the year 1696, by Gregory King, the whole quantity of wheat, rye, oats, barley, and beans was something less than 10 million of quarters. Wheat, which was then cultivated only on the strongest clays, and consumed only by those who were in easy circumstances, he estimated at less than two million quarters. The rotation of crops was very imperfectly understood. It was known that the turnip afforded excellent nutriment in winter for sheep and oxen; but it was not the practice to feed cattle in this manner; it was, therefore, by no means easy to keep them alive in the winter. They were killed in great numbers and salted at the beginning of cold weather, and during several months the gentry tasted scarcely any fresh animal food, except game and river fish. It appears from the Northumberland Household Book that, in the reign of Henry VII., fresh meat was never eaten by the gentlemen attendant on the Great Earl, except during the short interval between Midsummer and Michaelmas. But in the course of two centuries an improvement had taken place, and, under Charles II., it was not until the beginning of November that families laid in their stock of salt provisions, then called Martinmas beef. The sheep and the ox at that time were diminutive when compared with the sheep and oxen which are now driven to market. Our native horses were held in small esteem. Foreign breeds were greatly preferred. Spanish jennets were regarded as the finest chargers, and were imported for the purposes of pageantry and war. The coaches of the aristocracy were drawn by Flemish mares. Neither the modern dray horse nor the modern race horse was then known. At a much later period the ancestors of the gigantic quadrupeds, which foreigners class among the wonders of London, were brought from the marshes of Walcheren—the ancestors of Childers and Eclipse from the sands of Arabia. Already, however, there was amongst our nobility a passion for the amusements of the Turf, and a considerable number of barbs had been imported into this country from Tangier. Iron works had long existed in our island, but had not prospered. It was then not the practice to employ coal for smelting the ore. The rapid consumption of wood excited the alarm of politicians. As early as the reign of Elizabeth there had been loud complaints that whole forests had been cut down for the purpose of feeding furnaces, and the Parliament had interfered to prohibit the manufacturers from burn-

ing timber. At the close of the reign of Charles II., a great part of the iron which was used in this country was imported from abroad. Whilst these great changes have been in progress, the rent of land, as might be expected, has been almost constantly rising. In 1548, in some districts, it had multiplied more than tenfold. It had on an average more than quadrupled, and, notwithstanding the free introduction of corn into this country, rents still continue increasing. In Scotland it appears there has been an equally rapid progress in agriculture. On referring to an observation made by Mr. Henderson, at the Logic and Lecropt Farmers' Club, he says it is curious to observe how land rose in value about the end of the last century, principally from the introduction of a crop negatively forbidden by landlords. He spoke of the tenant—bound by lease to his course of cropping, with oats after oats on his outfield, until they would grow no longer and oats, peas, and here on his infield—doing a good stroke of business in the turnip line, with a penalty of so much an acre hanging over his head on every acre of turnips grown. One farm he was acquainted with, and had seen the leases for 170 years back. Previous to 1750 the farm was let at about 2s. 1d. an acre; from 1750 to 1769 it was rented at about 3s. 5d. an acre; from 1769 to 1788 it was 8s. 4d. During the currency of this lease turnip culture was introduced, and when it expired 15s. an acre was the rent up to 1804, when it rose to 45s., at which it has been ever since. Sheep husbandry, in Scotland, appears to have been in no better favour with proprietors than the turnip crop. In a lease, dated 1780, sheep, goats, swine, and asses were strictly forbidden. It would appear it was a good way into the present century before the tenants in general had full power to crop with turnips. Parochial assessments perhaps give only a vague idea of the actual rents; in all probability, formerly, they were much beneath the rent. On referring to the Catwick parish books, I find the assessment for the whole parish, in the year 1722, amounted to £200. At the present time the assessment amounts to £2,323. In the reign of Charles II. there were no tramways in England, except a few made with timber from the mouths of the Northumbrian coal pits to the banks of the Tyne. Hardly a single navigable canal had been projected. It was by highways both travellers and goods generally passed from place to place, and they were far worse than might have been expected from the degree of wealth and civilization which the nation had then attained. Ralph Thoresby, the antiquary, was in danger of losing his way on the great north road between Barmby Moor and Tuxford, and actually lost his way between Doncaster and York, it being hardly possible to distinguish in the dusk the way from the unenclosed heath and fen. His diary relates he was detained at Stamford four days on account of the state of the roads, and then ventured to proceed only because fourteen members of the House of Commons, who were going up to London in a body to Parliament, with guides and numerous attendants, took him into their company. In some parts of Kent and Sussex none but the strongest horses could in winter get through the bog, in which at every step they sank deep. The markets were often inaccessible during several months. It is said the fruits of the earth were sometimes suffered to rot in one place, while in another place, only a few miles distant, the supply fell far short of the demand. When Prince George of Denmark visited the stately mansion of Petworth he was six hours in going nine miles, and it was necessary that a body of sturdy hinds should be on each side of the coach in order to prop it. Of the carriages which conveyed his retinue several were upset and injured. A letter from one of the gentlemen in waiting has been preserved, in which the unfortunate courtier complains that during fourteen hours he never once alighted, except when the coach was overturned or stuck in the mud. One chief cause of the badness of the roads seems to have been the defective state of the law. Every parish was bound to repair the highway that passed through it. The peasantry were forced to give gratuitous labour six days in the year; if this was not sufficient, hired labour was employed, and the expense was met by a parochial rate. Indeed, it was not in the power of the parishes of Huntingdonshire to mend a highway worn by the constant passing and repassing of traffic between the West Riding of Yorkshire and London. Soon after the Restoration, the grievance attracted the notice of Parliament. An Act—the first of our many Highway Acts—was passed, imposing a small toll on travellers and goods. On the best highways heavy articles were, in the time of Charles II., ge-

nerally conveyed from place to place in stage waggons. From London to Birmingham the charge was £7 a ton; from London to Exeter, £12 a ton. This was about fifteenpence a mile for every ton—more by a third than was afterwards charged on turnpike-roads, and fifteen times what was demanded by railway companies in 1848. Coal was never seen, except in districts where it was produced, or to which it could be conveyed by sea. On bye-roads, generally, throughout the country north of York and west of Exeter, goods were carried by long trains of pack-horses. A traveller of humble condition often found it convenient to perform a journey mounted on a pack-saddle between two baskets. The expense of this mode of conveyance was small; but the caravan moved at a foot-pace, and in the winter the cold was often insupportable. A coach-and-six is in our time never seen, except as part of some pageant. Gentlemen, in the time of Charles II., travelled with six horses, because with a smaller number there was great danger of stieking fast in the mire. Vanbrugh, in the succeeding generation, describes with great honour the way in which a member of Parliament went up to London: all the exertions of six beasts, two of which had been taken from the plough, could not save the family coach from being imbedded in a quagmire. At Barton-upon-Humber the church-bells still ring at dusk, instituted for the guidance of travellers. The remains of a land light-house are still standing on Nocton Heath, by the side of the road between Lincoln and Sleaford (now one of the richest corn, clover, and turnip districts in the kingdom), a memento of the great stride that has taken place both in travelling and agriculture. Willow-trees are yet growing on the side of the road between Hull-bridge and Beverley, planted to point out the road to travellers in time of floods. The great criterion of the state of the labouring class is the amount of their wages; and, as four-fifths of the common people were in the seventeenth century employed in agriculture, it is especially important to ascertain what were the wages of agricultural industry. Sir William Petty, whose mere assertion carries great weight, informs us that a labourer was by no means in the lowest state who received for a day's work fourpence with food, or eightpence without food. Four shillings a week was therefore, according to Petty's calculation, fair agricultural wages. In 1685 the justices of Warwickshire, in the exercise of a power entrusted to them by an Act of Elizabeth, fixed at their Quarter-sessions a scale of wages for the county, and notified that every employer that gave more than the authorised sum, and every working man who received more, would be liable to punishment. The wages of the common agricultural labourer, from March to September, were fixed at the precise sum mentioned by Petty—viz., four shillings a week, without food; from September to March the wages were only 3s. 6d. a week. The magistrates of Sussex met in the spring of 1682, to fix a rate of wages, and resolved that where the labourer was not boarded he should have five shillings a week in winter, and six shillings in summer. In 1661 the Justices of Chelmsford had fixed the wages of the Essex labourer, who was not boarded, at five shillings in winter and seven shillings in summer. This seems to have been the highest remuneration given in the kingdom for agricultural labour between the Restoration and the Revolution. In the year in which this

order was made, the necessaries of life were immoderately dear; wheat was at 70s. a quarter. Beer was undoubtedly much cheaper in that age than at present; meat was also cheaper, but was still so dear that hundreds of thousands of families scarcely knew the taste of it. In the cost of wheat there has been very little change. The average price of a quarter during the last twelve years of Charles II. was 50s.; bread, therefore, which is now given to the inmates of a workhouse, was seldom seen, even on the trencher of a yeoman or shopkeeper. The great majority of the nation lived almost entirely on Rye, barley, and oats. The produce of tropical countries—the produce of the mines—the produce of machinery, was positively dearer than at present. Among the commodities for which the labourer would have to pay higher in 1685 than his posterity pays at present, are salt, sugar, candles, soap, shoes, and generally all articles of clothing and bedding. It must be remembered that those labourers who were able to maintain themselves and their families by means of wages were not the most necessitous members of the community. Beneath them lay a large class which could not subsist without some aid from the parish. In 1848, says Lord Macaulay, the men, women, and children who receive relief were in bad years one-tenth of the inhabitants of England, and in good years one-thirteenth. Gregory, in his time, estimated them at one-quarter, and this estimate, which will scarcely prevent us from calling it extravagant, was pronounced by Davenant as eminently judicious. The poor-rate undoubtedly was the heaviest tax borne by our ancestors; it was computed in the days of Charles II. at near £700,000—much more than the produce of either the excise or of the customs, and little less than half the entire revenue of the Crown. In one respect it must be admitted that the progress of civilization and cultivation has diminished the physical comforts of a portion of the poorest class. Many thousands of square miles, now enclosed and cultivated, were marsh, forest, and heath. Of this wild land much was by law common, and much of what was not common by law, was worth so little that the proprietors suffered it to become common in fact. In such a tract squatters and trespassers were tolerated to an extent now unknown. The peasant who dwelt there could at little or no charge procure occasionally some palatable addition to his hard fare, and provide himself with fuel for the winter. He kept a flock of geese, snared wild-fowl in the fen, cut turf amongst the furze bushes on the moor. The progress of agriculture and the increase of population necessarily deprived him of these privileges. But against these disadvantages, advantages are to be set off. The marketplace, which the peasant can now reach with his horse and cart in an hour, was 160 years ago a day's journey from him. In case of accident, should he be fortunate enough to gain admittance into our infirmaries or hospitals, he can have his limbs set and his wounds dressed free of expense, with a skill such as 160 years ago all the wealth of a great lord like Ormond, or a merchant prince like Claton, could not have purchased. He can now have his children educated in a manner the yeoman of England could not have obtained in the time of Charles II. Every class, doubtless, will have gained by this great moral change; but the class which have gained the most is the poorest, the most dependent, and the most defenceless.

## HORSES *versus* OXEN FOR PURPOSES OF DRAUGHT.

The late meeting of the Cirencester Club, Mr. E. Bowley in the chair, was attended by a number of students from the R. A. College, the subject for discussion being "The relative merits of horses and oxen for purposes of draught," introduced by Professor Wrightson, of the College, in the following paper: This question is one which can be discussed better by this club than by any other which I know of. We have among us men who have worked bullocks ever since they commenced business, and who will continue to work them as long as they live. Others have ceased to employ oxen for draught, and are prepared to argue in favour of horses; while a third select circle have gone beyond both the first-named, and have adopted the giant power of steam. I believe I am right in considering these meetings as intended for *discussion*, and that the discussion

is the most important part of our proceedings, because in it we hear the opinions of many practical men who have made the question under consideration a study for years. I hope, therefore, to introduce this subject to your notice, and to lay before you certain facts concerning it, and some figures which I think will be borne out by the experience of many here, and then to leave the question in your hands. One of the most important facts which may be urged against the working of bullocks is that from being general throughout the country it has become gradually restricted to a few localities. Another general objection to bullocks is that they are slow, and that they impart a corresponding slowness to those who work them. However true such objections may be, yet all must confess that they are of a very general character—that it will be diffi-

cult with such arguments to convince men who have an opinion of a contrary character, or who find bullocks to answer their purpose of animals of draught. If you show a business man that he is using an inefficient implement, or that he might use a portion of capital with better effect if he adopted a more economical method of working, he would listen to the advice, and, if reasonable, he would follow it; but merely to tell him that he is wrong and you are right—that all the world have adopted horses instead of bullocks, or steam instead of horses, and therefore he must follow the fashion, would be more likely to “set his back up” than to induce him to alter his practice. This kind of objection to bullock labour is well illustrated by a remark of Mr. Wilson, of Edington Mains, who, in his admirable book on “British Farming,” says, “We see that duly as agriculture reaches a certain stage of progress, ox labour has been found inadequate to the more rapid and varied operations that are called for, and has been superseded by that of horses.” This is no doubt true with regard to many kinds of land, many kinds of farming, and many kinds of work. Few people, however, would argue in favour of bullocks being used on every kind of soil, or even for their use to the exclusion of horses. Oxen are only used as supplementary to horses, and there are always certain kinds of work better done by the last named animal. The fact that oxen have been abandoned over large areas of this country in favour of another kind of power is not in itself a conclusive argument, because it is quite possible to conceive such changes in markets, and the relative value of animals, or the food required for their support, that the tables might again be turned, and the discarded bullock once more become the favourite. We have specially to do with the wants of the district that this Club represents, and we cannot pretend to lay down the law for the whole of England. Here on the Cotswold hills we find many of our leading farmers, men not behind the times, men who have done their part in advancing the agriculture of their county and of their country, employing bullocks, and convinced that they are right in doing so. In order properly to consider this question it will be necessary to compare oxen with horses in several points. I propose to discuss first the amount and quality of the work that can be got out of both kind of animals; secondly, the cost of obtaining and maintaining them respectively, and, lastly, the money value of the mature animal in both cases. In an old book, entitled “Observations on Live Stock,” by George Culley, of Northumberland, a well known man, we find some statements made, the worth of which can hardly vary with age. Mr. Culley worked 150 bullocks besides many horses about the beginning of this century, and gives his opinion after many years’ experience “that oxen will do several kinds of work (such as ploughing, leading dung, corn, &c.) equally as well as horses,” but would recommend that both animals should be kept, and the most suitable work apportioned to each. Mr. Culley used them “in carts singly,” (the Northumberland carts are much lighter than those used in the South), “and two in a plough with cords, without a driver, where they go equally as well as two horses, though not quite so swift.” In the fifth volume of the Royal Agricultural Society’s Journal there is a paper upon the comparative merits of horses, and oxen in which the conclusion come to is that horses are really the more economical animals to keep. I shall with the more pleasure therefore quote a few sentences from it about draught oxen. First, when speaking of the quantity and relative value of the work done by both animals, Mr. Cowie says “that except in frost, when the land cannot be ploughed, the amount and value of the work performed by each are equal.” Mr. Cowie worked two oxen to a team, and relates that in a ploughing match where upwards of 70 ploughs started, his oxen team was second off the field. Mr. Cowie further says, “they work ten hours a-day as steadily all the year over, except in frost, as the horses, and keep in perfectly good condition.” Although this may be possible, it is a question whether it is wise, because oxen should not be worked so hard as to interfere with their growth, and a rest now and then is well repaid by an increased development of frame. The usual practice of this neighbourhood is based upon this principle, and we accordingly frequently find six oxen kept, four of which are worked every day, or sixteen are kept and twelve of them are yoked each day. Daily toil might not be injurious to five and six years old cattle, but young bullocks broken in at two years old will grow much better if lightly worked. Four oxen are usually seen in a plough, but it has been fully

proved in this neighbourhood that two will plough land of a light description six inches deep in the spring, and that three will do the winter ploughing. It is difficult to arrive at a correct conclusion as to the exact number of bullocks which will be equivalent to a certain number of horses. I think, however, we may come to a pretty near estimate of the relative power of the two animals. I have received letters from some well-known agriculturists of this district informing me upon this point, and I will now briefly give you the result of their experience. Mr. Playne, The Downs, Chalford, considers two bullocks to be equivalent to one horse. Mr. Burnet, agent to Colonel Kingscote, worked bullocks for many years until steam power was introduced, and he informs me that two bullocks will easily do the work of one horse. He always worked the bullocks in double harness, two to a plough for half a day (five hours), and they would do their half-acre of ploughing in that time. Mr. Plumbe, of Ashton-fields, works Devons, and is of the opinion that this breed steps faster, stands the heat better, and have shoulders peculiarly adapted for draught. He says “a pair of good Devons will do as much ploughing and as well as a pair of horses. I took the prize at Down Ampney some years ago with a pair (of oxen) in the horse class. I do not find the work hurt them when kept properly.” Mr. Plumbe works his bullocks every day, and ploughs them in double harness with reins, without a driver. On one of the best-managed farms in this neighbourhood (Earl Bathurst’s Home Farm) 16 bullocks and 8 horses are kept. The horses receive 1½ bushels of oats and hay in the winter, and one bushel of oats and green food in the summer, and the bullocks are out at grass all the summer, and are fed entirely on hay and straw chaff mixed, without any additional food in the winter. Here we find that two bullocks are reckoned as equal or rather superior to one horse. From these data we may look upon the fact of two bullocks being equal if not superior to one horse as established. The next point to be settled is the relative cost of maintaining bullocks and horses for one year. If both animals are bred upon the farm where they are subsequently to work, can there be any doubt as to which can be bred and reared at the least cost? I do not think this point needs discussion, and therefore content myself with stating that here the bullock has the advantage over the horse. In the next place we may ask which will bring the most money at six years old? and I think here also the answer will be in favour of the bullock. It is true that horses occasionally will bring high prices, but how frequently we find them going wrong in some way, which, although apparently only slightly interfering with their usefulness, lowers their selling price considerably. We have all seen bullocks fetching £30 at this age, and a farmer may look for an average price of £26 if he keeps the right sort and works them judiciously.

There are so many estimates as to the cost of keeping a farm-horse per annum, that we cannot get far wrong here. Mr. Morton, in his “Farmers’ Calendar,” has taken pains to collect together the methods of horse-feeding in several parts of England and Scotland, during both winter and summer, together with the cost per week of the diet, at a certain fixed market-price. Hay is valued at 3s. per cwt., oats at 3s. per bushel, beans at 5s. per bushel, turnips or mangold at 4d. per cwt., and carrots at 6d. per cwt. Straw is not charged. At these prices we find the cost per week to vary between 6s. and 11s. throughout the year. I find the cost of horse-keeping is thus given, upon two farms in this neighbourhood: (1) The College Farm.—Here the horses are described as receiving in winter 8lbs. of oats and 16lbs. of beans per week, and straw and chaff *ad libitum*, the cost being 7s. 3d. per week; and in summer 42lbs. of oats, and cut clover or vetches (at 6d. per cwt.), the expense being 6s. 6d. per week. (2) Mr. Rich’s Farm, at Didmarton.—The horses, according to the same authority, received in winter 168lbs. of hay, 63lbs. of oats, and 2 bushels of grains, with straw *ad libitum*, at a cost of 10s. 9d. per week; and in summer the food is valued at 7s. 6d. per week. The average cost per week through the year, in the first case, may be taken at 7s., and in the second case at 9s. The average of thirteen cases collected by Mr. Morton gives the winter keep as costing 9s. 6d., and the spring and summer keep as 9s. per week per horse. We cannot be far wrong in taking 8s. per week as a very fair estimate of the cost of the food of a farm-horse; and we shall add to this some other expenses connected with their management, which can hardly be overlooked;

	£	s.	d.
Cost of food, at 8s. per week, for 52 weeks	...	...	...
Shoeing	...	...	...
Deterioration in value, losses from accident and death (10 per cent.), and interest at 5 per cent. on £30.	...	...	...
Furnishing and repairing gear	...	...	...
	£27	3	0

Many extensive farmers would not have considered the estimate extravagant at £30 per annum; but we shall take it at £27. Let us now try to find the cost of keeping a bullock for one year. Bullocks are sometimes fed on straw and hay-chaff in the winter, and grass in the summer. In other cases they receive meal and straw and a few roots in the winter, and grass in the summer. Let us suppose the bullock to be turned out from May 15th to October 15th, and to be on winter-keep for the remainder of the year:

	£	s.	d.
1½ acres of land, at £2	...	...	...
6 lbs. of crushed oats or barley meal per day, from Oct. 15th to May 15th, 212 days at 6d.	5	6	0
Repairs of gear	...	...	...
Risk, losses, &c., 5 per cent., and interest at 5 per cent. on £20	...	...	...
	10	16	0

In case these estimates are objected to, I have prepared another upon a different principle:

#### COST OF MAINTAINING A FARM HORSE.

	£	s.	d.
From Oct. 1st to May 15th, 1½ bushels of oats, at 3s. per bushel (32 weeks)	...	...	...
From May 15th to Oct. 1st, 1 bushel of oats, at 3s. (20 weeks)	...	...	...
Deterioration, interest, shoeing, &c., as before	5	15	0
Hay, straw, green food, &c., grown on the farm not charged	...	...	...
	15	19	0

#### COST OF MAINTAINING A WORKING BULLOCK.

	£	s.	d.
6 lbs. of barley meal per day, from Oct. 15th to May 15th, at 9s. per cwt., 6d. per day for 212 days	...	...	...
Risk, losses, &c., 5 per cent., and interest at 5 per cent. on £20	...	...	...
Hay, straw, grass, &c., not charged	...	...	...
	7	6	0

In this case we have not estimated anything but marketable produce, yet here, as in the first estimate, the cost of keeping two bullocks is less than that of maintaining one horse, yet in the last instance the bullocks would be fed better than usual and the horses worse than usual, or in other words the actual cost of the horse is under-rated and that of bullocks over-rated. We have before found that two bullocks are usually kept to do the work of one horse; we have, therefore, in the first estimate, the cost of the horse £27, to set against the expense connected with the bullocks of £21 12s., or taking the second method of estimating, we have £16, the expense of keeping a horse to set against £14 12s., the annual cost of two bullocks. In both cases we have an advantage in employing bullocks. Lastly, we have to consider the relative value of the animals after they have worked a year, or a series of years. Some fortunate men by breeding young horses and keeping them till they are six years old, may turn the usual deterioration which horse stock is subject to, to a profit. Be this as it may, I put it to this meeting whether horses should be considered as a deteriorating stock, or one which increases in value. For my part, I feel confident that in a general way horse stock deteriorates, and we know that various sums above and below £5 per annum have been named as representing this annual loss. This is a point I should like to hear discussed. There is, however, no doubt about the growth and increase in value of an ox. I have heard this increase in value placed at £5 or £6 per annum. I have heard it stated to be such a sum that the ox labour is absolutely obtained for nothing, and I believe this to be the opinion of many clever farmers who continue to work these animals. Bullocks may

be purchased at two years old for £14, and after working until six years old, or four years, they may be sold for £28, or the annual average increase will be £3 10s. or £7 the two. Unless a similar sum can be deducted off the expenses of keeping horses, we have a right to deduct £7 from the expense of keeping two oxen one year, and this would reduce the sum already named to £14 12s. or £7 12s., according to the estimate employed. We should in this case have the expense of keeping one horse, £27 or £16, and the cost of keeping two bullocks, £14 12s. or £7 12s., leaving a balance in favour of the bullocks of £12 8s. or £9 8s. I find then the following points of the Bullock *versus* Horse question to be brought out clearly: 1st. That the quality of work done by bullocks is equal to that of horses. (N.B. In cases where very deep ploughing is required, this statement may not hold good). 2nd. That two bullocks are well able to do as much work as one horse. 3rd. That the cost of keeping two bullocks well is considerably less than the cost of keeping one horse well. 4th. That bullocks may be reckoned upon as profitable stock, and the sale of three or four-year-old bullocks every year will do much towards meeting that half-yearly call to which farmers are generally liable. I have still to mention two or three other points in connection with this question. Bullocks are cheapest obtained by bringing them up from calf-hood. Calves can be bred, or bought up for 35s. each, and after having been grazed in the ordinary way for two years, may be broke to harness. Thus draught animals will be obtained cheaper, and with infinitely less risk than horses. Bullocks are valuable to the last—they work four years, and are then sold to graziers and fatten into magnificent beef, which fetches prime price in the market. On the other hand the horse after working out his strength is consigned to the kennels. It is true that some philanthropic individuals have of late years attempted to call attention to the excellence of horse-beef, but I cannot help thinking that by working a larger number of oxen, a large increase in animal food might be obtained, without outraging our present prejudices against that other kind of flesh. Another important point connected with working bullocks to which I would invite discussion is the amount to which work influences the growth of oxen. I have been often assured, and to a certain extent believe, that when lightly worked they grow quicker than when idle. Work is said to "rax them out," and I see no reason why a moderate amount of work should not increase both bone and muscle. If this could be proved, gentlemen, then it would be evident that to keep bullocks idle is prejudicial to the animals, and the case of the bullock-worker over the horse-worker would to my mind be as clear as the day. I have still another reason why in this and other districts similarly situated, a proportion of the tillage should be done by bullocks. This is a sheep district, as well as a corn growing one, and consequently straw is apt to accumulate. Bullocks eat and tread down a great quantity of straw, and hence are useful in a neighbourhood in which there is a superabundance of that article. Horses not only consume less straw, but the manure which they make is of a dry and heating character, and not nearly so good as that made by bullocks. Lastly, bullocks require less attention and less costly accommodation than horses. All kinds of bullocks may be worked. The best for draught are the Devons, next the Herefords, but the Shorthorns will also do very well. Why, then, gentlemen, do we find that bullocks have been given up throughout the country? How is it that almost every man who writes on the subject at once condemns the ox-team as antiquated, as an indication of mediæval agriculture, as a sure sign of stupid labourers, and a symptom of farmers the reverse of a go-ahead? The statement that oxen are slow seems to most men a sufficient answer to the numerous arguments that can be adduced in their favour, and yet I think the difference in speed between horses and oxen is measurable, and we find in practice that two oxen can be made to do the work of one horse. Whether bullocks or horses are really the most economical animals of draught is still a difficult question; but I firmly believe that the present generation of British farmers cannot be said to have given up working oxen because they really have found the horse to be a better servant. The great bulk of them have never worked or seen anything worked but horses, and therefore they cannot be quoted as showing by practical demonstration that bullocks are inferior to horses. Their fathers, not they, made the change, and if ever bullock-

labour again becomes general it will have to force its way as a new idea rather than as a revived old one. It is quite possible, although I do not say it is the case, that our fathers may have been right in changing from bullocks to horses, and that our sons may be justified in going back again to bullocks. Was not the demand for horses during the long French war at the commencement of the present century a great inducement for farmers to increase this stock? while beef at 5d. or 5½d. per lb. was no great attraction towards keeping horned stock. The following balance-sheet, which I have taken from Stone's "Agricultural Survey," published in 1800, will show the relative value of the two animals at that time, first at three years old and afterwards at six years old:

Dr.	HORSES.	£	s.	d.
Twelve horses at £20	... ..	240	0	0
Loss of one horse	... ..	20	0	0
Balance or profit	... ..	111	10	0
		£371	10	0

Cr.	HORSES.	£	s.	d.
Eleven horses at £31 10s.	... ..	316	10	0
One sold out at £25	... ..	25	0	0
		£371	10	0

Dr.	BULLOCKS.	£	s.	d.
Eighteen oxen at £12	... ..	216	0	0
Extra manual labour	... ..	120	0	0
		£336	0	0

Cr.	BULLOCKS.	£	s.	d.
Eighteen oxen sold at £18	... ..	324	0	0
Balance	... ..	12	0	0
		£336	0	0

The above is only useful as showing the relative value of horses and bullocks in the year 1800. The annual cost of maintenance is considered the same in both cases, that is, that eighteen bullocks may be kept at the same cost as twelve horses. I cannot help thinking that if this club had to draw up a similar balance-sheet to-day the profit would appear on the oxen rather than on the horse side. Since Mr. Stone has brought together more arguments against oxen than any other writer I have met with, I will mention them to you in his own order: 1st, The ox is slow. 2nd, Ox-labour demands more manual labour. This depends on the way they are worked; if in double-harness, one man will work two in the morning and two in the afternoon; if four are worked in the plough, then an extra lad to drive will be required. 3rd, That the bullock eats so much more in quantity than the horse that, in spite of his provender being coarse, he costs the farmer as much as a horse. 4th, That horses are not so expensive to keep as many people make out, as they can be frequently kept without corn. 5th, That the breeding and rearing of horses is much more profitable. This, no doubt, was the case then, but I think times have changed. 6th, That upon the conclusion of the present unfortunate war (1800), from the enormous destruction of horses which it has occasioned upon the Continent, the demand for that animal is likely to increase to a greater extent than at any other period. These arguments are satisfactory to my mind when viewed in connection with the times for which they were written, but I by no means see the force of them now; and, considering the question in all its bearings, I cannot help leaning in favour of the ox for light land, especially where the close proximity of the rock precludes the possibility of deep ploughing.

The CHAIRMAN said they must be all deeply indebted to Mr. Wrightson for the very able and interesting manner in which he had brought this subject before them. Mr. Wrightson had shown that two oxen could be kept for about £7 a-year less than one horse; but the question was whether as much work was got out of them. It was not a subject of which he had any practical knowledge; but there were gentlemen present who had tried both horses and oxen, and he hoped they would favour the meeting with their opinion of the relative merits of those animals.

Mr. W. SMITH (Bibury) concurred in the views of Mr. Wrightson with regard to oxen. If anything, he had underrated the merits of oxen as compared with those of horses.

He had stated that two oxen were equal to one horse; but an opinion was held by some farmers that an ox and a-half were equal to one horse, and he (Mr. Smith) himself believed that three oxen could do as much work on light land as a pair of horses. There was one point in favour of oxen which Mr. Wrightson had not touched upon. Oxen could be bought and reared at, comparatively, little expense, and if they did not want to work them, or, the weather being unfavourable, they could not go out, they could be lying by at a trilling cost, whereas horses could not be kept by except at a great expense. Then the risks with horses were much greater than with oxen. One fell with the spavin, another went broken-winded, and so on, and they oftener knocked down in value than oxen. Oxen, if worked say from two years to five, would pay £4 a-year towards their keep. The lighter they were worked the more improvement they would make. He did not disapprove of steam-cultivation on strong deep land, but his opinion was that oxen would do ploughing upon light land cheaper than it could be done by either steam or horses. Oxen were objected to on account of their going slowly; but he thought that if active young oxen, not more than four years old, were sent into a field for light-ploughing, they would not, if narrowly watched, compare very unfavourably with horses, even in point of speed. True, they might not toss their heads about and go in that gallant style in which horses did, and they might at first sight seem to go slow, but watch them carefully, and it would be seen that they crept over the ground much faster than they appeared to do. He was strongly in favour of oxen, and he was surprised that they were not brought much more into requisition for ploughing and other draught purposes. His opinion was that, if they lived a few years longer, they would see a great deal of the steam tackle thrown aside, and oxen taking up their old position again (a laugh).

The CHAIRMAN said Mr. Hulbert had tried both horses and oxen, and perhaps he would state his opinion.

Mr. HULBERT: Oxen for ever!

Mr. H. RUCK: Had worked oxen, and he thought much was to be said in their favour. Mr. Wrightson had made some good remarks on the subject, and his address was well worthy the consideration of the club. While admitting this much, however, he could not agree with Mr. Smith that they would go back to oxen altogether. They would be more likely to progress to steam. It might be that land could be ploughed as cheaply by oxen, but then there was the after-work. Land cultivated by steam required a less number of labourers for the after-work.

Mr. C. HOBBS thought that oxen could do ploughing cheaper than horses. Whether steam could do it cheaper than either remained to be proved.

The CHAIRMAN said the opinion of the meeting seemed to be in favour of oxen for ploughing—after steam, he supposed. He wished there had been a "steam-man" present. He was never more gratified than when seeing, on Saturday, Messrs Slatter and Porter's steam-plough at work. What with the smoke and the noise of the machinery, he seemed to have got into a manufacturing district. The pace at which it went was extraordinary. He should like Mr. Smith to have seen it.

Mr. SMITH: Last year I had a steam-plough to plough a few acres on my farm. It began a field, and had to leave it because it could not get on. After the steam-tackle was taken away, my oxen went and did the work (Hear, hear, and laughter).

Mr. LITTLE said the great fault in working oxen was that they were not fed high enough. If they had food in proportion to horses, three oxen would easily plough as much as a pair of horses. Consequently, oxen had an advantage over horses.

Professor WRIGHTSON, in reply, said he had listened with interest to the remarks that had been made. In making his estimates, he purposely put the oxen at a moderate figure, allowing two oxen to a horse, although he considered that one and a-half oxen would be able to do the work of one horse. The figures he had quoted must only be looked upon as approximative; he had, however, endeavoured to keep them as much within the ordinary practice as possible.

A vote of thanks having been passed to Professor Wrightson on the motion of the Chairman, the meeting separated.

The next subject for discussion will have reference to the Poor Law, and will be introduced by G. Symmons White, Esq., of Fairford.

## THE NORTHAMPTONSHIRE AGRICULTURAL SOCIETY.

## MEETING AT TOWCESTER.

The management of this Society has had more than ordinary difficulties to contend against in bringing off the meeting at Towcester. Lord Pomfret, whose seat adjoins the town, and in whose park the show should have been held, died after the locality had been determined upon; and it was only on a very narrow division that the original fixture was adhered to. Then, the taint of the cattle-plague has been still lingering about the county; and thus the imposing array of Shorthorns that might have been made up from within the prescribed limits, from Althorp, Shelbroke, and many other highly-bred herds, was necessarily wanting. Even further, Towcester itself is not an inviting site, on any consideration. It is an out-of-the-way place, while the accommodation is indifferent, the towns-people nearly as much so; and one is inclined to wonder how, after a visit had actually been made, this ever came to be repeated. It would be well, indeed, if the Northamptonshire Society adopted the plan that has answered so successfully in Suffolk and Bedfordshire—that is, to hold the Show every alternate year in the county town, and only go abroad occasionally. People in these times soon tire of the one over-crowded Inn, the fighting for beds, the sleeping on sofas and shake-downs, and the similar discomforts by way of finish to a hard day's work.

The very prize-list did not adjust itself conveniently. There were more premiums for sheep and pigs than the most lenient of judges could ever find courage to award; whereas amongst the nag horses there was scarcely ever any such other substantial compliment to bestow, and so after the closest of contests all the money went to the first, and nothing but empty honour to "the next best." It is true that Lord Spencer offers the good round sum of £20 for the best brood mare and foal, Lord Valentia another £20 for a hunter of any age, as Mr. Villiers the same amount for a four-year-old, and that it might not sound so well to cut up these handsome donations. The Society must, however, in each of the classes just named, provide a second prize of £5 from its own funds, or obtain permission to distribute the twenties placed at its disposal in fifteens and fives. £15, after all, is a very fair inducement for a country gathering, and nothing stimulates exhibitors more than the receipt of a little hard cash, especially when this is deserved. The five-pound note for expenses would not only induce many a man to try and do better, but often induce his neighbour to try also.

Counting foals at foot, there were very near upon two hundred entries of "nags," and these formed the one great feature of the show. The country gentlemen, as a rule, did not exhibit, but the Northamptonshire farmers are all now pretty well on the right road; and with one exception, the influence of the thorough-bred horse told its tale on the prize-list. In the first-class, in fact, of brood mares, there was an accompanying stipulation that the foal should be by a thorough-bred stallion, and the services of such sires as Baron Rothschild's Leopold, of General Hesse, Ducaut, Idler, Neville, Suburban, and Saxon have been available. The Spring Show of stallions does not certainly seem to come to much, as Irish Statesman and Idler were the only two who competed in March, when Statesman won; but there is clearly a deal of other good blood handy, and from what we saw and heard on Wednesday, in no

district is there a better foundation being laid. With so much competition, the average was, in fact, unusually good: at the same time, there was nothing of any remarkable superiority about, for Lord Spencer has sold Brown Stout, and Mr. Sanders Brayfield; and second-prize horses at All-England Meetings were good enough to get first here.

Of the dozen and a-half or so of brood mares "for hunting purposes," the majority had something of the character required, though this is not so commonly the case, as anything is considered good enough to breed from. The commended mare, with hardly power enough to get higher, is by Vortex, while on her dam's side, she goes back to Mundig, and her foal is by Suburban, a pedigree that should send the young one well over the Shires. The Judges agreed to differ as to the first place, which on a reference went to a big brown, fired all round, the other highly commended mare being also badly blemished; but they are both dowagers, and look as if they had done some service in the field previous to going to the stud. The All-England prize for the all-aged hunter was still pretty much confined to the county, about the best-known horse in the class being Thorpe Malsor, who with Mr. Dick Webster's fine handling never showed so well. He walked away with a loose rein, or bent beautifully to his bridle in his canter, and in action had all the best of it. But still he is split up a bit, while his mealy coat looked anything but bright, and the one prize went to a brown bay horse of Mr. Pretymann's, a six-year old, in far finer condition, with good bone, a capital back, and plenty of breeding. But he would not show himself, and in none of his paces went really well, though one of the crack men tried all he knew with him on the second day. Mr. Blencowe's commended mare by Ethelbert was much fancied, particularly by some outside the ring, and there is certainly a deal of good about her, though she looks as much, or more, like "a nice riding-horse" than a hunter. The first prize four-year-old was second in London, while Mr. Topham's success about home has a bad moral, as his horse is by British Statesman, though the mare is very well descended, and this may go to correct the want of blood in the sire. Mr. Sanders had another by British Statesman, that looks like growing into a coach-horse, though in price at something over a hundred. One, however, of the most really promising colts in the lot was Mr. Laxton's highly commended son of Dagobert, a fine lengthy brown, that was well worthy of some second prize.

Mr. Drage's best of the three-year-olds, only commended at Birmingham, is own brother to Thorpe Malsor; Mr. Isham's highly commended colt by Lovett was the best two-year-old at Leicester; and Mr. Potterton's black, also by Lovett, was first in his class at Birmingham and unnoticed at Towcester. These horses have been so recently passed through our columns that it is not necessary to dwell further on their merits here. The Birmingham winner was certainly amongst the four or five selected, but he was also one of the first drafted back again. The two-year-olds and yearlings furnished some very satisfactory proofs of how far the improvement is established, for there was some very likely-looking stock amongst them. In fact, the first and second two-year-olds and the three yearlings selected are as

handsome and well-bred as they need be, though Mr. Scriven's colt lacks size, while his action is really magnificent. The hack mares were the weakest lot of the day; as, barring Mr. Beasley's old Geraldine, there was nothing to notice, and she, if we remember aright, was commended in a hunter-class at Leicester last autumn. Many of the hacks in work could really move well, and Mr. Lynes' first, an own brother to his highly-commended two-year, has much of the style and fashion we should expect when we come to see that he was bred at Preston Deaury, the native home of the Rural Deans, the Preston Deans, and other Deans so famous in the annals of the show-ground. With anything passable under thirteen hands and a-half, the ponies were a very incongruous company, and sheer weight and size kept such a neat little nag as Mr. Blencowe's grey out of the front rank; but he went like a steam-engine, and an extra prize having been specially ordered for the best action, he was sold forthwith, with many others of more inches, also in price, the hunting horses being continually nibbled at.

The show of cart-horses was neither large nor imposing, and we missed Mr. Owen Wallis' Suffolks, that have generally given a smack of variety to the Shire breeds. Sir Charles Isham's second-best brood mare was first at Birmingham, and Mr. Baker's first also first at Northampton two years since. They are both great weighty animals, and far away the best of the heavy draught stock, the younger things being of a very middling sample, neither looking well bred nor well cared for. The unnoticed of the three two-year-old fillies was certainly a well-grown one, with some quality and a deal of liberty, so that until you came to notice her hocks it was difficult to understand how either of the two other very moderate things had ever been placed above her. There was no prize awarded for yearlings, where in two companion-classes the competition extended to five entries for four prizes! By another year something may be surely spared from this superfluity, though it is said that breeding cart colts pays a deal better than breeding nags, if the Tower Meeting hardly maintained such an argument.

The prize sows, both whites, were both very good, with capital heads and collars, and of a nice quality—a compliment that could not be paid to Mr. Osborn's Berkshires, the prize boar being very coarse, and the sows, with their long, lean, hungry heads, and reddish skins, clearly having a cross of the Tamworths in them, and a cross that has not told, either. Mr. Duekering made a few entries that we could not find, and a boar of Mr. Harrison's, with a pedigree as long as that of a race-horse, had his throat cut to save his life, so soon as he was landed on the show-ground. There were not, in all, twenty entries of pigs; and many of these were missing when we went through the pens on the second day of the meeting.

Such an "up-and-down" exhibition of sheep has seldom been seen. Mr. Bradshaw's Leicester ewes, though small, were full of quality and fine breeding, as altogether the best pen on the ground, while Mr. Gillett's Cotswold rams were as unmistakably the best single sheep, and both of very high character. But, beyond these, it was nearly all "leather and prunella." Mr. Treadwell certainly sent in a good old Oxford Down that, at five years old, is wearing wonderfully well, and who is now finishing his useful career in public; but the shearlings from the same flock, and standing side by side with him, were often enough as different as chalk from cheese, and there was no uniformity or fixity of type in many others of the Ox-fords. Mr. Doig's lambs, for instance, were serviceable enough for the butcher; but there were white, brown, and speckled faces in the same pen, and they would pass for almost anything you please. Mr. Clark Hales' commended Lincoln ram was second at Salisbury, where he

was not thought much of; and Mr. Beasley's Leicester tup, the only one in his class, was so very bad that it was charitably concluded that the shepherd had drawn the wrong sheep. "No merit" by no means expresses all the judges had to say of him. The other entries were chiefly Leicester and Lincoln crosses; and amongst the best of these were Mr. Harris' wether lambs, of very nice quality, which, as it is said, is obtained by going right back again to the pure blood, a fact that it would be well to bear in mind. Crosses are all very well to a certain point: but on the show-ground we must look for something of a pedigree, alike in a horse, a sheep, or a Shorthorn.

There was some talk of these famous cattle, if none were to be seen; and the bad luck of the Grand Duchesses appears to be still following them. Captain Oliver's 850 gs. cow has been very bad with the lung-disease, though she is now fast recovering; and his 710 gs. purchase dropped a dead bull-calf soon after she reached her new home. But, as we said at the time of the sale, the condition of the Preston Hall herd was so generally bad, that it could be scarcely surprising if the excitement of a journey, however short, told upon their already too-feverish temperament.

The four champion firms in this way were all at work on the mowing ground, where the Hornshys maintained the success which has so far signalized their career during the present season. Their agent, indeed, Mr. Peter Love, was more than eloquent on the merits of the Grantham mowing machine, characterizing it like the quality of Mercy, as "twice blessed," and bound to make the fortunes not only of those who sold, but of those who bought it. Mr. Love, however, was not the only orator of the day, for Mr. Litton delivered himself of morning and evening discourses on the nice art of butter-making, wherein he dwelt emphatically on the education of dairy-maids and the policy of giving good weight. Mr. Hewitt had still more to do amongst the poultry, where he pronounced the game fowls very good and the Spanish very bad; the Dorkings very excellent; and some of the partridge Cochins really grand. Many of our best breeders of poultry were represented, and Mr. Fowler, of Aylesbury, has his wonted lead with ducks and geese.

The dinner was dispensed with; but there was a flower-show on the second day, with the proper enjoyment of which the heavy rain that fell at times must have sadly interfered, as indeed it must have done with "the take" of the Agricultural Society.

## PRIZE LIST.

### RIDING HORSES.

JUDGES.—H. Corbet, London.  
J. Nix, Neatmore Hall, Norfolk.

Mares and foals for hunting purposes, the foal to be by a thoroughbred stallion.—£20 to Captain Mildmay Clerk, Spraton Hall; highly commended, T. Wilson, Farthinghoe; commended, T. Dexter Hensman, Harlestone.

Mares or geldings, five years old and upwards, adapted for hunting purposes (open to all England).—£20 to Rev. H. Pretymann, Lowick Rectory (sire St. Lawrence); highly commended, J. Drage, Moulton Lodge (sire Ugly Buck); commended, W. Blencowe, Brackley (Countess), and Lady Charlotte Fitzwilliam (Dominic).

Mares or geldings above four and under five years old, adapted for hunting purposes, bred within the county of Northampton.—£20 to J. Topham Welford (sire British Statesman); highly commended, J. Laxton, Morborne by (Dagobert).

Colts or fillies above three and under four years old, adapted for riding purposes.—£10 to J. Drage (sire Ugly Buck); highly commended, J. Hobson, Isham (sire Lovett).

Colts or fillies above two and under three years old, adapted for riding purposes.—£10 to G. Hitchcock, Hinton House (sire Saxon); commended, G. B. Lynes, Preston Deanery (Ethel, by King David).

Colts or fillies above one and under two years old, adapted for riding purposes.—£10 to C. W. Scriven, Willen House (sire Idler); highly commended, W. West, Gayton (Gay Lad by Coast Guard), and J. N. Beasley, Chapel Brampton (Kiddley-wink by Coastguard).

Hackney mares with foals at foot.—£10 to J. N. Beasley, Brampton (Geraldine).

Hackneys, mares or geldings.—£10 to Mr. G. B. Lynes (Honeybun); £3, to J. D. Bleisoe, Grendon Hall (sire King David); highly commended, J. W. Whitton, Potcote (sire Harkaway); commended, J. N. Beasley, Brampton (Dolly).

Ponies not exceeding 13½ hands high.—£5 to the rev. Dr. Sedgwick, Great Houghton Rectory (bred in North Wales); highly commended, W. Blencowe.

#### CART HORSES.

JUDGES—Cox, Sandringbury, St. Albans.

—Plowright, Manea, March.

Mares with foals at foot.—£10 to T. Baker, Harpole; £3, Sir Charles Isham, Lamport Hall; highly commended, J. W. Perridge, Adstone Lodge.

Two-year-old geldings.—£7 to T. Stokes, Caldecott, Rockingham; £3, T. W. D. Harris, Wootton; commended, R. Treadwell, Shalstone.

Two-year-old fillies.—£7 to J. W. Whitton, Potcote; £3, W. Crow, Upton.

Yearling geldings.—Prize withheld.

Yearling fillies.—£5 to T. Baker, Harpole; £3, J. W. Whitton.

#### SHEEP.

JUDGES—C. Howard, Biddenham, Bedford.

G. Murray, Elvaston Castle, Derby.

J. Shaw, Hunsbury Hill, Northampton.

Pens of ten long-wooled ewes, that have suckled lambs to the 1st of June, 1867.—10 gs. to C. J. Bradshaw, Alstoe House, Burley-on-the-Hill; 5 gs., J. T. Smith, Quinton; £2 10s., Clarke Hales, Manor House, Bassingbourne, Royston; commended, J. T. Smith, Quinton.

Pens of five long-wooled theaves.—£5 to J. Gillett, Oaklands, Charlbury, Oxon; £2 10s., Clarke Hales; highly commended, W. Crow, Upton; commended, J. N. Beasley.

Pens of five cross-bred ewes, that have suckled lambs to the 1st of June, 1867.—£2 10s. to R. Treadwell, Shalstone. First prize withheld.

Pens of five cross-bred theaves.—£2 10s. to J. K. Shrimpton, Basington, Thane, Oxon.—First prize withheld.

Pens of three cross-bred shearhogs.—No award.

Pens of three long-wooled shearhogs.—£5 to W. West, Gayton; £2 10s., W. Crow, Upton.

Shearling Leicester tups.—Prize withheld.

Shearling Lincoln tups.—£10 to Clarke Hales; commended, W. Collingwood, Ermine House, Fulbeck, Grantham.

Long-wooled tups, of any breed, two-shear and upwards, that have proved stock-getters.—£10 to J. Gillett; very highly commended, J. Gillett; commended, J. Bradshaw and Clarke Hales.

Down tups of any age.—£10 to J. Treadwell, Upper Winchenden; commended, J. Treadwell.

Five long-wooled wether lambs.—£3 to T. W. D. Harris, Wootton; £1 10s., T. W. D. Harris.

Five long-wooled ewe lambs.—£3 to T. W. D. Harris; £1 10s., Clarke Hales; commended, W. Crow.

Five short-wooled or half-bred wether lambs.—£3 to R. Doig, Lillingstone; £1 10s., R. Doig.

Five short-wooled or half-bred ewe lambs.—£3 to R. Doig; £1 10s., R. Doig; commended, J. Treadwell.

#### PIGS.

JUDGES.—C. Howard.

G. Murray.

J. Shaw.

Boars of any breed.—£5 to G. Osborn, Pattishall; £2, E. Grimsdick, Paulerspury.

Breeding or suckling sows of any breed.—£5 to T. H. Ashton, Cliff Hall, Tanworth; £2, W. G. Phillips, Northampton. Commended, E. Grimsdick, Paulerspury; T. Cooke, Showsley.

Three fat pigs of one litter, of any breed or age, the age to be stated.—£5 to J. Simpson, Potterspury.

Breeding pigs of one litter, exceeding three and not exceeding six months old.—£5 to C. Richards, Glendon; commended, T. H. Ashton.

#### EXTRA STOCK.

Highly commended.—Cooper, Wappenham (for boar).

#### IMPLEMENTS.

JUDGES.—Wm. Shaw, Far Cotton, Northampton.

C. H. Watts, Kissingbury, Northampton.

J. Wood Sharman, Wellingborough.

Mowing machines.—First prize of £10 Hornsby and Son, Grantham (exhibited by P. Love, Northampton); second of £5, Samuelson and Son, Baubury. Highly commended, Burgess and Key, Newgate-street (exhibited by Clarke and Brackley); Wood, Upper Thames-street (exhibited by Coleman, Brampton). Waggon.—Prize of £10, Ball and Son, Rothwell.

Carts.—Prize of £5, Hayes and Son, Stamford.

Collections of agricultural implements.—First prize of £10, Ball and Son, Rothwell; second of £5, J. P. Barford, Baubury.

#### BUTTER.

JUDGE.—T. Litton, Newgate-street, London.

12lbs. of butter, made up in 2lb. lumps, wholly or partially the produce of Alderney cows.—£3 to the Ladies Wentworth Fitzwilliam, Harrowden House; £1, General Bouverie, Delapré Abbey. Highly commended, J. Simpson, Potterspury.

12lbs. of butter, made up in 2lb. lumps.—£3 to W. Newitt, Bradden; £1, W. Abraham Linnell, Quinton. Highly commended, T. Cooke, Showsley. Commended, the Ladies Wentworth Fitzwilliam, Harrowden House, and J. Edwards, Wood End, Blakesley.

6lbs. of butter, made up in 1lb. rolls.—£3 to J. Chettle, Paulerspury; £1, J. Robinson, Courteenhall Lodge. Highly commended, J. M. Payne, Gayton.

Ten shillings each was given by the judge to Major Richard Trevor Clarke's dairymaid, to Mr. George Osborn's dairymaid, and to Mr. W. A. Linnell's dairymaid, for excellence.

### THE PETERBORO' AGRICULTURAL SOCIETY.

The now annual show of this Society took place on July 9th, and was well attended, visitors being more numerous than in former years. There was a remarkably good show of hunters, and many of them first-class; but the sheep and pigs were very inferior. Messrs. Amies and Barford and Mr. G. Vergette had stands of agricultural implements, and Mr. Brainsby and Messrs. Hayes and Son showed some carriages and carts. Mr. Wells presided at the dinner. The following were the awards:

#### HORSES.

JUDGES.—Mr. C. Barnett, Stratton, Biggleswade.

Mr. J. Elliott, Heathcote, Towcester.

(Open to all England.) Hunters, geldings or mares, five years old and upwards.—A silver cup, value £20, T. Percival; a silver cup, value £10, Wm. Gilford.

Four-year-old hunters, geldings, or fillies.—£10, S. Gale; commended, J. Laxton.

Hackney mares or geldings.—A silver cup, value £7, T. Percival; commended, S. Seaton.

Yearling colts or fillies.—£10, J. Odam; commended, J. Bird, jun.

Mares, with foal at foot.—A silver cup, value £10, H. Jones; highly commended, J. W. Moore; commended, W. Sisman.

Cart geldings.—£1, J. Almond; £2, Jas. Whitsted.

Cart fillies.—£4, W. Mattley; £2, J. W. Underwood.

Cart mares and foals at foot.—£5, I. Cooke; £2, H. Jones; commended, T. Wagstaff.

#### SHEEP.

JUDGES.—Mr. W. Looker, Wyton, Huntingdon.

Mr. W. Richardson, Horncastle.

Long-wooled rams of any age.—£10, D. Webster.

Pens of ten long-wooled two-shear ewes.—£3, S. Middleton.



Pens of ten long-woolled two-shear ewes.—£3, S. Middleton; £1 10s., D. Webster.

Pens of ten ewe lambs.—£3, S. Middleton.

Pens of ten wether lambs.—£3, D. Webster; commended, S. Middleton.

## PIGS.

JUDGES.—Same as for sheep.

(Open to all England.) Boars of the large breed.—£3, J. Turner; £1, E. Shrive.

(Open to all England.) Boars of the small breed.—£3, J. W. Underwood; £1, T. Wagstaff.

Breeding sows of the large breed.—£2, T. Scoley.

Breeding sows of the small breed.—£2, D. Webster.

Blackfaced Ram, above one and under five years—Mr. Clapperton, Garvald Grange. Commended—Mr. Caverhill, Crichness.

Pen of Five Blackfaced Gimmers or Shearling Ewes—Mr. Durie, Barney mains. Commended, Mr. Darling, Priestlaw.

Ram of Long-woolled Breed other than Leicester, under five years—Mr. Reid, Drem. Commended, Mr. Skirving, Lullness mains.

Ram of Short-woolled Breed other than Cheviot, under five years—Mr. R. S. Skirving, Campton.

## THE NORTH-EAST OF IRELAND AGRICULTURAL SOCIETY'S SHOW.

On the 27th and 28th of June, the North-East Agricultural Society held their annual show in Belfast, which, though not equal in numbers to some former shows, was in Shorthorns fully equal in quality to any which had gone before it. Ayrshire cattle were good, but are here fast losing size. Devon cattle were more numerous and of better quality than usual. There were some good polled Angus cattle, and some excellent Kerries. Sheep were scarcely equal in numbers and quality to those exhibited at former shows. Pigs were exceedingly good, but comparatively few; and if Lord Clermont had kept his beautiful Berkshires at home, the show in this class would have been nearly *nil*. However, he got the £10 challenge cup for the best boar; and Mr. Holmes, Cloverdale, a similar cup for the best sow. There was a fair show of horses as regards numbers, but nothing amongst them beyond mediocrity, as may be observed by the retention of the £25 cup from want of merit.

In the amateur shorthorned classes there were seven aged bulls exhibited, Mr. J. W. Ellison Macartney taking the first honour in the section, and also the £25 cup. The second place was taken by Mr. J. Richardson, Glenmore. A third place was allotted to Messrs. F. and W. Smyth, Belmont, Coleraine. Sir T. Bateson was commended.

In the section for two-year-old bulls there were eight competitors, Colonel Leslie, M.P., Castle Leslie, leading off; Mr. J. Richardson, Springfield, coming in second. A third place was given to J. B. Houston.

In yearling bulls there were five very handsome animals competing for shorthorn honours, the first going to Colonel Leslie, the second to Lord Templetown, and the third to James Dugan, Castleleary, Newtownards.

In the baby or calf section there were five entries, all very promising, Colonel Leslie leading off; the second also to Col. Leslie, and Mr. Charley came in a good third.

In the section for aged cows there were five entries, three of which only came forward, and very fine they were, as may be expected, when the first place was Colonel Leslie. The second went to Mr. W. Charley, Seymour Hill, and the third to Mr. J. W. E. Macartney.

There was but one entry in three-year-old heifers—Mr. Charley's Danish Princess; she took the first prize.

There was no entry in two-year-old heifers, and in yearlings there were four brought forward, Colonel Leslie taking first and second. The third place went to J. W. E. Macartney, The Palace, Clogher; Sir T. Bateson was commended.

The baby or heifer calf section numbered but two, from the Glasslough or Castle Leslie herd. As a matter of course, they had a walk over for the first and second places.

Amongst the tenant-farmers' Shorthorns there were no bulls, but the cows, numbering five, were so good that the judges highly commended them all. The first honour went to Mr. Thomas Lindsay, Derryboy House, Killyleagh; the second to Mr. Adam, Kenning, Beech Park, Killyleagh; the third and fourth also to Mr. Kenning respectively.

In three-year-old heifers there were three entries, Mr. T. Lindsay taking the lead, followed by Mr. J. Stewart, Island Pole, Killyleagh; and the third to Mr. James Dugan, jun. Mr. Dugan had the pluck to enter the lists with the amateurs in the yearling bull section, and is the winner of the third prize.

In the section for two-year-old heifers there were six entries, and all good. Mr. S. Smith, Maze, Lisburn, opened the

## EAST-LOTHIAN AGRICULTURAL SOCIETY'S SHOW.

In all the departments of the show there was a good display of stock on Wednesday, July 3. The cart-horses were generally superior, and in all the classes the competition was close. Only a few roadsters competed for the premiums. Cattle were a small show, and almost entirely of the Shorthorn breed. The competition was confined to animals from the Costerton and Whittingham herds. The Leicester rams were excellent, but they were surpassed by the Blackfaced.

JUDGES.—For Horses: Mr. Steedman, Boghall, Currie, and Mr. Cockburn, V.S., Glasgow. For Leicester Sheep: Mr. Hardie, Harriettfield, and Mr. Deans, Dalkeith Park. For Cheviot and Blackfaced: Mr. Wilson, Crowhouse; Mr. Mr. Moffat, Kinleith, and Mr. Archibald, Glengilt.

## PRIZE LIST.

## HORSES.

Brood Draught Mare—1, Mr. Thomas Begbie, Queenstonbank; 2, Mr. Smith, Stevenston Mains. Commended, Mr. Russell, Coalston Mains.

Draught Mare, not under four years, without produce in 1867—1, Mr. Christie, Westbank; 2, Mr. Smith. Commended, Earl of Wemyss.

One-year-old Draught Entire Colt—T. S. M. Innes, Esq., of Phantassie.

Two-year-old Draught Filly—Mr. Thyne, Hoprigmains. Commended, Mr. Innes, of Phantassie.

Two-year-old Draught Gelding—Mr. Smith, Castlemains.

Three-year-old Draught Filly—Mr. Jenkinson, Kidlaw.

Brood Mare for the Road—Mr. Jenkinson. Commended, Mr. Paterson, Ewingston.

Brood Mare for the Field—Mr. Burnet, Seton.

Three-year-old Gelding or Filly for the Field, bred by a member—Mr. Burnet.

## CATTLE.

Shorthorned Cow for Breeding—1, Mr. A. J. Balfour, of Whittingham; 2, Mr. Ainslie, Costerton.

Shorthorned Quey, under three years old, for Breeding—Mr. Balfour. Commended, Mr. Ainslie.

Shorthorned Quey, under two years old, for Breeding—Mr. Ainslie.

Dairy Cow, Mr. Stenhouse, Quarryford.

Cow belonging to a member's farm servant residing in the county—Mr. Selkirk, Yester Mains.

## SHEEP.

Shearling Leicester Ram—Mr. Hope, Fentonbarns. Commended, Mr. Ainslie.

Leicester Ram above one and under five years—Mr. Ainslie. Commended, Mr. Smith.

Pen of Five Leicester Ewes, not more than four-shear, with lambs at foot—1, Mr. Stevenson, Halls.

Pen of Five Leicester Gimmers or Shearling Ewes—1, Mr. A. J. Balfour; 2, Mr. Ainslie.

Shearling Cheviot Ram—1, Mr. Wilson, Wolfstar.

Cheviot Ram, above one and under five years—1, Mr. Wilson. Commended, Mr. Durie.

Pen of Five Cheviot Ewes, with lambs at foot—Mr. Durie, Barney mains.

Pen of Five Cheviot Gimmers or Shearling Ewes—1, Mr. Tweedie, Deuchrie. Commended, Mr. Durie.

ball, followed by Mr. Dugan, from the Straffan herd; the third went to Mr. Ferris Campbell, Coltown, Ballygraingy; and the fourth to Hugh Hughes, Ballycaulter.

In yearling heifers there were six entries, Mr. T. Lindsay taking first place, the second and third going to Mr. A. Kenning.

The farmers had also their baby or heifer-calf section, in

which were three entries, Mr. Dugan being first, Mr. S. Phenix, Maze, Lisburn, second; and the third to Mr. J. Perry.

The other distinct breeds, viz., Devons, Ayrshires, polled Angus, and Kerries exhibited in both classes (amateur's and farmer's) were good and well-bred.—Abridged from the *Irish Farmers' Gazette*.

## THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, July 3, 1867.*—Present Mr. Thompson, President, in the Chair; the Earl of Shrewsbury, Lord Berners, Lord Chesham, Lord Tredgar, Lord Vernon, Lord Walsingham, Major-General the Hon. A. N. Hood, Sir J. Johnstone, Bart., M.P., Sir A. Macdonald, Bart., Sir T. Western, Bart., M.P., Sir Watkin Wynn, Bart., M.P., Mr. Amos, Mr. Barnett, Mr. Cantrell, Mr. Clive, M.P., Mr. Dent, M.P., Mr. Druce, Mr. Brandreth Gibbs, Mr. Holland, M.P., Colonel Kingscote, M.P., Mr. Milward, Mr. Pope, Mr. Read, M.P., Mr. Sanday, Mr. Robert Smith, Mr. Torr, Mr. James Webb, Professor Wilson, Mr. Frere, and Dr. Voelker.

The following new Members were elected:—

Alderson, Edward Samuel, Bury St. Edmund's.  
 Ashton, Thomas Mason, Deeping St. Nicholas, near Spalding.  
 Barnwell, Rev. L. Edward M., Deeping St. Nicholas, Spalding.  
 Barrett, Samuel, Hardwick, Bury St. Edmund's.  
 Bellyre, Edwin F., Chirk, Denbighshire.  
 Bond, Thomas, Pulham Mary, Harleston.  
 Cheere, Rev. Frederic, Ingham Rectory, Bury St. Edmund's.  
 Coleman, William J., Bury St. Edmund's.  
 Cooke, John, Bury St. Edmund's.  
 Cooper, Thomas White, Bury St. Edmund's.  
 Crawley, John, jun., Gosberton Fen, Spalding.  
 Dewing, Edward M., Northgate Street, Bury St. Edmund's.  
 Dudgeon, John, Peanlands, St. Hoathly, East Grinstead.  
 Everard, Fr. Charles, 22, West Gate Street, Bury St. Edmund's.  
 Fardon, Joseph Ashby, Witton House, Droitwich.  
 Fisan, Albert James, Barningham, Ixworth, Suffolk.  
 Fison, Cornell Henry, Thetford, Norfolk.  
 Giraud, Rev. Edw. A., 10, Northgate Street, Bury St. Edmund's.  
 Griffin, James Bowdon, Bury St. Edmund's.  
 Hamer, Charles M., Snitterfield, Stratford-on-Avon.  
 Hilliam, Captain Thomas, Willroby Hall, Spalding.  
 Hurrell, Henry, Horston, Cambridgeshire.  
 Jonas, George, Iekleton, Saffron Walden.  
 Limmer, James, Bury St. Edmund's.  
 Mellard, Ralph, Rugeley, Staffs.  
 Newcombe, Samuel, Orsett, Romford.  
 Palmer, Geo., Hawstead, Bury St. Edmund's.  
 Phillips, J. South, Great Barton, Bury St. Edmund's.  
 Pulley, Joseph, Lower Eaton, Hereford.  
 Raven, John, St. Helen's, Maryport.  
 Rooke, John, Weldon Grange, Wansford, Northamptonshire.  
 Salmon, Charles E., Bury St. Edmund's.  
 Smith, Alfred Marshall, Cop House, Saltney, near Chester.  
 Smith, Alfred Thomas, Thurston, Bury St. Edmund's.  
 Sturge, Charles, Bewdley, Worcestershire.  
 Swinburne, George, Milbeck Hall, Keswick, Cumberland.  
 Thompson, George, Bury St. Edmund's.  
 Thompson, Harry, Great Whelwetham, Bury St. Edmund's.  
 Thompson, John, Bury St. Edmund's.  
 Tinsley, Henry, jun., Gedney Hill, Wisbeach, Cambs.  
 Tipper, Benjamin Clarke, Bristol Road, Birmingham.  
 Walter, Edward, Tangle, Wokingham, Berks.  
 Watling, John, jun., Bury St. Edmund's.

FINANCES.—Major-General the Hon. A. N. Hood, Chairman, presented the report, from which it appeared that the Secretary's receipts during the past month had been duly examined by the Committee and by Messrs.

Quilter, Ball, and Co., the Society's accountants, and found correct. The balance in the hands of the banker's on the 30th June was £1,951 5s. The quarterly statement of subscriptions and arrears to 30th June, and the quarterly cash account, were laid on the table. On the motion of General Hood, seconded by Mr. Pope, it was resolved that the list of members in arrear be reprinted and circulated among Members of Council, with a request that they would give their assistance in obtaining payment of the sums due. This report was adopted.

PRIZE ESSAYS.—Mr. Thompson, Chairman of the Journal Committee, announced the awards of the Judges, and the motto papers having been opened by the Chairman, the names of the successful competitors were declared as follows:—

Class I. Farming of Huntingdonshire. The prize of £25 to Mr. Gilbert Murray, Elvaston Castle, Derby.

Class II. Farming of Westmoreland. The prize of £25 to Mr. Crayston Webster, Land Agent and Surveyor, Kendal. The Essay bearing the motto "Arvorum cultus pecorumque," is commended.

Class III. Farming Customs and Covenants. The prize of £30 to Messrs. Cadle and Bubb, Land Agents, Gloucester.

Class V. Loans for Estate Improvements. The prize of £25 to the paper bearing the motto "Agricola."

Class VII. Farm Poultry. The prize of £10 to Mrs. Somerville, Manor Farm, Rufford, Ollerton, Notts.

Class VIII. Disease in Sheep. The prize of £15 to Mr. William Edward Litt, Veterinary Surgeon, Shewsbury.

BURY ST. EDMUND'S MEETING. — Mr. Barnett reported that the band of the Coldstream Guards being engaged in London at the festivities consequent on the visit of the Sultan, the Secretary had been instructed to secure some other military band for the Showyard. A building was to be constructed for the exhibition of the numerous plans of labourers' cottages which had been sent in competition for the prizes offered; and accommodation provided for the police and manager of the Water Supply. It was recommended that a free ticket be presented to each member of the Local Committee. This report was adopted.

AGRICULTURAL EDUCATION.—Mr. Holland, M.P., presented the following recommendations:

1. That the first examination shall take place at the Society's house in Hanover-square, during the week commencing April 20, 1868.

2. That forms of entry be prepared, which are to be duly filled up and returned to the Secretary, together with a certificate of general education, on or before the 29th of February, 1868.

3. That the examinations shall be conducted by means of written papers, and by a *vivâ voce* examination, at which any member of the Society may be present.

4. That every candidate be required to satisfy the

Examiners in the Science and Practice of Agriculture, and in Book-keeping, and also in one of the two following subjects: Land Surveying, and Mechanics as applied to Agriculture.

5. That the successful candidates be placed in two classes, and be arranged in order of merit.

6. That Candidates, in order to be placed in the first class, must satisfy the Examiners in both the above-named subjects—Land Surveying, and Mechanics as applied to Agriculture, and also in Chemistry.

7. That any Candidate may offer himself for examination in one or more of the following subjects: Botany, Geology, Veterinary Science. Any knowledge which he may show of these subjects will be counted to his credit in the general classification, provided that he have fulfilled the foregoing conditions, and provided that the knowledge of the subjects do not fall below the standard fixed as a minimum in each of these optional subjects.

8. Each successful Candidate obtaining a first-class certificate shall thereby become a Life Member of the Society.

9. That the following prizes be awarded to successful Candidates placed in the first class for aggregate merit: First Prize £30, Second Prize £20, Third Prize £10.

10. That the following additional prizes be awarded to the Candidates who shall show the highest merit in each subject respectively:

Science and Practice of	} Money or Books to the value of £10	
Agriculture .....		
Mechanics .....	" "	£10
Chemistry .....	" "	£10
Botany .....	" "	£10
Geology .....	" "	£5
Veterinary Science ...	" "	£10
Land Surveying.....	" "	£5
Book-keeping .....	" "	£5

11. That certificates, to be termed first and second class certificates, be granted to candidates placed in the first and second classes; such certificates to specify the subjects in which the candidate shall have satisfied the examiners. This report was adopted.

The following noblemen and gentlemen were appointed to serve on the General Leicester Committee: Mr. Thompson, Chairman, His Grace the Duke of Rutland, K.G., the Earl of Powis, Lord Cheslam, Lord Tredegar, Lord Vernon, Major-General the Hon. A. N. Hood, Sir Edward Kerrison, Bart., the Right Hon. Sir John Trollope, Bart., M.P., Sir W. Wms. Wynn, Bart., M.P., the Mayor of Leicester, Mr. Barnett, Mr. Barthropp, Mr. Bowly, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Dent, M.P., Mr. Braundreth Gibbs, Mr. Holland, M.P., Mr. Hornsby, Mr. Wren Hoskyns, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Read, M.P., Mr. Shuttleworth, Mr. Stone, Mr. Wallis, Mr. Webb, Mr. Torr, Major Wilson, Mr. Jacob Wilson.

MEETING AT BURY ST. EDMUNDS.

It is becoming only more and more apparent that the vitality of this Society depends upon the summer show. A more practical commentary, in fact, on the other proceedings could not be desired than the financial results of the last year or two. Old members have been going off, and new members have not been coming on. The agricultural world was gradually losing all interest in the Council, the Charter, and the Journal, and had the July meeting been again adjourned, there is really no saying for how much longer the concern could have paid its way. But with another country gathering, with a little more fresh air let in, there came renewed hope and life. Once more the list of the elected lengthened out, and once again the public began to give some attention to the business of what should be so national an institution.

Not that this revival was celebrated under the most encouraging auspices. The cattle classes had to be withdrawn, and the site of the show was pretty generally considered to be amongst the least eligible that had ever been determined upon. With, then, the chief attraction wanting, and a small out-of-the-way town to travel to, it is scarcely surprising that many a hitherto regular visitor was absent. In truth, Bury was anything but over-crowded, and putting the weather out of the question, nothing could have been much flatter than the two or three opening days of this once great festival.

The exhibition, even as far as it went, was not generally well supported by the exhibitors. It would be idle, for instance, to attempt to compare the horse-show, which was advertised as the great feature of the occasion, with the Yorkshire or the Islington entries in this way. The catalogue often read more like an Eastern Counties than an All-England Meeting; for a great majority of the heavy draught horses were Suffolks, and, beyond a few more famous prize-winners, the competition amongst the nags was confined mainly to the same locality—Norfolk, Suffolk, and Essex. Yet,

with such aid so handy, the classes were not numerically well filled, for there have actually been *more* horses of all sorts sent to the Suffolk county meeting; and never, perhaps, was so much money offered in vain. But then people who go for cock-tail stallions, and provide no class whatever for the middle-weight, high-bred hunter, can have little idea of the taste of the times, as possibly none of the failure they are courting. The entries, again, in many of the classes of pigs were very small; and for strength and excellence, for a really good front, there was little worthy of a royal meeting beyond the sheep and the machinery. The implement makers are, after all, more loyal in their allegiance than the stock-breeders, although the stock should be the more popular inducement at the paying places.

The sheep, as we have said, were in noticeable exception to the weakness apparent amongst many other sections of animals. Nearly every variety was well represented; while the Leicesters, the Southdowns, and the Shropshires were often of very remarkable merit, not merely for individual specimens, but with whole classes commended. Most of the leading flock-masters sent on something; and in the opening, as the oldest-established, breed of Leicesters, Mr. Borton, Mr. Creswell, Colonel Inge, Mr. Riley, and Mr. Gould came once more into competition; whilst Mr. Sanday and Mr. George Turner would appear to have retired from public life in favour of their sons, both of whom are striving to uphold the family fame. Indeed, young Mr. Turner, who has previously been to the fore on a show-ground, is following in his father's footsteps with very decided success, for he had by far the best Leicester at Bury, which deservedly took the first prize in a class generally commended. This was a three-shear, showing all the breeding but none of the delicacy of the improved Leicester. He begins with a capital ram's head, well-shaped and blood-like, but sufficiently masculine, has a firm touch, a good back, and is

well-sprung in his rib; while the credit, not only of exhibiting, but also of breeding of him, is due to Mr. Turner. Even the second-best sheep goes to make the repute of the other; for Mr. Borton's Blair Atholl, who is wearing wonderfully well after being freely used, was the first shearing at Plymouth in 1865, and the best old sheep at York in 1866. Then, again, Mr. Creswell's first shearing at York last year finishes now without a place, though the second on that occasion, another of Mr. Borton's rams, takes the third prize at Bury, with public opinion all in favour of the judgment reversed. Mr. Creswell does better amongst the shearlings, where he is first and third, though with two very different animals. The first is a great handsome broad, well-grown sheep, only a little bare about his head; whereas the other is a light, poor plain thing, that does not say much for those behind him. Mr. Borton gets second again with a neat stylish one; but his younger sheep rather lack size, and he would seem to have been picking out the smaller rams for the South Country Show, where they are rather apt to criticize "those Yorkshire Leicesters." Colonel Inge's are, again, only pretty little sheep; while Mr. Gould is highly commended for a son of Mr. Sanday's Black-knee—a compliment not extended to the present sample of the Hohne Pierrepoint flock, which would appear to have terribly trained off. Weak in their necks, bad in their shoulders, and shabby behind, these rams had no business at Bury. There was but little competition amongst the Leicester ewes, where the Messrs. Tindall won with just a fair pen, but nothing more.

With questionable policy, the Garnes, the Lanes, the Hewers, and the Fletchers have given over exhibiting Cotswolds, so that all the prizes for this breed went away from their own country. This is the first Royal Show at which the Norfolk men have entered their long-wools as Cotswolds; but they carried everything before them, notwithstanding that Mr. King Tombs, Mr. Gillett, and Mr. Beale Browne were in competition. Some years since Mr. Aylmer's and Mr. Marham Brown's sheep were styled Leicesters; then they were known as Long-wools, and now they have arrived at the dignity of Cotswolds. Mr. Brown's sheep are certainly by Mr. R. Garne's rams, with ewes from the hills also sent to Marham; but still by clipping them a little closer, and colouring them a little higher, Mr. Aylmer can still show some of his flock amongst the Other Long-wools. The honours, however, were all with his more immediate rival, as Mr. Browne took the first prize in every class of Cotswolds, with the second also in the two classes of rams. His first shearing, which has not been out before, is of capital quality, with a great back, good wool, and high-bred character, while the second was first at Fakenham. Amongst the old sheep, however, the single-handed judging did not prove so well, as Mr. Aylmer's Champion Cup sheep in Norfolk now took nothing beyond a commendation; whereas Mr. Browne's then second was now placed first, as he was in the previous year in the All-England classes at Epping and Ely, so that the Fakenham award was no doubt a mistake. Mr. Brown's first-prize ewes were very admirable, and well backed by Mr. Aylmer's two prize lots, all still to the credit of Norfolk. The result, indeed, should fairly rouse the Hill men to arms again, for Mr. Tomb's first-prize shearing and first-prize old ram at Salisbury were both passed here unnoticed, and Mr. Gillett's prize rams and ewes could get no higher than commendations. The Norfolks, whose great value as a cross for the black-faced ewes, is properly appreciated, are clearly making great headway, for they come to the front again amongst the other long-wools, despite the opposition of the Branston Lincolns, which of late years have generally had the best of this class. In fact, with the exception of Mr. Aylmer's sheep, which

he here writes as "West Derehams," all the other entries of Longwools were Lincolns, and many of them of a very good sort. Mr. Wright's old four-shear is an especially grand sheep, as he is further proved by his produce, four of Mr. Clarke Hales' first-prize ewes, the first also at Salisbury, being by the Nocton ram. The Dereham ewes in this class were disqualified as not fairly shorn, and a similar protest against the Fakenham Cup ram has still to be decided, although, strange to say, the prize has been handed over. But then the conduct of the Norfolk Show is peculiar. Mr. Wallis still holds his lead with the Oxford Down rams; but his first shearing, a sheep of fine size, and the first also at Salisbury and Brighton, naturally does not look nor handle any better for his travels. There was some competition in this class, where Mr. Charles Howard, Mr. Bryan, and the Duke of Marlborough had all honourable mention, if not more substantial reward; while amongst the old rams Mr. Wallis had it pretty much to himself, with sheep that we have previously encountered this season in Wiltshire and Sussex. But the proof and pride of the Oxfordshire Downs were to be found amongst the ewes, where Mr. Charles Howard showed two pens all like as peas, and full of quality, with good mutton and good wool. If they can only go on breeding the Oxfordshire Downs as sorry and handsome as these Biddenham ewes, they are sure to take, and with a new breed we must always turn to the ewes for stamp and uniformity. Most men can get up a show ram or two, but it is something to match two pens of prize ewes, and we believe we might have shifted any of these ten without doing any damage to either lot.

As had been anticipated, Lord Walsingham held his lead with the Southdowns; but this was by no means so decided a superiority as has been the case at some previous meetings. A very formidable opponent is coming on in Sir William Throckmorton, who divided the Merton sheep in both classes of rams, and fairly beat them for ewes. Had the Buckland ewes been all equally good, this would have been perhaps the best pen of Southdowns ever exhibited, as two or three of them are of especially sweet pure Down character, with little of the alloy introduced into the improved Downs, but still with fair size, lively, nicely-tinted countenances, and just the active carriage that we would fancy a Southdown should have. They trace this excellence to a Babraham ram, called Bunker's Hill, a purchase during the late Sir William Throckmorton's time; for the second-prize old sheep, an extraordinary animal at five years old, is by Buckland's Bunker's Hill, and the third prize, a two-shear, capitally turned out, was first at Salisbury. Lord Walsingham's best old sheep is a very good one, compact in his frame, with a great back, a firm touch, and his body nicely ribbed up; while his neighbour, Lord Sondes, is highly commended for a sheep of great size, but Mr. Rigden's old ram that did so well at Brighton now commanded no attention whatever, as he has clearly gone off since—let alone the good company he was in. The Merton shearlings were in more fore, as they took first and third, as well as sundry commendations, though the best looks to lack size. He was, however, as his mouth shows, a very late lamb, but in other respects a very promising one, for he is good all over, especially about his head, back, and carcase; while he would have shown even smarter if they had docked him a little closer, though it is not often that Mr. Woods and his man John Day make a mistake of this kind. Their third-prize sheep is a very grand one forward, but slack in his back, or he might have been higher in the return list; and Sir William Throckmorton's second we spoke of as a very neat well-bred ram when we met with him as the best of his class in the West of England. Lord Sondes' first at Fakenham received a high commendation; and with the exception

of Lord Radnor, who made no sign, almost all the famous Southdown flocks were in competition at Bury. The Duke of Richmond's young rams looked better than they touched, nor were either of his Grace's pens of prize ewes quite so good as we have seen them; while Lord Walsingham's were small and mean, and Mr. John Clayden's so badly trimmed that it was not until you had another glance over them that you became aware of their merit, both for symmetry and quality. But slovens never tell in public, as Mr. Clayden should surely know by this time.

Some of the Shropshire men had done rather too much, or, perhaps, rather too little, in the shearing and clipping way, and sundry sheep were disqualified accordingly. But it was altogether a capital show of the sort, more particularly of shearing rams, in which class Mr. Evans of Uffington, who has been cultivating his flock very carefully for the last five-and-twenty years, made a great stand, for he took first and second prizes with the Reserve also, in a class reaching to thirty-nine entries—the very strongest, we should say, without going through the catalogue, on the ground. And the Uffington sheep really deserve their distinction, as four, at least, out of these five rams were very uniform, and just of the stamp of what a Shropshire should be. Of good size, but active and healthy, with compact frames and nice darkish countenances, they have really a character of their own, neither running into the Southdown, nor “loosening” out into almost anything you like to call them. Sheer size and coarseness should be no more the points of the Shropshire than any very particular neatness or style should be aimed at. They should be rather unite with their Down character a certain hardness of constitution, and ability to rough it, that, without sacrificing quality, Mr. Evans appears to have very happily preserved in his truly sheep. The Adcott Hall flock just contrived to come in with a serviceable shearing that was the best at Salisbury; while Mr. Pryce Bowen was commended for something like mere size, and Mr. Smith, of Sutton Maddock, for a certain smartness that smacks of the Southdown. The Messrs. Crane, also noticed for a yearling ram, get more to their proper form and place amongst the old sheep with a very clever short-legged, well-ribbed sheep; while it must have been a very near thing for second between Mr. Mansell and Mr. Evans, the Adcott sheep being very deep in his girth, and altogether good forward, but pulled down again by a slack back. There were not many other commendable rams amongst the elders, Mr. Bowen's being very bad indeed, Mr. Holland still training off, and Mr. May's reserve showing something of the Hampshire Down character. If Mr. Henry Smith's ewes have a fault, it is that we have already referred to; but they are so generally good-looking, and four out of the five so perfect, that any man may feel proud of them, even if he has gone away from home for a taste of the quality. There are some very good amongst Mr. Horton's second-best pen, as Mr. Beach's are small and pretty, and Mr. Matthew's third with little to fancy about them on any account, for they have no distinct character, and might pass for almost anything. Some handsome ewes of Lord Chesham's were disqualified as not being fairly shown; and Mr. Holland in most of the classes seems shy of sending the sheep he had entered.

The other Shortwools were all Hampshire or West Country Downs, with but twelve entries in all for the twelve prizes of three classes. But these were the pick of the recent Salisbury Show, with Mr. Colcs' grand shearing, now placed second to a ram of Mr. Rawlence's that he beat when nearer home; but we altogether prefer the former reading, for, as we have previously said, the Norton Bavant ram is about the best Hampshire ever shown. Mr. Rawlence himself was also out

of luck, as he could not send his best old sheep, and this let in Mr. Canning for both first and second; the best of all, a four-shear, being a really wonderful animal for his age, with a good back, a fine carriage, and every sign of a still vigorous constitution. There was nothing in the show more admired than the Bulbridge ewes, if they were not all equally meritorious; but still, as the connoisseurs looked over and lauded them, the talk was of lean meat, prime mutton, and so forth. “A very good class,” wrote the judges, though sworn to secrecy, if not a very large one; and this was the general character of the West Country department.

Mr. Green's first prize ram was supposed to be the best Blackface ever seen, though one of Mr. Dobito's sheep would have stood higher had his countenance been dark enough. But with their long necks, open shoulders, and slack backs these are animals it is hard to appreciate, saying as a cross with something else, like the Norfolk longwools, when it is said the lambs come early and sell well. According to the old precept, one should not trust to outside appearances, and possibly the Blackface has that within him which “passeth show.”

Considering the money given in prizes for thorough-breds, hunters, and hacks, there was anything but a strong muster of horses, and with the exception of some dozen or so of well-known performers in the ring, there were very few of any very remarkable merit. The accommodation for the horses was as good as usual, and there was a capital ring for trying the nags in all their paces; but a wooden railing, as customary in Yorkshire, to divide the ring when two sets of judges are at work, would be less liable to lead to accidents than a rope, especially where there are a lot of badly-mouthed young skittish horses, middling jockeys, and frightened foals. Of several entries in the hack and pony classes we did not get a glimpse of on the first day, as our attention was taken up with the other set of judges, so we waited anxiously to see them out on the second, when, to our surprise, although there were several stewards and such-like officials in the ring, many of the entries were allowed to come in without numbers; while the telegram board, with its ladder, and bill sticker, paste brush, “pots and all” was something so original as to well deserve one of the Society's medals. There was also a most dismal-sounding bell that tolled the classes on to parade on the second day, and which continually reminded one of some departed friend, a great many of the visitors having had quite enough of it at the first asking.

The judges commenced their duties about eight; the first lot put upon their trial being the thorough-bred stallions for general stud purposes, with only six competitors for the three prizes of £100, £50, and £25. The first went to False Alarm, by Trumpeter out of Treacherous by Pantaloon, the prize horse at Islington this year, and again in Essex, but afterwards, according to the summing up of a solitary gentleman in bag wig and ermine at the late Norwich assizes, not so good as that commonest of country stallions, Mr. Stiggins! This verdict was upset before the Lords Justices, at Bury, who not only consider him better than Mr. Stiggins, but superior to the well-known Scottish Chief by Lord of the Isles, out of Miss Ann by The Little Known, now grown into one of the handsomest and best-formed blood horses in the kingdom. He has a grand top with plenty of length, good ends and thighs, with hocks beautifully placed, capital limbs neither too long nor too short—a great desideratum in a thorough-bred for general stud purposes—and which show ample signs of the severity of the work that our thorough-bred stock are put through in their infancy. Moreover, the Chief has a capital constitution and fine action, bending his knee nicely in his

trot. Ratcatcher was placed third, but the prize was withheld according to condition, viz., "No third prize will be given unless at least ten animals be exhibited, except on the special recommendation of the judges." Such a recommendation would have been well warranted here, as Ratcatcher by Rataplan, out of Lady Alice by Melbourne, standing barely fifteen two, is very compact and well formed, a fair mover and a model of power, with legs of iron, which below the knee appear to us to be as much bigger than False Alarm's, as False Alarm's are to the Scottish Chief's, a difference that is very trifling, the Scot having a nice flat tendonous leg. Of the others, Costa by the Baron, out of Catherine Hayes by Lanercost is a deep level-topped horse of not much substance nor the best formed fore-legs, and decidedly not a model for general stud purposes, although with a good deal of race-horse character about him. Tom Tit by King Tom, out of Sprightly by Gladiator, is, on the contrary, a really wretched specimen of the thorough-bred; and Bacchus, though hardy-looking, is not well put together, being short, heapy and leggy, and long from the knee to the ground. The Council, going backwards, was actually weak enough to revive the cocktail class, and to offer eighty-five pounds in prizes for half-bred sires calculated to get hunters, and a pretty mess they made of it; the judges having the pluck and wisdom to order the class off, after a brief survey, without awarding one of the prizes. What are the thorough-bred stallions "for general stud purposes" but to get hunters? and what better proof does the management want, of what the thorough-bred can do, than the first prize in the mares suitable for breeding hunters? We refer to that fine, upstanding mare, with plenty of bone and full of hunting character, Silverlock by Robinson, about twice the size of her dam—the old, long, low little Gipsy, in the haekney class, of about fourteen—two or three, and that, after the condemned had left the ring, should have been led round with her daughter for at least an hour, while the dismal-toned bell tolled the knell of the last of the half-bred stallion hunter classes!

Of hunting brood-mares, out of seventeen entries thirteen went for the money, four being merely apparitions in black and white, the first prize, as we have just said, going to Silverlock, a known good one in the field, and the second to a lengthy, short-legged, powerful mare, by that neatest of hunting stallions, Theon—no half-bred one, and at whose death his owner, for we had it from him, not only put up the shutters, but wept over him as a dear friend. Mr. Harvey's, the third prize, another nameless brown, was hunting-like, with a very neat deep top and good ends, but rather light of bone. Mr. Easterton's Rainbow was deep, compact, and clever-looking; whilst Mr. H. Biddell's Breeze showed some breed and form, and Mr. Grout's Alice was light and hunting-like, if a little stiff in her forelegs. Mr. Mumford had two—a chestnut of some character, but with a bad shoulder; and, Lady Southampton, useful-looking, but with nothing of the characteristics of the nobility, or rather "the quality," as we should say, that her name would indicate. Major Wilson also had two in, the one a rather neat, light, wiry, short-jointed, thoroughbred-looking chestnut. These were all from Suffolk.

All the prizes in the hunting classes were for weight carriers, but the weight was not specified, which no doubt kept away many a good horse, and disappointed many a light weight, as we are not all long big-boned welters, or heavy-careased, potato-fingered sons of luxury. Seventeen entered the lists for the five-year-old and all-aged class, including Voyageur, the prize horse at Islington in '66, who has fined a great deal since. It would be to his advantage, or rather to his owner's, if some one else were put up occasionally, as he would not show any the worse for being well ridden. The more we see of Master

of Arts the more are we satisfied that he is another Beechwood—a glutton for prizes, and nothing but a show horse after all. He is very well strutting round a circus, but his gallop is nothing like the strong, bold stride of a hunter, but short and scratchy, as if his knees were tied together. He wants a lesson from Mountain Dew, the third here and second to Voyageur at Salisbury, or from one of the two Irish horses, Mr. Pretty's Baron, a stout useful horse, neatly fired in both hocks—a thing they seem to excel in in Ireland—or from Mr. G. S. Hall's (Ely) Double First, a long, low chesnut with good ends, but slack back, remarkable for his hunting stride, and that has been a frequent prize winner. Sir Harry, belonging to Mr. Jacob Wilson had a grand top, and could move, but was small jointed, light-limbed, and not wearing-looking. Mr. E. Green's Jack Hinton is another Irishman, short and thick, with a drooping quarter, but too much in a heap; whilst Harkaway is a hunter to look at, with length, good ends, and short limbs. Buffon, an old stager, is a fine horse, but better standing still, as his going reminds one of the convicted vagabond who told the magistrate he "could do a little lot on his head." Mr. Osborne, of Colechester, had a nice made one in Gamecock, and Charlie is a very neat, quick little cob hunter, suitable for a woodland country, the property of Mr. W. E. A. Colville, of Bury; whilst another Charlie from Cheltenham, by Charles XII., is a slashing going horse, with bone. Fourteen four-year-olds came on from an entry of fifteen, the well-known black brown Tom being first, and the equally well-known General, a chesnut, third, being two more of Mr. Gee's cavalry. The second prize, Denmark, not so much made up, is a good-limbed, fine-grown horse; and Mr. Clarke, of Howden, had a chesnut, out of Old Marigold, the dam of Sprig of Nobility, the prize at Islington this year, by Sir John Barleycorn. But although this colt bears strong characteristics of both, with many good points, the cross has not been a happy one, as he is anything but symmetrical. To Mr. Mumford's Spot we put a cypher for something good, but it was washed away by the rain; and perhaps one or two more may have met with the like fate. Mr. Jacob Wilson's Ironsides is a neat deep-barrelled grey, but not up to any great weight. Tom and the General, or "Gineral," as a horsey little man persisted in calling the latter, as he came round the ring, bringing back to life old Jem Bland, the quondam post-boy and then betting-man, in his broad-brimmed white hat turned up at the sides, half-dress coat with brass buttons, cords and tops, and old General Grosvenor, with his wrinkled face, peering eyes, and high shoulders, in the long frock coat—"Here comes the Gineral," as Jem Bland would say. Tom and the General we have often described before, the hocks of the former being a general topic for discussion with veterinarians, sportsmen, and others, at this as at former meetings. It is only fair however to say Tom was not only passed by Professor Varnell, but, as it is said, Professor Spooner has also examined him since the Sussex show, and pronounced him sound. If a horse's hocks be only "suspicious," the point becomes one more for the consideration of the judges than the Professors.

We have, however, often heard it whispered about as a secret, that such and such a horse would have had the prize if he had been sound. But why whisper it? for if a horse is unsound he has no business in a show-yard. Nothing tends more to do harm than awarding prizes to well-nursed or patched-up cripples that a little real work would send limping to the infirmary again. Then, if we understand the thing in its proper light, these shows are got up, and prizes given as rewards of merit to exhibitors, and also as lessons to teach the public something about form, and the sound and the stout, what to choose and what to refuse, and how to discern

good from bad. If so, let us have no "trimmed samples," but genuine ones; and if a man chose to send in an unsound horse, let it be proclaimed on the house-top, that the public may see and learn something as well as the judges, unless the Council intends following the fashion of the day, by making a secret Society of theirs.

The hackney stallions showed in strong force, and included the first and second roadsters at Islington this year; the first there, Quicksilver Shales, a nice horse, only coming in for a commendation, whilst the second, Sportsman, who has thickened and has capital action, kept his place here, being second to Ambition, the champion-cup horse at Fakenham—a thick-topped powerful roan, with a rather heavy forehead, but a good mover, bending his knee famously. Trotaway was third, a second-prize cob at Islington in '66, where he met with an accident; he is a horse of fine character and a nice goer, of great power and length, with good ends and short limbs. Captain Barlow's Lucifer, the prize cob at Birmingham, was also a competitor, as well as Huc and Cry Shales, a rather good-looking one from Mr. G. Coy, of Ely, and Rapid Roan, a very taking horse, came in for a commendation, though disqualified as over the specified height. Jenny Lind, a plain, useful mare, was first amongst the hackney mares not under fourteen-two and not over fifteen-one, suitable for breeding hackneys, Bury Belle, showing a deal of breed with good limbs, being second; whilst a flea-bitten grey of Mr. Richardson's, of Willoughby, Lincoln, though of fine form and limbs, somewhat reminded one of green lanes and gipsy encampments; and Mr. Greene, M.P., had a mare of great character and breed, but sunk in her back. Major was the first for five-year-old roadsters and upwards, a deep-topped well-known show hack, as white as milk, who, with his owner up, came in for an extra share of admiration from the Viceroy of Egypt, as indeed did the second prize, a leggy, narrow half-Arab, with marching action. Mr. Grout had three fair-shaped ones, and good movers here; and amongst the others that took our eye were Mr. Pitfield's Silverhair, Mr. Taylor's Bury Charley, and Mr. Milward's Nora. For the three and four-year-olds there were two prizes and two competitors, the first being a light cobby hack. There were but nine carriage-horses, in four classes, and anything but a glorious nine, the exception being Carlton, a remarkably fine-grown colt, and a grand mover, bred by the late Mr. Richard Garrett, and hence his name. Hawk is of quite a different stamp, but with some style; and a brown two-year-old, of Mr. Kersey Cooper's, has immense size and bone; but a nice though small two-year-old of Mr. Badham's was more fitted for a hunting class.

There were two entries for the £30 for three-year-olds, but both absentees. Among the ponies were a few only really good: Brun Lin we do not recollect, but Black Performer was nothing to look at; and these two had it all to themselves in the stallion class. Countess is a strong, useful cob, and Bertha has length and breed; while the stallion under thirteen-two, with nothing to oppose him, is an old favourite hack of Mr. Farrer's, well known on Newmarket Heath. The pony mares, numbering seven, are good; Mr. Wallis' chesnut and Captain Barlow's Picedadilly being very neat and clever little hacks, while Mr. Branwhite's third, though of good form and with more power, is plain about her head, but a prize-winner before to-day. Steward is a very clever hack, with plenty of style and a fine mover, and a pony that every one may be proud of; but Dunbar, brother to Dunstan, a raw four-year-old cob, something like a young elephant, must improve vastly in looks and manners before he can rank with the Thurgarton troop. Mr. Kersey Cooper has a very neat, light, and corky pony, that can go across country; and Mr. Ransome's high-priced Exmoor is strong

and a good mover, but very slack in his back. The first-prize small pony, Pomtit, is so good-looking and powerful, that he found a customer forthwith, being bought as a match for Lady Hastings' pony that was exhibited at Islington.

As has been already intimated, the show of cart horses was composed chiefly of Suffolks, and even of the chesnuts we have often seen far better entries, either for numbers or merits, at a county show than the Royal Society could get together. The sensation here, in fact, was over a protest which was put about, although, we believe, never presented, to the effect that many of the so-called Suffolk horses were only so bred on one side of their heads. They were known to claim kindred with bays and browns, and it is a nice point for further consideration whether the sort is worth maintaining precisely in its purity? At present anything with a clean leg and red coat would seem to pass muster. If it be resolved that the chesnuts are worth preserving, the next step must be the establishment of a *Stud Book*, with the condition of there being so many crosses, or rather strains of the recognised blood, to warrant an entry in its pages. The very first horse in the lot of all-aged stallions is Hero, a dark chesnut, with little or no Suffolk character, and by Heart of Oak, a bay stallion that travelled in Essex. But he was passed over in a short class, and Mr. Bobby's Conqueror, who has before obtained one or two second prizes at the Royal Meeting, is declared by the judges to be the best of them. He is certainly a grand-looking one, and quite overpowers you in his box, but he is bad about his thighs; and the second-prize horse is more of the Suffolk mould, being very short, thick, and active. This is Duke's first appearance as a candidate for a prize, though shown here last summer as extra stock, and he is pretty sure to be heard of again. Mr. Thompson's Garibaldi at Epping, last year took the eye of the judges, and we like him still; while Mr. Surtees shows a useful horse who gets commended. The two-year-old entire colts muster in some force; but we cannot compliment Mr. Badham on his Prince, and doubt whether the Royal George blood will nick well with that of Chester Emperor, as up to the present time the samples exhibited have not shown much promise. Mr. W. Wilson's President carries everything before him, having won in Essex when a yearling, and this is the third time this year of his taking first class honours. We have already spoken to his merits, so that nothing now remains to be said of him further than that if he continue improving on his present form, he will be a very troublesome customer in many a show-yard. Mr. Crisp is again second with the same colt he had in Essex and Norfolk this year, with the promise of doing better still, as he is very backward; while Mr. M. Biddell gets a commendation for a useful colt, without much style about him, but Mr. Clayden's Executors show a very neat son of Chester Emperor, that has the third prize. Major Wilson's The Colonel, the prize yearling of last year, we did not see, as he was taken ill, and removed from the ground; and the remainder of this class were no credit to the breed. The mares with foal at foot were mostly well known in the ring. Mr. D. Sewell's splendid Brag, which has taken several prizes, was this year obliged to bow to the entries of the Messrs. Wolton, but she is nevertheless a great favourite, having good size with grand free action. Mr. Wolton, senior, was consoled for his two disappointments by turning the tables on Mr. Sewell's mare with his old Moggy, that looked remarkably fresh and well at her age, having never been beaten excepting by Brag. Moggy is indeed as near perfection in form as possible, combining great power in a small compass, with lots of quality, although rather too dark in colour to please those who go for the cherry reds. Violet, the property of Mr. Wolton, jun., is a very clever mare, and beautifully bred, being by

Canterbury Pilgrim, dam by Cordy's Marquis, and she here takes the second prize, whilst Darby, a frequent winner, the property of Mr. Tomline, M.P., has the third, having previously never been so low on the prize-list.

In the three-year-old filly class there is a very good one shown by Sir Edward Kerrison, which was protested against as not being pure Suffolk; but be what she may, she is a very superior animal: and there are several very clever fillies shown by Mr. King, who takes the second prize, by Mr. Wolton, and others. Seven two-year-old fillies compose the next class, and a very good one it is. Mr. Cross has a fine slashing mare by Harwich Emperor, out of the dam of Sir Edward Kerrison's three-year-old, and that stands first, and Mr. W. Wilson is next with a very moderate one, there being two or three better in the class.

In the entry for the special prizes offered by the Suffolk Society and the Bury Local Committee there are four three-year-old stallions, first and foremost of which is Mr. Crisp's Cupbearer, with his terribly-faulty forelegs, although his owner will have it that they will wear better than some of a more perfect form! Otherwise this is certainly a grand colt, with capital action—a point frequently overlooked by Suffolk breeders. Mr. Crisp also shows a half-brother to Cupbearer, a horse with immense bone, but wanting the requisite amount of quality. Mr. Biddell has a well-named Punch, and Mr. Wolton a son of old Moggy, that has a good back, but is rather leggy, and not of so good a mould as his dam. Sir Edward Kerrison sends in a pair of famous mares, with which he is lucky in beating Mr. W. Thompson, who shows *two*, but not a *pair*; one of them, Scott, is as good as anything, but the other is not up to the same high standard. Mr. F. Keer takes the first prize for the best gast mare, and a clever one she is, of a good old-fashioned sort; and Sir Edward is again successful with a nice mare of his own breeding; while the Marquis of Bristol exhibits two very taking mares, one of which is commended. The Duke of Grafton shows a pair of geldings, bred by himself, one an especially good one; but there was here no competition whatever, and with the previous pairs it was only a question of first and second.

The one-year-old entire colts mustered in more force, with some very nice young things amongst them, and others that certainly should never again find their way into public. The best of all, bred and exhibited by Mr. Wolton, jun., is a capital colt, and soon found a customer in Lord Hill; but the second prize goes to a light-limbed colt of Mr. Tomline, that is no credit to either sire or dam; while a good bay colt is shown by Mr. Salmon, but, of course, his colour put him out of any chance of a prize. Mr. Sawyer, of Tunstall, has a smart red colt that will grow into a fine horse, and the less said about the remainder the better. There were five yearling fillies shown, Mr. Rist taking both first and second prizes, for two fine fillies got by his own horse, Harwich Emperor, whose stock have been very successful at this meeting; and the first of these was bought by Major Wilson, who appears determined to possess some good stock.

The other classes in this section naturally excited a considerable amount of interest amongst the critical natives—that is to say, the Agricultural Horses not qualified to compete as Suffolks. Of the All-Aged Stallions there was one decidedly plain, another of grand promise, but irregular in his formation; while the first-prize horse, Mr. Coy's Matchless, was a real good one, and the next best, a Royal Clydesdale, a breed remarkable, so far as this meeting is concerned, for combining active movement with hair about the legs, for having a grand strong back and loins, and beautiful head, with the drawback of a withered but otherwise shapely fore-leg and thigh. In the next class, of Stallions foaled in 1865,

there was a horse belonging to the shrewd Mr. Henry Overman, that was terribly leggy and wanting as regarded his middle piece, with another of the Cumberland Lodge Clydesdales of not much merit, and a thick but only tolerable brown of Mr. Battocks, to which the second prize was awarded. Honest Tom, the first-prize colt, is a smart rather gaudy bay, with a white face, a good back and top, and nicely turned neck, but somewhat light in his girth. There were a few other Shire horses exhibited, but for actual competition amongst the other agricultural horses there has often been a deal more to see at a local meeting, and Mr. Holland's famous old Matchless had as usual a long lead with the mares and foals. The veterinarian, however, in the first instance rejected her for side-bones; but a very strong remonstrance being made, he was induced to look again, and eventually a prize was awarded.

The show of pigs was not large, the competition in many classes being very limited, often running to no more than three or four entries. The quality, however, was very good, never indeed better; and here again the Suffolk breeders played a prominent part, and they did so with good cause. Highly as the chesnut Panches may be appreciated about home, they are seldom thought much of elsewhere; whereas Mr. Sexton's and Mr. Stearn's pigs have a world-wide reputation, and many a man apparently came to Bury St. Edmunds with the especial object of buying an improved Suffolk, black or white, according to the colour he might fancy. Almost every litter bore the blue or red ruddle mark of *sold*, and even Lord Wenlock finds that he cannot get on without a little fresh blood from Brandestone. But it was not Suffolk that alone was famous, for Yorkshire, Lincolnshire, and Berkshire were as well represented, and in the opening class of large white boars Mr. Crisp was fairly beaten. But the Messrs. Howard go further, and though their prize boar was bred by Mr. Duckering, he showed to far greater advantage than the Northorpe pigs. With all his size the Hero has quality that a big boar seldom shows, a coat that a large white pig as rarely brings with him to the show-ground, and altogether an absence of that over-done condition, in which many a Yorkshireman looks as if he was about to die the death of a martyr. There is some further proof about the Britannia boar, for the first-prize white sow is by him, as well as another in a companion pen; and he looks as if he were of some service still. The Messrs. Howard's pigs are evidently managed with much judgment, but it is only right to remember that many of Mr. Duckering's have been for the last month or two on their travels, and a show pig, like a show sheep or a Shorthorn, is not often the better for such continual excitement. To Bury, moreover, the journey was a very trying ordeal, at least if we are to judge by Mr. Sexton's experience, whose pigs were six-and-thirty hours on the road from Ipswich! In the other pigs of a white breed, a new exhibitor, Mr. Peter Eden, of Salford, received some well-earned distinction; and though his middle-size boar had nothing but one of Mr. Duckering's against him, Mr. Eden's was still about the best pig on the ground. He is compact, but broad and deep in his frame, with a good head, a famous collar and fore-hand, and plenty of nice curly hair. He was, in truth, the happy medium his entry implied, and his portrait was ordered forthwith for the *Farmer's Magazine*. This boar was bred by Mr. Gamon, of Chester; but Mr. Eden has also purchased the pigs of the late Mr. Hindson, of Liverpool, who was in his time a very successful exhibitor. Of the small white boars there was a larger entry, and the North Country, with Mr. Hatton, Mr. Duckering, Lord Wenlock, and Mr. Eden as its champions, crossed swords with the Sextons, Mr. Crisp, and the Royal Windsor's. Butley reached to second with a neat long well-covered pig, but the chief honours went to a still better from



Leeds, and Mr. Eden stood in for the reserve. Rumour had previously put it about that the Windsors would not be so formidable as heretofore: and the Sexton blacks are, as a rule, far better than the whites; for Wherstead had it all its own way in the two classes of small black boars and sows, taking every one of the four prizes offered. And they are certainly of a very taking sort—long, deep, and handsome, with dainty rather than delicate heads, good skins and coats, and looking as if they would grow fat by instinct. If there is nothing more terrible than a great long-snouted, razor-backed, flat-sided monster of a pig, there is nothing *sweeter* than these pretty round, almost dimpled, blacks, so full of nice breeding and savoury suggestions. But with small white sows, again, your Sextons and Stearns have no such strength, for the award is Lincolnshire first, Northumberland second, and Leicestershire next. It struck us, however, that the north countrymen are going more for quality, particularly in their middle and small breeds, or Lord Wenlock, so often invincible in this way, would have been scarcely without a place. In the pens of three breeding sows of even a large breed, Mr. Duckering's, at seven months and a-half old, are very nice, with better heads and collars than these big sorts often have; but neither of the two prize pens of three small sows are of such merit, Mr. Aylmer's being but moderate, and Mr. Sawyer's no match. In these said pens of three, there was often no competition; and Mr. Duckering took his two premiums—the second “of any other breed,” with a very middling pen—and Mr. Sexton his first prize with some pretty blackmoors, modestly termed, “These-are-Stummers,” without any entries against them.

The Berkshires are very fairly represented by Mr. Stewart, Mr. King Tombs, Mr. Smith of Henley-in-Arden, and Mr. Bailey of Swindon; but Sir William Throckmorton's sort are clearly not improved, being coarse and common. The entries of Mr. Smith and Mr. Yells are, on the contrary, rather too fine in their character, while Mr. Tombs' great good sow, that was first at Salisbury, is first again here, beating even Mr. Stewart, whose Berkshires for the last few years, for either style, symmetry or true breed properly cultivated, have been far among the best to be seen about. His first-prize boar is in his way as good as Mr. Eden's white, while we should certainly prefer Mr. Bailey's second-prize pen of three to Mr. Yell's first, that are surely too delicate to ever realize the ideal of a Berkshire. Mr. Sexton has also for the last two years been trying his hand on this breed, which he must be careful to keep clear of his own small blacks, or they will soon decline into something else. The special prizes for pigs went on the Hereford cattle principle of boar, sow, and offspring, to be judged as one lot, and with some capital family parties made up by Mr. Sexton, Mr. Eden, and Mr. Stearn. But the Brandeston boar had wasted sadly, and it will be seen that Mr. Stearn was not by any means in his pristine force. To be sure, he had misconstrued the conditions, which went to declare that no pigs should be coloured or oiled on the ground, whereas many had been very liberally dressed over just previous to their entering the show. On Mr. Stearn seeing his mistake, and preparing to anoint his pigs also, he was promptly informed that he would be dismissed the Society if he did, though it was not quite clear that the framers of the rule knew exactly what they intended to enact. Both the first prize sows had liberal litters, and although an old judge did not fancy some of them, they were selling out fast during the week, more business as we should say having been done amongst the pigs than with any other description of live stock.

“It was said of the Bourbons when they returned to France after the first revolution, that they had, during

their long exile, learned nothing, and forgotten nothing. The same may be said of the Poultry Committee of the Royal Agricultural Society. The vexatious and troublesome regulations which formerly rendered a most liberal prize incapable of attracting exhibitors are followed on the present occasion, and we consequently have the extraordinary anomaly of a very small entry, amounting to less than 350 pens, with a prize-list of over £200.” So writes the *Bury Post*, and we are afraid that the title will stick to the “Royal” family in Hanover-Square. Whether it be about hunter-stallions or hens and chickens, THE BOURBONS “learn nothing, and forget nothing.” *The Field*, again, is “sorry to say that a worse-managed poultry show or a more unsuccessful exhibition it has rarely been our fortune to meet with.” This is strong language, but it is not ours, for poultry is, we admit, hardly in our line, and so we are happy to take the opinions of higher authorities, as we would recommend the Council to forthwith. We give, however, the prize-list in full, while it may be added that the chief features of this section were the Bramahs and French varieties, which are said to be almost as well suited to the farm as the Dorkings. There were also some creditable Cochins, but the Spanish were indifferent, and the game fowl, though so handy Newmarket, in no force; while the geese were sadly out of condition. The Aylesbury and Rouen ducks, on the contrary, were well represented, as, in fact, quite at home, for the rain at times deluged the pens, and perhaps the unhappiest creature in existence is a prize chicken in wet weather. But it would be really ungenerous to repeat all our contemporaries say of that revived element in the Royal Meetings, the great Poultry Show.

## PRIZE LIST.

### HORSES.

#### THOROUGHBRED HORSES AND HUNTERS.

JUDGES.—F. Oldacre, Rugby.

W. Smith, Milkington, Coldstream.

H. Thurnall, Royston.

Thorough-bred Stud Horses best calculated to improve and perpetuate the breed of the sound and stout Thorough-bred Horse for General Stud Purposes.—First prize, £103, Captain Barlow, Hasketon, Woodbridge (False Alarm). Second of £50, W. Donald, Stud Farm, East Acton (Scottish Chief). *Reserve*: The Rev. J. W. King, Ashby-de-la-Launde, Sleaford (Ratecatcher).

Stallions, with not less than four Thorough-bred crosses, supposed to be suitable for getting Hunters, and whose regular charge for serving half-bred Mares during the season 1867 has not exceeded Five Guineas.—*No award—no merit.*

Mares, in foal, or with foals at foot, suitable for breeding Hunters.—First prize, £30, Captain Barlow (Silvertoek). Second of £20, H. Hurrell, Harston, Cambridge. Third of £10, W. Harvey, Timworth, Bury St. Edmund's. *Reserve*: J. Grout, Woodbridge (Alice).

### HACKNEYS.

JUDGES.—H. Beever, Blyth, Workson.

Hon. G. Lascelles, Moor Hill, Harewood.

C. M. Nainby, Barmoldby-le-Beck, Grimsby.

Stallion, not less than 14 hands 3 inches nor exceeding 15 hands 2 inches.—First prize, £40, C. Beart, Stow Bardolph, Downham Market (Ambition). Second of £20, J. Grout, Woodbridge (Sportsman). Third of £10, T. L. Reed, Downham Market (Trotaway). *Commented*: E. Jolley, Banham, Attleborough (Rapid Roan); J. Grout, (Quicksilver Sales).

Mares not less than 14 hands 2 inches nor exceeding 15 hands 1 inch, in foal, or with foal at foot.—First prize, £30, W. Overman, Weasenham, Brandon (Jenny Lind). Second of £20, H. Biddell, Playford, Ipswich (Bury Belle). *Commented*: Captain Barlow (Gipsy).

### PONIES.

JUDGES as for Hackneys.

Stallions, above 13 hands 2 inches and under 14 hands 3 inches.—First prize, £20, J. M. Tharp, Chippenham, Soham (Brun Lein). Second of £15, D. Lister, Westwood, Ikley, Leeds (Black Performer).

Mares, above 13 hands 2 inches and under 14 hands 2 inches.—First prize, £15, J. Reed Cooper, Manor House, Bury St.

Edmunds (Countess). Second of £10, G. Cardinall, Sudbury (Bertha). Third of £5, T. Fulcher, Elmham, Thetford (Jessie).

Stallions under 13 bands 2 inches.—First prize, £15, E. Farrer, Sporre, Swaffham.

Mare under 13 bands 2 inches.—First prize, £10, T. Wallis, Witchford, Ely. Second of £5, Captain Barlow (Piccadilly). Third of £3, F. Branwhite, Chapel House, Long Melford, Sudbury. *Commented:* C. Groucock, Plumstead Hall, Norwich (Puss).

#### AGRICULTURAL HORSES.

##### SUFFOLKS.

JUDGES.—H. Crosse, Stowmarket.

J. Wood, Humberstone, Grimsby.

D. Wright, Beale, Northumberland.

Stallions foaled before the 1st of January, 1865.—First prize, £25, C. Boby, Alton Hall, Stutton, Ipswich (Conqueror). Second of £15, T. Crisp, Butley Abbey, Wickham Market (Duke). *Commented:* H. E. Surtees, M.P., Dane End, Ware (Bounee).

Stallions foaled in the year 1865.—First prize, £20, W. Wilson, Baylham Hall, Ipswich (President). Second of £10, T. Crisp. Third of £5, the Executors of the late S. Clayden, Little Linton, Cambridge. *Highly commended:* J. Grout (Young Marquis), and M. Biddell, Playford, Ipswich. *The class commended.*

Mares and Foals.—First prize, £20, S. Wolton, Newbourn Hall, Woodbridge (Moggy). Second of £10, S. Wolton, Kesgrave, Woodbridge (Violet). Third of £5, G. Tomline, M.P., Nacton, Ipswich (Darby).

Three-year-old Fillies.—First prize, £15, Sir E. Kerrison, Bart., Brome Hall, Scole. Second of £10, T. King, Preston, Bildeston, Suffolk (Matchet).

Two-year-old Fillies.—First prize, £15, T. Cross, Holbrook, Ipswich. Second of £10, W. Wilson, Baylham (Scott). Third of £5, S. Wolton, Kesgrave (Empress). *The class commended.*

#### AGRICULTURAL HORSES.

(Not qualified to compete as Suffolks).

##### JUDGES as for Suffolks.

Stallions foaled before the 1st of January, 1865.—First prize, £25, G. Coy, Downham, Ely (Matchless). Second of £15, Major-General the Hon. A. H. Hood, Cumberland Lodge, Windsor (The Don, Clydesdale). *Commented:* H. Overman, Weasenham, Brandon (The Norfolk Lion).

Stallions foaled in the year 1865.—First prize, £20, W. Welcher, Upwell, Cambridgeshire (Honest Tom). Second of £10, F. Battecock, Hemingford Abbots, St. Ives (Drayman 2nd). Third of £5, J. Tingey, Elmingham, Attleborough (Young Glory). *Highly commended:* J. Warth, Sutton, Ely (Emperor). *The class commended.*

Mares and Foals.—First prize, £20, E. Holland, M.P., Dumbleton, Evesham.

Three-year-old Fillies.—*No competition.*

Two-year-old Fillies.—First prize, £15, J. Warth (Beauty). Second of £10, E. Fyson, Higham Green, Bury St. Edmunds. *Reserve:* E. Fyson.

#### SHEEP.

##### LEICESTERS.

JUDGES.—J. Buckley, Loughborough.

C. Clarke, Scopwicke, Seaford.

G. Mann, Scawslly, Doncaster.

Shearling Rams.—First prize, £20, R. W. Creswell, Ravenstone, Ashby-de-la-Zouch. Second of £10, J. Borton, Barton House, Malton. Third of £5, R. W. Creswell. *Highly commended:* J. Gould, Poltimore, Exeter. *Commented:* G. Turner, jun., Alexton Hall, Uppingham; J. Borton; and Colonel Inge, Thorpe Hall, Tamworth.

Rams of any other age.—First prize, £20, G. Turner, jun. Second of £10, J. Borton. Third of £5, J. Borton. *Reserve:* R. W. Creswell. *The class commended.*

Pens of Five Shearling Ewes of the same flock.—First prize, £15, J. and E. Tindall, Knayton Hall, Killington, York. Second of £10, W. Browne, Iligh Gate, Ilhorne on Spalding Moor. *Highly commended:* J. Gould. *Commented:* G. Turner, jun.

##### COTSWOLDS.

JUDGES.—W. Bartholomew, Waddington, Lincoln.

E. Little, Lanhall, Chippingham.

R. J. Newton, Campsfield, Woodcock.

First prize, £20, T. Browne, Marlham, Downham Market. Second of £10, T. Browne. Third of £5, H. Aylmer, West Dereham Abbey, Stoke Ferry, Norfolk. *Highly commended:* J. Gillett, Oaklands, Charlbury. *Commented:* H. Aylmer, for three other sheep.

Rams of any other age.—First prize, £20, T. Browne. Second of £10, T. Browne. Third of £5, H. Aylmer. *Highly commended:* H. Aylmer. *The class commended.*

Pens of Five Shearling Ewes of the same flock.—First prize, £15, T. Browne. Second of £10, H. Aylmer. Third of £5, H. Aylmer. *Commented:* J. Gillett, for two pens.

#### LINCOLNS AND OTHER LONGWOOLS.

(Not qualified to compete as Leicesters or Cotswolds).

##### JUDGES as for Cotswolds.

Shearling Rams.—First prize, £20, H. Aylmer. Second of £10, W. F. Marshall, Branston, Lincoln. Third of £5, R. Wright, Nocton Heath, Nocton. *Highly commended:* R. Wright. *Commented:* W. F. Marshall, and J. H. Caswell, Laughton, Folkingham.

Rams of any other age.—First prize, £20, R. Wright. Second of £10, C. Williams, Carlton-le-Moorland, Newark. Third of £5, C. Williams. *Reserve:* J. W. Richardson, Willoughton, Kirton-in-Lindsey.

Pens of Five Shearling Ewes of the same flock.—First prize, £15, Clarke Hales, Manor House, Basingbourne, Royston. Second of £10, C. Lister, Coleby Heath, Lincoln. *Reserve:* C. Lister.

##### SOUTH DOWNS.

JUDGES.—F. Budd, Hatch Warren, Basingstoke.

H. Fookes, Whitechurch, Blandford.

J. S. Turner, Chynton, Seaford.

Shearling Rams.—First prize, £20, Lord Walsingham, Merton Hall, Thetford. Second of £10, Sir William Throckmorton, Bart., Buckland, Farringdon. Third of £5, Lord Walsingham. *Highly commended:* Lord Walsingham; and Lord Sondes, Elmham Hall, Thetford (R).

Rams of any other age.—First prize, £20, Lord Walsingham. Second of £10, Sir William Throckmorton. Third of £5, Sir W. Throckmorton. *Highly commended:* Lord Walsingham (R); Lord Braybrooke, Audley End, Saffron Walden; and Lord Sondes.

Pens of Five Shearling Ewes of the same flock.—First prize, £15, Sir William Throckmorton. Second of £10, The Duke of Richmond, K.G., Goodwood, Chichester. Third of £5, The Duke of Richmond. *Highly commended:* Lord Sondes (R). *Commented:* Lord Walsingham, and J. and A. Heasman, Angmering, Arundel.

##### OXFORDSHIRE DOWNS.

JUDGES.—A. Edmond, Longworth, Farringdon.

C. Hobbs, Maisey Hampton, Cricklade.

R. H. Masfen, Pendeford, Wolverhampton.

Shearling Rams.—First prize, £20, G. Wallis, Old Shifford, Farringdon. Second of £10, C. Howard, Biddenham, Bedford. Third of £5, J. Bryan, Southleigh, Witney. *Commented:* The Duke of Marlborough, Blenheim, Woodstock.

Rams of any other age.—First prize, £20, G. Wallis. Second of £10, G. Wallis.

Pens of Five Shearling Ewes of the same flock.—First prize, £15, C. Howard. Second of £10, C. Howard. Third of £5, H. Overman.

##### SHROPSHIRE.

##### JUDGES as for Oxfordshire Downs.

Shearling Rams.—First prize, £20, J. Evans, Uffington, Shrewsbury. Second of £10, J. Evans. Third of £5, T. Mansel, Adcot Hall, Baschurch, Salop. *Highly commended:* J. Evans (R); J. and E. Crane, Shrawardine and Forton, Shrewsbury; and H. Smith, Sutton Maddock, Shiffnal. *Commented:* J. and E. Crane; and P. W. Bowen, Shrawardine Castle, Shrewsbury.

Rams of any other age.—First prize, £20, J. and E. Crane. Second of £10, T. Mansell. Third of £5, J. Evans. *Highly commended:* G. A. May, Elford Park, Tamworth.

Pens of Five Shearling Ewes of the same flock.—First prize, £15, H. Smith. Second of £10, T. Horton, Harnage Grange, Shrewsbury. Third of £5, H. Matthews, Montford, Shrewsbury. *Highly commended:* J. Beach, The Hattons, Brewod, Dudley. *Commented:* T. Horton.

##### HAMPSHIRE AND OTHER SHORTWOOLS.

(Not qualified to compete as Southdowns or Shropshires).

##### JUDGES as for Southdowns.

Shearling Rams.—First prize, £20, J. Rawlence, Bulbridge, Wilton, Salisbury. Second of £10, R. Coles, Norton Bavant, Warminster. *Highly commended:* A. Morrison, Fonthill House, Tisbury, Wiltshire. *Commented:* J. Rawlence.

Rams of any other age.—First prize, £20, W. B. Canning, Elston, Devizes. Second of £10, W. B. Canning. *Highly commended:* J. Rawlence. *Commented:* J. Rawlence.

Pens of Five Shearling Ewes of the same flock.—First prize, £15, J. Rawlence. Second of £10, J. Rawlence. *Specially commended:* A. Morrison. *Highly commended:* W. B. Canning. *A very good class.*

#### PIGS.

JUDGES.—S. Druce, Eynston.

J. B. Slater, Canneringham, Lincoln.

T. Trotter, Bywell, Stocksfield-on-Tyne.

Boars of a large white breed.—First prize, £10, J. and F. Howard, Britannia Farms, Bedford. Second of £5, R. E. Duckering, Northorpe, Kirton-Lindsey. *Reserve:* T. Crisp, Butley.

Boars of a small white breed.—First prize, £10, W. Hatton, Addingham, Leeds. Second of £5, T. Crisp. *Commented:* P. Eden, Cross Lane, Salford, Manchester.

Boars of a small black breed.—First prize, £10, G. M. Sexton, Whersted Hall, Ipswich. Second of £5, G. M. Sexton. *Commented*: P. Beinet, Rougham Hall, Bury St. Edmunds.

Boars of the Berkshire breed.—First prize, £10, A. Stewart, Saint Bridge House, Gloucester. Second of £5, J. Smith, Henley-in-Arden. *Commented*: G. M. Sexton.

Boars of a breed not eligible for the preceding classes.—First prize, £10, P. Eden. Second of £5, R. E. Duckering.

Breeding Sows of a large white breed.—First prize, £10, J. and F. Howard. Second of £5, R. E. Duckering. *Commented*: R. E. Duckering.

Breeding Sows of a small black breed.—First prize, £10, R. E. Duckering. Second of £5, J. Wilson, Woodhorn Manor, Morpeth. *Highly commended*: P. Eden. *The class highly commended*.

Breeding Sows of a small black breed.—First prize, £10, G. M. Sexton. Second of £5, G. M. Sexton. *Highly commended*: T. Crisp.

Breeding Sows of the Berkshire breed.—First prize, £10, J. K. Tombs, Lanctford, Lechlade. Second of £5, A. Stewart. *Commented*: A. Stewart.

Breeding Sows of a breed not eligible for the preceding classes.—First prize, £10, R. E. Duckering. Second of £5, J. Sagar, Lister Hills, Bradford. *Commented*: J. Wilson.

Pens of three Breeding Sow Pigs of a large white breed, of the same litter, above 4 and under 8 months old.—First prize, £10, R. E. Duckering.

Pens of three Breeding Sow Pigs of a small white breed, of the same litter, above 4 and under 8 months old.—First prize, £10, H. Aylmer. Second of £5, J. Sawyer, Tunstall, Wickham Market. *Commented*: S. G. Stearn, Brandeston, Wickham Market.

Pens of three Breeding Sow Pigs of a small black breed, of the same litter, above 4 and under 8 months old.—First prize, £10, G. M. Sexton.

Pens of three Breeding Sow Pigs of the Berkshire breed, of the same litter, above 4 and under 8 months old.—First prize, £10, W. Yells, Round Robin Farm, Highworth. Second of £5, Rev. H. G. Baily, Swindon. *Commented*: Major J. E. Riley, Elm House, Winkfield, Windsor.

Pens of three Breeding Sow Pigs, of a breed not eligible for the preceding classes, of the same litter, above 4 and under 8 months old.—First prize, £10, R. E. Duckering.

## SPECIAL PRIZES

OFFERED BY THE SUFFOLK AGRICULTURAL SOCIETY, THE LOCAL COMMITTEE OF BURY ST. EDMUND'S, AND THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

### SUFFOLK CART HORSES.

Three-year-old entire Colts.—First prize, £20, T. Crisp (Cupbearer). Second of £10, M. Biddell (Punch).

Pairs of Mares.—First prize, £20, Sir E. Kerrison (Depper and Dandy). Second of £10, W. Thompson, jun., Thorpe, Colchester (Scott and Blossom).

Mares not having had foals in 1867.—First prize, £15, F. Keer, Raydon, Orford, Wickham Market. Second of £10, Sir E. Kerrison (Bonny). *Highly commended*: The Marquis of Bristol, Ickworth Park, Bury St. Edmund's (Diamond). *The class commended*.

Pairs of Geldings.—First prize, £15, The Duke of Grafton, Euston Hall, Thetford (Smiler and Punch). *No competition*. One-year-old entire Colts.—First prize, £15, S. Wolton, Newbourn Hall. Second of £10, G. Tomline, M.P. *The class commended*.

One-year-old Fillies.—First prize, £10, I. Rist, Tattingstone, Ipswich (Smart). Second of £5, I. Rist (Videl). *Highly commended*: S. Wolton. *The class commended*.

Foals.—First prize, £10, Sir E. Kerrison. Second of £5, A. Frewer, Debenham, Ipswich.

### HUNTERS.

Weight-carrying Mares or Geldings, 5 years old and upwards.—First prize, £75, T. Gee, Dewhurst Lodge, Wadhurst (Master of Arts). Second of £50, T. Sutton, Alwent Hall, Darlington (Voyager). Third of £25, E. N. Heygate, Buckland, Leominster (Mountain Dew). *Reserve*: T. Taylor, Bury St. Edmund's (Harkaway).

Weight-carrying Mares or Geldings, 4 years old.—First prize, £40, T. Gee (Tom). Second of £20, E. N. Heygate (Denmark). Third of £10, T. Gee (The General). *Reserve*: W. H. Clark, Hook, Howden.

Weight-carrying Mares or Geldings, 3 years old.—*The prizes withheld*.

### ROADSTERS.

Mares or Geldings, 5 years old and upwards, not less than 14 and not exceeding 15 hands.—First prize, £30, G. D. Badham, Balmer, Sudbury (Major). Second of £20, R. J. H. Harvey, M.P., Crown Point, Norwich (Favourite). Third of £10, J. Grout (Black Bess). *Commented*: J. Grout (Alice).

Mares or Geldings, 3 or 4 years old, not less than 14 and not exceeding 15 hands.—First prize, £20, J. W. Seriven, Throstlenest, Otley (Lott). Second of £10, W. Wright, Dodington, Cambridge (Queen of the Seas.)

### CARRIAGE HORSES.

Mares or Geldings, 4 years old, not less than 16 hands.—First prize, £30, J. Grout (Carlton). Second of £20, G. Turner, Barnham, Thetford (Hawk).

Fillies or Geldings, 3 years old.—*No entry*. Fillies or Geldings, 2 years old.—First prize, £10, G. K. Cooper, Euston, Thetford. Second of £5, T. Easterson, the Red House, Bawdsey, Woodbridge (Fitz-Weatherbit).

### PONIES.

Mares or Geldings, not less than 13 and not exceeding 14 hands.—First prize, £10, R. Milward, Thurgarton Priory, Southwell, Nottingham (Steward). Second of £5, R. Milward (Dunbar). *Commented*: J. A. Ransome, Ipswich (Sir Harry).

Mares or Geldings, not exceeding 13 hands.—First prize, £10, H. R. Wade, Little Waddingfield, Sudbury (Tom Pitt). Second of £5, R. Gitters, West Row, Soham (Tommy). *Commented*: G. M. Sexton.

### P I G S.

Small white Boars and Sows, with their Offspring, not to exceed 12 weeks old on July 1st, 1867.—First prize, £10, G. M. Sexton. Second of £5, P. Eden. *Reserve*: J. Sawyer.

Small black Boars and Sows, with their Offspring, not to exceed 12 weeks old on July 1st, 1867.—First prize, £10, G. M. Sexton. Second of £5, S. G. Stearn. *Reserve*: S. G. Stearn.

### S H E E P.

#### BLACK-FACED SUFFOLKS.

Shearling Rams.—First prize, £10, J. M. Greene, Stradishall Old House, Newmarket. Second of £5, G. Dobito, Lidgate, Newmarket. *Highly commended*: J. M. Greene. *Commented*: G. Dobito.

Rams of any age.—First prize, £10, G. Dobito. Second of £5, G. Dobito. *Reserve*: W. Harvey, Timworth.

Pens of Five Shearling Ewes.—First prize, £10, W. Harvey. Second of £5, W. Harvey. *Highly commended*: Major Fuller Maitland Wilson, Stowlangtoft Hall, Bury St. Edmund's.

### B U T T E R.

JUDGES.—J. Denovan, Bury St. Edmunds. G. J. Oliver, Bury St. Edmunds.

Six Pounds of Fresh Butter, in One Pound Lumps.—First prize, £6, Lady Caroline Kerrison, Brome Hall, Soale, Suffolk. Second of £2, T. Sawyer, Hill House, Thwaite, Stonham, Suffolk.

### S U F F O L K C H E E S E.

JUDGES.—Same as for Butter.

Six New Milk Cheeses.—*Nothing worthy of a prize*.

### P O U L T R Y.

JUDGES.—J. Bailey, sen., Mount Street, London.

E. Hewitt, Sparsbrook, Birmingham. W. Trotter, South Acomb, Stocksfield-on-Tyne.

### DORKINGS.

Coloured, Cock and Hen, any age.—First prize, £5, J. D. Hewson, Coton Hill, Stafford. Second of £3, F. Parlett, Leathercote Lodge, Great Baddow, Chelmsford. Third of £2, H. Lingwood, Barking. *Highly commended*: J. Griggs, Oaklands, Romford; J. Lewry, Bolney; and J. P. Bott, Cardfields, Hatfield Peveril, Chelmsford. *Commented*: Messrs. Gunson and Jefferson, Whitehaven; and J. Frost, Parham, Wickham Market.

Coloured, Cock and Hen (Chickens).—First prize, £5, J. Lewry, Bolney, Cuckfield. Second of £3, D. C. Campbell, M.D., County Lunatic Asylum, Brentwood. Third of £2, M. Seamons, Heartwell, Aylesbury. *Highly commended*: D. C. Campbell, M.D. (for two pens), and J. Lewry. *Commented*: H. Savile, Rufford Abbey, Ollerton.

White, Cock and Hen, any age.—First prize, £5, H. Lingwood. Second of £3, H. Lingwood.

### BRAHMA POOTRAS.

Dark, Cock and Hen, any age.—First prize, £6, R. W. Boyle, Galtrim House, Bray, Co. Wicklow, Ireland. Second of £4, K. Jopp, Aberdeen. Third of £2, H. Lacy, Lacy House, Hebdon Bridge. *Highly commended*: J. K. Fowler, Aylesbury; W. Hargreaves, Bacup, Lancashire; and J. Kenris, Wharf Cottage, Chelmsford. *Commented*: F. Sabin, Bull Street, Birmingham.

Light, Cock and Hen, any age.—First prize, £5, J. Pares, Postford House, Guildford. Second of £4, H. Dowsett, Park Farm, Pleshey, Chelmsford. Third of £2, F. Crook, Vink Cottage, Forest Hill. *Highly commended*: G. Anns, High Street, Clapham, Surrey.

### COCHIN CHINAS.

Bufs, Cock and Hen, any age.—First prize, £5, R. White, Broomhall Park, Sheffield. Second of £4, H. Maplebeck, Woodfield. Third of £2, H. Lingwood. *Highly commended*: H. P. Leech, Woolpit, Bury St. Edmund's. *Commented*: H. Lingwood and H. Maplebeck.

Any other Colour, Cock and Hen, any age.—First prize, £1, J. Stephens, Bradford Street, Walsall. Second of £3, C. W. Brierley, Rhodes House, Middleton, Manchester. Third of £2, E. Tudman, Ash Grove, Whitechurch. *Highly commended*: F. M. Shaw, Rougham Rectory, Bury St. Edmund's.

## CREVECEURS.

Cock and Hen, any age.—First prize, £5, Colonel S. Wortley, Rosslyn House, Grove-end Road, London. Second of £3, Colonel S. Wortley. *Highly commended*: The Rev. C. Gilbert, Strumpingshaw Hall, Norwich.

## LA FLECHE.

Cock and Hen, any age.—First prize, £4, Colonel S. Wortley. Second of £3, the Rev. C. Gilbert. *Highly commended*: Colonel S. Wortley.

## HOUDANS.

Cock and Hen, any age.—First prize, £4, F. B. Heald, Whitmore, Nottingham. Second of £2, the Rev. C. Gilbert. *Highly commended*: S. A. Wylie, Hampton Villa, East Moulsey. *Commended*: Colonel S. Wortley and E. Pigeon, Lymington, Devon.

## SPANISH.

Cock and Hen, any age.—First prize, £5, J. Thresh, Manchester Road, Bradford. Second of £4, H. Beldon, Goitstock Bingley, Yorkshire. Third of £2, J. Walker, Ash Street, Merridale Road, Wolverhampton. *Highly commended*: C. H. Brown, the Manor House, Lower Edmonton.

## GAME.

Blackbreasted and other Reds, Cock and Hen, any age.—First prize, £5, W. Church and J. W. Honlding, Hospital Street, Nantwich. Second of £3, S. Matthew, Clifton Farm, Stowmarket. Third of £2, J. Wood, Moat House, Wigan. *Highly commended*: S. Matthew and C. W. Brierley, Rhodes House, Middleton, Manchester. *Commended*: W. Boyes, Butcher Row, Beverley.

Any other Colour, Cock and Hen, any age.—First prize, £5, S. Matthew. Second of £3, W. Boyes. Third of £2, F. Watson, Messing Hill House, Kelvedon. *Highly commended*: C. W. Brierley.

## PENCILLED HAMBURGH.

Golden, Cock and Hen, any age.—First prize, £4, T. Wrigley, jun., Tonge, Middleton, Manchester. Second of £2, F. D. Mort, Moss Pit House, Stafford. Third of £1, F. Pittis, jun., Newport, Isle of Wight. *Highly commended*: F. Pittis, jun.

Silver, Cock and Hen, any age.—First prize, £4, H. Beldon. Second of £2, H. Pickles, jun., Earby. Third prize *withheld*.

## SPANGLED HAMBURGH.

Golden, Cock and Hen, any age.—First prize, £4, H. Beldon. Second of £2, N. Marlor, Denton, Manchester. Third of £1, J. Roe, Hadfield, Derby. *Highly commended*: T. Walker, jun., Wilton Lodge, Denton, Manchester.

Silver, Cock and Hen, any age.—First prize, £4, H. Beldon. Second of £2, H. Pickles, jun. Third of £1, T. L. Fellowes, Vicarage, Houningham, Norwich. *Highly commended*: The Rev. C. H. Crosse, Jesus Lane, Cambridge.

## BANTAMS.

Sebrit Golden and Silver, Cock and Hen, any age.—First prize, £3, H. Draycott, Humberstone, Leicester.

Game, Cock and Hen, any age.—First prize, £3, D. Canser, Erdington, Warwick. Second of £2, F. Pittis. *Highly commended*: E. S. Tiddeman, Childerditch Vicarage, Brentwood; and J. F. Bott, Cardfields, Hatfield Peverell, Chelmsford. *Commended*: The Rev. C. H. Crosse, and J. Frost, Farham, Wickham Market, Suffolk.

Any other Breed, Cock and Hen, any age.—First prize, £4, H. Beldon. Second of £3, E. Pigeon. Third of £1, N. Marlor. *Highly commended*: Sir E. Kerrison (for two pens). *Commended*: Miss K. Charlton, Chapelthorpe, Wakefield; and Miss M. E. Lamb, Redhill House, Compton, Wolverhampton.

## TURKEYS.

Cock and Hen, any age.—First prize, £5, J. Smith, Breeder Hills, Grantham. Second of £4, E. Leach, Greave House, Rochdale. Third of £2, Lady M. Macdonald, Woolmer, Liphook. Fourth of £1, T. Morton, Offord D'Arcey. *Highly commended*: T. L. Fellowes. *Commended*: W. Wright, Hall Farm, Fulborne, Cambridge.

## GEESE.

Gander and Goose, any age.—First prize, £5, M. Seamons. Second of £3, J. K. Fowler, Aylesbury. Third of £2, M. Seamons. Fourth of £1, Mrs. W. T. Brackenbury, Thorpe Hall Farm, Downham. *Highly commended*: The Rev. G. Hustler, Stillingfleet Vicarage, York.

## DUCKS.

Aylesbury, Drake and Duck.—First prize, £4, M. Seamons. Second of £2, M. Seamons. Third of £1, J. Bowman and E. Pearson, Whitelaven. *Highly commended*: M. Seamons. *Commended*: J. K. Fowler.

Rouen, Drake and Duck.—First prize, £4, E. Tudman, Ash Grove, Whitechurch. Second of £2, Messrs. J. Gunson and S. Jefferson. Third of £1, H. Downsett, Park Farm, Pleshy, Chelmsford. *Highly commended*: J. K. Fowler (for two pens). Any other Breed, Drake and Duck.—First prize, £2, S. A.

Wylie, Hampton Villa, East Moulsey, Kingston, Surrey. Second of £1, E. W. Greene, Bury St. Edmund's. *Highly commended*: E. W. Greene.

## STEWARDS OF LIVE STOCK.

Mr. Randell, Chadbury, Evesham.  
Mr. Bowly, Siddington House, Cirencester.  
Mr. Wells, Holmewood, Peterborough.

## STEWARDS OF POULTRY.

Mr. Barthropp, Hacheston, Wickham Market.

## INSPECTORS OF SHEEP-SHEARING.

H. Bone, Avon, Ringwood.  
J. B. Workman, Rider Pershore.

## VETERINARY INSPECTORS.

Professor Simonds, London.  
Professor Varnell, London.

ASSISTANT.—R. L. Hunt, Birmingham.

## PRIZES FOR IMPLEMENTS.

## STEAM-ENGINES.

JUDGES.—F. J. Bramwell, Great George-street, London.  
J. V. Gooch, Reform Club, London.  
O. William, Rotherham.

## FIXED STEAM-ENGINES.

First prize, £20, Clayton Shuttleworth and Co., Lincoln.  
Second of £10, Tuxford and Sons, Boston.

*Highly Commended*: Reading Iron Company.

*Commended*: Rawlings, Melbourne, Royston; S. Kinsey, Nottingham; Deacon and Wood, Reading.

## PORTABLE STEAM-ENGINES

(With Two Cylinders, above 10-Horse-power).

First prize, £25, Clayton, Shuttleworth and Co. Second of £15, Ransome and Sims, Ipswich.

*Highly Commended*: Tuxford and Sons; Brown and May, Devizes.

## PORTABLE STEAMS

(With One Cylinder, not exceeding 10-Horse-power).

First prize, £25, Clayton, Shuttleworth and Co. Second of £15, Tuxford and Sons.

*Highly Commended*: Reading Iron Company; Brown and May.

*Commended*: Ruston, Proctor, and Co., Lincoln.

## THRASHING-MACHINES.

JUDGES.—J. Brañett, Hilboro' Lodge, Brandon.

H. B. Caldwell, Bath.

J. Coleman, Eserick, York.

T. Scott, Broom, Boro'bridge.

Portable Thrashing-machines, not exceeding 8 horse-power, which prepare for the Finishing Dressing-machine.—First prize, £20, Ransomes and Sims. Second of £12, E. Humphries, Pershore. Third of £8, Nalder and Nalder, Wantage.

Portable Thrashing-machines to be worked by horse-power not exceeding that of 4 horses. First Prize, £12, Wallis, Haslam and Stevens, Basingstoke. Second of £8, Tasker and Sons, Andover.

Thrashing and Finishing Machines.—First prize, £20, Holmes and Sons, Norwich. Second of £15, Clayton and Shuttleworth. Third of £5, Marshall and Sons, Gainsborough.

## CHIAFF-CUTTERS.

JUDGES.—J. Hickin, Dunchurch. }

J. Martin, Wainfleet, Boston. }

H. Cantrell, Bayliss Court, Slough. }

E. Wortley, Ridlington, Uppingham. }

Chaff-cutters by steam or horse-power.—First prize, £10, Richmond and Chandler, Salford. Second of £6, E. H. Bentall, Heybridge, Maldon. Third of £4, Picklesy, Sims and Co., Leigh.

*Highly Commended*: Carson and Toone, Warminster.

Chaff-cutters by hand-power.—First prize, £6, Richmond and Chandler. Second of £4, E. H. Bentall.

*Highly Commended*: Smith and Grace, Thrapston.

*Commended*: J. Cornes, Barbage, Nantwich; E. Page and Co., Bedford; and J. Cornes, for another Machine.

## CRUSHING-MILLS.

First prize of £8, Woods and Cocksedge, Stowmarket. Second of £7, E. R. and F. Turner, Ipswich. Third of £6, E. H. Bentall. Fourth of £4, E. R. and F. Turner.

*Commended*: Woods and Cocksedge.

## HAND DRESSING-MACHINES.

Corn-dressing Machines.—First Prize £12, Tasker and Sons. Second of £8, Corbett and Son, Wellington, Salop.

*Commended*: R. and J. Reeves, Westbury; and Ransomes and Sims.

## TURNIP-CUTTERS.

JUDGES.—As for Chaff-cutters.

First prize £10, Hornsby and Son, Grantham. Second of £5, Ransomes and Sims.

Turnip-pulper.—Prize of £5, Hornsby and Son.

Root-pulper by steam-power.—First prize, £6, Hornsby and Son. Second of £4, E. H. Bentall.

*Commended*: E. H. Bentall, for Turnip-cutter and Turnip-pulper; and Picketsley and Sims, for Turnip-pulper.

## OILCAKE-BREAKERS.

By Steam-power.—First prize, £10, Amies and Barford, Peterborough. Second of £5, E. H. Bentall.

By Hand-power.—Prize of £5, R. and R. Hunt, Earl's Colne, and Prize of £5, E. H. Bentall.

*Commended*: E. R. and F. Turner.

## CORN-SCREENS.

Prize of £10, Hornsby and Son.

*Commended*: R. Boby, Bury St. Edmunds; Penny and Co., Lincoln; and Ransomes and Sims.

## BARLEY HUMMELLERS.

Prize of £5, Holmes and Son.

## MILLS.

Grinding-mill with metal grinders by steam.—Prize of £20, Amies and Barford.

Grinding-mills.—First prize, £6, Smith and Grace. Second of £4, S. Corbett and Son.

Bone-mills.—First prize, £10, Beverley Iron and Waggon Company. Second of £6, Beverley Iron Company. Third of £4, Beverley Iron Company.

Stone-mills.—First prize, £9, E. R. and F. Turner. Second of £6, I. Tye and Co., Lincoln.

*Commended*: Ruston, Proctor and Co., for Stone Grinding-mill.

## IRON GATES.

Field-gates.—Prize of £10 to J. Braggins, Baubury.

## MISCELLANEOUS.

JUDGES.—J. Thompson, Badminton, Chippenham.

J. Wheatley, Neswick, Driffield.

Silver Medals to Woods and Cockledge, for horse-gear; Burney and Co., Poplar, for strong wrought-iron cattle-troughs and cisterns; Webb and Son, Stowmarket, for assortment of leather machine-bands; Warner and Son, Jewin-street, London, for chain-pump for liquid manure; Boby, Clarke and Co., Bury St. Edmunds, for draining tools and forks; A. B. Child, Oxford-street, London, for patent aspirator; Tangye Brothers and Holman, Laurence Pountney-lane, London, for four-inch double-suction pump; A. Wriuch, Ipswich, for assortment of garden spring-chairs, and collection; Musgrave Brothers, Belfast, for stable-fittings, cow-house fittings, and piggeries; and Clayton, Shuttleworth and Co., for adjusting blocks for fixing engines and thrashing-machines.

*Commended*: J. Baker, Wisbeach, for elastic rake; Hawkes and Spencer, Tiverton, for chain-drill; J. and F. Howard, Bedford, for hay-maker; Hornsby and Son, for improvements in mower; Burgess and Key, Newgate-street, London, for improvement in mower; Wilkinson and Son, Ely, for improved horse-hoe; Ransomes and Sims, for turn-wrest plough; J. Grant, Bankside, London, for portable railway and turntable; Ransomes and Sims, for guard for preventing accidents by drum or thrashing-machine; Ransomes and Sims, for law-mowers; J. D. Young, Clapham-road, for iron gate; F. Morton and Co., Liverpool, for iron gate; Bayliss and Jones, Wolverhampton, for iron gate; St. Pancras Iron Works Company, for iron gate.

## STEWARDS OF IMPLEMENTS:

Earl Cathcart, Thornton-le-Street, Thirsk.

Mr. Sanday, Holme Pierrepont, Nottingham.

Sir E. C. Kerrison, Bart.

## STEWART ELECT:

Sir A. K. Macdonald, Bart., Woolmer Lodge, Liphook, Hants.

## CONSULTING ENGINEERS:

Messrs. Easton, Amos, and Sons, Grove, Great Guildford-street, S.E.

## DIRECTOR OF THE SHOW:

Mr. B. T. Brandreth Gibbs, Half Moon-street, Piccadilly, London.

## THE IMPLEMENT TRIALS AND NOVELTIES.

A journey through good pastures and thin wheats, and lastly through a sharp thirsty country, landed us in Bury, embosomed in trees on a sloping site, and looking somewhat like Salisbury with a chalk soil around, and a taper spire, and a cluster of churches rising above the town itself. The Angel Hotel, with flags flying, and a couple of big mottoes about "Agricuture" and "Horticulture" mounted in front, did all it could in the way of accommodation; and the antique Abbey Gate on the other side the "Hill," or market place, the Botanic Gardens, the Abbot's Parlour, the Dove House, the Mural Bridge, the Abbey Wall, the Vineyard, the Ruins, the Norman Tower, St. James's Church, St. Mary's Church, Mary Tindor's Tomb, St. John's Church, and the Guildhall, in turn receive attention of a call; while the Royal Show-yard is a few hundred yards up East Gate-street. The Society has put on a new face, and built a new architectural front to its gathering-ground, that is a move in the right direction, well carried out by the contractor.

Following our nose, or rather our ear, we proceeded toward that quarter on the right where a loud humming told us that something was going on, and under a lofty shed we discovered Messrs. H. B. Caldwell, John Coleman, Thomas Scott, and James Brasnett at the arduous and dusty duty of putting steam thrashing-machines through trial. A couple of Burrell's engines were at work driving the machines, Mr. Amos Junior, superintending the rotary dynamometer, which registers the power applied. Each machine is allowed 100 sheaves of wheat, and if the first run be satisfactory, then a second turn is taken with barley; the state of the straw and other products being examined and judged of by hand and eye. The machines are classified thus: "Class A, portable thrashing-machines to be worked by horse-power, not exceeding that of four horses," has four entries for trial—Wallis and Haslam, Ransomes and Sims, Catchpool and Thompson, and Tasker. These were not likely to be touched by the judges before the close of the trial week. In "Class B, portable thrashing-machines, not exceeding eight-horse power, to be worked by steam, including any variety that does not profess to do more than prepare the corn for the finishing dressing-machine," the entries for trial are Boby, Marshall, Tuxford, Ruston, Humphries, Wallis and Haslam (not arrived), Turner, Davey and Co., Robey, Nalder, Burrell, Crowe, Holmes, Ransomes and Sims, Underhill, Tasker, Catchpool and Thompson, and Clayton and Shuttleworth. In "Class C, portable combined steam, thrashing and finishing machines," the entries for trial are Bar-tows and Carmichael, Marshall, Tuxford, Ruston and Proctor, Humphries, Riches and Watts, Clayton and Shuttleworth, Wallis and Haslam, Robey, Burrell, Holmes, Ransomes and Sims, Underhill, Turner, and Gibbons—in all thirty-six machines.

A little further on we found Messrs. John Hicken and James Martin testing root-cutters and pulpers for horse or steam power, the machines being driven through a registering dynamometer by one of Ruston and Proctor's eight-horse engines. And in the same neighbourhood were Messrs. Edward Wortley and H. Cantrell trying the same sort of machines for hand power.

The judges for "Miscellaneous awards" are Messrs. John Thompson and J. Wheatley.

Over the great steam-engine trials we expected to find a deal of interest apparent; but up to Wednesday night in the first week nothing was done beyond selecting engines, arranging preliminary points, testing some of the boilers by hydraulic pressure, testing the steam-gauges by one of Wilkins' five-horse portables, fixing the friction-brakes, and getting some of the fixed engines into position for trial. The "order of trial" posted up in the long shed was for "fixed engines" in this wise:—

1, Ransomes and Sims (by an error in the catalogue, for this firm never entered a fixed engine at all); 2, Kinsey; 3, Tuxford; 4, Davey and Co.; 5, Humphries; 6, Riches and Watts; 7, Wilkins; 8, The Reading Company; 9, Ruston and Proctor; 10, Deacon and Wood; 11, Robey; 12, Picksley and Sims; 13, Turner; 14, Whitmore; 15, Rawlings; 16, Richmond and Chandler; 17, Woods and Cocksedge; 18, Garrett (not arrived); 19, Clayton and Shuttleworth; 20, Holmes. "Portable engines (single cylinder), not exceeding 10 horse power," are ordered as follows: 1, Holmes; 2, Wallis and Haslam; 3, Savage; 4, Brown and May; 5, Clayton and Shuttleworth; 6, Burrell; 7, Riches and Watts; 8, Wilkins; 9, Wilson; 10, Tuxford; 11, Rawlings; 12, Gibbons; 13, Brown and Lock; 14, Aveling and Porter; 15, Williamson; 16, Oldham and Booth; 17, Tasker; 18, Barrows and Carmichael; 19, Ruston and Proctor; 20, Marshall; 21, Davey and Co.; 22, Underhill; 23, Fowler; 24, Garrett (not for competition); 25, Turner; 26, The Reading Company; 27, Ashby and Jeffery; 28, Marsden; 29, Whitmore; 30, Picksley and Sims; 31, Catchpool and Thompson; 32, Allehin; 33, Robey; 34, Ransomes and Sims; 35, Edlington; 36, (Blank); 37, Nalder. "Portable engines with two cylinders, above 10-horse power," were arranged for trial as follows: 1, Ruston and Proctor (not arrived); 2, Clayton and Shuttleworth; 3, Brown and May; 4, (Blank); 5, Tuxford; 6, The Reading Company; 7, Burrell; 8, Fowler; 9, Ransomes and Sims; 10, Robey; 11, Garrett (not for competition). These in all amount to sixty engines to be tested by the judges, Messrs. Gooch and Bramwell.

Everybody expected that, as the engines were to have been in position by 8 o'clock on the Tuesday, in accordance with the stipulations of the prize-sheet, and that as the public were admitted to the yard at noon on Wednesday to view the trials, a good beginning at any rate would be made on the Wednesday with some of them. However, the whole day passed away without any engine being run. Some of the friction-brakes were out of order, the Society's boiler had "a screw loose," and the upshot was that the first fixed engine started at a little before nine o'clock on Thursday; while the first two portables got to work about eleven o'clock. With such wonderful deliberation in the proceedings it was odd enough for the Stewards and Judges to stick up a notice to the effect that, "on the score of time," the second trials of portable engines would not be proceeded with until the whole of the first trials were terminated. Sixty engines at, say, three hours a-piece, and two running at once, looked like a job cut out for ten or twelve days; but on Friday many of the engines were scratched, leaving less than half to be put through the ordeal.

Tuxford and Sons have this year brought out a fixed 10-horse-power engine, which opened the performances with a run of 2 hours 21½ minutes, mechanical time.

The Reading Company's 10-horse-power fixed engine took the next turn, and ran 2 hours 26½ minutes mechanical time, the pressure of steam in all cases being 50lbs. on the square inch; but then this engine has a third valve, in addition to the usual second and expansion

valve; and towards the close of the run, when the fuel was exhausted and the pressure of steam began to sink, this valve came into play, admitting more steam, and so enabling the engine to run a few minutes longer than its rival.

Clayton and Shuttleworth's 15-horse-power double-cylinder portable started at about half-past ten on Thursday morning; but the brake proved out of order, and it was three o'clock in the afternoon before the real run began. This engine did wonderful duty—that is, 4 hours 42½ minutes, mechanical time; steam at a pressure of 80lbs. per square inch, the coal burnt being 14lbs. for each nominal horse-power. Up to Thursday night only three portable and three fixed engines had been tried.

The thrashing-machine judges got on well, indeed rather too briskly to suit some of the exhibitors. Following up the good day's work of Wednesday, they "did" two machines before breakfast on Thursday morning, and by the middle of the day had put all the steam machines through the preliminary trial, and had selected the following for final competition: Of "Preparers," the machines of Marshall, Humphries, Ransomes and Sims, Clayton and Shuttleworth, Burrell, Holmes, Wallis and Haslam, Nalder, and Robey; and of "Finishers," the machines of Marshall, Ransomes and Sims, Gibbons, Clayton and Shuttleworth, Holmes, and Tasker. It was observed that among those thrown out were several very bad machines, consuming an unreasonable amount of motive power; and the rotary elevator, which was all the rage at Worcester, has been in most cases abandoned for the old cup-elevator again. Sundry peculiarities of construction in the thrashing-machines of 1867 are worthy of attention. Clayton and Shuttleworth's machine has Goucher drum-beaters of rolled steel made by a machine patented for the purpose. The shaker consists of boxes, half of which are supported upon rocking-bars at the outer end, while the alternate half are supported upon rocking-bars at the inner end of the shaker, all being driven by cranks upon a cross shaft in the middle, so that in action the boxes cross each other like a letter  $\times$  laid on its side. The caving middle is of wood, perforated with round counter-sunk holes, placed so as not to track—that is, they are not in line. The chaff is blown into a hopper on the vibrating-board, and impinges against a perforated screen above, which permits the dust and air to pass through, while the chaff returns over a fine screen which allows seeds to drop through; the dressed chaff being then elevated by a sucking and blowing fan into spouts for bagging. Any light grains that may be blown along with the chaff are caught in a separate bag. The corn is carried up by a cup elevator into a barley awner, a self-regulating valve and weight always keeping in a sufficient charge to be well awned. Hence the corn falls upon riddles, acted upon by a small blast, and finally drops into a Penny's revolving adjustable screen, wires of differing thicknesses presenting apertures of different sizes, so as to separate the grain into samples of different quality.

Tuxford and Sons' machine has an improved form of the Goucher drum-beater. The shaker, of remarkably smooth yet perfect action, consists of four boxes mounted upon two shafts with 4-throw cranks, these being so placed as to render unnecessary the parallel connecting-rod used in very many machines. The caving riddle is of wood, with round holes, and these are countersunk eccentrically, so that short straws and ears glance over them without liability of dropping through. The chaff is blown through side spouts fixed to the vibrating board, these spouts being placed at an acute angle, so as to divert the chaff from its ordinary straight course into bags distended with hoops, which are hung on each side the machine, and alternately removed for emptying. A conical white-coater, formerly on the top of the machine,

is now placed below, considerably reducing the altitude of the whole. A special feature is that when thrashing barley a portion of the blast from the single fan is employed to blow up through the caving riddle, to separate and keep dancing the mass of cavings and awns, thus facilitating the passage of the grain through the holes. The corn is finally separated in a revolving screen made of small square steel bars, longitudinally arranged; and these can be set to form apertures of different degrees of fineness, by a very pretty and simple motion, while the screen is rotating. The whitecoats from the final dressing are returned upon the vibrating board, to find their way in the first dressing part and the conical white-coater.

Ruston and Proctor's machine has a Goucher drum, a five-box shaker, and a caving riddle of mahogany, the surface cross-grooved or fluted, and perforated with circular holes. The chaff blown out is raised by a small rotary elevator for bagging. All the corn and whitecoats are elevated together into a smutter; and this smutter, with a rotary elevator and a fan, are all on one transverse shaft; the corn, as it leaves the smutter, being tossed by the centrifugal elevator on to a screen, then acted upon by the blast, and lastly let fall into a revolving screen, in which the adjustment takes place by shifting the place of the screw-blade partitions.

Holmes' machine is built low and long. The drum is a Goucher, somewhat altered; the shake-boxes carry "edge-beaters," which improve the action by holding the weight of straw off the flat-surface of the boxes; the caving riddle is the common wood one, with counterwork holes; the dressing part is placed across the top of the machine; a cup elevator is used for the corn, and the chaff falls of its own accord into a bag.

Gibbons' machine has the dressing part arranged crosswise below the caving riddle and vibrating board, at the shaker end of the machine, which is thus very low and portable. Marshall's has a slightly altered Goucher drum; a 4-box shaker, with crank-shaft at the outer end, and spring hangers at the inner end; a perforated wood middle; the chaff is raised by a little fan through a spout to a bag at the side of the machine, being previously cleared by being blown up against a dust screen, and jogged back again over a dirt and seed screen. The corn passes by two riddles to a cup elevator, which conveys it to a barley-awner or smutter, and it then falls into a rotary Nalder screen. A peculiarity is that the "seconds" wheat or barley from this screen is ground in a small mill consisting of a single stone upon a horizontal axis.

Tasker's machine has Gouches beaters. The shaker is of 5-boxes, with crank at the outer end, and a semi-rotary shaft at the inner end, which by rocking-bars balances and tosses forward the boxes alternately; and as the shaft must have a slight swinging motion, it is hung in bearings attached to spring hangers. The caving-riddle is of wood, with cross flutes and round holes. A peculiarity is that one fan does all the blowing required throughout the machine; and this, without any rapid speed, is conducting the wind about in pipes and elbows. It chaffs in the ordinary manner—another part of the blast blowing the dust through a screen, and raising the chaff into a bag; while a third portion of the blast is led off from the back of the fan-casing to the finishing riddles. The caving-riddle is under the drum; and the finishing dressing-riddles are fixed to the other end of the vibrating board; being thus in a direct line for the action of the blast. The corn is raised to these riddles by a Bruckshaw rotary elevator, which is at the same time a barley-awner. After leaving the riddles, the corn is carried by a cup elevator to a

Ransomes' revolving screen at the drum end of the machine.

Ransomes and Sims' machine also presents some novel features. The "mouth" over the drum is surrounded by a safety feeding-hopper—a fence, in fact, to prevent any person from accidentally slipping in; while, should any one fall over the fence, a moveable grate or flap is designed to fall and shut the mouth at the same time, and this flap can always be folded down when the feeder leaves off working. The beaters are of malleable iron, somewhat resembling Goucher's; the shaker is entirely unlike any other, consisting as it does of a number of small revolving forked rollers arranged transversely up an incline, their action tossing the straw, and at the same time conveying the corn, chaff, and cavings down an immoveable sloping board to the caving riddle, which is under the drum. This riddle is of wood, fluted, and perforated with conical holes, largest underneath, the riddle having the merit also of sufficient length. A peculiarity is that before the chaff and grain are separated, the dust, dirt, and seeds of weeds are removed, this being effected by passing chaff and corn together over a finely perforated zinc riddle, and next on to a coarse screen, which lets the grain drop through, while a blast blowing upward through the screen keeps the chaff from passing too, and instead blows it into a chaff bag. Any light grains blown over fall upon another riddle. The corn is raised by a cup elevator to the finishing dressing apparatus, which is placed across the drum end of the machine, and here to avoid extra working parts, the fan consists of screw blades on an axis parallel with all the other rotary motions in the machine, the blast of course being impelled toward one side. The final separation is effected by a revolving screen, formed of two cylinders, the wires of one interspacing those of the other, so that the size of the apertures can be altered by moving the centres nearer together or closer apart.

Up to Saturday night no official decisions were arrived at. The whole of the steam thrashing machines were through; and the horse-powers were placed in position ready for action on Monday (this day), the plan of trial being to measure the horse-walk, and count the number of times round in doing a certain amount of work.

Root-pulpers, corn-crushers, oilcake-breakers, grinding mills, and chaff machines, have found laborious work for the judges, Messrs. Hicken and J. Martin, who took the class of machines for horse or steam-power, and Messrs. Wortley and Cantrell, who took those for hand-power. And here, again, so multitudinous are these articles for the barn and feeding-house, that only a few minutes' run could be allotted to each. A misunderstanding arose between exhibitors and judges, owing to an obscurity or an omission in the Society's prize-sheet. Naturally enough, the judges wanted mills to cut beans as well as mills to crush other corn, and took for granted that as these indispensable articles are not named in the prize-sheet, they were to be included among the "corn crushers." However, makers have taken the Society as meaning what it said and no more; and we shall therefore have no official opinion as to the best mill for bean-splitting. One of the wonderful things at the Show is a mill which grinds by the sheer force of velocity—a number of flat steel arms revolving at a very high speed dash the grain against a ribbed cone, and so break up the grain into meal. At least such appears to be the action; but the mill did not come on for trial on Saturday.

The following is a list of the steam-engines tried up to Saturday night. The fixed engines were those of Tuxford, the Reading Company, Rawlings, Kinsey, Deacon and Wood, and Clayton and Shuttleworth. The Lincoln

engine made the most duty, running 3 hours 9 minutes. This completed the testing of the class; but the award of prizes was not made known. All the double-cylinder portables were put through a first trial, working at 80lbs. and working the steam expansively. The figures came out as follows:—Clayton and Shuttleworth, 4 hours 42½ minutes; Brown and May, 3 hours 18½ minutes; Ransomes and Sims, 3 hours 43 minutes; Tuxford and Sons, 3 hours 28 minutes. Clayton and Shuttleworth and Tuxfords made use of separate water-heaters; Ransomes' engine has a copper water-heater in the smoke-box; Brown and May's differs from the others in having no separate expansion valve. Of the single-cylinder portables, worked with 50lbs. of steam per square inch, the following were tried up to Saturday night:—Holmes, 2 hours 43¾ minutes; Clayton and Shuttleworth, 4 hours 29 minutes; Brown and May, 2 hours 48¾ minutes; the Reading Company, 3 hours 10½ minutes; Savage (a traction engine tried before a decision had been come to not to admit this class of engines); Burrell; Wallis and Haslam (trial interrupted, to be repeated on Monday); Wilkins; Barrows and Carmichael; Riches and Watts; Turner, Gibbons, Ruston and Proctor, Marshall, Underhill, Catchpool and Thompson (interrupted, to be repeated on Monday); and the engines of Tuxford, Ransomes and Sims, Nalder, and Allechin have also to be run on Monday (this day). It is clear that to give all these engines another turn at the brakes must occupy some days; nevertheless, a meeting of the exhibitors, convened by the stewards at 5 o'clock on Saturday, decided to keep on. Difference of opinion existed as to whether the first trials should not be held final, and an early announcement of the prizes be available, as a help to business; but the sensible course has been pursued, and after four years' intermission of these engine tests, we are to have trials thoroughly carried through. One of the judges being compelled to leave for other duties, a substitute has to be found; but who it is we cannot yet say.

Steam-ploughs are to be at work in fields conveniently situated. Fowler's programme is, for Monday 12 to 3 o'clock, performance of a new double-drum engine and anchorage; Tuesday, 10 to 3 o'clock, the same engine worked on the stationary principle; Wednesday, 10 to 3 o'clock, two engines working a 12-feet wide cultivator, or 6-furrow plough, harrows, and other implements; Thursday, 10 to 3 o'clock, two double-drum engines working two implements at once. This to be on the Greene's farm, up Westgate-road.

Howard's steam-ploughing and cultivating, both with the ordinary set ploughing, cultivating, and harrowing, and also with the new traction-engines, working two implements at once, will be closer at hand, in Mr. Guy's fields near the Show-yard.

The splendid weather of the first three days gave way to a storm on Saturday, followed by renewed thunder, heavy rain, and big hail in the middle of Sunday; this cleared the close hot atmosphere, and moistened the Show-ground.

To say that we had carefully searched through the two hundred and eighty-two stands, most of them very extensive indeed, and crowded with articles of which few are duplicates—to affirm that we had examined the 4,804 pieces of mechanism, tools, articles, and collections of seeds, and specimen produce, with a view of discovering all the novelties in invention, improvements in construction, and so on, furnished by the two hundred and fifty-one exhibitors at Bury, would be simply stating what none of our readers would credit. In fact, the show of implements has become so vast and unwieldy, as far as inspection and description are concerned, that no classified and comprehensive report can be reasonably expected either by the public or by the exhibitors; and all that we can do is just to

offer a few notes on those particular objects that we chanced to pitch upon under the Society's gridiron-plan collection of sheds, or stationed about the huge open show-ground.

The first thing we picked up was a bit of information concerning the trials, not given in our last week's account. Of the single-cylinder portable engines, Clayton and Shuttleworth's ran longest, namely, 4 hours 29 minutes, mechanical time; Tuxford and Son's ran 3 hours 56 minutes, and Ransomes and Sims' ran 3 hours 4½ minutes. The horse-power thrashing machines were tested by means of a band-rigger on the drum axis, driven by a belt from a steam engine, and the horse-works being connected in the usual manner, but being driven round instead of themselves employed to drive. A hundred sheaves of wheat were put through the machines with the following results in time and power:—Turner and Fardon, 4½ minutes, power number on the dynamometer 137.1; Tasker, 18½ minutes, power number 143.1; Ransomes and Sims, 14¾ minutes, power number 135.5; Wallis and Haslam, 12½ minutes, power number 90.8. The power turnip pulpers were tried with one to two hundredweights of globe mangel to each machine, the quantity being arbitrary, according to the size of the machine, and the exhibitors "fed" as they liked. The hand-power machines were allowed one hundredweight of roots to a "slicer," and half a hundredweight of roots to a pulper. The hand-power oilcake breakers were tried with 14 lbs. broken coarse, and 14 lbs. broken fine. The corn-dressing machines were tested with two bushels of mixed corn and chaff, from the thrashing machine trials. The metal crushing-mills for steam power were tried with 25 lbs. of linseed and 84 lbs. of oats to each machine. The judges put 56 lbs. of beans to some machines; but this was discontinued when it was found that bean cutting does not appear in the Society's prize sheet. The metal grinding-mills for power gave results as follows:—

	4 bush. Barley.		4 bush. Maize.	
	min.	sec.	min.	sec.
Amies & Barford's American Mill	3	5	...	2 15
Riches and Watt's American Mill	4	17	...	3 50
Turner and Fardon	5	48	...	2 0
Hunt and Pickering	5	0	...	8 42
Corbett	11	10	...	8 20

Power chaffcutters were tried with 56lbs. of straw to each machine, and to prove that the length of cut was 3-8ths of an inch, as prescribed by the conditions, strips of hat-box (or "band-box") were put through; the selected machines being afterwards tried with 70lbs. of hay a-piece.

The cwt's. of straw were cut by the several machines in the following time:

	min.	sec.
Bentall	2	20
Warren	2	30
Richmond and Chandler	2	35
Cornes	2	56
Picksley and Sims	3	20
Carson and Toome	4	13
Page	4	40
Ashby and Jeffery	5	13
Amies and Barford	5	25
Hunt and Pickering	5	55
Alloock	7	0
Holmes	failed.	
Millard	failed.	

In the after-trial, cutting 70lbs. of hay occupied Bentall 49 seconds, and Richmond and Chandler 64 seconds.

Before leaving this subject of the trials, we may mention certain complaints that we overheard from sundry competitors. "Is it fair," they said, "that though all sorts of implements and machines take turns in coming up to the Society's triennial 'scratch,' the personality



of the umpires remains so very nearly the same?" The agent of one exhibitor declared his unwillingness to submit his productions, whether field implements or feeding-house machines, year after year to the same individual; which is, in fact, having the mechanical and agricultural world ruled and guided for years by the opinion of one or two men, instead of by the combined judgment of a sufficient jury. Other persons threw out hints in a significant manner as to the impropriety of having judges who might be at the same time commission agents of some of the makers. Possibly the Council chooses a good many old judges, although it had a longish list to select from, because it knew them to be sound and trustworthy men, and complaints of the inefficiency of novices would not sound well. But it is worth while considering whether a change could not be made for the better in the treatment of the patriotic persons who devote

so much time and labour to the public service; and when we get trials lasting more than a few minutes for each machine, we should also have honours and distinctions making it worth while for our most eminent men to take office, and fulfil the laborious and responsible duties of a judge.

One anomaly about the trials is that, though the portable steam-engines were run twice, that is, first with the usual load on the brake, and then with this resistance increased 50 per cent., no separate statement of the results has been issued. We ought to have the first "runs" and the second "runs" clearly stated in separate tabular forms; but instead of this simple and straightforward procedure being adopted, the official information gives us the "mean" of the two "runs," a muddling together of experiments that we can neither understand nor appreciate. The following are the Society's figures:—

SINGLE-CYLINDER PORTABLE STEAM-ENGINES.

Names of Exhibitors.	No. of Stand.	No. of Article in Ctlg.	Horse-Power of Engine.	Getting up Steam.		Coal Burnt per Hour in Lbs.	Coal Burnt per Horse-power.	Price.	Remarks.
				Time tkn. in Getting up Steam.	Fuel Burnt in Getting up Steam.				
					Coal Lbs.	Wood Lbs.		£.	
Holmes and Sons.....	146	3472	8.55	All these Engines required about One Hour to get up Steam.	41	8	50.67	5.92	225
Burrell, C. ....	134	3063	8.10		36	8	68.24	8.42	250
Clayton and Shuttleworth	256	4733	8.10		44½	8	28.02	3.45	220
Brown and May .....	257	4747	8.10		36½	8	45.12	5.56	210
Barrow and Carmichael ...	242	4613	7.20		41	8	48.12	6.68	195
Reading Iron Works Com.	114	2507	10.00		48	8	41.23	4.12	240
Ruston, Proctor, and Co....	250	4676	9.50		35	8	61.78	6.50	210
Marshall, Sons, and Co....	244	4621	7.80		48	8	47.10	6.03	230
Underhill, W. S.....	170	4092	6.40		43	8	67.03	10.47	180
Ransomes and Sims.....	150	3555	10.00		44½	8	49.48	4.94	260
Allelin and Son .....	270	4780	8.10		40	8	41.64	5.14	215
Nalder and Nalder .....	272	4787	6.40		33	8	54.82	8.56	195
Tuxford and Sons .....	247	4639	8.10	52½	8	31.57	3.89	220	

JOHN GOOCH,  
F. J. BRAMWELL,  
JAS. EASTON.

DOUBLE-CYLINDER PORTABLE STEAM-ENGINES.

Names of Exhibitors.	No. of Stand.	No. of Article in Ctlg.	Horse-Power of Engine.	Getting Up Steam.		Coal Burnt per Hour in Lbs.	Coal Burnt per Horse-power.	Price.	Remarks.
				Time tkn. in Getting up Steam.	Fuel Burnt in Getting up Steam.				
					Coal Lbs.	Wood Lbs.		£.	
Clayton and Shuttleworth.	256	4732	15.12	All these Engines required about One Hour to get up Steam.	55½	8	55.98	3.70	310
Brown and May .....	257	4746	12.50		67	8	66.07	5.28	260
Ransomes and Sims.....	150	3553	15.12		73	8	63.52	4.20	350
Tuxford and Sons .....	247	4641	14.22		78	8	61.55	4.32	355

JOHN GOOCH,  
F. J. BRAMWELL,  
JAS. EASTON.

FIXED STEAM-ENGINES.

Names of Exhibitors.	No. of Stand.	No. of Article.	Horse-power of Engine.	Coal Burnt per Hour in Lbs.	Coal Burnt per Horse-power in Lbs.	Price.	Remarks.
Tuxford and Sons .....	247	4645	10	59.32	5.93	£250 0	2nd prize £10.
Reading Iron Works Company ...	114	2505	10	60.34	6.03	230 0	Highly commnd.
Rawlings, J. J. ....	266	4766	8	62.92	7.86	100 0	Commended.
Kinsey, H. ....	261	4758	10	79.09	7.90	107 10	Commended.
Deacon and Wood .....	231	4597	8	51.37	6.42	50 0	Commended.
Clayton and Shuttleworth .....	256	4731	10	44.44	4.44	240 0	1st prize £20.

JOHN GOOCH,  
F. J. BRAMWELL,  
JAS. EASTON.

Among the novelties that drew our attention was, of course, Blake's patent stone-breaker and ore-crushing machine, exhibited by Marsden, of Leeds. A vertically suspended jaw, having angular indentations in its face, is forced against a similar but fixed jaw, by means of an elbow-joint leverage like that of a printing-press, worked by a connecting-rod from an eccentric or a fly-wheel shaft. As the two jaws form a hopper, widest at the top, a stone thrown in between them is cracked smaller and smaller until it finally drops out in minute pieces and dust, which are separated by a rotating screen. With only 3-horse power applied, a machine with a vibrating jaw 10 inches long by 7 inches wide is declared to break up Macadam road metal for 3d. per ton, no matter how hard the stone may be; and it is able to crush 40 tons of granite in a day. It will crush quartz, and is used for making concrete and asphalt; and the ease and rapidity with which it "chewed up" big or little flints in the showyard were wonderful.

On one of Ruston and Proctor's portable engines we saw a pretty and valuable contrivance, consisting of a "variable eccentric," which can be easily adjusted so as to cut off steam at any point of the stroke, and yet preserve "the lead of the slide-valve constant," the advantage being that, without any additional parts, link motion, or separate valve, the steam can be worked expansively or not, just as desired, and an eight or ten-horse engine be employed, when wanted, in one or two-horse work, without waste of fuel.

Tuxford & Sons, whose new thrashing-machine we alluded to last week, have brought out a new straw-carrier, on the very simplest and best principle we have yet seen, conveying the straw to any distance or any reasonable altitude, with a perfect safeguard against wind, and this peculiar advantage, that it raises itself as the straw stack grows in height, without any stoppage or refixing—a perfectly automatic machine, that will be as valuable as it is ingenious.

We remember having seen, in the spring of 1842, a steam thrashing machine, made by the Tuxfords, in which a thrashing drum was mounted upon the carriage frame of a 5-horse power portable engine, the weight of the whole being 3½ tons. At the present meeting, a curiosity is a literally "combined" steam thrashing machine, made by D. Crowe, of Gaywood, near Lynn. It looks like a thrashing machine, with big travelling wheels towards one end, and a pair of steering-wheels at the other end—able to turn completely round underneath the machine—for going round sharp corners; and the boiler, and, indeed, the whole working parts of the engine too, are so inserted into one end of the wooden "barn-work," and underneath it, that one could scarcely believe a 7-horse engine to be there enclosed, were it not for the lofty and slender chimney rising from behind the feeder's box. The weight is 7 tons 1 cwt. There are several clever points about the machine. The belt from the engine flywheel drives a rigger on the vibrating-board crank-shaft; another belt from this driving the drum; so that, by riggers of different sizes, the drum can be driven at different speeds, according to the condition of the corn, without altering the speed, and so disarranging the action of the dressing-part. One strap drives both dressing-part and shakers, and a V groove friction-wheel motion is employed to drive the fan. All the driving-straps are under cover, so that wind or rain does not hinder working. The machine can remove itself from one corn stack to another in five minutes, a most important consideration to everybody who knows by experience the fearful waste of time which always occurs in shifting and placing an engine and machine in a rick-yard, to say nothing of the bother and expense of breaking off the operations of the teams for the purpose. This machine travelled along the high road

from Toweester, in Northamptonshire, to Bury St. Edmund's, a distance of 84 miles; consuming, it is stated, 16lbs. of coal per mile. It obtained the Norfolk Agricultural Society's prize medal at Fakenham last month. The selling price appears to be fixed much too low; but then, in construction and especially in the traction-wheel gearing, it is excessively light, and, if the principle be worth anything, the machine should be put together in a first-class style of workmanship likely to last.

Amies and Barford exhibited a new straw-elevator, constructed with fewer working parts than any we have yet seen; and, on turning the crank-handle, we found the motion so easy that we are quite sure a man would rather work it than carry fork-loads up a ladder. Of course it is fitted with a rigger, for attachment to a thrashing-machine; but it is always being purchased in considerable numbers for lifting hay, barley, and so forth, up the stack. The maker affirms that the smallness of the separate portions of straw or hay, and the rapidity with which they are carried up by the ascending rakes (for the straw does not wait to go up in bunches), enable them to evade the force of the wind; and a couple of light rods at the upper part of the elevator, lying upon the straw, are sufficient to hold it down before delivered on the stack. The Peterborough firm have also applied a neat chaff-carrier to a chaff-cutter; a little fan below the knife-wheel blows the chaff along a pipe; and they tell us that one of these contrivances is at work for a well-known Yorkshire farmer, delivering chaff in a storehouse no less than sixty feet from the cutter.

Hornsby's rotary corn-screen is a very pretty invention. The wires (in ring form round the cylinder) are attached to inner wires, which have a spiral direction, and by drawing out or closing up one end of the cylinder, the wires open out or close up, altering the size of the apertures, while strictly preserving equality of distance between the wires throughout the length of the screen, or rather throughout certain sections of the length of the screen. The spiral wires inside tend to stir up and to assist the passage of the grain from end to end, and the freedom of the exterior from protuberances enables a wire brush to perfectly clear the interstices of wedged grain. The weak point in the screen, as at present constructed, is in the fastenings, the ring wires being bound to the spiral rib wires by pieces of thin wire, which will probably soon wear out.

Ransomes and Sims' water-heater in the smoke-box of their portable engine is what many persons were anxious to see; but we did not chance to be present when the padlock was off the smoke-box door. Two copper pipes between two pumps, worked by a forked connecting-rod from one eccentric, convey cold water to the heater and hot water away from it; a jet of the exhaust steam being so employed that the pump takes water at fully boiling-point temperature, and injects it into the boiler, while the heating leaves sufficient draught in the chimney to draw up a bright fire and make any reasonable quantity of steam. Ransomes' new grinding-mill is also worthy of attention. It has three-feet French burr stones; the under one moving, the upper one fixed; the speciality of construction being that, instead of leaving the upper stone to grind by the pressure of its weight, the bottom stone is pressed upwards by a nicely-contrived wheel and screw motion, the stones being employed merely for the sake of obtaining the best grinding surface. Driven at a speed of 250 to 300 revolutions per minute, the mill grinds 28 or 30 bushels of barley into the softest meal, and not over-heated, because the velocity and the peculiarity of "the draught" has the effect of drawing in a current of air which keeps it cool.

Whitmore and Son have adopted an apparently most sensible arrangement for driving mills; for they have, so

to speak, laid a horizontal fixed-engine "on its side;" so that the crank-shaft is vertical, and belts from the broad fly-wheel just drive directly the riggers on the upright spindles of the mill-stones without any of the heavy toothed gearing usually seen. The saving of friction and power must be great.

One of the prettiest inventions we have seen is the new self-raking reaper, now shown for the first time, by Messrs. Howard. We do not mean the one-horse sheaf-delivery machine, in which a rake revolves with a "shillelagh" motion, but the Anglo-American combined reaper and mower. The "March" self-rake is a surprisingly simple contrivance, yet quite novel in idea, doing away with the cumbrous parts commonly seen in self-rakers, and taking up the least possible amount of room. How it may work in the field, of course, we had no opportunity of proving at Bury. Of the apparatus for steam-tillage which we saw among many splendidly got-up implements on the Bedford stand, and of the steam performances in the field, space forbids us to speak in the present report. For the same reason we must postpone any account of Mr. Fowler's new machinery and its steam-plough and cultivating in the field: whilst drawings exhibited by Mr. Phillips Smith, of Hereford, elucidating a novel system of steam-culture, must also remain to be noticed at a future time.

A singular apparatus is Creasy's "drying or desiccating" machine—a large revolving cylinder, with hot air from a stove passing through, to dry malt and brewers' grains, and fitted internally with blades for polishing corn and giving it a bright colour.

Davey, Paxman, and Davey have fitted a steam-jacket round a barley-hummeller; a pipe leading steam from the boiler of the engine, which drives the thrashing-machine, and at the same time they pass a current of hot air through the centre of the hummeller, from a stove. The judges moistened three bushels of corn with three gallons of water, letting it soak all night, and the machine turned out this grain dry and hot. In practice, of course, the corn has to be spread out on a floor to cool before being bagged.

We are much mistaken if Gooday's "multiple needle" thatch-making machine is not likely to be of great service. It is an advance upon the machine formerly exhibited by Maggs and Hindley, as it works with a lock-stitch; and celerity of execution is not of such importance as permanence of the thatch when woven together.

THE GENERAL MEETING OF THE MEMBERS

Was held at ten o'clock on the Friday morning, on the Show-ground; Mr. H. S. Thompson, President of the Society, in the chair. There were about twenty others present, including members of the Council, the Editor, Director, and Secretary.

The PRESIDENT said: The authorities of the town and the neighbours around Bury set themselves to work, and have done everything that could be done. They have shown us every hospitality—they have spared neither their time nor their purses in striving to make this Meeting worthy of the great county of Suffolk. As to the result of this Meeting, there are some very favourable features, and some that, as far as our exchequer is concerned, are not quite so favourable; but looking at the Show itself, I may say that so far as implements are concerned, it is the largest and best show that the Society has ever collected, and I believe the largest and best that ever was collected. There have been some little difficulties in carrying out the trials because of the large increase in the number of implements exhibited in certain classes, in consequence of the length of time that has elapsed since those classes were tried before. In steam engines especially, the number was so large that it has been extremely difficult—and has involved great labour—to carry through the trials before the end of this meeting. In that case it was impossible to do more, because the whole of the implements in that class

must be tried by the same set of judges. If it had been possible to divide these labours by appointing additional judges, of course it would have been; but, like a jury hearing a case, the whole of the evidence must go before the same men: we therefore found that they must work through, and they did work through most gallantly. Upon another occasion an alteration must be made, in order to have more time given for the trial of such an important class of implements, which have so much increased of late, the use of steam in agricultural pursuits having extended so much in other operations besides thrashing. With reference to the horses, sheep, and pigs, we have had a very creditable show; and though the number of visitors who have been admitted has not been so large as we have had when we have met in the neighbourhood of large manufacturing towns, I can say, from having watched very closely the way in which those visitors seemed to examine the implements and the stock, and the great interest that they took in the whole, that I never saw a more intelligent gathering of visitors, or any who were more likely to profit by what they saw, than we have had at Bury. I now have very great pleasure in moving the best thanks of the meeting to the Mayor and to the local authorities, including the local committee of Bury, and also to the railway authorities. Mr. Thompson concluded by formally proposing the vote of thanks.

Earl CATHCART seconded the resolution. The PRESIDENT having inquired whether any member had any suggestion to make,

Mr. T. WILSON (Rugby) suggested that the general meeting of the members should in future be held earlier in the week; for, having free admission, they generally attended early in the meeting, and seldom remained to the close.

The PRESIDENT said that was a question that might be considered by the Council, and they would have also the opinion of the local committee in the place where the meeting was to be held.

Mr. APHORPE said he wished to suggest the desirability of altering the prizes, or putting in another in the horse department. They now gave a prize for the best roadster, and it was a question whether it would not be better to alter that, or to add another prize for the best hack. He alluded to the sort of animal that was generally shown, and was considered a gentleman's or a lady's hack.

The PRESIDENT said this suggestion also should be submitted to the Council for their consideration.

The meeting closed with the usual vote of thanks to the Chairman.

THE ATTENDANCE AND RECEIPTS AT THE BURY ST. EDMUND'S MEETING OF THE ROYAL AGRICULTURAL SOCIETY.—The following statements give the numbers and totals at the Plymouth meeting in 1865, and of the Bury meeting in 1867:—

	BURY ST. EDMUND'S				PLYMOUTH.			
	No.	£	s.	d.	No.	£	s.	d.
Monday (5s.) .....	910	227	15	0	1063	265	16	0
Tuesday (2s. 6d.)...	4465	557	11	0	4767	595	11	0
Wednesday (2s. 6d.)	7886	985	8	6	17269	2159	0	0
Thursday (1s.).....	33126	1657	15	0	42943	2147	14	10
Friday (1s.) .....	15113	752	8	0	21869	1099	12	0

This gives a balance on the week, against Bury St. Edmund's, of more than £2,000! This is as near as possible, although the attendances on the last day do not quite tally with the receipts.

PRIZES FOR LABOURERS' COTTAGES.

Premiums for plans and models of labourers' cottages were offered by the Suffolk Agricultural Association, and the following is the report of the committee:—"The Committee report that there have been 63 plans sent in for competition, and the cost of carrying out each according to the designers' estimates varies from £106 to £338. Upon this point the Committee would remark that having been assisted by practical

builders, they have ascertained that in many cases the estimated cost is far below what the actual outlay would be in erecting the same. The Committee, after a close investigation, have unanimously arrived at the conclusion that the plan bearing the motto "Suitability," and costing £170 3s. 8d., should have the first prize of £25; and that the second prize of £15 should be awarded to the plan bearing the motto "Level," and costing £190 5s. The former the Committee consider would be improved by continuing the roof so as to form gable ends; also by placing fire-places where the dressers are, in each of the sculleries, instead of that in the bakery. In both plans more shedding outside is desirable. In the second-prize plan a pair more rafters at each end are required, and sliding casements would be preferable; a fire-place is wanted in the scullery; also a window in the pantries, for ventilation. The committee, in coming to their decisions, have kept in view the three main points—viz., lowness of cost, durability, and efficiency—laid down in the schedule of prizes issued to intending competitors. Beyond awarding the prizes they have refrained from commending any plans in particular, although there are many highly deserving of it. In the publicity given to the plans by their exhibition at the Royal Show, they are confident that the public will duly appreciate the skill and exertions of the exhibitors. In conclusion, they would suggest that some of the best plans be published. Signed, W. Biddell (chairman), E. Greene, S. Newman, H. T. Turner, G. H. Nunn, K. Cooper, L. Jackman."

The following is the award: 1st prize of £25, Messrs. Conder and Laslett, 1, Park-lane West, London; 2nd prize of £15, T. Shaw, 29, Bridge-street, Birkenhead.

### THE CIRENCESTER AGRICULTURAL COLLEGE CLUB.

The annual dinner of the former Professors and pupils of the Cirencester Agricultural College, now constituting the College Club, was held on the Wednesday evening, in the Royal Show week, at the Angel Hotel, Bury St. Edmunds. Dr. Voeleker, in the chair.

The CHAIRMAN proposed in succession the toasts of "Her Majesty the Queen," and "The Prince and Princess of Wales and the rest of the royal family."

Mr. CAULDWELL then gave prosperity to the Cirencester College, and the health of Professor Wrightson, who said that he was very pleased to have to return thanks on behalf of the College, more especially as he had been there as a student as well as a teacher. As a former student he might be, perhaps, allowed to speak with pride of the institution and of the advantages which he there enjoyed, though as a teacher he felt some diffidence in speaking its praises. He, as well as others present, owed very much to the instruction imparted by the Chairman and others who had been formerly Professors there. He trusted that the same high standard of education which prevailed during their term of office might still be preserved, although it was difficult to maintain the standard established by such able men (applause).

Mr. TORR gave the health of the Chairman, who having duly responded, proposed, in a highly eulogistic speech, the health of Professor Coleman, the Secretary of the College Club, and expressed a hope that that gentleman would not resign his office, as he had intimated he must do, for the Club could not afford to lose his services.

Mr. COLEMAN, in reply to the compliment, said that he must carry out his intention of resigning unless the members of the Club would give him more support. The Club had two great objects in view; one was the promotion of a social and sympathetic influence, and the other was the extension of scientific knowledge. It was his desire to see the Society prosperous, and the intention which he announced was in no way due to any abatement of his interest in the Club.

### LORD KINNAIRD ON THE GAME-LAWS.

DEAR MR. MONCREIFFE,—I observe that you have got a committee appointed, to which Lord Elcho's and Mr. Fordyce's Game Bills have been referred, and hope that the committee will come to the conclusion that there is no use "cobbling at the Game-laws," as no amendment will satisfy those tenants who complain of them without at the same time giving encouragement to those gangs of poachers which exist in all the towns, and are well known to the police.

The only course to adopt, as it appears to me, would be to abolish the Game-laws altogether, and make game property. Mr. Fordyce's bill is so contradictory in its provisions that it would be unworkable. Clause 3, for instance, declares hares and rabbits to be vermin (so considered by many already), while clause 6 makes the proprietor liable for damage by such vermin. Why not then also by wood pigeons, rats, and such like, destructive to crops? Clause 7, again, makes an exception where shootings are at present let, in which case hares and rabbits are not vermin; but why should they in any case be vermin in Scotland and not in England? The declaring them to be so would, after all, be only abolishing the Game-laws by a side wind, as no one in his senses would think of keeping up a staff of keepers to look after a few pheasants and partridges, when every vagabond could trespass with impunity.

I have heard it proposed that a more stringent trespass law should be enacted, placing the unfortunate tourists, artists, the seekers of fresh air in the country, the botanists, and geologists, in the same category as the poacher.

But even if hares and rabbits are declared to be vermin, and the farmers, notwithstanding their leases, allowed to destroy these, which but for their leases they can do at present, they could not in many cases protect themselves, unless they had the liberty to enter the woods and plantations for the purpose; and even then, as I find, it is a very difficult matter, though I keep men for the express object. Moreover, the county police would have to be doubled, as I know from experience. I at one time gave up preserving, discharging all my keepers, except one to supply the house, and I continued to do so for two years, but resumed it at the request of several of my tenants, and one of the reasons they assigned was the losses they sustained by trespassers, damage to their fences, and the clearing out of their poultry-yards, in which particular I also was a sufferer. Before this I preserved largely, but then I paid damages when crops were injured, and I could state many gratifying instances of the good feeling which existed on the part of my tenants with regard to game. The instructions to my keepers *now are*—Let me have no complaints, and the tenants may have game when they require it: they are, moreover, asked to join the shooting parties. As I myself farm largely, I can quite understand how disheartening it is to a farmer, after all the expense, trouble, and anxiety incurred in raising his crops, to see them destroyed. And yet is it not strange that the great preserving landlords, with the most stringent clauses in their leases, to the extent of preventing the tenant from carrying a gun, and providing that, whatever legislative acts may pass, the provisions of the lease with regard to the game are not to be affected, get as many offers for their farms as the moderate or non-preserving landlords?

I again repeat that I hope the committee will come to the conclusion that the Game-laws should be abolished; and if game is made property, it becomes a mere matter of arrangement between landlord and tenant. If the shootings are let, or any excessive quantity of game kept up, the tenant should be entitled to payment for feeding them; and it would be desirable if some equitable plan could be devised to ascertain the latter point, though I see the difficulty—as, in the case of bad farming, or in seasons like the present, when the grub and wireworm are prevalent, the blame will often be thrown on the game. The increase during the leases is also a difficult question to ascertain. I do not believe that, generally speaking, the farmers of Scotland would wish encouragement to be given to poachers, or game entirely to be cleared off, though it is natural they should wish to see it kept in moderation.

KINNAIRD.

June 24, 1867.

## CALENDAR OF AGRICULTURE.

This is the general month over three-fourths of the kingdom—in the northern parts the next month is the busy time—for securing the crops. Cut all grains full ten days before a dead ripeness has taken place, and before the green has been wholly changed: the straw will be more juicy, and the flour be whiter and more doughy, than in the condition of a flinty hardness with a brown colour. Wheat is cut by hand-sickle or by machinery, tied into sheaves, placed in shocks of twelve sheaves, and, when dried by sun and wind, the crop is built into ricks or lodged in barns. Barley and oats are cut by sickle or by the scythe, tied into sheaves after some days' exposure, carried and built into ricks, or placed in mows under a roof. Peas are cut by hand-sickle, and laid into small heaps, which are turned over at times to dry the under-side. In fine weather exert every activity in securing the crops by the unsparing use of labour and allowance to the agents of work—a true economy adapts the means to the end.

The expense and trouble of thatching ricks of hay and grain, and the risk of damage from heavy rains to the ricks before being covered, will soon be removed by the entire farmery being roofed over like the terminus of a railway, or by the ricks standing in two rows alongside a railway, and protected by a roof of corrugated iron supported by cast-iron pillars. A light iron waggon conveys the sheaves of unthrashed grain along the railway to the end of the thrashing barn, where a travelling carrier raises the sheaves to the third floor of the scutching machinery, and the grain falls to the ground floor in a dressed condition, to be measured for the market. The grain is separated from the straw and chaff on the third or upper floor, is riddled on the middle floor, and fitted for use on the ground floor. These improvements will be adopted after the usual delay and constant repetition.

In late climates the sheaves of grain crops must be made small in size, and are very beneficially built into small ricks of three or four shocks in the field, to stand there till sufficiently dry to be carried.

Root crops are thoroughly cleaned of weeds by scuffling and hoeing, continued so long as any weeds appear, and till the intervals of the drills are fallowed into a clean pulverization. Earth-up potatoes by a deep furrow of the double mould-board plough, drawn by two horses walking abreast in distant furrows, with a maintree of five feet stretching between them. Repeat the operation in ten or fourteen days, and pull by hand any weeds that may afterwards arise.

Lay pulverized lime on clay fallows; harrow or plough it into the land lightly, or scatter the cinders on the surface of the land, and plough them under, when the moisture will burst the body into powder, and the subsequent ploughings and har-

rowings will mix the lime and the soil. The evolution of caloric from cinders will confer much benefit to the land from the damp exhalations, and raise the temperature of the ground to promote vegetation.

Lay farm-yard dung on wheat fallows, spread it evenly over the surface, and plough it under without delay; or drill the land with one furrow of the common plough, spread the dung along the furrows, cover it by splitting and reversing the drills by one furrow. A cross harrowing may be necessary to level the drills for the land to be seed-furrowed. A plough in going out opens a drill, and in returning covers a drill over the dung, quicker done than by ploughing, and covers the dung more completely from exposure. But the loss from evaporation is doubtful, if not wholly overturned, as fresh dung only half-covered in the land is best for wheat, to decompose on the surface among the roots of the plants. This fact is fully established. A better application of the dung may be made to the young wheats in March as a top-dressing, in a condition of fresh faeces mixed with straws cut into short lengths, carried from the cattle-yards to the field by steam carriages on moveable railways. The time is not very distant when the carriage-work of the farm will be performed by steam and rail.

Supply to horses and cattle, or cows in the yards, ample stores of vetches, which will now be very full of seeded pods. Provide litter in abundance—the manure produced will be large in quantity to pay all cost.

Fold sheep on bare spots of thin pastures; go on with draining; burn into ashes for manure by drill all vegetable, earthy, and peat substances; keep the liquid tank filled with vegetable earths and all refuse matters, to be saturated with urinary excrements.

Keep the draft ewes on good pasture, in order to get them fattened. Put ewes to the ram for early lambs. The lambs of the year must have a good maintenance. The draft ewes and the lambs are now sold, where winter food does not provide the means of fattening.

Sow on beds of well-prepared lands, in warm situations of aspect and shelter, the seeds of drum-head cabbage, savoys, and broccoli, for plants to be used next spring as a field crop. Sow rye and winter vetches for early spring use. Apply dung to the vetches, or on poor lands in backward situations; summer-fallow the land, using dung at the same time, thus adopting every known possible means to secure so very valuable a crop in the spring as green herbage.

Gather dung of all kinds: earths for composts, and vegetables for the tanks. No man will ever do much in farming, who does not apply manure with a constant, a lavish, and an unsparing hand.

## CALENDAR OF GARDENING.

## KITCHEN GARDEN.

Sow in the first week the main crop of next year's early cabbage: about London and its latitude from the 10th into the second week, and a week earlier for colder and more northern localities. Water the drills before sowing, if the weather be dry—"winter spinach" and endive twice. Choose mellow soil moderately rich, like that after fresh-dug early potatoes. "Nitrate of soda" has been proved to be a most fertilizing dressing, particularly in binding gritty loams: half-a-pound spread over a pole (30 $\frac{1}{4}$  square yards) dug in, and the rows a yard apart, sown as the digging proceeds.

Sow also a sprinkling of horn carrots and onions and turnips, the early-stone or Dutch; salads, radish, lettuce, the hardy sorts early, and again after the second week. Cauliflowers about the twentieth day, under glasses or in frames.

Dig up the early potatoes; let some of the medium-sized tubers of the ash-leaved kidney lie exposed, to become "green" for seed store.

Turnips seldom thrive inside a garden, and are best grown on open ground outside, and in drills over rotten dung with bone dust. The plants are hoed and thinned as they arise, in the distance of nine inches apart, and the rows two feet distant.

Transplant at various times, according to their size, the stout, well-formed plants of cabbage, broccol; savoys, and Brussels sprouts. Incorporate a quantity of good manure with the soil, to which has been added sulphate of ammonia, half-a-pound to the square pole. "Coleworts" for "greens," in the same manner, twelve inches apart; "celery" for the latest crop, before the 20th. If the weather be dry, water liberally. Never mutilate the plants by cutting the leaves. "Earth-up" former plantings timely and carefully. The spade may be used when the plants are strong, and have already been twice earthed. Propagate sweet herbs by slips and cuttings. Take up garlic, shallots, and onions that are ripe.

Destroy weeds: leave none to spread the evil by seeding, and a most careful attention is now required.

Cut vegetable marrows and cucumbers as they come on, leaving none to become ripe. Be particular to gather French beans and runners, for if pods ripen, the bearing of eatable pods becomes checked at once. "Gather beans and have beans," says the old rule.

## FRUIT DEPARTMENT.

Raspberries: Attend first to cut out the brown canes that have borne fruit; then take away slender supernumerary young shoots—air and sun will thus act upon those six or seven good canes which are left to ripen. Burn the dry canes that are pruned out, and scatter the ashes over the raspberry beds. Some condemn this burning; but we like to let the earth receive back as soon as possible the inorganic salts thus developed by fire.

"Spur-bearing" trees, or espaliers, should be regulated very early by cutting back or snapping the wandering breast or spur wood one-third of their length. By snapping, the sap is checked and diverted to the lower buds, while its course is not so fully and suddenly arrested as it is by amputa-

tion. The trees are for a time rendered unsightly; but as all must be cut lower back in a few weeks, that is a mere trifle, if the benefit which we allude to be taken as a "set-off." The spring or summer growths of apples, pears, &c., being thus curtailed, always excepting the leading shoots, the swelling is produced of the fruitful buds at the base, the source of the benefit that has been mentioned.

Strawberries: Make fresh plantations of this plant, and choose wet weather, or use much watering.

## FLOWER GARDEN.

Place seedlings in pots, and repot and dress the auricula plants. At the end of the month transplant, or introduce evergreens, particularly if the weather be moist.

Espalier fruit-trees are the only standards that suit the garden of the farmer, by occupying little room and covering a small shade underneath the foliage. Wide-spreading trees cover a large unfruitful space beneath the shade, and abstract the moisture from the neighbouring vegetation. The common fruit-trees of apples, pears, plums, and cherries are most properly placed in a small orchard ground adjoining the kitchen garden, in which the fruit-bearing shrubs of berries must be placed by themselves in a separate ground from the vegetables, and all grown separately, according to the kind and quality of the vegetation. Even a row of bushes along the sides of walks is hurtful to vegetables, both from the spreading of the roots and the shade of the foliage. Trees of all kinds and shrubs should be wholly excluded from the kitchen garden, or confined into a corner separately by the kinds and habits.

All weeds of a tall growth, with succulent stems and broad widely-spreading leaves, must be carefully collected by the cheap labour of boys and girls, from plantations, road sides, roots of hedges, and all places of growth, before the seeds are matured, cut into short lengths by a hand-knife fixed on a timber block, and thrown into the pit of collected materials, to form a moistened compost manure of the most potent constitution. The earthy residuum of the vegetable decomposition forms a most valuable addition to the land in an article of very durable effect. Animal exuvia, as bones and guano, are quick in power, but not lasting, from want of the future decomposition in the soil; but no manure yet known can be compared with vegetable substances that lie in the land and are gradually decomposed. Hence the great value of the mixture of animal and vegetable matters—the former to act quickly, and the latter to leave a residual decomposition.

Any farmer can be gardener to supply an abundance of excellent vegetables for the dining-room and the kitchen by the application of deep digging of the land, a very ample manuring, and the sowing of the crops at the proper seasons, and all done by the common labourer of the farm, directed by a generous intelligence. The use of fruits and the higher vegetables under glass, with flowers in pots, may require the jobbing gardener; but not constantly, and only to direct for the future.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR JULY.

Notwithstanding that the weather has been changeable, and that we have had a succession of strong gales of wind, the accounts from most parts of England, in reference to the appearance of the wheat crops are favourable. In some districts the wheat promises a larger return than last year; in others, the yield will, in all probability, be nearly or quite an average. Barley looks well, but we doubt much whether it will come up to the most favoured season. The yield of oats, beans, and peas will, no doubt, be quite equal to last year.

The cutting of wheat will not be commenced so early as in 1866; but there appears to be a full average amount of labour to secure the crops rapidly.

The sale for wheat, owing to the limited stocks now held in this country, has ruled steady, and prices have had an upward tendency, although the importations from various quarters have been on a very extensive scale. Barley and most other articles—which have come forward slowly—have ruled quite as dear as in the previous month.

The turnip crop is looking remarkably healthy. Beets, mangolds, &c., promise a very large return, and, altogether there is every prospect of a large supply of food for winter use.

The whole of the crop of hay has not yet been secured in the Northern counties; but in the South and West it has been carried in excellent condition. Last year there was a full average growth; this year it is very extensive.

The sale for nearly all descriptions of spring corn has been far from active, arising from the numerous importations from abroad, yet prices generally have shown a hardening tendency.

The stocks of English barley, oats, beans, and peas are almost wholly exhausted.

The value of hay and straw in the Metropolitan markets has been: Meadow hay, £2 10s. to £4 10s.; clover, £3 to £5 15s.; and straw, £2 to £2 6s. per load. There is still some quantity of old meadow hay in stack in this country.

Very large supplies of both English and foreign potatoes have come to hand in excellent condition. They have mostly found a steady sale, at fair quotations. Our advices from most parts of the country state that, with some few exceptions, the potato crop is wholly free from disease, and that a heavy crop may be safely calculated upon.

The crop of fruit is turning out well. In the cider districts the supply of apples will not, perhaps, be quite equal to last season; yet there is not the slightest indication of scarcity.

Great inactivity, arising from excessive importations from our colonies—the quantity of colonial wool in warehouse in London only being about 120,000 bales—has been apparent in the demand for all kinds of wool, and last month's decline in the quotations has been with difficulty supported. English wool, however, has suffered less in value than colonial. Even the low rate for money in the discount market has not encouraged buyers to operate to any extent, and the heaviness in the demand for woollen goods for export to the United States has completely checked speculation. Between this and the close of the year, about 200,000 bales will be offered at public sale. The fact appears to be that production has overtaken the demand, and that, as a consequence, we shall have a very moderate range in prices for some time. Our own clip has turned out well.

Judging from the accounts from Sussex and Kent, there is every prospect of a very deficient growth of hops this year. It is admitted that there is an abundance of bine; on the other hand, it is argued that such is its state, caused by vermin, that it cannot produce more than half a crop. Prices, therefore, have advanced about 20s. per cwt., at which amount of improvement holders are by no means willing sellers.

The crops in Scotland are looking well, and it is stated that the yield of wheat will be considerably in excess of last season. The potato crop is likely to be very abundant.

In Ireland potatoes are coming on well, and the growth of cereals, especially wheat, is well represented. The various markets, however, have continued firm.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Compared with the corresponding period in 1866, the supplies of both English and foreign beasts on sale in the Metropolitan Market have been only moderate, and in but middling condition. For good and prime stock, there has been a fair demand at full quotations; but inferior breeds have moved off slowly at barely stationary prices. The range in the value of the best Scots and crosses has been 5s. to 5s. 4d. per 5lbs., whilst some very superior beasts have produced 5s. 6d. per 5lbs.

The supplies of sheep have fallen short of last season; nevertheless the sale for them has been far from active, at about stationary prices. The best Down and half-breeds have produced 5s. to 5s. 2d. per 5lbs. In the quality of most breeds we have noticed a deficiency.

Lambs have come freely to hand from various parts of England. The inquiry for them has fallen off, and the currencies have had a drooping tendency. They have ranged from 5s. 6d. to 6s. 8d. per 5lbs. This year the production of lambs appears to have been large.

We have very little alteration to notice in the value of calves. The number brought forward has been only moderate. The quotations have been 4s. to 5s. 6d. per 5lbs. The foreign calves have not equalled last season in quality. Prime small pigs have moved off steadily at full prices, but large hogs have commanded very little attention. The top figure has been 4s. 6d. per 5lbs.

Depastured stock has fared remarkably well, whilst the quantity of grass in the fields is very large. The hay crop has turned out well, and there is every indication of a large growth of beet, turnips, &c. The supply of food for winter consumption, therefore, is likely to be very extensive.

The total supplies of stock exhibited in the Metropolitan Market has been as follows:—

Beasts	...	...	...	...	Head.
Sheep and lambs	...	...	...	...	136,480
Calves	...	...	...	...	3,117
Figs	...	...	...	...	1,755

COMPARISON OF SUPPLIES.

July.	Beasts.	Cows.	Lambs.	Calves.	Pigs.
1866	21,710	120	155,990	3,778	2,420
1865	26,010	580	149,960	5,757	2,480
1864	27,394	560	147,890	4,655	3,140
1863	24,070	525	169,870	3,822	2,682
1862	22,392	505	151,060	2,339	2,637
1861	19,740	560	156,140	3,532	3,240
1860	19,870	490	153,600	3,133	2,428
1859	19,600	476	166,632	3,609	2,430
1858	20,468	547	154,922	4,262	3,290
1857	19,558	530	142,280	3,330	2,395
1856	18,589	500	135,650	3,407	3,225
1855	16,702	535	149,470	2,747	4,000

The imports of foreign stock into London have been as under:—

Beasts	...	...	...	...	Head.
Sheep and lambs	...	...	...	...	26,718
Calves	...	...	...	...	1,456
Figs	...	...	...	...	2,288

Total	...	...	...	...	38,770
Same time in 1866	...	...	...	...	70,374
„ 1865	...	...	...	...	77,430
„ 1864	...	...	...	...	47,046
„ 1863	...	...	...	...	51,552
„ 1862	...	...	...	...	38,272
„ 1861	...	...	...	...	37,262
„ 1860	...	...	...	...	44,658
„ 1859	...	...	...	...	30,847
„ 1858	...	...	...	...	31,192

The comparison of the arrivals of English, Scotch, and Irish breeds is as follows:—			
	July.	July.	July.
From—	1865.	1866.	1867.
Northern counties .....	5,900	2,800	2,860
Norfolk, &c. ....	900	2,700	2,500
Other parts of England .....	2,320	2,400	3,370
Scotland .....	594	149	324
Ireland.....	200	193	80

## COMPARISON OF PRICES.

	July, 1864.		July, 1865.		
	s. d.	s. d.	s. d.	s. d.	
Beef from.....	3 2	to 5 0	4 0	to 5 4	
Mutton .....	3 6	to 5 4	4 4	to 6 4	
Lamb .....	6 0	to 7 0	6 0	to 7 4	
Veal .....	3 8	to 4 10	4 2	to 5 2	
Pork .....	3 6	to 4 6	3 8	to 4 10	
		July, 1866.		July, 1867.	
	s. d.	s. d.	s. d.	s. d.	s. d.
Beef from.....	3 6	to 5 4	3 4	to 5 4	
Mutton .....	3 8	to 5 0	3 4	to 5 2	
Lamb .....	6 8	to 8 0	5 6	to 6 8	
Veal .....	4 0	to 5 8	4 0	to 5 6	
Pork .....	4 0	to 5 0	3 4	to 4 6	

Full average supplies of meat have been on sale in Newgate and Leadenhall Markets, for which there has been a moderate demand, as follows:—Beef, from 3s. to 4s. 6d., mutton 3s. 2d. to 4s. 8d., lamb 4s. to 5s. 6d., veal 4s. to 5s., pork 3s. to 4s. 4d. per 8lbs. by the carcase. The imports of foreign meat have been seasonably good.

## SOUTH LINCOLNSHIRE.

The past week, and especially the last two days, have favourably brought on the growing crops. The wheat has been a long time in ear, and the oats in "shag;" but as yet but small indications of ripening appear. No doubt, a few days' hot, sunny weather would speedily make a great alteration, and harvest would come on fast, and almost all crops would become ripe together. Be this as it may, we are pretty nearly ready for it. The fallow crops are all sown, and most of them hoed and singled out. The corn crops have suffered considerably from the heavy rains and stormy winds of the past month. All the heavy crops are laid, and the light ones sadly storm-broken. It will be a tedious harvest, on that account. Now for the reapers: if any of them can cut our crops in a business-like way this season, they will prove themselves invaluable. Some of the very strongly-built ones may do tolerably in some of our crops; but woe to the light ones, the self-deliverers, or the sheaf-gatherers, in our heavy crops! Both wheat and oat crops have long, strong straw—in many cases six feet in length—and mostly lying along the ground, or twisted about in all directions. We shall have to make the attempt, as labourers will be unusually scarce, and we cannot prevail upon them to execute all the worst work, and leave the reapers the best at present, not even by the offer of extravagant prices. Reaping machines are not general; so our labourers can please themselves in choice of masters or work. Quite right: we like them to be independent, if they only act justly. We now incline to think our crops will present an average yield. This was not our opinion some weeks ago; but this cool and yet growing weather has brought up all the lower and backward stems, which will tell in the produce. The quality of wheat cannot be very good. We opine it will be coarse and heavy, with fine harvest weather. Our mangold crops improve satisfactorily, and we have every prospect of a good crop. A large breadth is sown. Svedes, where forward, also grow luxuriantly; but the backward sowings progress slowly. Common sorts are only just fairly up for the hoe, but grow well: very few thinly-planted fields. Potatoes look exceedingly well at present; but rumours are abroad of diseased ones being found in cottage-gardens, &c. Our pastures are somewhat better than of late; and the stock are doing better. We had, however, in the past week, considerable excitement, not to say alarm, throughout the district, the cattle-plague inspector at Long Sutton having reported a case of cattle-plague at that place, and ordered the slaughter of three other steers that had been in contact with the diseased one. This was done, and all that was done: therefore the paragraph in the

*Times* and other papers is incorrect in stating that twenty-two had been slaughtered in consequence. Of course, the graziers and dealers were very anxious that every investigation as to the certainty of the disease should take place. Accordingly, the head, thorax, and viscera of the diseased animal were sent to the Royal Veterinary College for examination; and there the disease could not be detected. Another competent practitioner, after examination by direction of a magistrate, pronounced it to have died from other causes. The alarm has therefore subsided; but the report of the local inspector has been entered at the Privy Council Office, and Long Sutton is therefore, for the time, under the ban. We have no desire to censure the inspector; but we must say that, as the district has been exempt from this pest for some eighteen to twenty months, it would have been far more prudent to have taken other testimony before hastily declaring it to be a positive case of cattle-plague; moreover, the animal being dead before seen at all.—July 26.

## SURREY.

The rain of last week has had a beneficial effect on the root crops, and the young mangold, which was getting stunted, and swede turpins inclining to elub, are retrieved, and started into vigorous growth, and farmers who were fortunate enough to get round-turnip seed into the ground are well compensated. The potato crops are partial and late this year, and few fields are fit for raising for market purposes. There are still isolated patches of unfinished haymaking, and spoiled grass lying in swathe; but the greater part of the grass crops is converted into well-made hay. There are no prominent signs of harvest yet, either in weather or operation, and the corn country, although tinged with a brown hue, yet wears a verdant aspect, and the crops will be fully a fortnight later than usual; the cold nights and east winds have militated against maturing and ripening of corn, and with the exception of highly-cultivated and drained land, the crops of wheat, barley, and oats will be short in the straw, while the probable yield is yet too speculative to notice. There is a good promise for a second cut of clover, and grass feed is abundant; but grazing lands are short of horned stock; and there is little hope at present of being able to stock meadow land. The hop plantations in this county are looking healthy, the late rains having washed the bine and cleared off insects; there is the old cry by hop growers of the attack of aphides and other vermin; but writing fairly, the hop gardens in Surrey present a favourable aspect. Flock-masters disposed of wool more freely last week, and accepted current rates. The sheep folds are perfectly healthy.—July 20th.

## WEST SUSSEX.

St. Swithin has often been called an old deceiver, but so far he has kept true to his text this year. In this district we had very fine seasonable weather until the 14th. On that evening there were signs of rain, and the 15th came in rough, wet, and windy, and it has rained more or less ever since. I never in my recollection saw the crops improve more than they have done this year until the wet weather came, but now a great change has taken place. Much of the wheat is laid; some of the heaviest crops are as flat as if a roller had been over them. As is generally the case at this time of year, there is a difference of opinion as to the wheat crop. Some farmers incline to the opinion that there is a fair average crop; I did not think so, even before the rain came, and now I am quite satisfied we shall be under an average in this division of the county. Barley and oats are, I believe, a good crop generally, but there can be no telling at present what damage may be done by the weather. The oats are gone down very green, and there must be a quantity of thin corn. It has been raining now (Friday, 4 o'clock, p.m.) since eleven o'clock last night, without intermission; and it has the appearance of a general rain. The opinion seems to be general that there never was so small a quantity of wheat held by the farmers at this time of year. After the low years we have had, all have been inclined to snap at a fair price. A good crop of hay has been secured in the district, and in the best possible condition. Until the rain came, it seemed doubtful whether the root-crops would not be a partial failure, but this is all changed now. The mangold, however, came up badly in many places, and will be an uneven crop. At our late fairs sheep and lambs have sold from 6s. to 7s. per head under the high prices of last year.—July 26.



## AGRICULTURAL INTELLIGENCE, FAIRS, &c.

**ALRESFORD FAIR.**—The supply was in excess of the two last fairs, but trade exceedingly dull for the better class of lambs, and not quite equal to the late Overton Fair for any description of stock; ewes were by far the most in demand. The general run of prices for average lambs was from 25s. to 30s.; extra lots from 32s. to 37s. per head. One superior pen fetched 41s. each. Other pens realized from 34s. to 37s.; about 10s. per head under last year's prices. Wether sheep sold at a reduction of 8s. to 9s. per head, obtaining from 37s. to 45s. for store stock. Ewes sold from 40s. to 50s., only a few pens, however, reaching above 45s., being a reduction of from 6s. to 8s. per head.

**BEWDLEY FAIR.**—There was a short supply of sheep, which sold at 7½d. to 8d. per lb.

**EARL SOHAM FAIR** was above an average, there being altogether some 13,000 sheep and lambs. Mr. Vince showed 1,600 sheep and lambs, the latter fetching 41s. each. There was also a large show of horses of different breeds. The attendance was by no means so large as the show merited; prices ruled somewhat high, but the trade was limited.

**INVERARY SHEEP MARKET.**—A good number of blackfaced wethers were sold at 22s. 6d., and some prime ewes for 25s. 6d. Crook ewes sold at 11s. to 15s., by far the greater number being under 14s. Top ewe lambs fetched 9s. 6d., but few of them were offered.

**INVERNESS MONTHLY MARKET.**—The sudden, and we may say unlooked for, advance in prices which prevailed at Muir of Ord was fully sustained at this market, and sellers realized to the full the expectations in regard to prices which they had entertained. Consequent on the fine appearance of grass in all parts of the country, cattle for grazing were in good demand, which induced sellers to adhere to, if not go beyond, the prices of the former day. All the cattle on the ground changed hands, with, it may be, the exception of a few lots of inferior quality. There were not many fat cattle on the stance, but they were soon picked up. Two-year-olds sold at from £11 to £18 a-head, according to condition; one-year-olds from £6 10s. to £9 10s.; cows from £10 to £20.

**KINROSS FAIR.**—The attendance of dealers and farmers was good, but the number of cattle brought forward was considerably under the average of former years. Sales were effected slowly, but good prices maintained. The sheep market was well stocked, but prices generally had a downward tendency.

**KIRRIEMUIR MARKET.**—The number of cattle was limited, especially in good fat, and what of that class was on the ground sold readily at 12s. per stone. Irish grazing cattle sold all the way from £2 to £12. Two bullocks fetched £34; and a lot of ten stots sold at £22 each. There were very few sheep in the market. Lambs sold from 12s. to 25s.; queys from 22s. 6d. to 36s. There was a large display of horses, and fair animals met a ready sale; a stud of nine splendid horses varying in price from £20 to £45.

**MUCH WENLOCK FAIR.**—The supply of sheep and pigs was small. For the few sheep penned there were not many purchasers, and what were sold were disposed of at lowering prices. In the pig market those offered were at reduced rates, and most had to be taken home.

**MUIR OF ORD FAIR.**—Some half-bred grazing hogs were sold at 26s. each, and lambs at 15s. to 20s. A fine lot of Cheviot wethers: four years old shotts from former sales were sold at 36s. A lot of yeld ewes, prime fat at 35s. a-head. A lot of half-bred yeld ewes, prime fat at 41s. a-head. A lot of half-bred Dinmonts at 29s. A lot of half-bred lambs at 27s. 6d. Many of the sheep and lambs brought to the market returned unsold. Fat cattle were especially sought after, at very full rates. Beasts in medium condition were next in command, and after these good grazing stock were most in favour. Yearlings of best quality made best terms; but beasts of inferior quality were difficult of disposal, at ordinary rates. Everything good was readily sold at full rates, but secondary and third-rate sorts were sticking on hand, and had to wait for the return call of the customers. We append a few transactions: A lot of two years old cross queys sold at £16 10s., another lot at £13 7s. 6d., and a third lot of cross stots at £20 each; a lot of cross stirks at £11 5s., and another

lot at £9 5s.; a lot of two years old stots and queys at £10 7s. 6d., and a lot of three years old Highlanders at £7 15s., and of queys at £6 10s., Highlanders varying from 46 6s. to £5 10s.

**OVERTON FAIR.**—About 70,000 sheep and lambs were penned, and sold at about 8s. per head lower than last year. Ewes 40s. to 55s., second quality 32s. to 40s. each; lambs realised 30s. to 42s., secondary 24s. to 30s. each, and were nearly all sold.

**PENRITH FORTNIGHTLY FAIR.**—Good fat lambs met with an active demand; but generally speaking, notwithstanding there was an average attendance of dealers and others, white stock did not diminish rapidly in numbers, the supply far exceeding the requirements of purchasers. Lambs brought from 6d. to 7d., and sheep about the rates ruling at last market. There were not so many beasts shown as at two or three previous markets; but fat beasts mustered in pretty fair force. The demand for this class was pretty brisk, the ruling figures being 7d. to 8d. per lb.; but for geld stock there was not an active demand, and a great proportion of those on offer remained unsold.

**RETFORD LAMB FAIR.**—The number of lambs on offer was 2,300, with plenty of buyers. Trade had a cheerful appearance, as the lambs were of very good quality. One pen, picked for killing, sold at 35s. each, but the general prices were 21s. to 28s. 6d. A few cattle and horses were exhibited.

**ST. BOSWELL'S FAIR.**—The prices from last year would be down from 8s. to 12s., but the lots generally were not in such good condition. One of the principal lots, that belonging to Mr. Fairbairn, Grizzlefield, was 10s. 9d. down from last year, that gentleman having sold at 38s. last year, while this year he only got 37s. 3d. At the close of the market a good number of lots were driven out unsold. In the cow market there was a good show of shorthorns and Ayrshires. Business was dull, and prices ranged from £10 to £20. There were a number of Irish and home-bred stirks in the market, and a few lots changed hands at from £7 to £9, and two years old from £5 to £13. A number were sold for the London market. Draught horses were selling at from £15 to £45, and hunters and riding horses at from £20 to £70.

**SANQUHAR LAMB FAIR.**—Holders of Cheviots were offered figures one-half of those they sold at last year, but sales could not be made at less than a third under last year's prices. The business done among this description of stock was, in consequence, a mere tithe of what is usually transacted. The demand for Cheviot-ewes was very trifling, and prices sustained a great reduction. There was no inquiry whatever for half-bred lambs, and late in the afternoon we had not heard of a single *bona fide* sale of that class of stock. Cross lambs were extremely difficult to get quit of, and few sales were reported. The best demand was for blackfaced lambs, particularly ewe lambs; and on wethers the reduction in value would be a third under that of last year; on ewe lambs it was scarcely so much. The heaviest fall was on blackfaced ewes, which would be back a full half from last year. Altogether, the market was an uncommonly bad one. Cheviot wether lambs would be down 10s. to 12s. from last year, Cheviot ewes 12s. to 15s., crosses 10s. to 12s., blackfaced wether lambs from 5s. to 6s., blackfaced ewe lambs 7s. to 8s., and blackfaced ewes 12s. to 15s.

**SWAFFHAM FAIR.**—The show of lambs was probably the largest and best ever seen at Swaffham, and, though the company was not so large as we have seen, there were plenty of buyers, and they were exceedingly spirited, so that prices were good. Mr. Hudson showed five or six score of half-bred lambs, which he had no difficulty in disposing of at 36s. 6d. each. They were very superior lambs, as was also a pen of half-breds shown by Mr. Coleman, of Hampton, which realized 34s. 6d. each. Mr. John Sewell, of Pickenham, showed a score of splendid shearlings, which realized 60s. a piece. The sale in lambs throughout was very brisk, and good prices were realized.

**IRISH FAIRS.**—**BALLINGARRY:** There was an excellent show of milch cows, and a reasonable number of store cattle, sheep, and pigs exhibited, and sellers seemed well satisfied with the figures obtained. Mutton sold quickly at from 5d. to 6½d. per lb.; hoggets 24s. to 37s., lambs 15s. to 23s., first-class yearling heifers £6 to £7 5s., two-year-olds £6 10s. to £9 15s., and three-year-olds and heavy springers £11 to £14. 10 to 14 guineas were paid for prime milch cows, second-class

beasts £7 10s. to £9.—**URLINGFOBD**: Lambs, for exportation, were in demand, but the supply was small, selling from 21s. to 26s. each.—**LISBURN**: The supply of animals was large, and the buyers were numerous. Beef 60s. to 75s. per cwt., sinking offal. Milch cows £9 to £18 each; store cattle, bullocks and heifers, £5 to £13 each. Sheep and lambs—Mutton 6d. to 6½d. per lb., lambs 15s. to 24s. each.—**BALLYRAGGET**: There was a small supply of stock generally, but store animals in anything like good condition, or of promising form, sold well. Very few fat beasts were to be seen. The attendance of buyers was small, particularly for sheep. Lambs were of rather inferior quality.—**CLOVES**: Horses, of which there was a good display, rated at from £10 to £50 a head. Black cattle were enhanced in price, selling at, for springers near their time, from £8 to £17 10s. a head. Yearling bullocks and heifer calves of the same age (yearlings off) were in good demand, and sold at from £4 10s. to £7 10s. apiece. Sheep, of which there were a good number, were not in demand. They sold at from £1 5s. to £3 5s. each, leaving mutton on the foot at from 3½d. to 4d. per lb., sinking offal.—**LEINSTER GREAT FAIR**: The horse fair is famed for the large number and superior quality of those exhibited. At an early hour the fair opened with the sheep. Mutton sold freely at from 6d. to 7d. per lb. Beef fully 65s. per cwt., an evident advance being visible in those commodities. Store cattle and sheep were slow of sale, and but few transactions came under our notice but were of an unimportant character. The horse fair was very large; prices ranged from £58 to £170, according to quality, for good horses. **BOYLE**: Supplies large, demand brisk, and prices satisfactory in every class, save sheep, which were still further decreased in value. Beef was worth from 50s. per cwt. for inferior, to 61s. for best; supply was very limited. Good three-year-old stores sold well, and brought from £13 5s. to £17 per head; two years and one year old from £5 to £11 15s. each; milkers and springers from £15 to £20 each; dry and stripper cows, £12 £13; calves from £2 to £3 15s. each. Wether mutton was worth about 6d.; ewe, 5d. to 6½d. per lb.; lambs sold well at from 21s. to 28s. 6d. for prime ewes; hoggets could be had of excellent quality at from 30s. to 40s. a-piece. Store pigs were worth from 40s. to 56s. for heavy ones; bonlams numerous at from 17s. 6d. to 28s. per pair. A large show of horses, and some sales as high as £40 took place; but the general value lay between £12 and £20.

**GLASGOW CHEESE MARKET, (Wednesday last.)**—There was a very large arrival of new cheese. Very little business done, and prices in favour of buyers. About twelve tons passed the weigh-house scales. New Cheddars 50s. to 56s., new Dunlops 48s. to 52s., fine old Dunlops 65s. to 70s., Skims 24s.

**MESSRS. CORDEROY'S CHEESE CIRCULAR, (Thursday last.)**—The cheese trade is in a somewhat depressed condition. While something exceptionally fine in old or new cheese is saleable at fair prices, the tendency of the market generally is decidedly downwards. Middling and common new Cheshire (of which we are now receiving a little) cannot possibly be sold, unless at exceedingly low rates, to compete with American. Scotch cheese are coming in pretty freely, and West Country cheese are in good supply. Prime Scotch have been sold at 60s., and Cheddars have declined in price. American cheese are arriving in very large quantities. Really prime quality small-size Cheddar-shape are offering at 54s. to 56s., and are only taken in retail, buyers evidently looking for lower rates yet. The importations are likely to exceed those of any previous season. The arrivals of American cheese since our last are 30,308 boxes.

**HOP MARKETS.**

**BOROUGH, MONDAY, July 29.**—Our market is very active, at an advance of 10s. per cwt.; but trade is much restricted by the extremely limited stock of hops on offer, holders looking for higher rates before long, as reports of the rapid development of blight continue to arrive from all parts of the country. The late heavy rains have not been productive of improvement even in the few favoured grounds, whilst many of the plantations are so severely blighted as to leave no hope of recovery. Continental accounts continue very favourable from all the principal grounds in Bavaria and Belgium; the Alost district, however, is still infested with vermin. New

York advices to the 16th inst. report an increase of lice and honeydew throughout the principal hop sections.

Mid and East Kent .....	£9 0	.....	£9 15	.....	£11 0
Weald of Kent .....	9 0	.....	9 10	.....	10 0
Sussex .....	9 0	.....	9 5	.....	9 10
Farnham .....	9 0	.....	9 15	.....	10 10
Yearlings .....	6 0	.....	6 6	.....	7 0
Olds .....	2 10	.....	3 10	.....	4 4

**MAIDSTONE, JULY 25.**—Our reports this morning from the various parishes are almost without exception bad. There are plantations where something like half-a-crop may be grown should we get seasonable weather, but it must be a top growth. Generally speaking the bine is full of vermin, and this is especially the case with lower and more sheltered grounds, while on the hill the plant is in much better condition. We cannot expect anything like a crop of hops this year. There is a little burr at places.

**WORCESTER HOP MARKET, (Saturday last.)**—The hop grounds of this district are in a more unsatisfactory condition than when we last wrote you. Our very worst-blighted grounds look freshened by the rain, but there is no decrease of vermin, and we fear that the hopes of the planters to grow hops in these gardens will not be realized; for if clean, there now remains scarcely time to make sufficient recovery to grow fruit. Some districts are less foul than others, and we also have a few favoured spots; but all are less promising than a week ago, unmistakably exhibiting the injurious effects of the cold nights and the wind. From a careful survey of Worcestershire and Herefordshire, we are led to estimate the yield at only one-third of a crop; but should the low temperature, with showery weather, continue, it will fall much below this. A considerable business has been done on this market to-day, at a further advance of 10s. to 12s. per cwt. on the extreme values of last market, no hops remaining on sale at the day's currency.

**ENGLISH WOOL MARKETS.**

**CITY, MONDAY, July 29.**—There is a slight improvement in the demand for most kinds of wool for home use, but for export purposes very little is doing. In prices we have no change to report. The quantity of colonial wool now in warehouse in London is about 140,000 bales.

**CURRENT PRICES OF ENGLISH WOOL.**

FLEECES	Southdown hoggets.....	per lb.	s.	d.	s. d.
Half-bred ditto .....	..	..	1	4½	to 1 5
Kent fleeces.....	..	..	1	5	1 7
Southdown ewes and wethers ..	..	..	1	3	1 4
Leicester ditto .....	..	..	1	6	1 7
<b>SORTS</b> —Combing .....	..	..	1	2	1 8½
Clothing .....	..	..	1	2	1 6½

**ALNWICK WOOL MARKET.**—Hogg wool sold from 38s. to 39s., prime lots 40s.; mixed lots, according to quality, 35s. to 37s.; bred ewes, 32s. to 33s.; Cheviot wool, 30s. to 33s. per stone of 24lbs.

**BERWICK WOOL MARKET.**—The following prices were obtained for fleeces: all-hogg 39s. to 40s.; a few superior lots obtained 41s., and even 42s., but these were exceptional cases, and not the ruling prices in the market; all-ewe 32s. to 33s.; one-half hogg and one-half ewe 35s. to 36s., and a few lots were sold at 34s.; three-fourths hogg and one-fourth ewe 37s. 6d. to 38s., and some only at 37s.

**BRADFORD WOOL MARKET, (Thursday last.)**—There is a little better tone in the wool market to-day. The return of fine weather and the further reduction in discount have something to do with it; but there is a feeling among many that wool has nearly reached a safe basis of price, and the result of this feeling has been seen in an increased inquiry on the part of many consumers, and more firmness, or at least less willingness to sacrifice, on the part of some holders. The change, however, is not material, and is not believed in by many; but certain it is that prices, though in no instance improved, have kept their ground better this week than for many weeks previous. Stocks in the hands of staplers are unusually light for the time of year.—*Bradford Observer.*

**DONCASTER WOOL MARKET, (Saturday last.)**—There was a less supply of wool here to-day, in fact the least supply here this season, only 150 to 200 sheets altogether. The downward movement appears stopped at present, and sellers to-day made the prices of last week, with a pretty good clearance made. Ewes and wethers 16s. 6d. to 18s., mixed parcels 18s. to 19s., all hoggs 20s. to 21s. 6d. per 14½lbs.

GLASGOW WOOL MARKET, (Saturday last.)—In this market, especially towards the close of the week, a better feeling has prevailed. Quotations are not in any way improved, but more inquiries have been made for laid and white Highland, and in both classes a fair amount of business has been done. In lustre wools the transactions have been limited, and laid chevots have been wholly neglected.—*F. H. M'Leod.*

HAWEICK WOOL SALES.—The quotations were: half-bred hogg 34s. 6d. to 40s., the top price being got for a lot from Sunlawhill; half-bred wether 30s. 6d. to 33s. 6d.; Cheviot hogg 34s. 6d. to 36s. 6d.; Cheviot wether 30s. to 32s., the greater proportion at the highest quotation; Cheviot mixed hogg and wether 27s. 6d. to 32s., several lots at 30s. 6d.; black-faced 16s. 6d. to 17s. 6d.; crossed 23s. 6d. to 33s. per stone of 24lbs.

JEDBURGH (RINK) WOOL FAIR.—Cheviot wool brought from 32s. 6d. to 35s., being about 3s. or 4s. lower than last year; and half-bred clips, with the usual proportions, brought from 34s. to 37s., being about 5s. to 6s. below last year.

LEEDS (ENGLISH AND FOREIGN) WOOL MARKET, (Friday last.)—The prospect of a good harvest and the cheapness of money tend to give a little firmness to the price of English wool, but so long as the demand for yarn and pieces in the worsted districts does not greatly improve, wools are not likely to be permanently higher. The absence from various causes of so many large buyers who used formerly to purchase in the hope of selling to a profit towards winter, throws much more wool upon the manufacturers and operates against prices. The demand in price for colonial wool has undergone no noticeable change, and the consumption of clothing wool generally is not above the average.

LEWES WOOL FAIR.—At this important fair an abundant and excellent dinner was provided, and the chair was taken by Charles Beard, Esq., of Rottingdean. About 150 sat down to dinner. Mr. Turner, Treyford, sold 250 ewes, 100 teds, and 80 lambs at 17d., Mr. Woodhams sold 640 ewes and 210 teds at 17d. Mr. R. H. Ellman sold his wool at 48s. per tod. Mr. Hudson, Kingston, offered 1,350 fleeces, one-quarter teds, at 48s. Mr. Tompsett, of Piddinghoe, sold his wool at 17d. Mr. Hart sold 544 ewes, 198 hoggets, and 24 rams at 48s. per tod. Mr. Breton, Westham, sold 460 ewes, 200 teds, and 18 rams at 18d. Mr. Homewood, sen., sold his wool at 17½d. Mr. Starnes, Loughton, offered 300 ewes, 100 teds at 18d. Mr. Hale, steward to the Earl of Sheffield, sold his wool, 477 fleeces, viz., 217 ewes, 99 wethers, 157 teds, and 4 rams, at 17½d. Mr. Arkecoll had sold his wool at 18d. Mr. Colgate sold the wool of the hon. H. Brand, of Glynde-place, 700 fleeces at 18d. Mr. Cowley, Rype, sold 300 ewes and 200 teds at 17½d., Mr. L. Martin sold 414 ewes and 170 teds at 17½d., Mr. A. Hillman, Iford, sold 620 ewes and 212 teds at 48s. a tod, Mr. Ashby, Eastdean, sold 460 ewes and 166 teds at 47s., Mr. Manning, Isfield, sold 360 half-teds and ewes at 48s. Mr. Scraee, Manor Farm, Ditchling, announced that he had sold his wool at 18d. Mr. Verral, Swanborough, sold his wool at 18d. per lb. The following fleeces were also sold: Mr. Hodson 1,350 at 48s. per tod, Mr. Scraee 700 at 48s., Mr. Botting 1,984 at 48s., Mr. Noakes 760 at 47s., Mr. Noakes 800 at 45s. 4d., Mr. Madgwick 794 at 46s., Mr. Cooper 850 at 45s. 4d., Mr. Humphrey 800 at 45s. 4d., Mr. Tanner 800 at 45s. 4d., Mr. J. Brown 1,370 at 45s. 4d., Mr. W. Saxby 574 at 45s. 4d., R. Brown 2,000 at 46s., Mr. F. Tompsett 700 at 45s. 4d., Mr. J. Hards 500 at 46s., Mr. Colgate 680 at 48s., Mr. W. P. Goringe 800 at 45s. 4d.

ST. BOSWELLS WOOL FAIR.—Business began dull, but about midday it became brisker, and a good many clips changed hands at prices similar to Danse and Kelso market. All-hogg sold at from 41s. to 42s., half-ewe and half-hogg at 37s. to 38s., two-third hogg at 39s. to 40s., all-ewe at 32s. to 33s.

SANQUHAR WOOL FAIR.—There was a numerous attendance of wool merchants, commission agents, and others interested in the wool trade, but the amount of business done was very limited. Half-bred wool may be quoted from 38s. to 40s., white Cheviot ewe and hogg 26s. to 29s. 6d., white blackfaced 14s. 6d. to 15s. 6d. for Nithsdale, and 15s. 6d. to 16s. for Galloway clips. Little blackfaced laid was offered. Prices 10s. 6d. to 11s. per 24lbs.

YORK WOOL MARKET, (Thursday last.)—The number of sheets of wool on offer was about 550, as per weigh-office return. There was a very limited number of buyers in

attendance, and they operated slowly, leaving fully one-half on hand. Sellers held out very firm, so that for good-bred wools prices did not go down so much as was expected; but not so with cross-bred and moor wools, which had dull sale. Moor wools sold at 7s. to 9s. 6d. per stone.—*Yorkshire Gazette.*

BRESLAU WOOL REPORT, July 25.—There has been a slight improvement in the demand for middle-fine descriptions, of which about 1,500 cwt. have been purchased for the manufacture of military cloth and fancy articles, prices ruling between 65 and 75 thalers per cwt. Fine qualities, though very steadily maintained, are not yet required, but will before long, undoubtedly, meet a ready sale, as many foreign buyers are expected to re-appear in the market. In general very much confidence is prevailing among dealers, who are looking for an early revival of trade.—*GUNSBURG BROTHERS.*

THE BRANCHES SHORTHORN SALE.—It is to be hoped that Lady Pigot was not disappointed with the result of her draft sale, on the Thursday in the Bury Show week. From the preparations made it was to be inferred a large company was expected. Such, however, was not the case. There seemed not more than a dozen buyers present amidst a bucolic assembly of six score. The consequence was that the average made for the cows and heifers sold was only about twenty-four guineas. The bulls, one a good one, for which, with Victoria Alba, her Ladyship refused three hundred guineas after the sale, were all bought in, with the exception of two calves, which fetched six guineas and eight guineas respectively, if we remember well. The last of the reserve-price bull-calves was a wealthy-coated grand young animal. The conjunction of her Ladyship's cattle with Mr. Jolly's, however, seemed to have done the sale no good. Admiring throughout her Ladyship's shorthorn career, her enterprise and thorough pluck, we sadly regret that she is not better advised in the selection of her Short-horn stock, if such as were shown on Thursday last are a fair sample of the herd. Victoria Alba, bought in at two hundred guineas, was certainly a beauty, and if her Ladyship had all such she might fairly claim position as a leading breeder. Perfume retains much of the exquisite beauty that made her the object of ardent competition at the Towneley sale; but she was sold only as having ceased to breed since she met with an accidental hurt from falling into a deep ditch in the meadow. Mr. Carr was the auctioneer.

MR. C. HOWARD'S SALE OF OXFORD DOWNS AND SHORTHORNS.—This sale took place on Friday at Biddenham, and although the weather was most unpropitious, a large company from the adjoining counties, and even several from Worcestershire, Cornwall, and others a long distance, attended. The rams were considered a better lot than has hitherto been offered; the ewes also contained several very even and level pens. About 200 sat down to luncheon, presided over by Mr. Henry Trethewey of Silsoe. Mr. Stratford first disposed of a few short-horned bulls, the highest price being 76 gs. for a yearling to go to Major Whitmore in New Zealand. The sheep were then brought out, and made capital prices. The five were first let at an average of £11 each, and the remaining sixty-one were sold at sums from 6 to 25 guineas each, averaging £12 5s. 6d. The sixty ewes realised £196 5s., or £3 5s. 6d. a-piece. Colonel Barnes of Charleswood bought the highest priced ram for 25 gs., and the highest pen of ewes at £4 per head, as well as five other lots. Lord Penrhyn, Messrs. A. J. Roberts, Overman, Z. Phillips, J. Clayden, E. Emson, Hine, Smith (Worcester), Robinson, Waters, Walter, Hensman, J. A. Piggot (Essex), Goldsworthy (Cornwall), Street, Strange, York, W. Little, Cranfield, A. F. Milton Druce, Raynbird, Thompson, Franklin, W. Purser, J. Longland, R. Munford, and Skevington were amongst the other chief buyers. The pig trade was not good, and although some very fine ones were offered no high prices were realised; 8 gs. was the top sum for a boar, and £10 for a sow. The downpour of rain did not, however, prevent the company from inspecting the Short-horns, which were shown in an adjoining field, the herd being very healthy and doing well. Fawley 4th, the 270 gs. heifer at the Ilavinger sale, has dropped a red heifer calf; and Faustina Gwynne, the dam of one of the yearling bulls which made 40 gs., has also just produced a roan heifer calf.

## THE BEST MEANS OF HARVESTING CROPS.

SIR,—In the report of the concluding monthly meeting of the Farmers' Club for the season, seeing allusion made to 1816, and having some experience of that unfavourable year, will you kindly insert in your Journal the following remarks?

I took a farm between Ross and Ledbury, Herefordshire, and the crops at a valuation, in June; commenced mowing the first week in the month—nine acres fit to carry; in the second week loaded up two loads, but rain came on, and the remaining part was not carried for a month. I carried some other in the time, which was not injured so much; but I was three months making one hundred acres. So much for hay-making.

A neighbour had taken a second farm in the same spring; and he had a large quantity of wheat on both farms. In the second week of September he commenced cutting; and another farmer on another side of my farm commenced on the same day. I thought I would not be a latter Lammas man, and I began the next day; and we secured a large portion very fairly—myself, forty-one acres out of fifty. We found the milk was set in the corn, but the straw was very green; while that we had not cut in time was very bad. Our neighbours, who did not begin until the straw was turned, were in a very bad state; and as Mr. Tuxford says, wheat rose to a fabulous price: I sold a load of eighty bushels of Halifax white wheat at £1 per bushel, to make mincepies, &c.

The barley could not be touched on the 20th October. As I rode to Hereford fair, through the farm, I could not see anything of it, being all quite covered with snow. On the 22nd, it blew quite a hurricane. In three days I cut and carried twenty acres—fortunately there were no grass seeds sown in it; put fifteen acres in a long and narrow rick, which stood to July, 1817, in which year there was no barley ripe until late that season. The malt was very scarce, and maltsters were compelled to use old barley. I sold the contents of the rick to a maltster at Ross, Herefordshire, at five shillings per bushel, who informed me he never made so much out of a rick before in his life.

With regard to harvesting barley, in the generality of moderate and favourable seasons, particularly where grasses are pretty strong, I think it advisable to adopt the system of my old friend Mr. C. Cresswell, of Barnesley Hall, near Bromsgrove, Worcestershire, which was to cut, as soon as the corn was up, into strong red row; and he always obtained the top price at Birmingham and Bromsgrove.

When I was in Herefordshire, and attended Worcester market, there was a maltster of the name of Mann, who always, in good seasons, took my barley; and, as I met him in market, after looking at the sample, he would say, "The best price you can hear of to-day I will give you for yours."

Should it be a wet season, I think it advisable to let barley stand until ripe, and cut and carry; although last season, where it was cut for some time, and not turned, it still grew very little: I suppose it was from the weather being so cold; but this is not generally the case in wet seasons.

I think wheat may be cut as soon as the milk as I call it, or the moisture in the corn, is fixed; for it does not signify about the state of the straw, particularly in wet seasons. It will be a great preventive of mildew if it be tied up, on cutting, in small sheaves; and I think the system adopted in Worcestershire, of haeckling (setting up) four sheaves, and covering them with two, saves the colour in stormy weather, and hastens the drying.

In 1822, a remarkably fine harvest year, I took up into Herefordshire eight men to cut my last crop of wheat. I had seventeen acres of cone-wheat, which was very green in the straw. I had the men on earring; but they could not stand the Herefordshire men at the cyder bottle, which quite upset all regular work. I looked at the wheat, and found the milk was set, and put them on next day cutting; and the result turned out well; for when I thrashed out, and took a sample to Gloucester market, which I showed to Mr. Biddle, a miller of Stroud, a practical man, universally known for miles round, his observation was, "Had I not known you, I should have said it was a sample of the best Odessa wheat I ever saw in my life." So that, merely by these two accidents, I

have adopted very early cutting of wheat; and many friends have followed the plan.

I think that if either cut by machines or hand, it is a good practice, as mentioned by Mr. Little, to measure out the land when the wheat is in grass in the spring of the year, and the labour of tying, &c., can be tasked, as men work much more freely when at piece-work than when employed by the day.

Yours respectfully,

ISAAC NEATE.

*Bishopstrow, Warminster, July 26th.*

## TRIAL OF MOWING MACHINES AT NEWCASTLE-ON-TYNE.

A trial of mowing machines, arranged under the auspices of the Newcastle Farmers' Club, took place on Friday, July 5, on old land grass, in fields between Scotswold and Swalwell. For some time back the trial had been looked forward to with much interest, and most of the principal machine-makers entered their names in the competition. There were three prizes, of £10, £5, and £3. The weather was clear and dry, and the grass in good condition. A large number of agriculturists witnessed the trial, which commenced at ten o'clock, and did not finish till nearly five. Machines from the following makers competed, mowing lots marked off according to numbers: Brigham and Biekerton, Berwick; W. Trotter, Stockfield; Wood's American; Joseph Sim, Newton, Stockfield; Burgess and Key London; Scott, Felton; Lilie, Goodlet, Elder, and Co., Berwick; Stothart, Merton, North Shields; J. Sim, mower and reaper combined; Brown, Eachwick, Ponteland; Geo. Gillies, Haydon Bridge; Hornsby and Co., Grantham, with their "Plymouth" and their "Paragon;" Kearsley, Ripon; Bamlett, Thirsk; Lilie, Goodlet, Elder, and Co., combined action; Brigham and Biekerton, combined action; Wood's American, exhibited by the agent; Samuelson's, and Gillies. Twenty-six machines were originally entered, so that only five failed to compete. The judges were Messrs. John Angus, jun., Whitefield, near Morpeth; Hugh Stephenson, Throckley; and J. A. Armstrong, Wylam. The task of selection was one of exceeding difficulty, inasmuch as after every machine had been tried, as many as seven were chosen for trial in a fresh and more difficult field. The first fields mown were two adjoining Swalwell Bridge, belonging to Mr. Hedley and Mr. Hamington, in which the nine machines first named were worked, the remainder being set apart to cut a large field in Axwell Park, the property of Mr. R. O. Lamb. The lots measured about an acre each; and the ground being level and the grass firm, were, for the most part, mowed cleanly and with ease, an even stubble remaining, and comparatively few hitches taking place. The seven machines considered worthy of a final trial were Sim's, Burgess and Key's, Brown's, and Hornsby and Co.'s (two machines). The concluding trial took place at Scotswold Bridge, in a heavy ridge and furrow field, belonging to Mr. Ramsay. After a long contest, the principal prize lay between one of the Messrs. Hornsby's machines and the one exhibited by Messrs. Burgess and Key, which despite the unevenness of the ground, cleared the grass in a surprisingly quick and skilful manner. Eventually the judges gave their decision in favour of the last-mentioned, being seemingly guided by the object aimed at by the committee of the club, which was that attention should be directed to the excellence of the work performed, to the construction and capacity of the machine, and to the cost. The official award, which gave general satisfaction, was as under: 1st prize, £10, Messrs. Burgess and Key, price of machine £20, with two knives; 2nd, £5, the Paragon, Messrs. Hornsby, £22, two knives; 3rd, £3, Mr. Sim, £22 10s., two knives. Messrs. Hornsby's, price £23 10s., and Bamlett's, price £27 10s., were highly commended, and Brown's commended. A number of the members of the Farmer's Club were present during the day, and afterwards dined together, when a sparring match occurred between Mr. Rix, who had the management of Burgess and Key's machine, and Mr. Hornsby as to the merits of "the original" and its rival.

Since the above trial the first and second prizes have been awarded to two of Burgess and Key's Mowers by the Melksham Society.

## FOREIGN AGRICULTURAL GOSSIP.

The *Journal d'Agriculture Pratique* has opened a subscription for the organization of a ploughing competition, at Billancourt, in which the various steam-tillage systems will be exhibited. The competition is to take place on a farm in the neighbourhood of Paris, during the last few days of August or the first few days of September. The subscription will be applied to the payment of the expenses attending the conveyance of machines exhibited at Billancourt and in the Champ de Mars to the trial ground. A special commission will adjust, for the rest, the other expenses attending the trial, and will publish a financial statement of the whole affair. The Imperial Commission has authorised the temporary removal, from the great show, of the machines required for the trials. In consequence of the unfavourable state of the land, a trial of reaping-machines, which was to have taken place on the Imperial farm of Fonlense, has been postponed. It was to come off, however, on Friday, July 26, and Saturday, July 27. We have not yet quite done with the French district State agricultural shows. Let us take that held at Aurillac, for example, for the seven departments of the Cantal, the Aveyron, the Puy-de-Dome, the Creuse, the Correze, the Lot, and the Tarn. All the preparations for the meeting appear to have been carefully conceived and systematically carried out; but the weather was unfavourable, the sun showing himself but sparingly, while the rainfall was excessive. The number of cattle inscribed in the catalogue was 393, of which 152 belonged to the pure Salers breed, 51 to the Aubrac breed, 45 to the Limousin breed, and 23 to the Marchoise breed; the remaining 122 were miscellaneous beasts, pure or cross-bred. The Salers breed is the most numerous and important of the district. It was shown, besides, on its own ground, so that it was the duty of the Cantal breeders to make a suitable display—a duty in which they were not found wanting. The continued progress established in connection with the grazing of Salers cattle, remarked annually at Poissy and indicated in the State district shows of late years, was once more proclaimed at the Aurillac show. Most of the animals exhibited presented that *ensemble* of qualities which renders the Salers breed a precious and useful type among the best French breeds. It is sufficient, in order to show the utility of this breed and the esteem which it enjoys, to state that the annual total of the exports for the department of the Cantal alone amounts to 40,000 head. Breeders are sometimes seduced by the high prices offered into selling their finest bulls; this is regarded by some as a misfortune, as it is urged that they ought to be absolutely kept in the district. The Central Agricultural Society, of the department of the Cantal, knowing the resources of the locality, aimed at giving strangers a complete idea of the indigenous breed by holding an exhibition of a great number of animals taken from farms, and quite free from the exceptional conditions on which animals bred expressly for exhibition are reared. With this object the Society offered twenty-three prizes and as many medals for working oxen and milking cows, in strings of six to ten head each. The Minister of Agriculture sought to patronize this measure by granting gold and silver medals to the two first laureates of each series. About 300 milking cows and 200 working beasts were entered for exhibition. This show, which was exclusively made up of the Salers breed, proved the greatest success of the meeting, as it indicated that the progress for choice animals, presented at various exhibitions, extended to the generality of the breed. The cows exhibited especially excited admiration; there was but one voice respecting them, even on the part of proprietors in departments producing rival breeds to that of the Salers, which combines excellent milking qualities with beauty of conformation. A striking fact remarked in connection with this breed was the perfection of form in some cows which received prizes at the show. This perfection was enhanced by that agreeable delicacy of tissue which indicates that the genealogy of a race has attained a high degree of excellence, while it has been kept pure. Upon the whole, success crowned the attempt of the Agricultural Society of the Cantal—a result which will be an encouragement to it as well as to all proprietors of stock. Fine specimens of the Aubrac, Limousin, and Marche breeds,

which were brought forward for exhibition, also testified to the progress which stimulates breeders in all parts of the district. Sheep were much better represented at Aurillac this year than at the previous competition held at the same centre in 1860. This branch of rural economy necessitates in the district different efforts from those which brought about the triumph of the Salers breed; the experimental crossings which have been pursued are becoming attended with fixed results, and it is expected that types will now be secured which will prove adapted to the various local cantons. In pigs, as in sheep, foreign breeds have penetrated into all parts of the district, and attention was much directed at Aurillac to the English breed shown by a Corrèzian proprietor. It is said that M. Foucher, of Tudeils, has had a boar of this breed which weighed more than 10 cwt. The breed, which made a bad beginning in the district, has now become admirably acclimatized. "The flesh of these animals" (that is the English), says a French writer, "scarcely sustains itself, perhaps, on a comparison with that of the Limousin and Périgourden breeds; but the difference in quality is largely compensated for by the difference in weight." The administration of haras or breeding studs brought its contingent of interest to the show by holding at the same time an exhibition of horses. More than 150 colts or fillies of one, two, or three years old were exhibited, and competed for 35 premiums. A great number were refused in consequence of not having been entered within the prescribed time. The show of horses was relatively as remarkable, and deserved as much attention as that of milking cows, the success of which it shared. The inspector-general of haras was much struck with the horse breed of Auvergne, which is both strong and light. It was observed that the youngest animals were, upon the whole, the most distinguished in their conformation; and although account must be taken of the influence of age on the forms of horses, the tendency of the young animals towards improvement was none the less marked. The production of horse-flesh seems a matter deserving of serious encouragement in Auvergne; but the commercial value of mules is a great element of competition. We must not pass over in silence a feature of the programme, which is of capital importance, viz. the prize of honour devoted to the department of the Cantal for 1867. This prize has been attributed to the estate of La Rousière, situated at the foot of the Monts du Cantal. The principal merit of M. Rechaud, the proprietor of this estate, is the having by means of *barrages* converted a portion of his property into irrigated prairies, the rental of the estate being in consequence considerably increased. There are two very distinct districts in the department of the Cantal, the one only occupied with forage cultures, while in the other the cultivation of cereals is in the ascendant. It is the nature of the soil which has established these distinctions. The progress observed in the consumption of meat makes the necessity for forage everywhere felt; but in consequence of the natural conditions of the soil the struggle is too unequal to be sustained between producers in different districts. In the districts in which the cultivation of cereals prevails, an application of lime appears to be required. These districts are now traversed by a railway, which makes good lime available for use at 10s. per ton, a rate sufficiently low to enable the farmers of the Cantal to drive from the département the unwholesome black breed on which a portion of its population is fed.

**IMPORTANT SALE OF STOCK.**—One of the most important sales of stock that have taken place in Dorsetshire of late was entrusted to the care of Mr. J. T. Ensor, auctioneer, of Dorchester, on Wednesday, when upwards of 1,000 pure-bred Sussex Down ewes, lambs, and rams, from the flock of Mr. James Harding, were submitted to public competition. The sale commenced with the working oxen, realizing from £42 to £45 a pair. The six-tooth ewes realized from 42s. to 45s. each, the four-tooth ewes 44s. to 50s., two-tooth ewes 44s. to 59s., chilver hogs 44s. to 52s., chilver lambs averaged 25s., ram lambs from £3 to £5 5s., hogg rams £3 10s. to £5 10s., one two-year-old ram fetched £14 10s., and two three-year-olds made £10 and £11 respectively.

## REVIEW OF THE CORN TRADE DURING THE PAST MONTH.

July has been anything but a hot month, though reckoned the hottest in the year. Nothing has yet come up to that sudden fiery glow we had early in May for four days. Cold and easterly winds introduced the month; then it became more genial; till on the 12th storms raged for a week, and threatened a gloomy harvest; but the weather took up on the 19th, and was moderately fair till the 26th, when there came a drenching rain from the east. Much damage was done in France by the storms referred to, and prices were sent up; but here, notwithstanding many fears and the partial laying of some of the heaviest fields, we were fortunately too late to be hurt, and the first rain supply has, on the whole, been rather beneficial than detrimental. The ears have filled better and will be more kindly, and the ripening process hastened, both of the wheat and barley; while beans and peas will have their pods better filled, and the root crops grow apace; though where the disease has appeared among potatoes we rather fear harm than benefit. The peculiarity of the season has been its approach to exhaustion beyond what we have experienced for many years, and though prices would seem to have been enticing to foreign countries, much less has been freighted to our shores than expected. Yet we have strangely held out. Prices have gone on as equally as though Europe and ourselves were in the lap of plenty. Sunshine was reckoned equal to well-stored granaries, and during the week of storms prices only advanced about 2s. per qr. and a further 1s. afterwards, which has been the total gain of the month. The past is the most important time: the period of bloom passed off well. Providence then favoured us; and had it not been so, there would have been a prospective year of high rates—oppressive to the poor and injurious to the country. We have therefore passed through one crisis well, after the most peculiar winter, followed by as fickle and protracted a spring; and the only period of trial remaining is the gathering into the barn, which we hope will be equally favourable, and inspire our harvest songs with abounding gratitude. As respects foreign countries, scarcely an average is expected in France, and not more in any part of Europe; but in America, where rates have ruled extravagantly high, the present prospects are so generally good, notwithstanding the recent apprehensions from violent storms, that a period of free export is generally looked forward to with confidence.

The following were the prices recently noted in the several places named: The best native white at Paris was worth 69s. 6d., red 66s. 6d. per qr. Fine home-grown wheat at Brussels and Liege were quoted 66s. 6d.; Polish, at Amsterdam, 69s.; Zealand, at Rotterdam, 59.; native wheat at Cologne 64s., at Stettin 62s. 6d. The best high-mixed at Dantzic being very scarce was worth 76s.

6d., cost, freight, and insurance included. Wheat at Berlin 57s. 6d. per qr. Frankfort quoted 62s., Mayence the same. The best Ghirka from Odessa has brought 59s., and is now held at 60s.; Sandomirka 63s. Quotations at Alexandria were 36s. 3d. to 39s. 3d. for the new crop. Spring wheat at Montreal to 55s. per 480lbs.; at Kingston, inferior ditto, 47s. Chicago quoted 47s. 6d., Milwaukee 49s. 6d. per 480lbs. New York prices, in the midst of a rapid decline, were unsettled. Californian, lately bought in Liverpool at 70s., was there worth 60s.

The first Monday in Mark-lane commenced on a moderate arrival of English wheat, with a good supply of foreign. But very few fresh samples were exhibited on the Kentish and Essex stands during the morning, but the weather being fine and forcing there was little disposition to buy on the part of millers. The foreign trade varied: there being a great scarcity of fine Danzig qualities, they were much in request and rather higher; while Russian sorts, of which the foreign supply mostly consisted, were sold at 1s. per qr. less money. With good arrivals off the coast, buyers were trying to obtain some concession, but holders were firm. With a continuance of fine weather through the week and occasional showers, there was a remarkable firmness in the country trade; indeed, some markets had so little offering that sellers obtained improved rates: among these were Hull, Birmingham, and Bury St. Edmund's. Edinburgh was 1s. per qr. dearer for native wheat; but at Glasgow, where importations had been liberal, Ghirka wheat was down 6d. per boll. The price of native wheat at Dublin was well supported, but with a fair quantity of foreign on offer the millers hung back for some decline.

The second Monday had a short supply both of English and foreign wheat, the latter especially. There was another scanty show of fresh samples from Kent and Essex, and this served to support prices. The falling off in foreign rather stimulated needy purchasers, who consequently had to pay fully the previous Monday's quotations. Floating cargoes being numerous, sellers found they could only do business by accepting 1s. per quarter less money, the demand not being active at that reduction. Fine weather again being the rule throughout the country, farmers who had any stock left, despairing of doing better or even so well after harvest, exerted themselves to make the most of their opportunity; still their contributions were so generally scanty that the brightest sunshine appeared to have no effect upon the markets, which rather hardened than evinced any disposition to give way in prices. This was so generally the case that we have no special markets to quote. Scotch wheat was again another 1s. per qr. dearer at Edinburgh, there being so little on offer; but the foreign importations continuing liberal at Glas-

gow, Russian sorts were once more reported 1s. per qr. down. Dublin noticed no change of value, in spite of the scantiness of Irish supplies.

On the third Monday there was a moderate increase in the English supplies of wheat; while foreign sorts were in plenty. The Essex and Kentish stands through all the morning looked bare for want of samples, and with heavy storms since the previous market, prices obtained a rise of 1s. per qr., but it was paid reluctantly. The general want of home produce forced millers to turn their attention to foreign, and there was rather more doing, but no advance of price was realised. Fine heavy white Australian was in chief request. The change of weather enabled holders of floating cargoes to obtain 1s. per qr. advance. The weather continuing rough and boisterous for the whole week, the country markets more than followed Monday's London advance. Some of the earlier markets were only about 1s. per qr. dearer, among which were Hull, Sheffield, Spalding, Stockton, Croydon, and Birmingham: but an advance of 1s. to 2s. was noted at Bury St. Edmund's, Chichester, Newark, Leeds, Lynn, St. Ives, and Boston; and nearly all those of Saturday were equally raised, while a few were up 3s. per qr. Liverpool was dearer at both markets; Glasgow was also firm, but Edinburgh dull. Dublin advanced 6d. per barrel on wheat, with a fair business.

On the fourth Monday the English returns were the smallest of the month; but those from abroad were much the heaviest, being nearly 67,000 qrs. Very little English wheat appeared during the morning, and, in spite of the large foreign arrivals, and an improvement in the weather since the previous Friday, with indications of its being settled and warm, Friday's advance was maintained—say, 1s. per qr. The large arrivals of foreign did not exempt it from this benefit, sales being made at equal rates; but the demand was not so extensive as on the previous day, when apprehensions were entertained. Floating cargoes were more buoyant, at a greater rise, sales being made at 2s. per qr. over the previous week. Though subsequently for a time the weather was fair, the country markets were generally dearer—some from 1s. to 3s. per qr., and the return of much rain on Friday the 26th sent up prices 1s., with a prospect of a further advance on Monday.

The imports into London for four weeks were in English qualities 9,635 qrs., in foreign 118,022 qrs., against 10,960 qrs. English, 136,940 qrs. foreign in 1866. The general average commenced at 65s. 8d., and closed at 64s. 7d. Those of London began at 68s. 2d., and closed at 69s. 1d. The imports into the kingdom for four weeks to 13th July were 777,594 qrs. wheat, 50,717 cwt. flour.

As with wheat, so it has been with flour—buyers have kept their stocks at the lowest point, both from fear of the weather damaging the condition as well as lowering the market. This has been done to that degree, that with less ample supplies from the country, in consequence of the manufacture not paying, prices have been gradually rising till the best marks have risen 2s. to 3s. per sack, and foreign has also improved 1s. to 2s., being

aided by accounts from Paris, where prices have risen from their lowest point about 5s. per sack. Nothing has arrived from America, and, indeed, nothing was expected; but since a great reduction at New York, in anticipation of a fine harvest, some shipments of low quality have been sent on speculation to Scotland, where they may find a vent for manufactories or dog biscuits. No change has been made in the top price of town qualities, which was relatively high at 60s. at the beginning of the month, but now seems more likely to rise than fall should the weather prove unpropitious. The imports into London for four weeks were in country sorts 59,975 sacks, with 8,634 sacks foreign, against 56,431 sacks country, 6,655 sacks foreign for the same time last year.

The barley trade, as is usual at this period, has been on a small scale; but with stocks exceedingly limited, and a reduction in foreign imports has been gradually advancing. The crop appears not so promising in quantity or quality, as was a little while ago expected. The late rains have, however, done much good, and some fine samples of new will no doubt be forthcoming. As almost nothing is expected from abroad till the new crop comes in, prices till then seem likely to be maintained. Good grinding, which a little while ago was worth only 31s. 6d., is now saleable at 33s. The chief demand has been for this quality, but other sorts have about improved equally. The imports into London for four weeks in British sorts were only 1,029 qrs., in foreign 12,555 qrs., against 793 qrs. British, 38,820 qrs. foreign in 1866; so that our foreign imports then tripled the present quantity.

The malt trade, with less favourable accounts of the barley crop, ceased from its downward tendency, and a fair business was done, at rates previously realised with difficulty.

Our dependence for oats has been almost exclusively in the foreign supplies, which have been in demand for the country and export to France, where this grain has been very scarce and dear. Prices have slightly fluctuated with the arrivals: first 6d. upwards, then on the third Monday 6d. downwards, and on the fourth upwards again, leaving the balance about 6d. per qr. in favour of prices. Russian sorts have not appeared in such quantities as expected, owing to the sad loss of many vessels in the ice at Archangel, which had been chartered for that port. They will, however, eventually come forward; but we do not look for a permanent decline this side harvest, there being so few left in the country. The crop of early hay has fortunately been very good, or we might have been in straights. Rigas, 35lbs. per bush., are now held at 25s. per qr. The imports into London in four weeks were 1,934 qrs. English, 216 qrs. Scotch, 110 qrs. Irish, 208,736 qrs. foreign, against 1,555 qrs. English, 300 qrs. Scotch, 1,090 qrs. Irish, 191,437 qrs. foreign in 1866. Exports 3,924 qrs.

The bean trade has been remarkably quiet, not so much from large arrivals as from a limited demand, and the fear of better supplies shortly from Egypt, where the crop is said to have turned out well; and prices had fallen to 28s., with good arrivals at Alexandria. Our own crop, too, though





# THE FARMER'S MAGAZINE.

AUGUST, 1867.

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SEPTEMBER, 1867.

[THIRD SERIES.]

THE  
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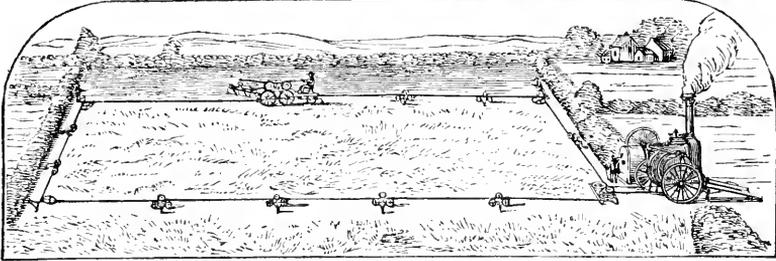
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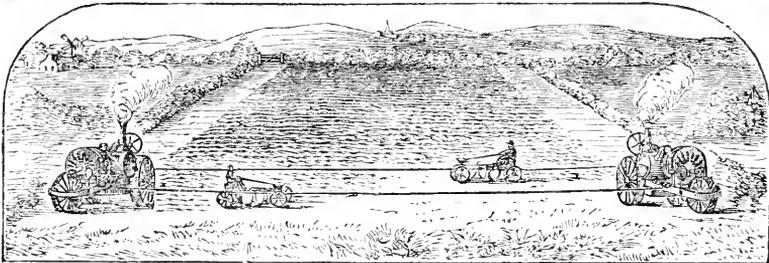
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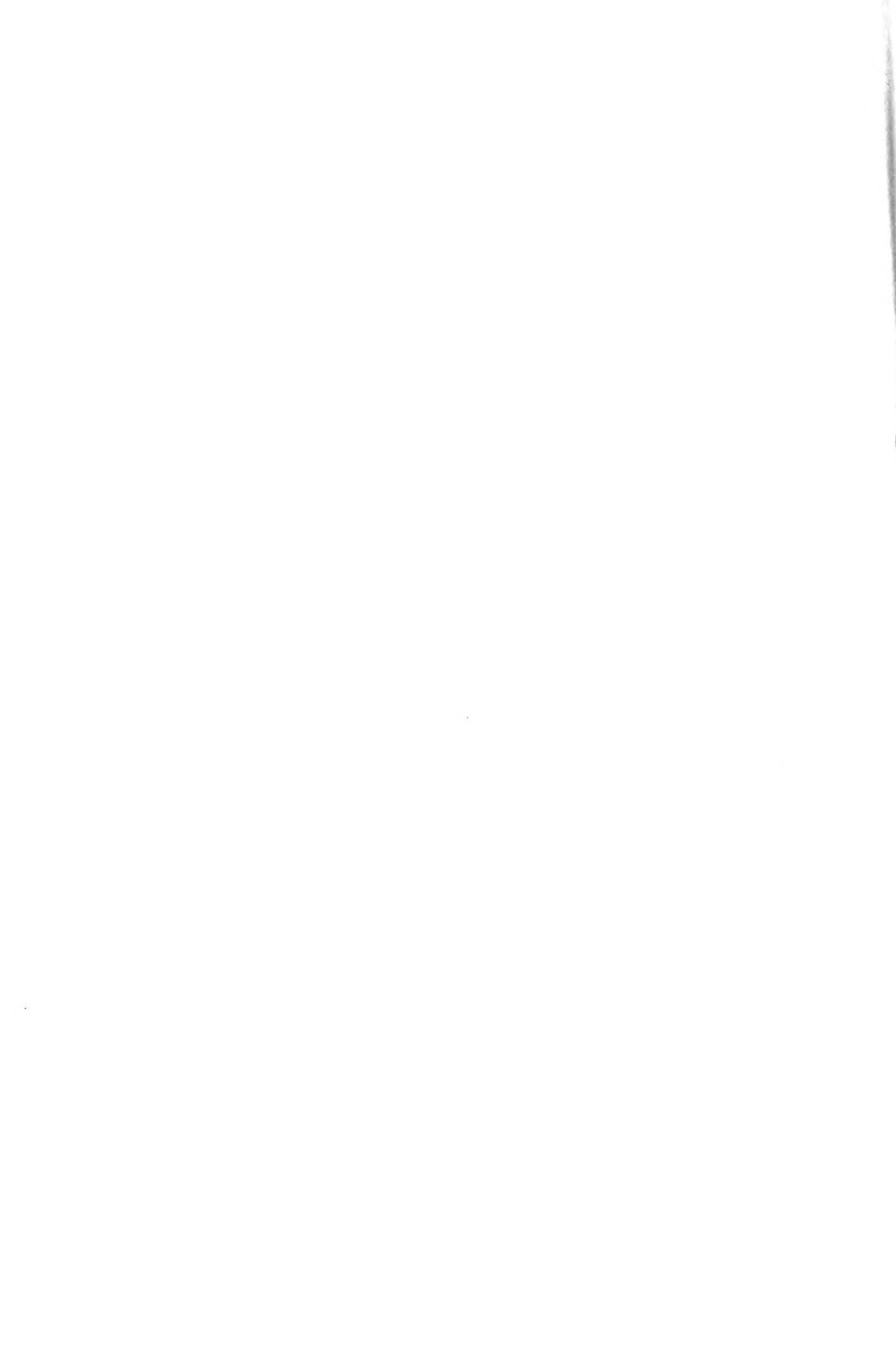




1871







# THE FARMER'S MAGAZINE.

SEPTEMBER, 1867.

## PLATE I.

### THE DEAN; A PRIZE COB.

THE PROPERTY OF THE EARL OF ROSSLYN.

Although The Dean did not take the extra Medal as the best "weight-carrying" cob at the last Islington Show, we consider him to be altogether so much the best of his year that we have had no hesitation in giving him the place of honour in the Magazine. There are some people who are only fit for water-carriage or the Goods Train, and with such of course the sixteen or seventeen stone capability will always have its weight.

"The Dean, a dark brown cob, of great character and good action, that many an elderly gentleman would like to get hold of, trotted off with the first prize at his ease, the second being taken by a good goer up to weight; while there were seventeen other entries, with one or two good-looking things amongst them." It was thus that we wrote at the time; and Lord Rosslyn speaks to the merits of his little horse in this wise: "The Dean is a brown cob, six years old, bought by me from Mr. Charles Symonds, of Holywell-street, Oxford, who averred that this was one of the best hunters he ever possessed, and I must say that I never saw or had in my stable a finer or more resolute fencer; but from his high round action he tires himself in deep ground, although he can for a cob gallop remarkably fast. He is particularly intelligent and good-tempered, but full of fire and spirit, and will

always help you out of a difficulty in harness, as once happened to me when a strap broke, and though he was very fresh, and had just started, he at once looked round, and stood stock still. Lady Rosslyn drives him anywhere. I understand from Mr. Symonds that he bought The Dean from a farmer in the county of Durham. He stands exactly fourteen hands and an inch, but girths like a horse, and is as big to sit on as any of my sixteen-hands horses. With the exception of a slight corn, he is the soundest animal in the world, and can trot fourteen miles an hour without an effort." Never was there stronger confirmation of an award.

There is little to add to this, but we may say that The Dean has a rather Roman, knowing-looking head, with a full kindly eye, a nicely crested neck and beautifully laid shoulders. His middle is good, and his somewhat drooping quarters set off by a varmint bit of a tail. He has well-proportioned wearing-looking legs, and is altogether a very gentlemanly-looking hack, with breed, power, and fashion, as, in fact, entirely free from the beefy vulgarity and lumber much too common with what are called weight-carrying cobs. The Dean was regularly hunted in Leicestershire last season, and if we had a fault to find, it would be that so clever a nag should ever have had a collar put over his head.

## PLATE II.

### ON THE RIPPLE.

"Of late years the owners of rivers have found their revenues largely increased by their endeavours to preserve the rivers in good fishing condition, not only by guarding them from poaching, but by care in stocking and replenishing them from other sources. Indeed, the ownership of a river, or of a considerable tract of one, is equal to a good fortune; for even if the market value of the fish is not very large, the rentals demanded and obtained from sportsmen is something fabulous. Twenty-five years ago the rentals produced from the Tweed amounted to £18,000 a year. They afterwards fell off owing to want of sufficient supervision of the river. But since legislative influence, aided by

scientific experiments, has been brought to bear upon them, the Tweed, the Tay, the Spey, Findhorn, Isla, Tummel, Oykel, Shin, Beauly, Lockey, *cum multis aliis*, have enormously improved in their yields, and are the means of greatly enriching the country."

We take the above from Murray's *New Hand Book for Scotland*, one of the most perfect works of the kind ever published, and that must be equally useful to the tourist, the sportsman, or the traveller who goes North with more business-like intentions. Our very extract, in fact, tends to show how much profit may be made out of our pleasures.

## I N S T I N C T.

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

Every reader of this magazine must have noted, on many occasions, certain phenomena in animals, as well as vegetables, which evince a power that we commonly in animals call "instinct." These facts are not only very interesting, but instructive. Instinct has been defined by Bain (*The Senses and the Intellect*, p. 256) as "The *untought* ability to perform actions of all kinds, and more especially such as are necessary or useful to the animal;" it is, therefore, opposed to *education or experience*.

We have many instances of this around us. A bird, artificially hatched, as in an oven, makes her nest, lays her eggs, and sits upon them, just in the same manner as a bird produced in the ordinary way; and, yet, as the celebrated William Paley remarked, "What should induce a bird thus hatched to prepare a nest before she lays her eggs?" It is in vain to suppose her to be possessed with the faculty of reasoning, for no reasoning will reach the case. The growth and solidity of the egg within her could not possibly inform her that she was about to produce something which, when produced, was to be preserved and taken care of. The *analogy* was all against it, for, in every other instance, what issued from the body was cast out and rejected.

These evidences of what we call instinct early attracted the attention of mankind. It is now long since that an earnest searcher after truth took a newly-dropped kid and placed it by itself in a room in which were placed three vessels, containing, 1 water, 2 wine, 3 milk. He found that the kid only smelt at the water and the wine, but drank the milk. Every newly-dropped calf finds its way to the udder of the cow; it does not attempt to extract nutriment from any other portion of her body.

There is, no doubt, however, as it is well remarked by Darwin (*Origin of Species*, p. 215), that "natural instincts are, to at least a considerable extent, lost under domestication." As he observes, an instance of this is seen in those breeds of tows which rarely become "broody," that is never wish to sit on their eggs. Familiarity, indeed, alone prevents our seeing how universally and largely the minds of our domestic animals have been modified by domestication. All wolves, foxes, and species of the cat genus, when kept tame, are most eager to attack poultry, sheep, and pigs; and this propensity has been found incurable in dogs which have been brought home as puppies from Tierra del Fuego and Australia, where the savages do not keep these domestic animals. How rarely, on the other hand, do our civilized dogs require to be taught, even when quite young, not to attack poultry, sheep and pigs! No doubt they do occasionally make an attack, and are then beaten; and if not cured, they are destroyed; so that habit, with some degree of selection, has probably concurred in civilizing by inheritance our dogs. On the other hand, young chickens have lost, wholly by habit, that fear of the dog and cat, which, no doubt, was originally instinctive in them, in the same way as it is so plainly instinctive in young pheasants though reared under a hen. It is not that chickens have lost all fear, but fear only of dogs and cats; for if the hen gives the danger-chuckle, they will (more especially young turkeys) run from under her, and conceal themselves in the surrounding grass or thickets; and this is evidently done for the instinctive purpose of allowing, as we see in wild ground-birds, their mother to fly away. But this instinct retained by our chickens has become useless under domestication, for the mother then

has almost lost by disuse the power of flight; "hence," adds Mr. Darwin, "we may conclude that domestic instincts have been acquired, and natural instincts have been lost, partly by habit and partly by man selecting and accumulating, during successive generations, peculiar mental habits and actions, which at first appeared from what we must in our ignorance call an accident."

When we turn to the vegetable world, we meet with other curious facts which seem to indicate a kind of instinct.

I have noted in my own garden, at Croydon, extraordinary efforts made by the roots of timber-trees to reach rich soil. By the side of a timber plantation, for instance, we have constructed, of bricks carefully set in compo, so as to exclude the roots of the adjoining trees, a root-tight case for a bed of roses. The sides of this lining are raised just to the surface-level of the outside earth. Now we find that the roots of the adjacent wych elm and sycamore-trees creep *over the edge* of the brick lining, and dive into the rich soil in which the roses are growing; and, although these are cut away, they continue to extend themselves in the same direction. Another curious instance of the roots of plants coming to the surface in search of food is shown in our sewage-irrigated meads at Norwood. The soil of these is composed of the London-basin clay, and we had considerable doubt whether the sewage would penetrate with sufficient rapidity to the roots of the grasses to enable the plants to purify the sewage. But here another curious fact presented itself—the roots of these grasses to a considerable amount have extended themselves *on the surface*, forming a matting on the top of the soil. The luxuriant produce of these crops, I may add, is most remarkable.

We need hardly search for the object of these deviations from Nature's habits; "for," as Dr. Carpenter remarks (*Principles of Physiology*, page 653), "there are evident limits to the supply of alimentary materials to the roots of plants, as long as they remain in the same spot, and some change must take place to ensure its continuance. As the plant cannot remove itself to a new situation, its wants are provided for by the simple elongation of its radical fibres; and their extension takes place, not by increase throughout their whole length, but by addition of fresh tissue to their points. This addition, being made in the direction of least resistance, enables the fibrils to insinuate themselves into the firmest soil, and even to overcome the obstacle presented by solid masonry; for, however narrow the crevice may be into which the filament enters, the subsequent expansion of the tissue by the infiltration of fluid is so great as to enlarge the opening considerably, and even to rupture masses of stone. This tendency to increase in the direction of least resistance will also evidently cause the root to grow towards a moist situation; and, by keeping this in view, many of the facts regarding the so-called instinct of plants, which at first sight appears so remarkable, may be satisfactorily explained. Thus it was noticed, when the water of the New River was conveyed through wooden pipes, that if these pipes were carried within thirty yards of trees, they were very likely to be in time obstructed by their roots, which 'found' the joints, and then spread out in 'foxtails' of fibres two or three feet long."

In other cases we must attribute the result to the dispersion of vapour through the atmosphere in a par-

icular direction. Thus, in a case which fell under Dr. Carpenter's cognizance, a lime-tree, which grew at the distance of about fifteen feet from the shaft of a well, sent a single long root through the soil in a direct line towards a point of the shaft at which there was a small aperture left by the deficiency of a brick. This aperture was at a height of eleven feet above the usual level of the water in the well, and, having passed through it, the root divided into a brush-like mass of fibres, which descended into the water, and formed a large mass in the lower part of the well.

Again, in a peculiar case known to Dr. Carpenter, in which one tree grew upon the trunk of another, having originated from a seed deposited at about twelve feet above the ground, one of the large roots which it sent down sub-divided about two feet above the surface of the ground, instead of proceeding directly down to it, as did all the rest. Now this subdivision took place above a large stone, on the centre of which the root would have impinged, if it had continued to grow directly downwards: and it would appear as if its division, half proceeding to one side and half to the other, was due to the direction given to its growth by the ascent of vapour from the soil beneath. On the same principle we are probably to explain the following case. Near the waterfall at the head of the River Leven, in the Western Highlands, is the trunk of a decayed oak, rotten within, but alive on some parts of the outside. From one of these a shoot grows out, about fifteen feet from the ground, and this shoot has protruded from its lower part a root, which, after having reached the ground (a bare rock), runs along the rock in a horizontal position about thirty feet further, till it reaches a bank of earth, in which it has embedded itself.

I have in another place had occasion to remark, when speaking of these curious root extensions, that when we were, a little time since, employed in tracing the burrowings of the common earth-worm—were marking, in the excavations of the Surrey claypits and of the Suffolk crag, his deep and useful labour, we noted that he did not possess the subsoil all to himself; we found that there were other living things, plants, whose roots seemed to keep pace with his almost unnoticed borings. If the worm had deeply penetrated close to the surface of the water-line beneath the soil, and when that water-line was by improved drainage lowered, if the worm by this operation was able to deepen his borings, so side by side, and sometimes even within these borings, the roots of the other tenants of the soil to an equal extent increased and kept their way. But in noting these facts, another and equally interesting question arises. For what purpose are these roots extended into soils apparently so poor, so barren? and why do they seem to follow as it were the retiring water? We may perhaps usefully remember, before we dive down into these pits, for the purpose of tracing the long roots which the gently caving in of the earth has uncovered, that through these roots, more than one, by us little understood, operation is going on; that through them are absorbed, not only the substances soluble in water, which the plant requires, but the silica, the alumina, and other matters which are not so easily dissolved. It is evident, however, that these roots in some mystic way accomplish these things; and when we notice, as in the pits to which I have been referring, the roots of the wheat plant extending to a depth of four or five feet, and those of some of the common field grasses nearly as far, we can hardly escape the conviction that there must be something in the soil—"some good," as the ploughman says, in these apparently inert subsoils, of which these rootlets are in search. My examination of these roots were chiefly confined, on the occasions to which I have alluded, to those of the cereal and other grasses. Other

persons have noticed the great and interesting extensions of the roots of plants of a larger class, and of the way in which they occasionally obstruct the farmers' drains. It was when speaking of the deep drains made by the late Duke of Portland, at Clipstone, that Mr. J. E. Denison had occasion to notice the considerable depth to which the roots of certain trees will penetrate in search of food. When alluding to these works he remarked (*Jour. Roy. Ag. Soc.*, vol. i., p. 364) that great care must be taken not to carry these deep drains within a very considerable distance of trees. Their roots seem to be attracted in a wonderful manner by the moisture of the drains; and if they once find their way into the tiles, they throw out bunches of fibres, which soon mat together and stop the drains. "It is astonishing," Mr. Denison continues, "that the depth of the roots even of the smaller vegetables will descend after the water. A deep drain outside the garden wall at Welbeck was entirely stopped by the roots of some horse-radish plants, at the depth of seven feet in the ground. At Thoresby park a drain fourteen feet deep was entirely stopped by the roots of gorse, growing at a distance of six feet from the drain. At Saucethorpe, in Lincolnshire, a drain nine feet deep was filled up by the roots of an elm tree, growing more than fifty yards from the drain. But then it was under these peculiar circumstances: the elm grew at the end of a sunk fence, the wall of which was formed of turf; the root of the elm got between the turf wall and the solid bank, and worked its way along until it got into the drain, which it soon filled up. The roots of all trees will stop drains, but especially of soft-wooded trees, such as willow, alder, poplar, &c. Ash trees, too, are very dangerous neighbours to deep drains. In one case the roots of grass stopped a drain two feet deep, in the parish of Mansfield Woodhouse: the drain had been carried across a field of old turf, to convey water for cattle from a higher level." The explanation of this disposition of the roots, both of vegetables and trees, to strike deeper than ordinary in pursuit of drains, appears to Mr. Denison to be this: in digging the drains, the sides are cut down straight, and the ground left like walls on each side, while over the drain the earth is all moved; between the solid and the moved soil, for a long time something like a fissure or crevice remains; when the roots in their progress through the solid land reach this fissure, they pass down it, and so follow its course into the drains. This, however, I take as only a partial and too mechanical an explanation of the phenomena; it only tells us that the roots penetrate because their progress is facilitated by loosening the soil, but it leaves unnoticed the exciting object, viz., what the roots are in search of. It is probable, from the later researches of the chemist, that the almost insoluble substances of plants may be absorbed by the roots of plants in combination with lime, ammonia, or other substances, silica for instance being when thus combined slightly soluble in water. Way and Paine, when recording their observations on the silica strata of the lower chalk, did not omit to notice this property of the silicates; they determined (*Jour. Roy. Ag. Soc.*, vol. xiv., p. 241) that a gallon of water will dissolve about 20 grains of the silicate of lime, of which 15 are silica. We can mark, then, one substance which the roots of the wheat-plant, for instance, are in search of, to supply the abounding silica of its straw. Neither are the subsoils of many a farm so devoid of even nitrogenous matters, as we are too often content to believe.

The source indeed from whence plants derive their nitrogen has for some little time engaged the attention of the chemist: and it was when dwelling at considerable length on this important question, that Mr. Way had occasion to remark (*Jour. Roy. Ag. Soc.*, vol. xvi., p. 262): "That plants do absorb nitrogen in some form from the air, seems evident. Recent examinations of the ammonia

contained in soils, some of them taken at considerable depths, and long out of the reach of cultivation, have shown a large quantity of this substance to exist in them. Whence was this ammonia derived? Not from manure, nor for rain, for in one case I examined a clay of the plastic clay formation, dug twenty feet from the surface; it was physically impossible, one would think, that either air or water could in any quantity at least get access to this depth, in so close and tenacious a material, yet I found more than one part of ammonia in 1,000 parts of this clay, and I ascribed its origin, as it appears to me it should be ascribed, to the waters of the seas or lakes from which the clay was first deposited, and from which, by its absorptive powers of ammonia, it had removed this alkali in an insoluble form." The existence of ammonia in a soil seems an inherent and inseparable result of the presence of clay in the soil, and we may well question whether all ordinary soils in a state of nature do not contain within reach of the roots of plants, especially of large trees, sufficient ammonia to account for any accumulation of vegetable matters.

The tracings of these curious underground operations lead us to still more certain views as to the advantages derived from deepening the soil and lowering the level of the permanent water-line. We again see, in even the extensions of the roots of plants, and those of the borings of "the common earthworm," that Nature's hints are ever the most certain and the most valuable.

We trace, then, the underground movements of the roots of our plants, and we find them extending the most vigorously into the richest or moist portions of the soil with which they come into contact. In such cases we see reason to conclude that they do so because their roots are rendered more vigorous and powerful than roots which are extending into poorer or drier soils. But this does not explain why a plant extends its roots through a poor soil, and even leaving the soil and extending them through the atmosphere, to reach adjoining or even distant sources for a supply of nutriment. We must here, indeed, be content to endeavour to conceal our ignorance from ourselves by *explaining* the phenomena as "kinds of instinct."

## TEXTLESS NOTES.

BY A CROTCHETY FARMER.

Following up the train of thought suggested by one or two points reached in the course of my last note, I would ask why it is that political subjects are ignored at the majority—I might almost say, without fear of contradiction, the whole—of our farmers' clubs and agricultural societies? It would be very curious—undoubtedly very suggestive—to trace the reason for this general tabooing of this class of subjects for discussion. Reason assuredly there is for it, just as there is in the roasting of eggs, to compare small things with great, if, indeed, the case should not be reversed, and put thus to compare great things with small; for much more important does the roasting of eggs, or any other kind of roasting, seem to many of our community, than the discussion of subjects which do concern them most intimately, political as they are, else how comes it that these subjects are so determinately ignored and set aside? To my mind, there is something positively childish in the fear expressed by our farmers at their meetings at anything approaching a political character. Now, good reader (all my readers are good—fancy any bad fellow reading the *Mark Lane Express*! the idea is, in fact, deliciously absurd), confess, does not the whole matter remind you of a little one desperately afraid at a squib, or some explosive firework, lying sputtering on the ground, and yet as eager and anxious to get at it and set it off? You can fancy the expression of the gosoorn's face—dread and desire most comically mixed up in it: now a step forward to get hold of it; then another backward, in fear of its fairly firing off its last great volley while in the act of catching at it; and then the notion finally getting the upper hand that "discretion is the better part of valour," and that it will be best to let it alone. The little fellow knows all the while that his companions are looking on, and would applaud him if he had the courage to grasp the fizzing affair and launch it into air boldly forth from his own hand, in place of allowing it ingloriously to lie on the "cold earth," and expend its fire and fury there. Just so with the farmer at these meetings: a latent notion has each one there—that is, if he has any spark of intellectual vitality left in him, and is not a mere dead brick-wall of a man—that it would be a good thing to take the

subject directly up, and fire it off himself. For we know that, despite all that is said to the contrary, political subjects are full of interest to them—that upon them, and upon the way in which they are met, discussed, and *decided* rests very much indeed the question of their position in the community; and yet, notwithstanding this, they allow themselves to be talked out of this their opinion, and suffer the most important things that can concern them to be quietly shoved out of sight, if not out of mind. I say they *know* all this, and yet it is right that I should justify myself in making this statement, for apparently it is in the face of a good deal of our daily experience, by qualifying it in so far that they can know it if they like—that is, if they choose to think about it, for assuredly with our thinking will come the knowing; and here, to a large extent, is it where the shoe pinches. The members of our farmers' clubs will not think about it. Marvellously strange it is how readily and easily men allow themselves to run in the same groove from year to year, thinking the same thoughts, or, to put it more correctly, living without having any thought at all, doing the same from day to day, because and apparently for no other reason than that they have done it so long; or because they are induced by somebody, or advised by somebody to do it, and to continue to do it; and these latter words of mine remind me of another remarkable phase in men's characters—the ease with which they are led to adopt a certain course, and to continue in it. There seems a gregariousness of thought in men, if I may be allowed the expression, similar to the gregariousness in sheep, which prompts them to follow the leader of the flock; and let the reader mark that the following is done just as readily whether the leader takes them into a rich pasture-field or into a ditch where they are smothered. Any old fool of a bell wether can make his "silly sheep" go where he likes.

I therefore come back to the question asked at the beginning of this article—How comes it that political subjects are so feared? And feared they are, or they would be more effectually handled than they are. Truth compels me to say, by the way, that they are not handled at all, for a very little consideration would show that there is no class of men whose interests would be more thoroughly

benefited by the proper adjustment of political subjects than the farming-class, for agriculture is really what the ancients called it, the mother of all the arts; and what concerns the interests of agriculture, concerns consequently the interests of all classes of the community. So that in place of a divided there is the closest of all interests in political subjects, as discussed, or rather as they should be discussed by farmers and those connected with agriculture. Apart from another consideration, which may or may not be named in the course of this note—just, indeed, as I am in the vein; for a crotchety man like myself must not be tied by any rules of the press: the *freedom* of the press, in its largest and widest sense, is what men of *my* kidney claim—apart, I say, from another consideration, it is just possible that the cause of political subjects being ignored in the discussions of farmers' clubs is, a false notion prevalent as to what is the meaning of the term "political." With many members of these clubs, the term would seem to convey something awful and mysterious, as involving a power which if once invoked, would spread devastation and misery around—as if, indeed, to put the matter strongly, it were an unlucky thing to have anything to do with it, a thing not to be either touched, tasted, or handled, or what our friends north of the Tweed would designate as "a thing that's no canny." Doubtless, to a certain extent, this feeling is excusable, if the notion of what is involved in discussions political is gathered from what is shown of them in connexion with certain schools of politicians, and which of late have given some remarkable manifestations of what political discussions should *not* be, in which the great features are, a complete ignoring of the fact that there are men who are good, and who are yet of different opinions from these declaiming demagogues. There are such things, good reader, as aristocratic demagogues—they are not all democratic ones—who show a complete forgetfulness of the charity which believeth all things and *hopeth* all things, and indulge perpetually in bandying about of terms, epithets, and aspersions of all notions that are not "of the heavens, heavenly." These men, good reader, do certainly belong to a poli-

tical school—not one to which I have any desire to belong; but then it is to the school of political scavengers, who love to rake amongst the dirt of men's motives, who do not search to look for jewels, and would not know how to value them if they found them. The reader will do me the justice to believe that I do not here draw the above picture of a political class as on one side of the house. On whatever side it is, it is hateful; and whether its adherents sport a handle to their name, as Sir This or My Lord That, or have no handle, but rejoice in plain John or Jack, as the case may be, I still call them what I have above called them, and will call them till they turn from the error of their ways, and "live cleanly" as becomes gentlemen. But this is not political life, neither is it political discussion; to be abusive is not to be clever, to be scold is not to convince, and farmers therefore who have, as I fear too many of them have, the notion that political discussion brings these things into existence are really mistaken. Political subjects can be discussed, ought to be discussed calmly, and only when they are so discussed are they convincing and powerful in results. The political subject concerning which farmers are interested—say they what they may, or whatever may be said for them—are subjects which concern them closely, and one not deserving of being tabooed as they are, but on the contrary, of being welcomed by all, discussed by all.

As for the other consideration which I have above alluded to, and which I will name before I conclude: Is it the fact that political subjects are tabooed at farmers' clubs and agricultural societies, because at the time of their constitution a pressure, quietly or not quietly exercised, was brought to bear upon them to prevent their discussion for fear subjects might be discussed which would touch the interests or prejudices of some great folks or folks in no sense great, and which "my dear fellow, you need not trouble yourself about, for you know nothing about them, and in point of fact, they do not concern you." Is this consideration a mere crotchet of mine I wonder, or is it true? Suggestive it is at all events.

## H A R V E S T T I M E .

On the eve of harvest and with the difficulties of last season still fresh in our memory, we are induced to shortly review the most popular modes of cutting, maturing, and safely storing corn, so that it shall not only be fit for reproductive purposes and bring the highest price of the day on which it is disposed of, but also be a credit to the producer when he comes to offer it for sale.

During August, September, and a portion of October last year, when most farmers were at their wits' end about the broken state of the weather and consequent precarious condition of their crops, and were exerting themselves to the utmost to get the outstanding corn in some degree of safety and thereby avert heavy loss, there were numerous suggestions offered through the medium of the press as to the best and most expeditious modes of doing so. Some of these were wholly visionary; and the remainder, although at first sight sensible enough, were yet, so far as the majority of agriculturists were concerned, and to tenant farmers more especially, totally impracticable. Amongst the most prominent and apparently most feasible of these suggestions was the proposal to cut off the ears short by the head, and storing at once in airy lofts or other suitable buildings, the value of the straw being looked upon as a mere secondary consideration, and to be attended to only when the grain was all secured. However well this plan might look in theory, it is totally incompatible with the practice of an old settled country like Great Britain. In the first place, labour is both

dear and scarce, and any project that necessitates additional labour and expense receives but little favour in the eyes of the British farmer of the present day. Under the most favourable circumstances this plan would unavoidably entail additional labour, the ground having to be gone over twice, and the labourers moreover being unable from want of practice and proper implements to make much progress in severing the ears from the straw. The very waste of straw would ever form a second and powerful reason against the introduction of such a system of harvesting into this country. No care could prevent an excessive amount of waste in this valuable part of the year's crop, second only in importance to the corn itself, as by its aid the fertility of the land is kept up and a sure foundation laid for the growth of future crops.

Kiln-drying was another of the suggestions offered, and not without some appearance of feasibility, yet it is highly probable that no one in this country has ever acted upon this suggestion, unless a maltster or miller, who has his kiln ready made. Neither of these suggestions, in our opinion, will ever be acted upon to such an extent as to have buildings erected for the purpose; indeed, most farmers would find some difficulty in persuading their landlord to expend capital on such erections.

To save corn and mature it, so as to enable it to be put together without injury, we must still depend on the sun and wind, two excellent although old-fashioned servants, and when used judiciously, and every opportunity seized on, they are the

best assistants yet discovered in preparing the fruits of the earth for the use of man.

There is generally with most farmers, and with young men more particularly, a considerable amount of anxiety as to the proper period of commencing to cut, and every season a good deal is written on the subject. A more important question could scarcely be discussed, as a very slight mistake is often the cause of very heavy loss. The loss from over-ripening becomes especially serious, when the cutting is farther delayed by bad weather, and as every one's eyes get opened almost immediately after the harvest has begun, familiarity with a matter that has been laid aside for a year and partially forgotten begetting confidence, excessive loss from shedding becomes a source of the most intense annoyance.

Few men suffer loss by cutting too green, yet it is the safest side to err on, as even if there was a slight loss from shrinking in the portion first cut, every succeeding day is improving it, and the probability is, that before the field so begun is finished, the state of the grain is all that could be desired by even the most cautious. It is astonishing how much corn ripens after being cut, and that too not the sort of ripening which consists in merely drying off, but regular filling, the grain retaining its weight and substance, and the skin clear, delicate, and thin, totally different from the thick and rather rough-looking skin of grain that has stood too long. The natural juices of the straw are apparently sufficient to carry on the ripening process after severance from the ground has been effected.

Since the extensive introduction of the scythe and mowing machine into the harvest-field, it is much more necessary to cut early than it was previously, the crop being considerably more knocked about, and subjected in every way to what formerly would be counted very rough usage.

Even in the handling of the sheaves there is a great difference to what there was at the time when the hook was in general use. Men were plentiful then, and not so expensive; and if the corn did happen to be a little over-ripe, the extreme care and tenderness with which the sheaves were handled tended in a very great measure to prevent waste by shedding. It is quite impossible to exercise such excessive care at the present day, every operation being performed in a hurry; and the very implements now used in the harvest-field have a tendency to shake out the corn, if at all ripe.

Wheat should invariably be cut a few days before it reaches the period of full ripeness, and never, if possible, permitted to stand until the ear bends, as, if it does so, great loss will be the inevitable result, not alone from shedding, but from the ears breaking off close by the head; and the straw even becomes so brittle as to lose much of its usefulness. It is pitiful to see good grain dropping out on the ground at every movement of the sheaves, from the stook to the waggion, and then again on being pitched to the stack, when the whole could have been prevented by a little foresight and the exercise of a little common-sense. A fair criterion for wheat is, when the straw has become of a yellow colour up to within six or eight inches of the ear, and the grain so firm that it requires moderate pressure between the finger and thumb to flatten it. When it comes to this stage of its growth, the sooner it is cut down the better. The grain will get firm and hard in the stook; the sample will be clear and bright; and the loss from shedding or breaking off by the head will, under ordinarily favourable circumstances, be scarcely worth a moment's consideration.

Oats are all the better for being cut a little early, and ripen wonderfully well in the stook; and the straw, when so cut, makes excellent winter provender for cattle, equal—nay, in many cases superior—to ordinary hay. It is almost impossible to permit this crop, the black varieties more particularly, to stand until fully ripe, it being then an impossibility to save the top grains, the most valuable portion of the entire crop. When a field of this corn is much laid, it is very easy to make the mistake of being too late in cutting, as there is generally a kind of second growth, which, being later and consequently shorter, remains erect, while the bulk of the crop is stretched on the ground. The green colour of this growth is very liable to deceive, unless the crop is carefully gone through, and its ripeness ascertained by lifting from the ground. It is very disheartening for a farmer to see his stables, a few weeks after harvest, covered with a luxuriant growth of corn, the dropped seed which caused this amounting to probably twice

the amount per acre which was required to seed it in the first instance. Very few farmers escaped loss of this sort, more or less, during last harvest, the bulk of it, of course, being occasioned by the extremely inclement weather that prevailed over such an extended period; yet a great deal of it might have been saved, had cutting commenced a few days earlier.

Barley requires more care as to the proper period for cutting than either wheat or oats, as, if cut before having sufficiently ripened, it will not have the plump appearance so necessary for malting barley; and if the cutting is delayed after the state of ripeness has been attained, it is liable, from the extreme brittleness of the straw, to break off at the head, and so occasion considerable loss. This grain is so susceptible of injury from a variety of causes—sprouting, shaking, and discoloration—that it becomes a fruitful source of anxiety to the farmer, from the ripening period until finally disposed of to the maltster.

The crop having arrived at the period of cutting, the best implement for the purpose requires to be decided on, which, however, to be the best, must suit the means of the farmer, and the number of hands he can command. There is at the present day a considerable variety to choose from; but they may be simply stated as the hook, reaping machine, and scythe. The reaping-hook is becoming every year less and less used; still it does not appear as if it was in any danger of becoming altogether obsolete, many farmers reaping a portion at least of each year's crop with this old-fashioned implement. The smooth-edged hook, welded by a powerful and practised arm, does splendid work; and when the operator is an adept at shearing, striking-in, and scutching, the ground gone over in a day is considerable, and the quality of the work done all that could be desired by the most fastidious. High-priced labour, and that in many instances difficult to be had, has, however, compelled many farmers to throw it aside, who would not otherwise have done so; and its use is now in a great measure confined to farmers who have a good deal of labour within themselves, such as quarterly or half-yearly servants and members of their own family.

The reaping-machine now claims our attention; and we must say for it that, thanks to the persevering industry of the mechanical engineers of the present day, it has been brought as near to perfection as could well be conceived. Reaping-machines, as now turned out by the different makers, do the work in capital style, when the surface of the ground has been cleared of stones, and rendered as even as possible.

The great drawback to the use of the machine is the tendency of the corn to lodge, and become, in many seasons, so broken down as to be almost on a level with the surface. In cases of this kind the machine is useless, and the crop must be severed with the hook or scythe. On soils deficient in silica the straw of the corn-crops is unable, from the want of mechanical firmness, to withstand even a moderate amount of severe weather; and they are, on this account, nearly always laid. On such farms it is but of little use to introduce the reaping-machine, as even if it can be partially used, it requires so much assistance from the scythe as to render its services of comparatively small amount.

On extensive farms, with large enclosures, and the crops standing moderately well, its services are invaluable, the work being done quickly and well, and the men released from the fatiguing labour of the scythe—in itself no slight consideration to a feeling employer.

One grand feature of the reaping-machine is, that it is not easily injured by rough usage, nor easily put out of working order by jolting, meeting stones, or other obstacles. It requires, in the first place, to be well-horsed, as unless the propelling power is continuous and well sustained, the machine will get choked, and have to stop frequently for the purpose of getting the knives cleared. Stopping frequently is a very serious injury to the farmer, as not only is the time of the machine lost, but the whole of the hands are, for the time being, thrown idle. One-horse machines are, for this very reason, worse than useless, as one horse is not able to keep up sufficient speed to do the work effectively. Two horses are the least that should be attached to any machine; and they ought to be accustomed to each other, stepping well together, and also accustomed to the driver.

Some of the machines have a different pinion for harvest-work than that used in hay-cutting, and which communicates a slower motion to the connecting-rod. It is a mistake to



alter the motion, at least to make it slower, as the higher the rate of speed maintained the better will the sickle clear itself, and the fewer will be the stoppages. It is of the utmost importance to change the sickle frequently, as if the knives are at all blunt the machine will not do the work with the smoothness and precision that it otherwise would. Often when things are not going on sweetly, and the machine having to be stopped up vexatiously often, it will be found that a change of sickles has an almost magical effect, and the working goes on at once, without the slightest interruption.

So perfect are the machines now made, that if anything is wrong, and the cutting consequently defective, the cause will be nearly always traceable to carelessness in management, or some other cause purely local, such as unevenness of surface, foul stubbles, or moist clover, the latter being a fruitful source of annoyance.

We now proceed to a description of the scythe as a harvest implement: and we have reserved it for the last, believing it to be the most important, and most generally and extensively used at the present day for the severance of the corn crops. Being so eminently useful and of such general applicability in the harvest-field, and withal so cheap and easy to be had by the very poorest, it is astonishing this implement did not supersede the hook much sooner than it did. On the Continent it was introduced at a much earlier period than in this Kingdom: and the labourers were adepts at cutting the lodged crops with it, however twisted and tossed about they may have been, at a period when the farmers and labourers of this country considered the hook the only fit or available instrument for such a purpose. Its use is, however, well understood now; and there is no crop so badly laid as to prevent its being cut neatly and without injury by the scythe. It is essentially the farmer's implement, who is unable to purchase a machine, or whose farm is not extensive enough to warrant his doing so, and, moreover, is indispensable even on farms where the bulk of the crop is cut by machine. It has this advantage over the latter—that a field can be cleared, by its aid alone, from beginning to end; whereas the machine, even under the most favourable circumstances, must have the aid of the scythe to cut a way for it, clear the laid spots, and round off the corners.

Although scythes with peculiarly-constructed handles are made for harvest-work, there is still not the slightest necessity for any other form than just the ordinary hay-scythe. It requires no elaborate mounting. A hazel-switch or bit of wire, two feet in length, bent so as to form the segment of a circle, answers the purpose of throwing the corn tidily together remarkably well. Some men attach a rack, or cradle, to the head of the scythe, which, grasping the corn, permits none of it to straggle, and so enables the workman to lay it with as much regularity and quite as neatly as if done by the hook. Instead of the swathe being thrown out from the standing corn in the manner of hay, it makes much better work to throw it in, more particularly when the crop is a heavy one, or even moderately so. The advantage of this method is more apparent when the crop is laid and twisted, as, when thrown out, the jerk required to separate the cut corn from the uncut, almost invariably drags off a portion of the grain, however carefully the mower may endeavour to do it. When struck in, the swathe is left standing straight against the uncut corn, a smart lad or girl following, to lay it out in preparation for binding. To any one not accustomed to this mode of laying the cut corn it appears tedious, roundabout, and expensive; but in reality it is not so, as, when carefully gathered and laid out by the person following the scythe, one binder can do as much work as two can the other way, and that with comparative ease. Moreover, if the person laying it out is instructed to lay it down in quantities sufficient to make a sheaf, or, what is better, just such quantity as will require doubling to form a sheaf, the work of the binder is greatly lessened, and the crop must be very heavy indeed when three smart binders will not prove sufficient to keep two scythes going. The presence of thistles will hinder the binding much more than a weighty crop, and add to the expense very considerably. Not only self-interest but the cause of humanity should induce every farmer to keep his corn-fields clear of thistles, and if they are present in the growing crop they should be pulled out previous to the period of ripening. This practice was more general formerly than it is now, probably because the necessity for it was more general, but still where

necessary it ought never to be neglected. Thistle weeding in connection with agriculture, and growing corn more especially, has been immortalized by the national poet of Scotland in a few spirit-stirring lines—

“The rough burr thistle spreading wide  
Among the bearded bere,  
I turned the weeder clips aside,  
And spared the symbol dear.”

In cutting down wheat with the scythe it will generally be found very difficult to do it well by throwing it out, the straw being so strong, the least resistance putting it out of position and causing it to be laid irregularly, in spite of all efforts to the contrary on the part of the workman. When wheat is a heavy crop, and standing fair, the scythe makes capital work by striking it in: to do it to perfection the operator must not swing the scythe round, but strike straight across: by so doing he will leave the cut corn standing as straight and even as when growing, with scarcely a straw out of its place.

Barley and oats may, however, when the crop is not over-heavy, and standing nicely, with great propriety be thrown out from the standing corn, and when cut a little green can be left (weather permitting) for a few days on the swathe. Exposure to the sun and wind in this way has not only the effect of hardening and maturing the grain, but by winnowing the straw more quickly the time required to fit the crop for removal to the stack-yard is very materially shortened, which in itself is a matter of the utmost importance.

A strong man accustomed to scythe work, and an expert in the management of his implement, can clear a great quantity of ground in the course of a day, doing it at the same time in the best possible manner, leaving a scarcely perceptible stubble, if the ground has been rolled at the time of sowing the crop, and is free from large stones.

Three acres of light crop have been cleared by one man in a day by great exertion; two acres to each scythe is not at all unusual, and from an acre to an acre and a-half is the average amount of work usually performed when the crop presents no unusual difficulties. Every man working a scythe ought to be well treated by his employer, and liberal treatment is actually more economical in the end than ill-judged parsimony. A draught of ale or porter is peculiarly grateful between meals to a man engaged at such hard and continuous work as this: it refreshes and puts spirit in him, and he endeavours by extra effort to repay in increased labour what he himself has received in kindness. The scythe doing such a large amount of work on the harvest field, and doing it so well, it has become universally adopted, and suiting the means and conveniences of such a large section of the farming community, it is likely to hold a leading position, if not the foremost place in the harvest-field for many years to come. When the tendency of the corn crop to lodge and get broken and twisted about is taken into consideration, and the fact that in few years it escapes without more or less damage, it is difficult to conceive that the scythe will ever be superseded or fall into disuse.

Under the most favourable circumstances, for an ordinary back-delivery machine, six men with scythes will close its work so tight as to leave scarcely the slightest margin in its favour; but when difficulties present themselves in the shape of large breadths of lodged corn, the balance is a long way on the side of the scythe, and against the machine.

However anxious a farmer may be to get his crop saved, and however delayed by broken weather, it serves no useful purpose whatsoever to cut when wet, as much time is unavoidably lost by turning and re-turning to get it in a fit state to bind. When cut wet, and the weather for a few consecutive days continues broken, the grain chips and catches hold of the ground with marvellous celerity, and when this happens the most careful management will not recover the quality of the sample. There is no time when corn dries so quickly as when standing uncut. It is much better, therefore, to exercise a little patience, and watch every available opportunity to cut and bind the moment it becomes dry enough, stooking at once, and thus placing it in a position of comparative security.

In some districts the stooks are not capped, particularly when the weather has a settled appearance, and thus saving a few days in the field, as, when the stooks are uncovered, the sun and wind are admitted more freely into the body of the stook. In inland counties, and also those situated on the east coast, this can be done with greater safety than on the west coast of this

kingdom, the rain-fall being so very much less. In Cumberland, for instance, the rain-fall in a year is considerably more than double what it is in Lincolnshire; a great difference surely, occurring within a compass of little over two hundred miles, counting from even the extreme verge of the two counties. Such a material difference in the amount of rainfall existing in different localities, an amount of confidence in the weather on the one hand, and caution and distrust on the other, cannot fail to be engendered, and the general practice of a district will mostly be found conformable to the character it has for dryness or otherwise. During a troublesome season it is much better to cap or hood the stooks as the work goes on, and the crop is then comparatively safe. When a heavy and continuous rain-fall occurs, while the stooks are uncovered, and a large breadth out, it requires a Herculean effort to get the stooks covered, and, even with all the speed that can possibly be made, a great portion is often so wet before finishing that it might be as well left undone.

We now proceed to notice what is probably the most important, and, at the same time, most difficult task that devolves upon the farmer in connection with harvesting corn, viz., the management of the crop after it has been successfully cut and stooked. Let the weather be ever so favourable there is some difficulty in hitting the right time, and some danger of its heating in the stack; how much greater must the difficulty then be, when the weather continues broken for weeks, giving scarcely an opportunity of touching it at all? Excess of anxiety and over-zeal are not requisite; neither is it good to be over-cautious, as, in the first case, the corn is almost certain to be put together before being properly matured; and in the second, it may possibly be left out until overtaken by bad weather, and a portion of it spoiled. Under any circumstances, corn should never be finally stacked until properly won, this state being arrived at after a period of exposure in the stook, greater or less, according to the state of the weather and the state of ripeness at which it was cut. This last point is one of primary importance, and ought on no account to be overlooked, as corn cut greenish will require double the time to *win* than is required when fully ripe before being cut. There is more danger of heating, from the life not having been killed in the straw by proper maturing in the field, than there is from its having been exposed to a great deal of bad weather.

Few people will stack in a wet, or even moist, state; but very many will do so while the sheaves are heavy with the natural sap, being deceived by their apparent dryness. An excellent criterion is to insert the hand into the centre of the sheaf; and if it has a dry, warm feel, and the whole field being of the same character, it may safely be led. Wheat, being so strong in the straw, and generally free of weeds, may be put in any sized stack, after a week's exposure in the stook, without the slightest danger. Oats and barley, unless dead ripe when cut, will, in general, require a clear fortnight to enable them to be carried and stacked without risk.

Although stooking is undoubtedly the best method of maturing corn in the field, there are seasons when, on account of the broken state of the weather, it becomes a matter of serious consideration with the farmer whether corn, a property on which so much of his year's success depends, and which is of an exceedingly perishable nature, is safe in such an exposed position. Could he depend on the weather, he would be at once relieved of all anxiety; but, as the climate of this country is, at best, but fickle and uncertain, it behoves him to take precautionary measures for the safety of his property. Despite the objection most extensive farmers have to field stacks, they are an admirable aid in a fickle season, and, when properly built, stand almost any amount of bad weather, and, on that account, can be left in the field until it has become settled, and an opportunity afforded for removal to the stackyard.

It is excellent policy to stack corn containing a good deal of clover in the bottom of the sheaves, as the sun and wind get at it, and win it in much less time than it would do in stook, with the clover resting on the damp ground. In a bad season, there is almost no other way left open for getting sheaves dried, the bottoms of which have got wet; and it is surprising the system of stacking is not more generally followed out. The extra labour is not much; the stacks being small, the sheaves require only to be carried by women or children to the stack, when a careful man hands them to the

builder. A dozen hands will secure nearly as many acres of good crop in a day, putting so much of the year's crop completely out of danger, and conveying a sense of security and peace of mind to the owner, which, under other circumstances, he might in vain have looked for. In Ireland this system is very general, and the crop is stacked in the field whatever the character of the year; and, although there are seasons when such caution is unnecessary, the habit is nevertheless kept up, and in the majority of years there is little doubt but it proves excellent policy. In upland districts in Scotland this system also prevails, farmers there being compelled to adopt it; as much, however, from the lateness of the harvest often throwing them into dangerous proximity to the winter, as from any other reason. They are stiled huts, and, as the name would imply, are square, and not in the stack-form so general in the sister-country. No later than last year much corn was saved of excellent quality in the upland portion of Renfrewshire and Ayrshire by those who had the foresight to place their corn thus safely, whilst their less fortunate neighbours had it in stook at the mercy of the elements, and who in the end lost heavily both in quantity and quality.

Corn that has been put up in the field in either stacks or huts will not be so thoroughly matured as when left in stooks, and caution must be exercised when building in large stacks, lest heating should take place. It is much easier to manage corn in the field, whether in stook or stack, and preserve it from injury, than it is after being put together in large quantity, as the least turn discolours the grain, and gives it a smell which unfits it for any purpose but that of cattle-feeding. We consider it a disgraceful thing to see a line of stacks smoking, and a man is placed in a most unpleasant position in the eyes of his own servants and labourers when he has to order them to take down a stack, or it may be several, and draw out again to the field. The men did their part of the business well, and very likely with a hearty good-will, doing their utmost to get all finished in good time, and very probably exercising the greatest amount of care and skill they were capable of, to have the stacks safe and neat—a credit to themselves and employer; when, after all is done, they find that, through an error of judgment on his part, they have the whole to do over again. Apart altogether from the monetary loss, the removal of corn to the fields after having been built up is a source of infinite chagrin and unpleasantness—the more so as it is just as likely to happen in a good year as in a bad one, and the farmer having no one to blame but himself, the whole thing, especially in a good year, having been brought on by his own injudicious haste. The unpleasantness is not, however, past in a hurry, as the corn must be disposed of in some way, and the merchant to whom such corn is offered is not slow to give his opinion as to its quality, and either refuses to purchase, or offers such a low price as to make it an impossibility to come to terms. How different the feelings of the man who, at the end of a favourable season, on offering his corn for sale, is told that it has been badly saved, and that he must submit to a reduction in price on that account; and of him who, after a troublesome and difficult season, is complimented by the merchant on the quality of his produce, and receives the highest price of the day on which it is sold! These extremes are of yearly occurrence, some men never having a particle of heated corn in their possession, and some others being very seldom without it.

In stacking corn, by far the safest method is to have the stacks small, the danger of injury from heating being thereby greatly obviated. Ten feet for barley, twelve for oats, and fourteen for wheat being very good sizes and very handy. It is a capital plan to have the centres hollow, as if there is the slightest tendency to heating the warm air is attracted to and carried upwards through the shaft, and there will be no perceptible injury to the contents of the stack. The oat crop being such a valuable one in Scotland for meal purposes, and the least heating in the stack lessening the value of the meal very considerably, the farmers of that country exercise a great amount of caution in the erection of their stacks. In most districts they have a cross-shaft two or three feet in height, with an upright one in connection with it, running nearly to the top of the stack, a precautionary measure which serves the purpose admirably, and effectually secures the farmer from loss by heating.

Bean stacks are also carefully ventilated in the same way, the late period of the season at which this crop is reaped and

the succulence of the stalks compelling an extra amount of caution. When the stack is built upon iron pillars, and consequently a free current of air admitted underneath, there is no use for going to the trouble of constructing timber ventilators or bosses, as a flour barrel placed on the centre of the stand, and pulled up with the rising of the stack, forms an excellent shaft and answers the purpose of ventilation admirably. The weeks of harvest form the most difficult and trying period of the farmer's year, anxiety being inseparable from his very

existence; yet it is not good to be over-anxious, or over-hasty—not cutting the corn or delaying it because others are doing so, nor carrying it to the stack-yard for the same reason; but doing every day, while there is a sheaf exposed, exactly what one's own observation and experience dictate as the best course to be adopted under existing circumstances, and, above all, not putting the crop into the stack-yard until convinced of its thorough maturity.

J. S.

## THE LABOURER AND THE COTTAGE.

The following paper was read by Mr. W. Brown, of Beach Lodge, Tring, before the members of the Central Bucks Agricultural Association:—Mr. Cox, in a paper recently read by him before a society in Gloucestershire, referring to the physical condition of the agricultural labourer and to certain advantages which might be conferred, said: "There is one thing in which the farmer is particularly interested—namely, the actual material used in building up that most noble of all the works of creation, an upright, honest man." So far as my experience extends, the labouring classes are not good managers in this respect; they do not economise as they ought to do, nor do they understand the properties of the various kinds of food which contain most nourishment. For instance, they buy white bread from the baker's, which before hungry children melts away fast, instead of having a bushel of flour with the bran at a less expense, and, if possible, baking at home. Again: potatoes, which have much degenerated within the last few years, form a considerable portion of the food of the labourer; but, although desirable with other food, they do but little towards forming the bone and muscle. Animal food is at the present time too dear for the labourer to have to any extent; but there are portions of the cereals less costly, and equally nutritious, which a good housewife may, if she knows her duty, prepare for the good man at the end of his day's work. Rice is also cheap. Oatmeal and peas are very nutritious, but very little used by the labouring classes. Milk in the dairy districts is a great advantage to a man; and I am happy to find that in some parts of the country a liberal allowance is made to those having the charge of the cattle. In certain districts and in large occupations the foreman is allowed the use of a cow. Dr. Lankester says: "The question of food lies at the foundation of all other questions. There is no mind, no work, no health, no life, without food; and just as we are fed, defectively or improperly, so are our frames developed in a way unfitted to secure that greatest of all earthly blessings—a sound mind in a sound body." Before quitting this subject, allow me to call the attention of the managers of this society to the benefits which they could confer upon the labouring classes by devoting a small portion of their funds to the publication and distribution of advice and information through the members of the society to the labourers they employ, in the hope and belief that it would have fruit, and take the place of the trash to be found in many dwellings of the poor. I will give you one illustration by a pamphlet now lying before me, and which I have perused with much pleasure and interest. It is the result of a prize offered by one of the members of the East Kent Association for the best essay "On the Condition and Improvement of the Farm Labourer, which shall be addressed to him in a concise, simple, and pointed manner, with a view to his Social, Moral, and Religious Advancement." The prize was won by a physician. In connection with the food of the people the labourer's cottage and garden seem naturally to follow, and on these I can speak with more confidence than upon other matters; but first, I would observe that this point has not been treated as it deserves. Does not every good farmer at the present day demand more and better shelter for his cattle, and conveniences for preparing their food, and does he not insist that they are absolutely necessary to the proper cultivation of the soil? If this be so, is it not right that the man who is to till the soil and look after these cattle should be treated equally well? In fact, are not the dwellings of the labourers part and parcel of the manufactory of the farm, and

should not the investments for each be the same? If this is so, whose duty is it to provide these cottages, and how can they pay? My opinion is that this must be met by the co-operation or mutual sacrifice of the three parties—the landlord, the farmer, and his labourer; first the land necessary for the cottage and garden, say not less than a quarter of an acre, should be given up by the farmer, who should also pay the rates; second, the landlord should build the cottages in pairs, or in threes, at the entrance, or some convenient part of the farm. These should have good drainage, water supply, and ready means for cooking and washing; and last, but not least, a convenient well-arranged closet, not only for the purposes of the family, but for preserving, by the liberal use of fresh earth, every particle of solid excrement and refuse in order to enrich the garden at the proper time, instead, as at present, of becoming a nuisance and unhealthy to the occupants. These cottages cannot be erected in this neighbourhood at a cost of less than £250 the pair, which, at 4 per cent., treated as farm buildings, would make the rent £5 per annum, or say 2s. per week; and this the labourer, with such conveniences, and a garden at the rear of his house, can well afford to pay—in-deed, better than half the sum for a miserable cottage with a scanty garden. I approve of the allotment system near towns and villages; but half the quantity of land at the rear of the cottage is of as much value as double the quantity at a distance. The spare minutes of himself, his wife, and family, can be better devoted to the cultivation under such circumstances. The advantage of having three cottages together is that the centre one may be built with two bedrooms only, for aged persons and newly-married couples, and the end cottages with three bedrooms each, which are essential for a growing family to divide the sexes. I now come to the important question of wages. I have received many communications from gentlemen with whom I am acquainted in various districts, giving me an account of the wages paid in their different localities, which I will endeavour to lay before you, for the purpose of comparison, in as concise a form as possible, beginning with the south of England. The Rev. Canon Girdlestone has published letters in the *Times*, stating that in his parish of Ilalberton, Devonshire, the rate of wages has been only 7s. or 8s. per week, and even this not always paid in cash. Out of this miserable pittance, with but few exceptions, the labourer has to pay house-rent, and the remainder was supposed to furnish him with fuel, food, and clothing. Now, does any man in this room believe this? ("No.") The *Times*, in one of its leaders, echoes this statement, and says: "How could independence, or self-respect, or even industry be expected from the father of a young family, each of whom perhaps has less than a shilling's-worth of food in the course of the week? The labourer on such wages is a mere animal." You will observe that nothing is said about perquisites or the earnings of the wife and family. Further on we are informed that Mr. Girdlestone set to work to get 50 of his parishioners to the better-paid districts in the eastern and northern counties. Of these 16 were married men with families, and the remainder single men. The married men are in no case earning less than 12s. a-week. Our energetic friend Mr. Smith, of Wolverhampton, has written to the *Times*, and congratulated the men of Ilalberton on getting better wages elsewhere, and so relieving the parish of such surplus labour. The *Times* winds up this great case by observing: "In one way or another a labourer and his family must receive enough to live on. But even if the farmer pays actually more, he will

still be better off, for he will get a better return for his money. A half-starving man has neither the will nor the power to work, and there can be no doubt that the proverbial sleepiness and sloth of agricultural work are, in a great degree, due to sheer lack of vital force." I have no connexion with Devonshire, therefore I cannot give you any information; but in my native county of Dorset wages are supposed to be equally low, and I have lately seen it announced that a general rise in wages will be demanded this year in that county. I have requested a worthy and excellent Dorsetshire friend to furnish me with his statement, from which you will see how necessary it is to ascertain surrounding circumstances before prejudging the systems adopted in other counties. He says: "All my labourers have houses and gardens, and extra land cultivated all free, and the crop hauled home for them. Also fuel. The wages paid every Monday evening are: Shepherds, 11s. per week, and a penny for every lamb bred; half a hogshhead of liquor for the lambing season; £1 and a hogshhead of liquor for his assistance during the hay and corn season. Carters, 10s. per week, and £1 and a hogshhead of liquor for the summer. Other men (many of whom have piece-work a great portion of their time) 8s. per week; women, 4s.; boys from 2s. to 6s." He then gives the prices of various piece-work, hay-work, cutting corn, &c., and adds: "All my labourers have their liquor sent to their houses at the commencement of the summer, so that they can use it as they like. I have done this for twenty years, and have never seen more than one or two cases of any abuse of the system. I don't think, generally speaking, they are as good as they used to be, or do as much labour; and whether education has anything to do with it I know not; but this I do know, their great desire is to try and raise the price of piece-work, not to earn more money, but to do less of it for the same sum. How people manage that have no cottages on their farms I am at a loss to know. Men are by no means as plentiful as formerly, and numbers from this and other counties are gone to the coal-mines; but some have returned again, not liking the work, however good the pay." My next communication is from a gentleman in Wiltshire, well known to many in this room. His farm contains grass and down land 143 acres, arable 375. Wages 10s. per week, stock men 1s. extra, with cottages rent-free, potato ground, and other perquisites. The summer work is done by the piece, the women engaging largely in it. Female labour helps to lessen expenses. Total amount paid for labour on an average, £550 per annum. This gentleman states that in his neighbourhood sainfoin is grown to some extent, which is kept down some years, as well as a good proportion of artificial grasses. This also reduces the labour; but still they are short of hands, and all would employ more if they had it. Our friend seems to have settled in a place with great privileges attached—amongst others the right to fish three leagues into the sea all round the kingdom, also the right to use any fair or market in the kingdom toll-free. The former is seldom exercised; the latter may probably be some day at Aylesbury, but I hope it will not depreciate the shares of the Market Company to any serious extent (laughter). The next is from one of the most careful and practical men in Berkshire. His farm is 547 acres, nearly all arable. Wages paid from Michaelmas to Lady Day—Carters and shepherds 13s., cowman and general labourers 12s. The cowman has in addition a cottage rent-free, firing, vegetables, and table-beer, equal to 18s. per week all the year round. Taking an average of several years, his labour, including hay-time and harvest, will amount to 35s. per acre. I now come nearer home, and will refer to the case which has figured so much of late in the prints—that of Gawcott, in this county, where what is called a strike has taken place. A letter has recently appeared from Mr. Barge, who lives in the adjoining hamlet of Hillesden, which, like the Devonshire case, puts a very different face upon the matter. I shall not trouble you by reading it, as most of you have probably done so previously, but will give you the information I have obtained from an independent but reliable source, quite confirming Mr. Barge's statement. "Wages of carters, shepherds, and cowmen, generally 12s. per week; in some cases where there is great responsibility, 13s. and 14s.; these of course have Sunday duty. The ordinary men 11s. per week, and if at piece-work they are enabled, in fine weather, to ensure 2s. 3d. to 2s. 6d. per day. Boys go to work at nine or ten years old; the girls to service or lacework. On an average, a man with five children would

have two fit for work, who would earn 5s. to 7s. per week, thus making an aggregate income of from 16s. to 20s. per week. In the dairy farms, milk is boiled in the morning for the men, and on Saturday evenings they generally have some given them to take home for Sunday. The rents of cottages vary; several have a cottage and a good piece of garden ground at 50s. per annum; whereas, others have to pay 60s. without a garden." Subscriptions have been collected to relieve these men on strike; and in the *Bucks Herald*, of Saturday last, I observe it stated "that the secretary is endeavouring not only to procure more remunerative employment for the men of Bucks in other parts of the country, but also to assist others out of the funds at the disposal of the strike committee to emigrate to Canada and other colonies." We can have no objection to men trying to better themselves by removing from places where there is surplus labour, to districts where labour is more in request, at better wages; but I doubt if strikes are necessary for this purpose, or if the advice and assistance to emigrate are either promoting the happiness of the labourer, or benefiting his native country. In the more southern part of this county, amidst hills and stones, the labour per acre is much beyond that of the districts I have quoted. One gentleman, who holds a farm of 320 acres arable and 33 of grass on the border of the county, states that his regular number of men and boys employed yearly (exclusive of haymaking, turnip hoeing, and harvest) are three men at 13s. each; eight at 12s. each; and six boys at 4s. 6d. each; the hoeing, mowing, and harvesting being nearly all piece work. The earnings of the men would not be less than £40 per annum. The women and children are principally occupied in straw plaiting, and will earn on an average from 8s. to 10s. per week. Cottage rents are about £3 per annum. He adds, "The moral and social habits of the men generally are far from what I could wish, owing, in a great measure, to the number of beer-shops and public-houses, which I consider the curse of the neighbourhood, tempting not only the men, but, I am sorry to say, the boys also." The labour of this farm averages about 35s. per acre (exclusive of beer). In my own immediate neighbourhood the labourers with their families are probably earning as much as in any part of the county, instances having been furnished to me of the children earning more than the father by making straw plait; indeed many girls pay their parents from 3s. to 5s. per week for their board, and have something left, which, unfortunately, they spend liberally in dress, instead of looking to the future. I have solicited information from a few of the best farmers in my own parish, and find that the average wages now paid are, for shepherds, cowmen, and carters 12s. to 14s., and ordinary labourers 9s. to 12s. per week. One farmer pays over £40 per annum for steam thrashing. I also find that their labour, including haytime and harvest, averages from 34s. to 40s. per acre, but there are many other cases where this average is exceeded. I cannot tire your patience by quoting the wages from many other counties, but two cases claim special attention, the first being from the vicinity of Doncaster; size of farm—grass 30 acres, arable 300 acres; wages of ploughmen, from £10 to £15 per annum, boarding with the foreman at a cost of about £24 each; shepherds, 16s. per week, two bushels of malt, and houses rent free; other labourers, 15s. per week; total paid, including foreman, harvest wages, corn-thrashing, and hay-getting, £500 per annum. This gentleman, who formerly resided in Lincolnshire, adds that he finds a great difference between the two counties, the manual labour here being rather over 30s. per acre, and even this is smaller than some others in the same district. The last is from a thoroughly practical farmer in the county above alluded to (Lincolnshire). He was formerly a tenant, but I am happy to say is now the owner of his farm, containing about 800 acres, which I wish was the case with many I am now addressing. I cannot omit one fact; there is neither a public-house nor a beer-shop in this parish of 3,000 acres. My friend's letter is so business-like that I prefer giving it to you in his own words: "The general wages since last harvest have been 15s. per week for labourers, the men paying their own rents, varying from £3 to £1 per annum, according to the accommodation. We find it more and more desirable to provide as much good cottage and garden accommodation for our labourers as possible, with not less than two and some three bed-rooms, and to pay them as liberal wages as times and circumstances will afford, in order to ensure a good feeling amongst them and to secure a sufficient supply of the rising

generation. There is no fear of losing the old men, but it is very clear that the young agricultural men are being very much drawn by the higher wages they can procure in a variety of other branches. There is not so much work done by the piece as formerly, owing to most of the land having been drained and the old hedges removed or plashed; also the corn being thrashed by steam. The reaping-machines are getting into more general use, and steam-cultivation partially so. We have companies in different localities who have sufficient sets of tackle to cultivate by the acre, charging according to depth and strength of soil. Fowler's cultivator and tackle, worked by two traction-engines, are the most approved, and require no horse to move them. It was the custom in this county to board the servants, but the farmers' wives prefer their being boarded with the foreman, which is becoming more general. Schools and proper masters are generally provided for the education of the children. The boys begin work at 10 years old, and the girls can go out to service at 13 or 14. We don't think the men do more work than formerly, but we have not much to complain of, and I must say their general habits have improved. The young men now think more about dress and less about beer. The labour now amounts to near 30s. per acre. I will not trouble you with any more letters or extracts, but proceed to ask: Why do I advocate education? I will not say better education, because some do get it, and I regret to add, abuse it afterwards; but what I am contending for is a suitable education, that a youth when he approaches manhood may know how to read and write, that his spare time may be devoted to the improvement of his mind, and comprehend why he does certain things, and not move about very often with less sagacity than a shepherd's dog. You cannot fail to see that better stock, better implements, and extensive machinery are being kept; and to whom are these to be entrusted? An ignorant labourer may ruin an animal or spoil an implement in a very short space. Again, why do I advocate good cottages and gardens upon or near to the farms? It is to encourage the respectable, honest, industrious man, to prevent his having to pass a beer shop every time he goes to his home, or to a crowded town or village, where "evil communications corrupt good manners." And here let me ask what are the great, I may say the crying evils of the present day? The gin palaces in towns, and the beer-shops in the rural districts. Talk about reform of the representation of the people—suppose we leave out a portion of these words by way of amendment, and let it read "Reform of the people." "Know thyself" was the golden rule of the men of Greece, and this motto was placed over one of their great temples for all men who entered to study. It would be well if we would investigate this a little more. We daily read of deputations from depressed trades, poor law unions, grievances of taxation, including the malt-

tax; but I do not remember a deputation going to Whitehall to represent the ruinous and demoralising effects of these gin-palaces and beer-shops, and asking for their suppression, which have caused more dishonesty, crime, and misery, than all other things put together. Then I suppose I shall be told that this is impracticable, and the words "vested interests" will be pointed to; but when the beer-duty was abolished, and beer-shops were established, this was not regarded very much. Again, I may be asked, would you deprive the labourer of the means of getting his pint of beer? Certainly not; but I would have public or licensed houses restored to their original purpose for the accommodation of the public, which I am sorry to say is not the case. Let beer be sold like other commodities, over the counter, and taken home for consumption. It is probable that many present know cases amongst the upper and middle classes of their getting what is called "tight" at their own houses; but who has heard of a similar occurrence at the home of the artisan or labourer? If I may be allowed to prophesy to those who are strong advocates for the repeal of the malt-tax, I should say this is the road that will lead to that result. Numerous persons very fairly argue that under the present system the repeal would increase drunkenness. Why have I troubled you at length about wages? It is because I believe it to be a pressing matter, and that you will have to use greater discrimination upon this point. A good, honest, industrious labourer, who does a fair day's work and interests himself in his master's welfare, must be treated differently to those who get through the day as easily as they can, and care but little about the result. From what I have read to you, the highest wages are not the most costly per acre; and, from my own experience, good men at good wages are cheaper in the end. I have lately seen it stated that in certain localities the farmers, unsolicited, have agreed to raise the rate of wages 1s. per week all round; but I submit to you that this is a mistake, and wrong in principle. You cannot make alterations all at once, or reduce some men's pay to what they are actually worth; but you can increase the wages of the deserving, whether he be a married or a single man. I strongly advocate paying men by piece-work, wherever practicable. I believe the farmer gets more for his money, and the industrious the advantage to which he is entitled over the indolent. Steam has equalised the price for corn and cattle throughout the kingdom, and I believe it will do the same for labour. Steam has done wonders in manufactures, although doubts and difficulties occurred at first, and I believe every succeeding year will witness its further appliances in agriculture. When I see the ponderous engine and tender traversing the road up and down the steep hills of Ashton Clinton, I arrive at the conclusion that before many years they will become as common and for many purposes take the place of a waggon and horses.

## THE PROGRESS OF AGRICULTURAL CHEMISTRY.

[TRANSLATED FROM THE "JOURNAL D'AGRICULTURE PRACTIQUE,"]

To attempt in this paper a long demonstration of the services rendered to agriculture by chemistry would be simply to expose ourselves—on the part of the enlightened public, to whom the *Journal d'Agriculture Pratique* particularly addresses itself—to the reproach of falling into repetition. In fact, none of our readers are ignorant of the great progress realized by the application of chemical knowledge to the study of soils, improvements, and manures; nor of the valuable assistance rendered by chemical analysis in the determination of mineral and organic matters extracted from the soil by different vegetables, as well as a correct appreciation of the relative value of substances the cultivator must restore to his land if he would preserve its fertility. It is precisely because we know beforehand that our readers are well instructed upon the utility of chemical researches applied to agriculture, that we are assured of seeing them receive favourably an *exposé* of recent works on agricultural chemistry.

Part of the duty we purpose taking upon ourselves is to analyze the papers on agricultural chemistry published in France or elsewhere, and thereby show what important results

spring from it; we also hope to render true service to French agriculture by making known, with all the details that interesting subject admits of, the organization, aim, and success of the institutions which, in Germany and England, have for the last ten years implanted such a fertile impulse in agricultural science amongst our neighbours. In consequence of our unfortunate ignorance of foreign languages, many of the best works published in Germany and England pass unobserved or remain a dead-letter to us. We have at our doors some excellent institutions, worked successfully for the last ten or fifteen years, of which many do not even suspect the existence. We should use every effort to fill up this blank; and, trusting to the good-nature of our readers, we shrink from no labour to attain an end which appears to us to add so much to the progress of agriculture in our country.

The illustrious chemist of Munich has traced in the commencement of his admirable work entitled "*Les Lois naturelles de l'Agriculture*" a retrospective picture of agriculture from the beginning of this century up to the present day. We shall borrow from these papers—too little known, and the words

quoted will serve as an introduction to the *review* we inaugurate to-day—some fragment from nature, to point out the aid of chemistry to agriculture, and to recast on a grand scale the claim of the chemical sciences to the knowledge of agriculturists. We could not better point out the actual bearings of science and the art we wish to serve than by showing, in the most precise and clear terms from the example of the past, what agriculture should claim and obtain from chemistry in future.

“During the latter part of the past century,” said Baron Liebig, “the agricultural world was in complete ignorance of the cause of fertility in cultivated lands, as well as that of their exhaustion. Apart from their need of sun, dew, or rain, the cultivator knew, so to speak, nothing of the conditions necessary to the development of plants.” As to the soil, he attributed to that the one part only—that of support.

He thought that stable-dung owed its effects to one particular incomprehensible property, which art was incapable of producing. That property was communicated to the food of men and animals during its passage into the body. He thought that with a sufficient quantity of cattle, and a certain variation in cultures, he could always procure as much manure as he needed, for as long a time as he wished; and as he often remarked that those crops were finest where the farmer was intelligent and clever in the execution of field-work, he remained persuaded that the yield of a crop depended upon the will of man, and that if he possessed that art he could transform the most barren sandy plains into fertile meadows.

He supposed that the power which produced the fruits of the earth resided in the seeds and soil, and that the field needed repose to restore itself, just as men and animals when fatigued by work. The power that the land had given out during the production of its fruits might, they thought, be restored to it by manure and rest.

Later it was imagined that the peculiar power of the soil must reside in a vehicle, and that vehicle was humus; and it was thought that the yield, more or less, of the fields was in direct proportion to the greater or less quantity of humus put into it. The only truth in that supposition is, that upon a fertile field the farmer grew more plants than upon a poor one, and in that way accumulated much more organic debris in the first than in the second.

When it was thought the vehicle of the fertility of the soil was discovered in humus, it was natural to attribute the want of fertility in fields to the absence of that substance. Perceiving that certain mineral substances, such as marl, gypsum, and lime, increased the yield of crops, a stimulating action in the soil was attributed to them, nearly resembling that exercised upon man by salt and spices, by favouring certain phenomena of digestion and the circulation of the fluids.

All practical operations aimed at producing manure, believing that the latter was the only means of restoring to the soil the power expended, and of making it produce the same crops. When on account of being cultivated consecutively in the same field the cereals no longer gave remunerative crops, it was said that the field was exhausted; but when other plants, such as clover or roots, did not prosper, it was said the land was bad.

At that time (said Liebig) the cultivator practised his art as the shoemaker does his trade: but he did not perceive, like the latter on seeing his supply of leather diminishing, that the fertile matter was insensibly drawing to an end. In Germany the farmer worked his fields as if he were dealing with an endless piece of leather which, while cut at one end, grew at the other. Manure was to him the means of lengthening and softening the leather for cutting. As the man made his crops like the shoemaker his shoes, the situation of the works was of little importance, and in the same manner as a shoemaker of St. Petersburg could profit from the counsel and experience of a Parisian shoemaker, a farmer of Rothamsted or Saxony might give good advice upon the treatment of lands to a cultivator of Yorkshire or Bavaria.

In the advice given mutually by agriculturists, in the improvements they proposed, the degree of latitude, elevation above the level of the sea, the quantity of water annually, the frequency of rain in different seasons, the average number of fine and rainy days, the average temperature of spring, summer, and autumn, as well as the variations of the temperature in different seasons, the chemical, physical, and geognostic nature of the soil, were circumstances of which they took little notice.

Such were the notions that guided practical agriculture before 1810. At that period chemistry had acquired by the natural sciences sufficient independence to enable it to compete with the development of other sciences; and when the chemists directed their works towards searching out the conditions of existence in plants and animals, they evidently touched on agriculture. Vegetable physiology knew already at that time the modifications that plants during their life experience from atmospheric air, as well as the influence of carbonic acid upon the increase of carbonized matters in vegetables, and the property of the green parts of exhaling oxygen under the influence of solar light. They thought that certain saline and earthy substances which remained as a residu after incineration were found in plants accidentally, and varied according to the situation of the place and geognostic nature of the soil. The chemist then submitted the vegetables in all its parts to rigorous methods of investigation; he searched out the composition of the leaves, stalks, roots, and fruits, studied the phenomena of nutrition in animals, and the modifications that aliments undergo in the body, and analyzed the arable soil of different countries of the globe.

It was then discovered that the seeds, roots, and leaves absorb from the soil certain mineral elements identical in all lands; that these elements were not accidental compounds, varying according to the locality, but were necessary for the growth of the vegetable; consequently mineral matters played the same part in alimentation of plants as bread and meat do in man, or fodder in cattle; that a fertile soil is liberally provided with these nutritive substances, whilst a sterile soil contains but little, and that by increasing the quantity in a poor soil they might render it fertile.

The natural result of this discovery was to show that a soil must insensibly lose its fertility in proportion as the plants cultivated diminished the supply of nutritive elements it contained. Therefore, in order to keep land in a fruitful condition, it is necessary to restore to it the full amount of nutritive strength taken from it; for, if the restitution be only partial, the farmer cannot hope for profitable crops; and the only means of increasing the yield is by adding to the quantity of nourishing elements a soil contains.

The chemist afterwards proved that the nourishment absorbed by man acts—if we may be allowed a vulgar comparison—like the fuel in our stoves. The urine and solid excrements represent the ashes of the food, mixed with soot and other parts partially burnt. Thanks to these discoveries, the action of manure is easily comprehended. It restores to the soil matters of which it has been robbed by the crops; but we may also draw this inference from it—that stable-dung, even produced on the same farm, is not sufficient to ensure the lasting fertility of lands, as it does not restore to them the elements exported from the farm in the form of wheat and meat.

We therefore learn from these facts that if the farmer desires to ensure continued and abundant crops, he must endeavour to supply the nutritive qualities that are wanting in stable-dung by putting in matter obtained from other sources, when land is not sufficiently provided with them. Chemistry having established this truth in a peremptory manner, it would be irrational to act as though a soil were inexhaustible; and if the cultivator is not careful to replace the substances absorbed, his fields will undoubtedly become barren and unfruitful.

A moment's reflection cannot fail to convince our readers that the power of man to make a field fertile is simply presumption; intelligence and skill are incapable of producing good crops, no matter what the land is, when the composition of the soil does not suit the plant.

Apparently a man has no choice in his cultures, for it is not he, but the soil, that chooses the plants suited to it. But science does not set itself in opposition to practice; on the contrary, it stands in the midst, approving when it does well, and guarding the farmer against evils which may do him injury. It shows him what is wanting in his fields, and what is found there in abundance, besides pointing out to him the means of realizing the most useful part of the riches his lands contain.

Under the auspices of Baron Liebig, we have endeavoured to throw a rapid glance at the services rendered by chemistry to agriculture. The good that science has already done shows how much more extensive its help may be in future. What has been said will, we hope, amply justify us in the eyes of our

readers for the importance we attach to works on agricultural chemistry. That science which has at its head, and amongst its distinguished representatives, Boussingault, Liebig, Way, Thompson, Huxtable, Voeleker, Lawes, Corenwinder, Theuard, Schlosing, Payen, and many others, deserves a large place in a work specially devoted to agriculture.

We carefully record in our *reviews* the important facts discovered in France and elsewhere, endeavouring to keep before

the eyes of our readers the progress of the application of chemistry to agriculture. Want of space compels us to defer to a future time the question of agricultural stations in Germany. The organisation of that excellent institution, which has already been established ten years, and the numerous services it has rendered, deserve an attentive examination, which we hope at some other time to give it.

L. GRANDEAU, M.D.

## FARMYARD MANURE—WHAT IS IT?

Farmyard manure, as generally understood, consists of the excrements of horses, cattle, swine, and poultry, with that of any other domesticated animal which may be kept or housed within the farmyard or steading, together with all the straw and other refuse which may have been used as litter in connection with the housing of these animals; and the mode of collecting and preparing these, so as to be applied to the land with as little loss as possible, together with some hints as to its manurial composition and value, form the subject of our present article.

Ever since the day of the ancient Romans, down to that of the present age, the value of animal excrement as a manure appears to have been well known, and various modes of collecting and applying it to the soil observed with the nicest attention. Even before the Christian era the excrement of animals was known to act as an agent in the production of crops from the soil; but down to a comparatively recent date notions regarding the preparation and application of farmyard manure were crude enough, and at the present time its management is either not sufficiently attended to, or not sufficiently understood.

A most important consideration for determining both the method of collecting farmyard manure and the circumstances under which it is collected, is to prevent the escape of ammonia. Not only is nitrogen one of the most important elements in all valuable manures, and in all plants which are valuable as food, but it constitutes the fermentive virus of all putrefactive or fermenting manures, and is the power on which the solubility and digestion of both the animal and vegetable ingredients of these manures depend. Nitrogen is at all times ready to rush into combination with any aqueous matter, so as to form ammonia—that volatile alkali, that pungent-smelling gas, which rises invisibly, but with sensible effect, upon the nasal organs, while in the vicinity of recent dung or urine, or any putrefactive or decomposing body. It may be worth while to know that every pound of nitrogen escaping in this way forms two and a half pounds of ammonia; and when not arrested in the process of evolution, and fixed as an alkaline salt, it will escape into the atmosphere, and be carried irremediably away, bearing with it the best virtues of the manure. A simple and efficacious means of preventing the escape of this valuable gas is by the free use of gypsum on all dunghills, stables, byres, dung-courts, &c.

The manurial properties of farmyard manure are so dependent upon the proper management of the dung-heap as to affect its value from 50 to 70 per cent.; and when combustion or fire-fanging, as it is called, has been allowed to take place, it may be rendered all but worthless. It is also well known that farmyard manure made from poorly-fed young cattle may not be equal to that made from feeding cattle by 30 to 60 per cent., depending much upon the quantity of straw or litter which is allowed to pass into the dung-heap: the actual excrement might differ to even a greater extent than that named; but we are here taking extreme cases, as no such difference will be found where young stock are well managed, although manure from young stock will always be less valuable than that from old and matured animals, feeding in both cases being the same; and if fed on highly nutritious food, such as grain and cake, the manure will be considerably more valuable. Stable-dung, or that made from horses, is much more nitrogenous, and consequently more valuable, than that made from cattle; but as stable-dung frequently contains a much greater proportion of straw or litter, the difference may not unfrequently be the other way.

It will be found most advantageous to thoroughly intermix the stable-dung with that from the other stock. The stable-

dung being much more fermentative, it is not unfrequently allowed to heat prematurely, which must occasion a considerable loss in its most valuable constituents.

It is of the highest importance, in collecting and making farmyard manure, that there should be a thorough commixture of all the different kinds and qualities of dung, together with all the scrapings which may be daily collected about a farmstead, and are fit to form part of the dung-heap, so that the whole may be trampled and incorporated together before any part is carted to the field. And the longer it can be allowed to remain in a well-constructed dung-court the better; but if while there it receives all the roof-water of the steading, or is allowed to lie in loose fermenting heaps, the sooner it is carted to the field, and properly covered up, the better, and less loss will assuredly be sustained.

Some courts—indeed a great many—are constructed so as to receive the whole roof-water of the steading, and a good deal besides that might be directed past them. The dung is carelessly levelled down into this water, which is frequently upwards of a foot in depth, and with any continuance of rainfall an overflow takes place. All are so familiar with this, and its poisonous effects on the surrounding atmosphere and adjoining streams, that it need not be noticed farther. But to return to the dung-heap. We have already said that nitrogen forms the great power of solubility in all manures—that it has a strong affinity for hydrogen or any aqueous matter; and we can be at no loss to see that this, the most powerful manurial ingredient contained in the manure, will be entirely lost by any continuance of this washing process. And allowing dung to lie exposed in a loose heap is scarcely less reprehensible; for then the loss by evaporation is seriously great, and which, if not always to be seen by the eyes, may readily be detected by the nostrils; but all have become so familiar with this state of matters, that it is seldom or ever thought of. What a pity farmers and their servants cannot see this daily loss as they would the departure of so many bags of Peruvian guano of the same value!—a remedy would then speedily be found, for farmers generally are quite as sensible of a haul upon their pockets as any other class of men.

To give an approximate estimate of the loss which must be sustained by such want of attention as we know prevails in the management of farmyard manure, we need only say that, besides its more remote manurial principles, farmyard manure contains various gaseous or proximate principles, the most valuable of which is nitrogen. One ton of farmyard manure, of average quality, will contain 10lb. of nitrogen, which, as we have already noticed, is equivalent to 25lb. of ammonia, which, at 6d. per lb., its commercial value, would be 12s. 6d.—that is, upon the supposition of no loss in nitrogen having taken place; but we know that it is impossible to apply farmyard manure to the soil without some loss of this manurial agent, and that with the very best of management. Farmyard manure contains much less than the above quantity of ammonia at the time it is covered into the soil, and with bad management perhaps not one-twentieth part of it.

We hold that the proper management of dung-heaps, although one of the most simple and easily-performed operations of the farm, does nevertheless require a little daily attention, and a knowledge of the chemical change induced by any degree of fermentation.

The process of fermentation is precisely that which generates the heat in the manure, setting free its most important elements, which combine and escape as gases.

It is impossible to prevent all escape of these valuable volatile elements without the occasional use of gypsum in the dung-heap; but although these gases will become fixed in

their combination with gypsum, forming sulphates and alkaline salts, still the gypsum will in no way check or prevent fermentation, which ought not to be induced in the least degree until within a short time of the dung being applied to the soil.

Dung should be carefully spread out in the courts daily as it is carried from the byres or stable, and there sufficiently trodden by young cattle having the full range of the courts. The dung-courts should be so constructed that the dung may receive the urine from the byres throughout its entire mass as uniformly as possible, and the whole packed and moistened to such extent as will thoroughly incorporate the mass, which ought to accumulate in this way, in as much seclusion from rain, aëration, and heat as possible, until the time arrive for removing it to the field.

This operation must be performed on many farms during frosty weather, or at such other times as the courts may become inconveniently full; but whatever time the removal of dung from the courts to the fields takes place, each heap ought, if possible, to be finished in one operation; or should a change in the weather intervene, the heap, in whatever state of completion it may be at the time, ought to be at once covered over with earth abounding in humus, and tramped up, so as to prevent as much as possible its being washed by rain, dried by winds, or abused by crows.

In making up dung-heaps in the field, they ought neither to be narrow nor high, should be carted upon, thoroughly and uniformly packed, and properly mixed, if the dung vary either in quality or condition; and while being made up to be several times strewn over with gypsum, and when finished to receive an additional sprinkling on the top, and afterwards well covered over with mould abounding in humus, such as dry and well-pulverised peat, and the whole heap trimmed and clapped up, so as to protect it in every way as much as possible. In this state it ought to remain, and fermentation neither induced nor permitted until about a fortnight before the manure is required for the turnip crop; then the heap should be trenched over, and in so doing the dung to be thoroughly broken up and intermixed, every trench when turned to receive a sprinkling of gypsum, and afterwards covered and clapped up. Fermentation will then take place, uniformly and quite sufficiently to destroy the vitality of all noxious seeds, and bring the whole mass into a state of excellent preparation for being applied to the crop.

A mixture of salt, at the rate of about 20lb. to the cubic yard, applied to the heap when trenched, will be found most beneficial for land lying at a considerable distance from the sea; and in any case it increases the sapidity of the manure; and when dung may appear to be scorched and dried by the sun before it is got covered in, which is too often the case, salt will in some measure reproduce moisture, which in some soils is attended with the most beneficial effects.

We have thus recommended a little extra attention, but every operation is simple; and we venture to say that dung-heaps so prepared, if originally of average quality, will be found not less than 35 per cent. of more manurial value than the average of dung-heaps throughout the country—certainly no inconsiderable item. The loss of ammonia and other fertilising gases, from bad methods of collecting and preparing farmyard manure, forms an aggregate of waste highly discredit-able to the present advanced condition of agricultural know-

ledge, more especially when considered in connection with the enormous sum now paid annually for light or artificial manures.

We know there are farmers who will maintain that dung ought to be applied in a more rotten state than that prepared as we have recommended. Gardeners will also say the same. And there is no doubt that thoroughly rotted dung is more available for rapid or concentrated manurial action, but it is obtained at the expense of losing all that has been dissipated in the fermentative process, and of foregoing the advantages upon future years' crops.

But there is something beyond the actual loss of the manurial elements thus dissipated. We are not ignorant of the action of these gases while being evolved from active or fermenting manure, apart from their true manurial value. "Por," says a very clever writer on agricultural questions, "the evolution of the carbonic acid, the evolution of the ammonia, and the generation of the heat, all play a powerful part in the intricate process of fertilisation. The carbonic acid divides and reduces the earthy constituents of the soil, and thus produces the same effects upon them as the combined action of air, rain, and frost; and it also eliminates from them their potash and other alkalis, and contributes its carbon to the nourishing of young plants up to the time of their exfoliation, and thus both extracts saline food for the plants out of the soil, and assists to rear them up to the condition in which they become able to feed themselves with carbonaceous matter from the atmosphere. The ammonia acts as the chief solvent power in the digestion of the food of plants within the soil; it exerts a force upon the stores of crude nutrient matter for plants, analogous to that which a pair of bellows exerts upon ignited fuel in a grate, kindling up and accelerating the combustion of the slow smouldering fire; it expands its alkalinity in the same efficient direction as potash and soda; it combines with the free acids, or with an acid evolved out of the decaying manure itself, to form a powerfully-acting salt, closely akin in nature to saltpetre; and it surrenders its nitrogen to the secretion or constitutional formation within the seeds, the roots, and the other esculent parts of plants, of those azotised proximate principles which render them proper or nourishing food for animals."

Farmers are now less dependent upon the immediate or rapid action of farmyard manure, seeing that turnips are seldom laid down without auxiliary manures in the shape of guano, or other highly concentrated substances; and with such to start away the crop, the study ought to be to supply farmyard manure in all its entirety.

The great regret is, that it is impossible to apply farmyard manure, or any other manures holding their manurial elements in a volatile state, to the soil without very considerable loss, which ought to induce farmers to use gypsum freely to all damp and bulky manures, and sulphuric acid to all dry manures, such as Peruvian guano, &c.

Gypsum may be prepared by any ordinary labourer, and kept in quantity in a corner of any dry shed, and ought to be so kept about every farm-stead. It is the hydrous sulphate of lime, and consists of sulphuric acid, quicklime, and water in the following proportions—viz., 50lb. sulphuric acid, about 57lb. lime, and 36lb. water. If the sulphuric acid be sufficiently strong, the mixture will be pure gypsum; if not so, the substance will of course be partly quicklime.—*Journ. of Agri.*

## TURNIPS v. RAPE.

Recent excursions have brought under review the present prospect of root crops, which we find are not, in too many places, in a state of forwardness at all satisfactory. Some fields of turnips are barely up and out of reach of the devastations of the fly; others are just coming up; but much the greater portion had been only sown, or the land preparing for the crop: in fact, in one instance, and that a pretty large field too, a portion was ready for the seed, and a large portion was just in the act of cross-ploughing, with no less than three ploughs at work, thus making all possible haste to get in the crop.

It is quite true that the common soft white-fleshed varieties may be successfully sown up to the middle of July, but it is

far beyond the period for sowing swedes; and we would hesitate recommending Aberleens or yellow bullock turnips being sown so late in Ireland. We know that the inclement, cold, and wet spring debarred farmers from performing the usual necessary routine tillages; that the saturated soil prevented it at a later period, and that the baked-up hardened condition of it at a later has considerably retarded successful cultivation. These are things that must be borne with, and put the farmer to unusual shifts to recover lost ground, and compel him at the last moment to substitute other crops for those originally intended.

It is too late, therefore, to think of any of the best sorts of turnips; and in order to make provision for the winter suste-



nance of stock the more inferior sorts must be sown, so as to ensure any degree of success, the best of which are the old white globe or the grey stone turnip. These are good varieties, but their keeping qualities are not good; and they don't store well like the harder sorts, seldom being good after the middle of February.

Amongst the most suitable substitutes for turnips, rape stands prominently forward, which, when properly cultivated, is one of the most valuable and important species of the Brassica family of plants for feeding purposes, and its cultivation too much neglected in this country. It is true it is very generally sown broadcast in burned bog land in August in several districts, but merely for the purpose of producing a crop of seed in the following summer, which, though valuable and profitable in itself, leaves nothing to be restored to the land from which it was gathered.

Our object in this short essay is to impress upon the agricultural community its great value as a feeding crop. It is hardy and of quick growth, and if sown last month in sufficient quantity, fine strong plants would be ready for transplanting after early potatoes or vetches, or after the corn is cut. In these two latter cases manure is requisite, producing a heavy crop of the best possible green food from November to March, invaluable for milch cows, producing superior condition in the animal, rich milk, and communicating no unpleasant flavour to either milk or butter. It fattens animals in the stalls as well as sheep on the grass, and is the best possible succulent green food that can be given to ewes in-lamb or in-milk. But the best and most profitable mode of cultivating rape for winter and spring feeding is to prepare and manure the land as fit for turnips, and drill in the seed at the rate of 4 or 5 lbs. to the Irish acre.

Rape is a rapid grower, and when sown in July and thinned out to 14 or 15 inches apart in the rows, the rows being from 26 to 28 inches apart, it grows up with thick stalks, with an abundant clothing of heads and foliage, which may be cut repeatedly, and given the animals in the stalls or on the grass. When the heads are cut off, and the leaves from the sides, fresh sprouts and shoots soon proceed from the stems, and thus furnish repeated gatherings of the crop; but to ensure all this a liberal supply of farm-yard manure is requisite, and the addition of artificial manures, as in the turnip crops, materially adds to the fertilizing power of the soil, and prevents its deterioration; and in all cases the application of common salt will be of paramount advantage, as it is in the cultivation of every member of the Brassica family.

It must not be forgotten that rape, like the rest of its family, is liable to the attacks of the fly (*Maltica nemorum*), but seldom with such fatal effects; for being an erect-stemmed plant in its first development, and not like the turnip, a bulb squatted on the ground, it soon gets up beyond its ravages, and escapes; but the same remedies, useful in the turnip crop, are applied with the best results to rape, such as dusting with fine dry lime and soot at night, when the green seed lobes (cotyledons) have burst open. The late Mr. Fisher Hobbs used the following

for many years with the best results:—1 bushel fresh gas lime, 1 bushel caustic lime, 6 lbs. sulphur, and 10 lbs. soot, all made as fine as possible, and well mixed together. The quantity was sufficient for two statute acres, and applied early in the morning while the dew was on the leaf.

The practical value of rape for milk-producing, fattening, and for growing animals, is well known to those who have used it; in fact, those who have, have said that they never would be without it. To those who have not, we append the following analysis, in order to encourage them to its cultivation. Dr. Voelcker gives the following analysis of its organic constituents:—

Compounds containing nitrogen (flesh-formers) ..	3.133
Compounds not containing nitrogen (heat-giving and fat-forming) ... ..	8.209
Ash (inorganic or mineral matters) ... ..	1.603
Water ... ..	87.050
	100.000

The ash contains—

Potash ... ..	10.32
Soda ... ..	3.88
Lime ... ..	25.15
Magnesia ... ..	3.25
Phosphoric acid ... ..	6.04
Sulphuric acid ... ..	9.65
Silica ... ..	1.07
Chloride of sodium (common salt) ... ..	40.34
	100.00

We may add that it is near 100 years ago since the then Dublin Society, from information received from a member travelling in Flanders, first published and encouraged the profitable transplanting of rape in stubble land; so that although many gentlemen and farmers tried it with success at that early period, the practice has not yet become so general as it should be, from the valuable results obtained. The cultivation of turnips, mangels, and cabbages, though common enough in gentlemen's demesnes, received but a sickly attention from the general class of farmers till the famine of 1846 and 1847; since then the general cultivation of those crops has thriven apace, which is exemplified in the large and increasing demand for artificial manures to help and extend their cultivation. Rape is the only plant we can hopefully recommend at this season as a substitute for the turnip crop, which bids fair to be a limited crop in 1867, as it has proved to be in 1866, so that the actual dearth we have suffered during the past winter and spring in those valuable crops may, and we hope will, tend to a large breadth of rape being cultivated this season, for the maintenance of our herds and flocks during the coming winter and spring. Forewarned is to be forearmed, and if the farmers' stock should suffer from want of nutritive food, which brings all manner of, and at this present season unaccountable diseases, they will have but themselves to blame.—*Irish Farmers' Gazette*.

WELSH FARMING.

Having come to Llandudno for a month, to wash and blow away the grimy effects of a hot week's study at the Bury Show, I took an opportunity to-day of visiting what is considered the best-managed farm in the neighbourhood. I was accompanied over it by a very civil and intelligent young man who holds it in conjunction with his mother, and whom I propitiated exceedingly by the not very extraordinary present of a cheroof, though perhaps more by requesting a bowl of the native drink (buttermilk) in what I flattered myself was the purest Celtic vernacular. It is astonishing how the Welshman's heart warms at the sound of his language falling from the lips of a stranger. The descendant of the Cymry suspects, and in a fair degree dislikes, the Saxon visitor, except so far as his instinct teaches him that it is to the benefit of his pocket.

The main portion of the farm consists of a flat of clay land (partly blue, partly yellow) encircled (excepting an occasional opening, either pass or valley) with rounded hills and mountain range, from which the limestone crops out in beds, looking almost like chalk in the distance. Between and amidst these rocks and hills lies this best land and wave the finest crops; each hollow being a positive sun-trap, and filled by some ancient water action with loam several feet deep, of the richest description. Around each plot of ripening wheat or luxuriant potatoes a band of nut-bush and bramble-brake runs, with beyond, for a few yards, fine turf that reaches up to and ceases with the limit of great limestone boulders, once, as geologists tell us, a deep white pudding of mashed shell at the bottom of an ocean—such stuff as they brought up in sounding the

bed of the Atlantic cable. By the way, I wonder what will be the fashion of farming when the period arrives that this Atlantic lime-bed shall be upheaved in solid mountain shape. Of course I expect Shorthorns will be in vogue, an ample special palace having been erected at the nation's expense for the accumulated volumes of the Herd Book! To return, however: on the clay flat they grow fine crops of wheat and beans, the turnips being a continual failure. Is it credible that the idea of burning their foul, weedy headlands has never occurred to anyone in the neighbourhood. I saw twenty good store pigs of the improved Lancashire sort, that will make 18 score a-piece at Christmas, being fed *ad libitum* in a yard, upon peas fresh carted from the field, with no litter whatever under them, and a waggon-load of round pebbles just brought up from the shore for the purpose of being strewn in the wet places. Common charity impelled my pointing out to him, and he was very grateful, the expediency of burning clay and keeping his pigs upon it within doors, instead of paying good coin in great quantity annually for questionable superphosphate.

In returning home, I crossed a grand field of swedes, grown by a gentleman of advanced ideas (he has a herd of Yorkshire Shorthorns) upon clay. The field was well mucked, and was shaded by high woods on two sides. This last circumstance may have contributed a dampness to the soil, that would be agreeable to a root crop. Around the fence bristled, however, in full flower, a most disgraceful array of the perennial thistle. *En passant*, I just mention here, for the benefit of the beginner, that he may readily get clear of the common tall thistle by industrious spudding, it being an annual, whereas the small common thistle with running roots is perennial, and consequently most difficult to exterminate; the best plan being, probably, to mow the beds when the cut stems are sufficiently big to hold water, which speedily rots and destroys the plant. I have been lately promised a capital instrument for drawing up docks, which, (if a novelty) when received, I will describe. To hark back once again: I was struck by my companion's remark that all the Welsh farmers are at last going in for "a bit of breed" in all their stock. The wild mountain ewe is crossed with the pure South-down or the Shropshire Down. He showed me a tidy flock of the sort. He also stated that until lately having had a cheese dairy (which he gave up for the good reason that new milk commands such a price at the neighbouring watering-place), he crossed all his Welsh cattle with a Shorthorn, finding (I was astonished) the cross-bred cow give a more abundant supply of a richer character than the blue yield on which the old Welsh nurseries were wont to depend. The milk of other days is gone. In one respect I don't think they have taken a right step in their projected improvement of farm horses. You miss the plucky, round-quartered, cob-like carter that, when a lad, I remember to have seen often unhooked from the plough or harrows, to carry her master after the hounds when they came across his farm. One of this sort I saw this morning galloped by a lad along the shingle, single-handed to draw up a bathing-machine that had got stuck fast, and which two of the improved carters had failed to move under persuasion of words both kind and stern, and an ultimate application of the whip. Had she been younger and a trifle better-shaped I should have bid for her to take home. I have forgotten to note that the cross-bred Welsh and Shorthorn heifer is found to do on quite as hard diet as the pure native. She requires, however, shelter in the bad winter weather. I saw some rare young bullocks brindled, (mark ye! shades of Booth and Bales!) with quite mossy coats and

thickfleshed, picking happily at a pasture that was half-clothed with rushes.

The half-bred sheep, he told me, do well the winter through on the marsh, which at once rots the Shropshire Downs of a neighbour. It also does as well as, or even better than the pure native sheep upon the summer hill-pasture. The ewes they obtain about October, when they are driven down from the lofty Carnarvonshire mountains, on account of the snow, and are to be bought at about 15s. each. A large number are kept for the mountain farmers from October till March, when they can return to the hill-side, for about 1s. 6d. a head, being turned upon the roughest lowland pasture and the more sheltered rocks, where the snow quickly disappears. The lambs of the cross, although very late, make about £1 each, although this year there has been a strange slackness of demand. In fact the butcher can now buy almost anything he pleases at about 7d., although in Llandudno a leg of mutton fetches 10d. per lb. and the best beef joints 1s.

A large breadth of potatoes is grown on the farm in the sandiest part of it, the manure being ploughed-in in autumn, the seed deposited in the spring. Here, again, he was not alive to local advantages. He made no count of the abundant fern upon the hill-side, which yields an excellent dressing for this esculent. The labourers are paid 8s. per week each, and have, beside, their meals, viz., bread and milk for breakfast, with as much bread and butter as they please to follow, a meat dinner (a few years since they dined for the purpose beef, &c., viz. a bull a year and other animals; now they take the butcher's coarse pieces) and bread-and-milk with bread-and butter afterwards for supper. During harvest time they have an extra meal of bread-and-cheese and beer. The regular wages for the unboarded labourer is 15s. the week. The boarded labourers are considered to make through temporary job-work £2 10s. per month during the harvest period. The land is rented at from 20 to 35 shillings per acre. Wheat is now worth 8s. the bushel, oats 4s., barley about 5s. 6d. They burn their own lime for 8s. the cartload, and use it extensively on the peat and blue clay with success. Turnip hoeing and thinning costs 8s. per acre, reaping &c. 13s., mowing 3s. 3d. without drink. I omitted to mention that this year he proposes to use as a new cross an Ayrshire bull, out of a pure Ayrshire cow, which must have been well bred, so thoroughbred does he look, with his rounded, fleshy thigh and his bright eye and short sharp horn—but my sands are run. Goodnight. VIGIL.

THE THIRSK PIG SHOW.—Sir George Wombwell has written to a contemporary denying that his prize pen of pigs were exhibited at the Christmas Show at York, and adding that as "this statement is so directly at variance with the truth of the case, I must ask you to give it immediate contradiction, for fear of my being warned off all the show-yards in the county. The pigs to which your reporter alludes as being shown at York were disposed of by me to Mr. Whitaker, a most respectable butcher in York, by whom they were no doubt distributed to the general public." Sir George says, further, that "Professor Spooner was on the ground, ready to examine any animal as to age, &c.; and although my pigs were admired and looked at by all, not one single protest was ever entered against them as to their age, or any supposed disqualification." We of course think it only right to give this correction, the more especially as these pigs were so superior to all the others of the class in growth and development.

IRISH AGRICULTURAL STATISTICS.—Total acreage under flax in Ireland in 1866, 263,507 acres; in 1867, 253,105 acres; decrease in 1867, 10,402. Of these, Ulster grew 234,491 acres against 245,356 acres in 1866, showing a falling off in that province of 10,865 acres. This is not a proof of prosperity!

## AGRICULTURAL STATISTICS.

SIR,—I had early, and have long taken a warm interest in the necessity of procuring complete and correct returns of the statistics of agriculture, which I trust may be considered a sufficient apology for requesting space in your valuable columns to make a few remarks on this important subject.

I believe I was the first, so long ago as 1842, to direct the attention of the Highland Society of Scotland to this matter, through whose exertions the Government were induced subsequently to take action, in so far as the experiment of obtaining agricultural returns was successfully attempted in Scotland. On that occasion I had no slight share in preparing the schedules, and in devising the machinery by which these returns and the requisite estimates were procured. It is therefore with much gratification I have seen the measure now extended to England, and I must say I feel very desirous every facility should be given—no exertions spared—to ensure its complete success.

I have not yet heard how, in the present season, the demand for these returns has been met. There has, no doubt, been hitherto much indifference, and perhaps some latent suspicion on the part of the tenantry to prevent a ready compliance with the desire of the Government; but if those who have the most abiding interest in this matter would rightly assume their share of the duty, I cannot help thinking there would be less occasion for many of the strictures which some leading journals have, perhaps too exclusively, made on the farmers as to the obstacles which, in some quarters, have interfered with the success of this enquiry. The cause of reluctance to comply with the request of the Government appears to me to rest more upon the lukewarmness and inattention generally to the due development of the resources of the land on the part of the proprietors than to the ignorance of the occupiers. Hence it will be found that the hesitation to give the necessary returns prevails ordinarily in the greatest degree, where the least interest is shown on the part of the landlord to the profitable use of his property, and where, as a consequence, agricultural improvement is most deficient. The farmer is not so ignorant, and of such limited observation as is commonly supposed, nor is he so wedded to the customs and appliances of his forefathers as to neglect altogether, as is too often said, what is taking place around him. The obstacle to progress it will be found arises, in a backward district, more from the narrow sphere of the experience of the tenant; and until those who possess a wider field of observation and superior opportunities of information assume the duty incumbent on them—use their influence and endeavours to obtain and extend information, and to encourage the spread of approved means and processes, we cannot expect due exertion will be made to obtain such a knowledge of our agricultural position and resources as is required, nor shall we be enabled to make the full and speedy application of such information, when obtained, as is so desirable; for after all, those engaged in agriculture have the most direct, and above all the proprietor of the soil has the deepest and most permanent interest in the realization of a complete record of our agricultural wealth, and of the means of its production. When our returns are perfected, and something of a reliable estimate of our comparative annual cereal produce obtained, such information may no doubt be of use to regulate in some measure the proceedings of the merchant; but to the agriculturist a view of the distribution of the land in the cultivation of the various crops, with an estimate of their produce, and of the number as well as the species of cattle and sheep maintained in the different districts of the country, cannot fail to be immediately available and of great practical use. It is earnestly to be desired then, even for his own sake, that every one concerned in agriculture would give every assistance, and afford all facility to the correct filling up of the forms required by the Board of Trade, as forming the beginning of a good work.

But these returns are far from being all that for the sake of the more speedy and due development of our agricultural resources ought to be furnished, and that cheerfully. It is desirable the information should be of such a nature as that

the farmer in one part of the country should not only be made acquainted with the different species of crops cultivated in another part, and be enabled to see how and at what comparative expense they are produced; but it is essential that the returns, besides containing an estimate of the weight and produce of roots and cereals, should as regards live stock specify the precise age and variety of breed. The Government cannot fail to be aware, and every statistician knows that for any practical purpose to the limited extent to which these returns are being given, they are comparatively useless. Before any reliable estimate of the value of our agricultural wealth can be made, it will be necessary, as in Scotland in 1854-5-6, that we should have an estimate of the weight and produce of our root and cereal crops (as ascertained by the average in these returns) given by practical men acquainted with the capabilities of the soil of the district, and not returnable by them until they have had an opportunity by the yield of their own crops for the year to check in some measure their opinion.

As regards live stock again, it is essential, in order to arrive at any correct, even proximate, amount of the worth of our cattle and sheep, that the returns specify not only the number, but the precise age and species of the different varieties. It is clear no appreciable estimate can be made by number and age alone, when the difference of value according to breed varies not less than as 3 to 10. Besides, what a lesson would a comparison of varieties of breed thence exhibited convey to agriculturists, where in some districts they may, as often happens, be maintaining a breed inferior, they will then discover, to what is reared successfully on land in no way superior to their own. The weight of beef and mutton produced in this country has wonderfully increased of late years, in great measure caused by the extension of improved breeds, and in no respect is the want of agricultural statistics in former years to be more deeply lamented than that, with the advantage of such information, an infinitely more rapid improvement could not fail to have been carried out, while we should have been furnished with data to mark the striking progress which, within a given time, has been effected in so many parts of the country, so valuable for instruction and imitation. Besides, had we possessed the advantage of correct agricultural statistics in the earlier years of the century, they would have revealed a fact which would have gone far to dispel the too-currently received notion, which has militated in many respects against agriculture, that it has lagged behind the other industrial interests of the country. The truth is, it has not received the full public interest and attention which it so well deserves. Something more must be done for agriculture, and we must no longer grudge the expense. Why should we not have a Minister and Board of Agriculture as well as of Trade? The returns obtained, imperfect as they are, have shown that agriculture is not the least, if not the greatest, source of our national wealth. Perhaps it may be as well that in the first instance, in the infancy of the inquiry, no more has been demanded than what is indicated by the forms now issued; but having felt our way, it is essential, in order that we may possess such information as is necessary to arrive at the precise amount of our agricultural resources, that we should have schedules framed and issued of a more distinct and extensive character. It seems a mistake to suppose that opposition will be increased by any further minute inquiry as regards stock—which, at present, is especially deficient. It is as easy, it may be said, to fill up fifteen columns as five, when these are distinctly headed; and, as it is, to accomplish this it only requires that the occupier should take the trouble to fill as many columns in relation to cattle and sheep as is now required of him as regards crops.

But I trust the time is not far distant when it shall not be deemed irksome or inquisitorial that we go even further than this; and that for the sake of agriculture especially, we shall not be contented with returns alone of the soil, but that we shall have such full statistical information, periodically, as shall make us acquainted with the precise proportion of the population directly employed in the cultivation of the soil, the number of horses used in tillage, and otherwise raised and supported

on agriculture in different districts, the nature and endurance of holdings, the extent of land thoroughly drained, and the quantity of special or foreign manures applied in those years in which such more extended returns are made. These special returns need not be made more frequently than at intervals of five or ten years, when they would be invaluable to agriculturists for practical economical instruction, as marking the periodical progress of agriculture in any specified district; and on a comparative view, exhibiting the advantage of improved systems of management and rates of employment, in order to adoption when available. Thus those deeply interested in the improvement of the land and the success of rural industry, where progress has hitherto been slow, and hence opportunities of information limited, will be enabled immediately to discover where skill and enterprise has been most successfully applied, and seek to extend the beneficent hand to their own immediate

requirements. The green spots will become earlier visible, and thus prejudice and ignorance will sooner disappear.

Undoubtedly the machinery hitherto applied for obtaining our agricultural returns is not at all adequate to effect fully the whole object desired, and to give that confidence in their accuracy and completeness which is so essential to all practical purposes. A more liberal expenditure to accomplish satisfactorily so great an end must not be grudged. Little expenses which come short of the object are the worst of all economy. One of great political authority (Burke) has said, "Expense and great expense may be an essential part in true economy. It consists not in saving, but in selection of the right objects on which expenditure is bestowed. No state, since the foundation of society, has been impoverished by that species of profusion."

I am, Sir, your obedient humble servant,  
Pearcelands, West Hoathly. JOHN DUDGEON.

## SCARBRO', HACKNESS, AND NORTH AND EAST RIDINGS AGRICULTURAL SOCIETY.

This Society held its fifth exhibition of stock and implements at Scarbro' on Friday, July 19. The display of horses constituted the prominent feature of the show. The exhibition was the best that the Society has ever had, as relating to quality, although numerically short of the show of 1865. The entry of sheep and pigs was most satisfactory in every respect, the shearing rams, wethers, and gimmers more especially being in the prime condition possible. There was an extensive exhibition of poultry and pigeons, as well as implements.

### PRIZE LIST.

#### JUDGES:

**SHEEP AND PIGS.**—W. Abraham, Barnetby-le-Wold, Uleebby; G. Smart, Woodhouse Grange, Aberford.

**HUNTING AND NAG HORSES.**—W. J. Atkinson, Barrowby Hall, Woodlesford, Leeds; Maynard, Skinningrove Hall, Redcar; and J. Smith, Humburton, Boronghbridge.

**COACHING AND AGRICULTURAL HORSES.**—A. Turnbull, Middle Ord, Berwick, N.B.; W. Goodson, Normanby-by-Stow, Gainsborough; and R. Robson, Deighton.

**IMPLEMENTS.**—R. Ellerby, Salton, Oswaldkirk; and Enoch Scruton.

#### LEICESTERS.

Two-shear or aged ram, £5, J. Borton, Barton House, Malton; second, £2, J. Borton.

Shearing rams, £7, J. Borton; second, £3, J. Borton.

Three shearing rams, £5, J. J. Simpson, Pillmore House, Hummanby; second, £2, J. Borton.

Five shearing gimmers, £3, E. Tyndall, Knapton Hall, Malton.

Five Leicester ewes, £2, G. Wright, Broughton; second, £1, G. Watson, Newbegin.

Ten Leicester gimmer lambs, £3, T. Darrell, West Ayton; second, £1 10s., J. Darrell, West Ayton.

#### MOOR OR MOUNTAIN SHEEP.

Rams adapted to a mountain district, £2, W. Rudsdale, Danby Lodge, Danby End; second, £1, Mrs. W. Rudsdale, Danby Lodge.

Three ewes, £2, W. Rudsdale; second £1, R. Ward, Langdale End.

#### LINCOLN OR OTHER LONG WOOL SHEEP.

Shearling Rams, £5, J. J. Simpson; second, £2, J. J. Simpson.

#### PIGS.

Boars of large breed, £2, J. Dyson, Adelphi Hotel, Leeds; second, £1, G. Chapman, Seamer.

Sows of large breed, in pig or milk, £2, J. Dyson; second, £1, D. Hart, Seamer.

Boars of small breed, £2, J. Dyson; second, £1, G. Graham, Blackburn's-buildings, Leeds.

Sows of small breed, in pig or milk, £2, J. Dyson; second, £1, W. Linton, Sheriff Hutton.

Boars of large blood breed, £2, J. Dyson; second, £1, G. Chapman, Seamer.

Sows of large blood breed, in pig or milk, £2, J. Dyson; second, £1, W. Robinson, Market-street, Scarborough.

Three store pigs, of any breed of the same litter, and from four to nine months old, £1, J. Dyson; second, 10s., F. Prince, West Ayton.

Boars of large breed, not exceeding twelve months old, £1; G. Chapman; second, 10s., J. Dyson.

Sows of large breed, not exceeding twelve months old, £1, J. Dyson; second, 10s., G. Chapman.

Boars of small breed, not exceeding twelve months old, £1, J. Dyson; second, 10s., W. Linton.

Sows of small breed, not exceeding twelve months old, £1, J. Dyson; second, 10s., G. Hutchinson, Prospect House, York. Cottager's store pig, £2, R. Atkinson, Seamer; second, £1, T. Rudsdale.

#### HORSES.

Thoroughbred stallions for hunting, £7, Sir George Cholmley, Bart., Boynton, Bridlington (Angelus); second, £3, J. Webster, Allerston, Pickering (Strathern).

Hunting brood mares and foals, £5, W. and B. Muzeen, South Holme, Slingsby; second, £3, J. B. Booth, Killerby, Catterick.

Hunting yearling geldings, £2, Ringrose, Flixton, Scarborough; second, £1, J. Dayrell, West Ayton, Scarborough.

Hunting yearling fillies, £2, Rev. H. Blane, Folkton Rectory, Scarborough.

Hunting two-year-old geldings, £3, Sir G. Cholmley, Bart.; second, £1, F. Dickenson, Ling Holme, Filey.

Two years old hunting fillies, £3, J. B. Booth; second, £1, R. Wyse, Sewerby, Bridlington.

Three years old hunting geldings, £4, J. Fielden, Dobroyd Castle, Todmorden; second, £2, Sir George Cholmley, Bart.

Three years old hunting fillies, £4, Sir G. Cholmley, Bart.; second, £2, J. Robson, Ganton.

#### COACHING HORSES.

Stallions, £5, R. Clowton, Great Kelk, Lowthorpe.

Coaching mares and foals, £4, W. and F. Colson, Gately Farm, Castle Howard; second, £2, F. Dickinson, Lingholme, Filey.

Yearling coaching geldings, or fillies, £1, S. Baker, Wilton, Pickering; second, 10s., Miles, Leberston, Filey.

Two years old coaching geldings or fillies, £2, Messrs. Coulson; second, £1, J. B. Baker, Throxenby, Scarborough.

Three years old coaching geldings, £3, J. Tanton, Sewerby, Bridlington; second, £1, R. Wyse.

Three years old coaching fillies, £3, W. Stephenson, Bushy Hill, Newbald, Brough; second, £1, R. Myers, Harum Mill, Nawton.

#### ROADSTERS.

Stallions, £5, J. Cook, Nafferton, Driffield; second, £2 10s., J. Crompton, Thorne Holme, Lowthorpe

Roadster mares and foals, £4, W. Major, Sledmere Grange, Malton; second, £2, Mrs. Cook, Huggate, York

Roadster yearling geldings or fillies, £1, J. Darrell, West Ayton, Scarborough

Two year old roadster geldings or fillies, £2, G. Boak, Yedingham; second, £1, J. Hardy, Seamer, Scarborough

Three year old roadsters, geldings, or fillies, £3, J. Crompton; second, £1, J. Smith, Risebro', Pickering.

Roadster mares or geldings of any age, £4, H. R. W. Hart, Dunnington; second, £2, W. Green, Leeds.

#### AGRICULTURAL HORSES.

Stallions, £5, Mr Simpkin, jun., Burton Agnes (Nonpareil); second, £2 10s., E. Arnison, Malton (Young Matchless)

Mares and foals, £4, T. and J. Upton, Pollathorpe, Tadcaster

Yearling geldings or fillies, £1, J. Burdas, Thwing, Bridlington

Two year old geldings or fillies, £2, T. and J. Upton, Pollathorpe, Tadcaster; second, £1, J. Burdas, Thwing, Bridlington

Three year old geldings or fillies, £3, T. North, Eske, Beverley; second, £1, D. Cockerill, Barniston, Scarborough

Pairs of horses, either sex, £4, T. Darrell, West Ayton, Scarborough; second, £1, T. Shaw, Muston Cottage, Filey

Ponies, £3, Simpkin, jun., Burton Agnes, Bridlington; second, £2, Wm. Coates, Ingleby Barwick, Yarm

Extra, £3, H. Smith, Brompton Grange, Northallerton, (chestnut gelding); second, £2, Sir H. Trafford, Bart, Esplanade, Scarborough

#### SPECIAL PRIZES.

Hunting geldings or mares of any age by a thorough-bred horse, a piece of plate, F. P. Newton, Norton, Malton; second, £5, H. Jewison, Raisthorpe, York

Hunting geldings or mares, four years old, and with not less than three crosses of blood, and up to thirteen stones, a piece of plate, E. Hornby, Flatmanby, Bridlington; second, £5, J. Robson, Widdlebeck, Ganton, York

Hunting mares or geldings, open to the whole county of

York, a piece of plate, J. Robson, Windlebeck, Ganton, York; second, £5, C. Rose, Malton

Hunting geldings or mares, of any age, by a thorough-bred horse, the property of a tenant farmer, a piece of plate, S. B. Roberts, Amotherby, Malton; second, £5, J. Cattle, Barton-le-Street, Malton

Harness gelding or mares, not less than 15 hands 2 inches high, or above 16 hands, and not less than 4 but under 8 years of age, by a thorough-bred horse, first, G. Watson, Newbegin, Filey; second, £5, R. Cross, M.D., Esplanade, Scarborough

Ladies' hackney, gelding, or mare, not to exceed 16 hands 2 inches high, not less than 4 but under 8 years of age, a piece of plate, W. and B. Muzzeen, South Holme, Slingsby, York

LEAPING PRIZE.—Horses of any age, sex, or breed, £5, W. and B. Muzzeen, Slingsby, York (The Novice); second, £2 10s., J. Darrell, West Ayton, Scarborough (brown gelding), 4 years old

#### IMPLEMENT'S.

Messrs. Mann, carriage builders, Scarborough, £2, for an economic carriage; W. Waters, Scarborough, £1, for a patent portable farmer's or laundry boiler, requiring no fixing—also £1 for a patent portable American cooking range; Sammelson and Co., Banbury (per H. Bushell, York), £3, for a patent self-raking reaper, with side delivery in sheaf—also £2 10s. for a patent meadow mower, with flexible beam; W. Sawney's trustees, Beverley, £2 10s., for a horse rake; J. Weighill, Pickering, £3, for the best assortment of implements; M. Dale, Bridlington, £3, for an improved 9-row corn drill; H. and G. Kearsley, Ripon, £5, for a grass mower, to cut four feet; W. Mattison, Leeming Bar, Bedale, £3, for a one-horse reaping machine; J. Baker, Bainton, Driffield, £3, for an improved three-horse reaper—also £2 10s. for a prize waggon, wheels 3ft. 8in. and 4ft. 6in. high, tires 3in. wide, to carry 3 tons; Smith, Foston Lowthorpe, £1, for a self-feeding sheep rack, 12ft. long; W. Spink, Filey, £1, for a liquid manure drill for turnips and mangolds; W. Waide, Hunslet-lane, Leeds, £1, for a barrel churn, to make 3 to 15lbs. of butter.

## THE BRIDLINGTON AGRICULTURAL SOCIETY.

This old-established Society held its thirty-second show of stock and implements on Wednesday last. The classes for sheep were exceedingly well represented. Mr. Borton, of Barton, sent in some of his Leicesters, which, for symmetry, pure blood, and abundance of wool and mutton could not be surpassed. He, as a matter of course, carried off the principal prizes. The sheep exhibited by the other competitors were fully up to the mark, more particularly the animals belonging to Mr. Riley, of Kipling Cotes, and to Mr. Simpson, of Hunmanby. The array of all kinds of horses excelled the display of last year. The two-years-old and yearling hunters were deserving of all the praise that could be bestowed upon them. The president of the society, Sir George Cholmley, Bart., was successful in the class for two-years-olds, obtaining both the first and second prizes. The hon. baronet also secured first honours in the class for three-year-old hunters, and likewise the first place for three-year-olds and yearlings. The coaching and roadster classes were well represented, no less than fifteen animals putting in an appearance for the prizes for roadsters of any age. Some of the finest agricultural horses to be found in Yorkshire were exhibited; but the most numerous class amongst horses was that for nag or mare ponies not exceeding 14 hands high, the entries making nineteen, and the competition very severe. There was a limited but choice entry of pigs.

### PRIZE LIST.

#### JUDGES.

HORSES.—T. Ellerby, Whitwell, York; B. Nicholson, Stourton Grange, Garforth; H. Lambert, Wauldby, Brough.

SHEEP AND PIGS.—W. Abraham, Barnethy-le-Wold; W. Kirby, Skirpenbeck, York; J. Smith, Risebro', Kirbymoorside.

IMPLEMENT'S.—T. Boynton, Ulrome Grange; G. S. Simpson, North Burton; R. Lowish, Haisthorpe; F. Danby, Kilham.

#### SHEEP.

Shearling Leicester ram, £5, J. Borton, Barton House, Malton; second, £2, J. Borton.

Five shearling rams adapted to the district, £5, E. Riley, Kipling Cotes Farm, Beverley; second, £2, J. J. Simpson, Pilmore House, Hunmanby.

Aged ram, £4, J. Borton; second, £1, J. Borton.

Five breeding ewes that had suckled rams up to 6th July, £4, G. Wright, Broughton; second, £1, Mrs. Smith, Bampton.

Five shearling gimmers, £4, J. and E. Tindall, Knapton Hall, Rillington.

Fat wether, ewe, or gimmer, £2, J. W. Sharp, Ulrome.

EXTRA STOCK.—10s. to G. Wright.

#### HORSES.

Hunting mares and foals, £4, J. Smith, Marton Lodge, Bridlington; second, £1, R., Goodlass, Skerne.

Three years old hunting geldings, £4, Sir G. Cholmley, Boynton; second, £1, J. Holliday, Barnston.

Two years old hunting geldings or fillies, £3, Sir G. Cholmley; second, £1, Sir G. Cholmley.

One year old hunting geldings or fillies, £2, Sir G. Cholmley; second, T. Reed, Upton.

Three years old hunting fillies, £3, Sir G. Cholmley; second, £1, E. S. Brett, Bridlington.

Coaching mares and foals, £4, J. Johnson, Brigham; second, £1, G. Richardson, Moor Town.

Three years old coaching geldings, £4, R. Wise, Sewerby Field; second, £1, G. Walsmsley, Rudston House.

Two years old coaching geldings or fillies, £3, G. Walsmsley; second, £1, W. Miller, Lissett.

One year old coaching geldings or fillies, £2, J. Jackson, Buckton Hall.

Three years old coaching fillies, £2, W. Stephenson, Bushey Hill; second, £1, M. Thompson, Brackendale Farm.

Roadster nags or mares of any age, £4, T. Corduer, East Heslerton; second, £1, G. Walmsley.

Roadster mares and foals, £4, J. Major, Sledmere Grange; second, £1, Mrs. A. Cook, Huggate.

Two years old roadster geldings or fillies, £2, R. Mook, Lissett; second, J. Stephenson.

Mares and foals for agricultural purposes, £4, Mrs. Smith, Bempton; second, £1, J. Clarke, Carnaby.

Horses or mares for agricultural purposes, £3, G. Simpson, Marton; second, £1, J. Preston, Flambro'.

Two years old agricultural geldings or fillies, £3, Mrs. Smith; second, £1, G. Walmsley.

One year old agricultural geldings or fillies, £2, T. Cranswick, Rudston; second, J. Burdass, Thwing.

Pairs of horses of either sex for agricultural purposes, £4, Mrs. Smith; second, £1, T. Shaw, Muston.

Nags or mare ponies, not exceeding 14 hands high, £3, W. Simpkin, jun., Barton Agnes.

Nags or mare ponies not exceeding 12 hands high, £2, T. Smith, Ulrome.

Stallions for hunters, £4, W. Hudson, Brigham (Cathedral); second, £1, Sir George Cholmley, Bart. (Angelus).

Stallions for roadsters, £4, J. Crompton, Thornohue (St. Ives); second, £1, H. R. W. Hart, Dunnington Lodge, York (All Fours).

Stallions for coach horses, £4, J. Johnson, Brigham (Prince Arthur); second, £1, J. Stockdale, Skere (Valiant).

Stallions for agricultural purposes, £4, E. Ingilby, Market Rasen (Young Champion); second, £1, K. Cole, Gembling (Pride of the East).

Four years old hunting mares or geldings, £5, E. Hornby, Flotmanby; second, £2, J. Holliday, Barmton.

Hunting mares or geldings, four years old or upwards, £7, W. Johnson, Lowthorpe; second, £3, H. Jewison, Raisthorpe.

#### PIGS.

Boars, large breed, £2, J. Dyson, Adelphi Hotel, Leeds.

Sows or gilts, large breed, £2, J. Dyson.

Boars, small breed, £2, J. Dyson.

Sows or gilts, small breed, £2, J. Dyson.

#### IMPLEMENTS.

J. Chapman, Boynton, 15s. for a pole waggon; J. York, Bridlington, 10s. for new Whitechapel cart; J. Teal, Holme-on-the-Wolds, 10s. for two improved drag harrows; T. Robson, Grindale, 10s. for a straw elevator, 10s. for an improved 3-horse reaping machine, and 10s. for Thompson and Stather's patent corn crusher; P. and W. Smithson, Bridlington, 10s. for a double-shaft waggon, with patent arms, and 10s. for assortment; J. Baker, Bainton, £1 for an improved three-horse reaper, £1 for prize waggon wheels, 10s. for a one-horse cart, and £1 for a market cart; H. Dickson, Carnaby, 5s. for a set of iron harrows, and 10s. for assortment of implements; J. J. Burbury, Bridlington Quay, £1 for assortment of implements; Samuelson and Co., York, £1 for reapers; W. Smith, Foston, 5s. for a self-feeding sheep rack; M. Dale, Bridlington, £1 for six wood and six iron ploughs, £1 for an improved 2-rowed turnip drill, 10s. for a patent mill by Paterson for bruising agricultural produce, for horse or steam power; £1 for a patent swathe delivery self-raking reaping machine, 10s. for a patent grass mower, and £3 for an assortment of hames, scythes, forks, and shovels.

## THE NORTHUMBERLAND AGRICULTURAL SOCIETY.

### MEETING AT NEWCASTLE-UPON-TYNE.

This show was held on Thursday, July 18, and, considering the circumstances which militated against it, may be pronounced to have been very successful. Undoubtedly the great feature was the horses. The entries were not only large numerically, but were surpassingly good in quality. Amongst the agricultural horses many of real merit had to be passed over unnoticed, and the average exhibited was very good. The horses for the field occupied a very large space in the show, and the judges were kept in employment in the discharge of their duties from the time the classes got together in the morning, until within about half-an-hour of the closing of the show. They were the great attraction of the day, and the bulk of the visitors might always be seen crowded round the railed-in space, or circulating up and down the rows of stands. The show of sheep was not large, but the animals on the ground were of a very fair class. The smallness of the entries admits of an easy explanation from the stringency of the cattle-plague regulations rendering it difficult to get sheep forwarded and returned from a distance. Thus the sheep from Scotland could not be sent back across the Border until they had been a certain number of days in England; and so by sending animals to compete here, breeders would be giving up chances of victory at the Highland Society's show next week. The pigs were excellent, the small breed in particular really splendid, and a sow which had graduated with the highest honours at the Royal Agricultural Exhibition was here only awarded the second prize in her section. The implements were a large and excellent show; but there was nothing strikingly novel amongst them.

#### JUDGES.

LEICESTER SHEEP.—W. Smith, Melkington, Coldstream; — Bell, Scale Hall, Peirith; J. Wood, Stanwick Park, Darlington.

CHEVIOTS AND BLACK-FACED SHEEP.—A. Borthwick, Kilham, Wooler; G. Rea, Middleton, Wooler.

HORSES FOR AGRICULTURAL PURPOSES.—T. Gibbons, Burnfoot, Longtown; J. Outhwaite, Baines, Catterick,

HORSES FOR THE FIELD.—T. Parrington, York; W. Forster, jun., Burradon, Rothbury.

PIGS AND IMPLEMENTS.—J. A. Waller, Ammerside Law, Belford; J. Henderson, Housley Hill, South Shields; T. P. Dods, Anick Grange, Hexham.

#### PRIZE LIST.

##### SHEEP.

BORDER LEICESTERS.—Rams, of any age, £6, the Rev. R. W. Bosanquet, Rock; second, £4, the Rev. R. W. Bosanquet, Shearling rams, £6, J. C. Bolam, Low Trewwhit, Rothbury; second, £4, the Rev. R. W. Bosanquet. Pens of 5 ewes, £4, J. Angus, Whitefield, Morpeth; second, £2, J. Wilson, Woodhorn Manor, Morpeth. Four pens of 5 gimmers, £4, Messrs. Dinning, Nilston Ridge, Haydon Bridge; second, £2, J. Angus.

BLUE-FACED LEICESTERS.—Rams of any age, £6, J. Borton, Barton House, Malton; second, £4, J. Borton. Shearling rams, £6, J. Borton; second, £4, J. Borton. Pens of 5 ewes, £4, J. Simpson, Spofforth Park, Wetherby; second, £2, R. Jefferson, Preston Howes, Whitehaven. Pens of 5 gimmers, £4, R. Jefferson.

CHEVIOTS.—Rams of any age, £6, T. Elliott, Hindhope, Jedburgh; second, £4, R. Shortreed, Attonburn, Kelso. Pen of 2 two-year-old rams, £4, T. Elliott; second, £2, T. Elliott. Pens of 2 shearing rams, £4, R. Shortreed; second, £2, T. Elliott. Pen of 5 ewes, £4, T. Elliott; second, £2, R. Shortreed. Pens of 5 gimmers, £4, T. Elliott; second, £2, R. Shortreed.

BLACK-FACED MOUNTAIN SHEEP.—Rams of any age, £6, T. A. Stephenson, Newbiggin, Blanchland; second, £4, C. Smith, Westerdale, Yarm. Pens of 2 two-year-old rams; No competition. Pens of 2 shearing rams, £4, F. Wilson, Snape Gate, Stanhope, Durham; second, £2, T. A. Stephenson. Pens of 5 ewes, £4, C. Smith; second, £2, C. Armstrong, Ashgill Side, Garrigill, Alston. Pen of 5 gimmers, £4, C. Armstrong; second, £2, T. A. Stephenson.

## HORSES.

FOR AGRICULTURAL PURPOSES.—Brood mares, £10, G. H. Head, Rickerby, Carlisle; second, £5, G. Linton, Low Street Brewery, Kirby Fleet House, Bedale. Three-year-old colts or fillies, £5, G. Atkinson, Hall Farm, Seaham; second, £3, J. Atkinson, Point Pleasant, Newcastle. Two-year-old colts or fillies, £5, I. Fawkes, Smallstown, Longtown, Carlisle; second, £3, Messrs. Hills, North Charlton, Chathill. One-year-old colts or fillies, £5, J. Joiey, Urpeth House, Gateshead; second, £3, J. Joiey. Brood mares, £10, J. B. Booth, Killerby, Catterick; second, £5, R. O. Lamb, Axwell Park, Gateshead. Three-year-old colts or fillies, £5, J. Fielden, Dobroyd, Todmorden, York; second, £3, R. Emerson, jun., Over Dinsdale, Darlington. Two-year-old colts or fillies for the field, £5, J. B. Booth, Killerby, Catterick; second, £3, T. Gibbons, Burnfoot, Longtown, Carlisle. One-year-old colts or fillies, £5, J. Moffatt, Kirkhinton Park, Carlisle; second, £3, G. Emerson, jun.

HUNTERS.—Five years old and under ten, a silver cup of £20, and £10, also a sweepstakes of 10s. each, Jacob Wilson (five years old, by Gohlin); second, £5, T. Gee, Dewhurst Lodge, Wadhurst (Butoon). Four years old, a silver cup of £10, and £10, also a sweepstakes of 10s. each, J. Newton, Chollerford, Hexham (Gambler); second, £5, T. Gee (The General). Not exceeding 15.2 hands high, a silver cup of £10, with £10, also a sweepstakes of 10s., T. E. Smith, Gosforth House, Newcastle; second, £5, J. Snowball, Seaton Burn House, Dudley.

PONIES.—Not exceeding 14 hands, £4, to which is added a sweepstakes of 5s. each, Dr. Shield, Chester-le-street, Fence

Houses; second, £2, J. Lumsden, jun., Mousen, Belford; third, £1, G. H. Ramsay, Derwent Villa, Newcastle. Stallions, for agricultural purposes, £10, Messrs. Hills, North Charlton, Chathill (Emperor); second, £5, J. Brown, Red Lion Inn, Wooler (Young England).

PIGS.—Boars of the large breed, £3, J. Dyson, Adelphi Hotel, Leeds; second, £1, R. E. Duckering, Northorpe, Kirton Lindsey. Boars of the small breed, £3, G. Mangles Givendale, Ripon; second, £1, R. E. Duckering. Sows of the large breed, £3, R. E. Duckering; second, £1, J. Dyson. Sows of the small breed, £3, Jacob Wilson; second, £1, R. E. Duckering. Sows of a breed not eligible for the preceding classes, £3, R. E. Duckering; second, £1, Jacob Wilson. Pens of three sow pigs of the large breed, £2, Jacob Wilson. Pens of three sow pigs of the small breed, £2, J. Dyson.

IMPLEMENTS.—J. Weighill, Pickering, steam engines, 10s.; W. Thompson, Waterside House, Alawick, reapers and mowers, £1; G. Wright, jun., Belford, reaping and mowing machines, £1; J. Gregory, Westoe, South Shields, mowers, £3; W. H. Walker and Sons, Percy Iron Works, Newcastle, model cottage kitchen stoves, £1; E. Scott and Son, Felton, Acklington, mowing machines, &c., £1; J. Spence, 5, Euston-road, King's Cross, London, model of straining pillar, 10s.; Brigham and Bickerton, Berwick-on-Tweed, reapers, £1; J. Stohard, Morton, Earsdon, combined reaping and mowing machine, 10s.; T. E. Colegrave, Newcastle-upon-Tyne and Stockton-on-Tees, Samuelson's combined reaping and mowing machine, £4; J. Symm, Newton, Stockfield-on-Tyne, endless band sawing machine, £1; W. Trotter, South Acomb, Stockfield-on-Tyne, combined reaping and mowing machine, 10s.

## DURHAM AGRICULTURAL SOCIETY.

## MEETING AT STOCKTON-ON-TEES.

The 24th annual meeting of the Durham County Agricultural Society was held on July 24th at Stockton-on-Tees. Last year, on account of the cattle-plague, the show was not held. The present exhibition was a most encouraging one; the entries for horses far exceeded any previous year, and the sheep and pigs were also tolerably well represented. The special prize given by the Durham Hunt for the best hunter not more than nine years old was won by Mr. Sutton's Voyageur, who took the second prize at the Royal Agricultural Show at Bury St. Edmunds. The following are some of the chief prizes awarded:—

JUDGES.—Cattle, Sheep, and Pigs—J. Wood, Stanwick Park; J. B. Booth, Killerby; T. Smurthwaite, Holme House, Piercebridge. Horses—B. Wilson, Brawith, Thirsk; J. Wilkinson, Twinsburn; and — Hodgson, Bramper.

## LEICESTER OR LONG-WOOLLED SHEEP.

Rams of any age, £5, J. Simpson, Spofforth Park, Wetherby; second, £2, J. Heugh, Mudd Fields, Bedale. Shearling rams, £5, T. H. Hutchinson, Manor House, Catterick; second, £2, T. H. Hutchinson. Pens of five ewes, having reared lambs this year, £3, J. Simpson.

## PIGS.

Boars, large breed, £1, J. Dyson, Adelphi Hotel, Leeds; boars, small breed, £1, J. Dyson. Sows, large breed, £2, J. Dyson; sows, small breed, J. Dyson.

## HORSES.

Hunters, not more than nine years old, and warranted sound at the time of entry, £20, T. Sutton, Alwent, Darlington (Voyageur); second, £5, G. Robinson, Marton, Middlesborough. Leaping prize for hunters of all ages, warranted sound at the time of entry, £7, J. Harrison, Sedburgh, Darlington. Saddle mares, £5, J. Parrington, Brancepeth; second, £2, J. B. Booth, Killerby, Catterick. Harness mares, £5, W. and F. Coulson, Gaterley Farm, Castle Howard; second, £2, J. Featherstone, Marton-road, Middlesborough. Cart mares, £5, G. Linton, Kirkby Fleetham, Bedale. Sweepstakes of 5s. each, with £2 added, for the best foal for harness, J. Donaldson, Great Ayton, Northallerton. Three-year-old fillies for the field, £5, T. Hodgson, Broughton; second, £1, I. Scarth, Mount Pleasant, West Rounton, Northallerton. Three-year-old colts for harness, £5, W. Mewburn, Ingleby Hall, Yarm. Three-year-old fillies for harness, £5, J. Easby, Ormsby; second, £1, J. Hutchinson, Seamer, Yarm. Three-year-old cart fillies, £5, R. I. Hopkinson, Grey Tower, Nunthorpe, Northallerton. Two-year-old colts for the field, £4, W. Wise, Great Broughton, Stokesley. Two-year-old fillies for the field, £4, J. B. Booth; second, £1, T. Blackburn, Great Broughton, Northallerton. Two-year-old colts for harness, £4, M. Basile, Osmotherly; second, £1, W. Garbutt, Tunstall, Great Ayton. Two-year-old fillies for harness, £4, W. L. Robinson, Thormanby; second, £1, T. Clarke, Newby. Yearling fillies for harness, £3, J. Donaldson, Great Ayton; second, £1, J. Dods-worth, Great Stainton. Yearling cart fillies, £3, J. Kitchen, Whorlton.

## IMPLEMENTS.

J. Weighill, Albert Foundry, Pickering, £2; J. Waller, implement-maker, Seamer, Yarm, £1 10s.; W. Wray and Son, Leeming-lane Ironworks, near Bedale, £1 10s. for collections.

## INTENSIVE AND EXTENSIVE CULTURE.

[TRANSLATED FROM THE "JOURNAL D'AGRICULTURE PRATIQUE."]

In reading a paper by M. Lecouteux, upon the Economical Position of Agriculture in 1865 (*Journal d'Agriculture Pratique*, Feb 5, 1865), I was struck with the thought that it might discourage many cultivators; a second and more attentive reading only confirmed my first impression, and I therefore now submit my observations to the reader.

The extremely low price of cereals at that time caused much suffering amongst agriculturists, and these sufferings were renewed pretty often. One remedy for this position has been pointed out (said M. Lecouteux), and that is *intensive* culture; then, after having said a few words upon the advantages attending that method, he raises great objections without explaining them. I hoped that at the end of the paper I should find some better remedy than intensive culture pointed out, but only encountered the hope of a larger application of public money in the country—a most excellent and desirable thing undoubtedly, but one we shall still have a long time to wait for.

Nevertheless M. Lecouteux is not an enemy to intensive culture, and certainly had no intention of deterring agriculturists from practising it. His paper, read before the Central Society of Agriculture, is sheltered from all criticism because it aims principally at pointing out the means for favouring agricultural progress; but, presented to the generality of farmers, it might perhaps cause uncertainty and discouragement.

"How is it then," said M. Lecouteux, "that this mode of culture, which appears so advantageous, is not more generally adopted in this country? Can it be that there is land from which a good produce and remunerative price can be obtained from small crops?" It is not to be wondered at, for the great majority of farmers possess neither the knowledge nor capital necessary to practise it, and above all to establish it successfully; on the other hand, intensive culture, having for its result, and even for its base, a large increase to the fertility of the soil, could not be adopted by a farmer without his making special agreements with his landlord, very different from the ordinary terms of a lease. The difficulty of regulating these agreements, so as to guard equally the interests of both parties, is one great obstacle to enterprises for improvement through the medium of the farmers. Even the slow progress of agriculture, considered in general, and particularly from the adoption of intensive culture, is in reality a great benefit; for, if agricultural productions could be suddenly increased to a considerable degree, the consumption not being in the same proportion, the result would evidently be a disastrous obstruction.

It must not be inferred from this that it is wrong to plead the cause of progress; the distance to go is so great, that progressive agriculturists need not fear that by uniting their efforts they will arrive at their end too quickly.

Can small crops give remunerative produce to agriculture? That depends upon what is understood by the word *remunerative*. In districts which yield small crops the farmers are poor, and accustomed to privation, as M. Lecouteux justly remarked, which proves to me that the produce they obtain is not remunerative. The emigration from the country to towns is the principal reason why farmers have more trouble and less profit than the artisan, tradesman, or manufacturer.

Agriculture with small crops subsists, and, it is true, can even struggle against intensive culture; but at a distance, and on condition of living on black bread, and paying only a small rent. With equal advantages, and on the same land, extensive culture would not support the competition.

Land, capital, and labour are three essential elements of agricultural produce, but they may be employed in different proportions. Let us look at the influence of these three elements upon the choice made between *extensive* or *intensive* culture. The former employs a great deal of land, small capital, and little labour; it is therefore necessary, first of all, to obtain the land cheap, that it may make up for the scarcity of capital

and labour. Intensive culture uses less land, but more capital and labour; the result of which is, that it can pay a higher rent, and must have abundance of capital, as well as hand-labour, at a moderate rate. It demands, besides, an advantageous market for its animal produce. I am therefore led to the conclusion that *extensive* culture is suitable for countries where land is of little value, capital rare, and the population small, as is the case in new colonies; whilst *intensive* culture can only be practised in rich thickly-populated countries, where there is plenty of capital, hand-labour, and good markets.

M. Lecouteux says land is rented at  $2\frac{1}{2}$  per cent., whilst money is lent to agriculture at the rate of 6 or 7 per cent.; and from that he seems to conclude that land is cheaper than capital. I do not myself concur in this opinion.

The capitalist who purchases a property consents to place his money at  $2\frac{1}{2}$  or 3 per cent. for the sake of the security of the investment, and the continual increase in the value of land: the price of a domain often rises according to its appearance or convenience. Now the farmer has nothing to do with these considerations: he cannot, and ought not, to pay more than its agricultural value—that is to say, the advantage which he procures from the possession of the land. The rate of sale is partly ruled by its tenantable value, but the rent is never ruled by the price of sale or venal value of the estate.

The amount of rent is established by competition; but it may differ from the true agricultural value, based upon the fertility of the soil and commercial situation of the domain. Land is cheap when the rent is decidedly below its agricultural value; land at a *low price* and *cheap* land are two essentially different things.

The rate of capital is the same all over France. Labour varies in different localities, but is much less than might be supposed; the true price of labour is not the mere day-wages of a man, nor the annual cost of a farm servant—it is the quantity of work executed for a certain sum of money. Now it happens in some localities, where food is coarse and wages low, that labour in reality is dearer than it appears to be, from want of energy and slowness of the labourers.

In the present state of circumstances, with the price of land, capital, labour, and agricultural produce such as it is now, which is most advantageous—*intensive* or *extensive* culture? That question can only be solved by an examination of facts.

M. Lecouteux states that our cattle market is good, because foreigners delight in contributing to it: that is essential. But on the other hand, I see that in countries where *extensive* culture is adopted, the farmers are poor, badly clothed, and ill-fed; whilst in parts where *intensive* culture is practised, they are leasy, and even sometimes rich, well dressed, and well fed. The results might appear to be the effect of local circumstances, but the success obtained in all the departments, by intensive culture, at the time of the meeting for the prize of honour, proves that there is nothing in it. I therefore feel justified in concluding that *intensive* culture gives far more advantageous results than *extensive*; nevertheless the latter subsists, and will continue for a long time yet—until, in fact, intensive culture comes into close competition with it.

I do not mean to say that intensive culture is to be recommended everywhere, and always without rule or measure, for it exists in many degrees, and may be practised under different forms: it is not indissolubly bound to permanent *stabulation*, weeded crops, and yields of from 30 to 40 hectolitres per hectare; all culture which tends to raise a soil to the highest degree of fertility in the shortest possible time should be considered *intensive*.

In a poor soil it is generally a great mistake to introduce weeded crops and permanent *stabulation* all at once: in that case *intensive* culture would not be incompatible with the fallow and pasturage, at least at first, and it would be well under most circumstances for some years to practise the mode of culture recommended by M. Lecouteux, under the title of *mixed system*, to confine the extent cultivated to just so much



as can be well manured, and to take the rest of the land in pasturage, reducing it little by little in proportion as the production of manure will permit.

To conclude, the true resource of agriculture now is, in intensive culture, and in the predominance of fodder produce. Let us endeavour to produce abundance of fodder, and the best market possible; then by using them well and choosing them wisely, they will be found most advantageous; the outlet for our animal produce will never fail us, and by means of copious manurings we shall obtain the highest returns, which alone can give large profits.

A. DE VILLIERS DE LISLE-ADAM.

Sargé, near Le Mans (Sarthe).

## BE GENTLE WITH YOUR STOCK.

I presume that no man of experience or of observation will disagree with me, when I assert that a quiet or gentle disposition can be cultivated as well as bred in most if not all domestic animals. Point me to a man who *loves* his horses, cattle, sheep, hogs, and poultry, and I will show you a gentle, quiet, orderly stock. On the contrary, show me a bad-tempered, unfeeling farmer or herdsman, and I will ensure you kicking runaway horses, hooking unruly cattle, wild and unquiet sheep and hogs. This is the *rule*. There may be exceptions, but they are few and far between. There are undoubtedly cases in the management of horses and cattle, where sharp and decided discipline may be necessary and proper; but the cases are rare, and should be treated with coolness and judgment, and not, as is generally the case, when under the influence of *passion*. The model horseman or herdsman, when he goes into the stable, always has a kind word for his horse, a gentle *pat* for his neck, or a stroke over his head or nose. If a horse is fond of his keeper, he likes to *snell him* and to eat out of his hand. When he goes to catch a horse from the pasture, he takes an ear of corn or a handful of oats. He never goes into the field where his animals run, without having a *talk with them*. Perhaps you do not believe, doubting reader, that dumb animals can understand human language. Still they *can*, and you may laugh at me if you are so inclined, when I assure you that I find vastly more enjoyment in talking with an intelligent horse than in conversation with a human *ninny*. I am not alone in the indulgence of these "beastly" tastes. Some of the wisest and best of our race have at times reckoned it among their greatest enjoyments to mingle with their flocks and herds. One of the greatest minds the world ever produced, the "Godlike Daniel Webster," was never so happy as when sauntering among his Alderneys and his Devons. Who doubts that his animals were quiet and peaceable? I have somewhat wandered from my text; but my aim has been to show that if we really *love* our domestic animals, we shall be kind and gentle with them, and that such treatment *generally* begets a like disposition in them. On the contrary, a man who rarely goes near his horse or cow without an angry word or a *kick*, generally has bad-tempered and unruly animals. It is easy to show that such treatment is unprofitable, as well as inhuman. All dairymen will bear me out in the assertion that a quiet, gentle milker gets *one-third* more milk than one who kicks and pounds his cows about. A kind and humane teamster, who loves and takes good care of his team, will do more work in the long run, with much less of wear-and-tear, than the ill-tempered cur who over-drives and abuses his horses. *How mean and unmanly*, as well as unwise, to let our bad temper have vent upon the poor innocent creatures whom God in his providence has placed under our control. When He decreed that man should "have dominion over the fish of the sea and over the fowls of the air and over the cattle and over all the earth," He did not design that he should play the *tyrant*, or *abuse* the responsibility thus imposed upon him; but that he should so act as to hasten the happy period when "the wolf also shall dwell with the lamb, and the leopard shall lie down with the kid, and the calf and the young lion and the fatting together, and a little child shall lead them." If this peaceable epoch shall ever be brought about, it will be through *human instrumentality*, when men shall cultivate peace, not only among nations, states, and communities, but in their own households and farm-yards.—*American Country Gentleman*.

## FIXED FACTS IN AGRICULTURE.

These may be assumed as fixed facts in Agriculture :

1. All lands, on which clover or the grasses are grown, must either have lime in them naturally, or it must be artificially supplied. It matters but little whether it be supplied in the form of stone lime, oyster-shell lime, or marl.
2. All permanent improvement of lands must look to lime as its basis.
3. Lands which have been long in culture will be benefited by applications in the form of bone-dust, guano, native phosphate of lime, composts of fish, ashes—or in oyster-shell lime—or marl—if the land needs liming also.
4. No lands can be preserved in a high state of fertility, unless clover and the grasses are cultivated in the course of rotation.
5. Mould is indispensable in every soil, and a healthy supply can alone be preserved through the cultivation of clover and the grasses, the turning in of green crops, or by the application of composts rich in the elements of mould.
6. All highly concentrated animal manures are increased in value, and their benefit prolonged, by admixture with plaster, or pulverized charcoal.
7. Deep ploughing greatly improves the productive powers of a variety of soil, that is not wet.
8. Subsoiling sound land, that is, land that is not wet is eminently conducive to increased production.
9. All wet land should be drained.
10. All grain crops should be harvested several days before the grain is thoroughly ripe.
11. Clover, as well as other grasses, intended for hay, should be mown when in bloom.
12. Sandy lands can be most effectually improved by clay. When such lands require liming, or marling, the lime or marl is most beneficially applied when made into compost with clay. In slacking lime, salt brine is better than water.
13. The chopping or grinding of grain, to be fed to stock, operates as a saving of at least twenty-five per cent.
14. Draining of wet lands and marshes adds to their value, by making them produce more and better crops—by producing them earlier—and by improving the health of neighbourhoods.
15. To manure or lime wet lands, is to throw manure, lime, and labour away.
16. Shallow ploughing operates to impoverish the soil, while decreasing production.
17. By stabling and shedding stock during the winter, a saving of one-fourth of the food may be effected—that is, one-fourth less food will answer, than when such stock may be exposed to the inclemency of the weather.
18. A bushel of plaster per acre, sown broadcast over clover, will add one hundred per cent. to its produce.
19. Periodical applications of ashes tend to keep up the integrity of soils, by supplying most, if not all, of the inorganic substances.
20. Thorough preparation of land is absolutely necessary to the successful and luxuriant growth of crops.
21. Abundant crops cannot be grown for a succession, unless care be taken to provide and apply an equivalent for the substances carried off the land in the products grown thereon.
22. To preserve meadows in their productiveness, it is necessary to harrow them every second autumn, apply top-dressings, and roll them.—*North Carolina Farmer*.

HOW TO HAVE MEALY POTATOES.—It is a very common thing in the spring to find strong, watery potatoes on the table, unless care has been taken to select and preserve them. A poor potato is the poorest article of food that can be had; and as soon as they begin to sprout they will begin to grow poor and watery, the better part of the root going to the support of sprouts; hence, to have mealy, nice potatoes, it is necessary to keep them from exhausting themselves in this way. An exchange gives the following method of preventing the potatoes from sprouting, which we hope will be tried and approved: Take good, sound potatoes and place them in a tub or barrel, and pour boiling water over them, letting them remain in the water until the eyes are scalded, so that they will not sprout; dry the potatoes thoroughly in the sun, and put them away in a box or barrel in a cool dry place. This will give good mealy potatoes all the time.—*Germantown Telegraph*.

## THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

NOVELTIES IN THE IMPLEMENT DEPARTMENT  
AT BURY ST. EDMUND'S.

[SUPPLEMENTARY NOTICE.]

Among the good things in the showyard was a rotary corn-screen of Coleman and Morton. Twelve rows of wires of triangular section are arranged upon longitudinal bars, in such a way that the sliding of alternate bars by means of an adjusting screw alters the position of the parallel wires, and thus opens or closes the apertures between them. The contrivance can hardly be understood without a diagram; but perhaps our meaning will be made plain if we compare each longitudinal bar to the back-bone of a fish, and the cross wires to the ribs of the fish—if the ends of the ribs be fixed, a longitudinal motion of the back-bone will alter the position of the ribs to a more or less acute angle with the back-bone, and so widen or narrow the spaces between the ribs. The shortness of the wires and this triangular section give a strength which can be found in no other screen. An oilcake "cutter" exhibited by this firm is worthy the attention of all persons who feel their "cake-bill" to be expensive, for this machine cuts instead of breaking, and thus makes very much less waste in dust than any other cake mill does. Messrs. Coleman and Morton's steam-cultivating apparatus we did not see, though it was announced to be at work near the showyard.

Another good "notion" is Boby's field water-cart, fitted with a filter, likely to be uncommonly useful in the many districts where water for stock and water of steam-engines can be obtained only very impure.

One of the simplest, strongest, and most efficient hay-making machines we have seen is that made by Le Butt, of Bury St. Edmund's, and which he has christened not vain-gloriously, "the Champion."

Another admirable tool, quite new, and only just patented, is the horse-hoe of Wilkinson and Son, of Ely. Each hoe is fixed to a lever resting upon a small travelling-wheel, so that each lever and hoe can rise or fall independently of the others, and while each lever may be loaded with sufficient weight to keep the hoe down in hard or weedy ground, the wheel prevents the hoe dipping in too deeply where the land is lighter or clearer. This is a far better plan than merely lowering the coulter-bar in front, to dip the hoe points when encountering plots of extra hard work. The steering also is easy and well arranged.

An invention possessing remarkable merit was observable upon the stand of ploughs, and haymakers, whose beautiful workmanship proclaimed them to be from Bedford. Messrs. Howard's steam-boiler, consisting of a number of upright water-tubes, appears to combine every possible advantage in safety (for it has been proved up to an enormous pressure per square inch), in economy of fuel (for the peculiar position of the tubes, and the impinging of the hot air upon them at right angles, seem precisely adapted to obtain the greatest amount of caloric for converting water into steam) in freedom from "scale" (for the up and down current established in each tube is of itself almost a safeguard against hard deposit).

In a field not far from the show-yard, Messrs. Howard exhibited in operation two forms of steam tillage apparatus. One was the well-known "roundabout" set, with a stationary engine—working with plough or cultivator.

The other consisted of two engines self-travelling along the headlands, and hauling two cultivators at once. The gain by this plan is that fully one-half more work is done in a day than by the same two engines hauling a single implement to and fro. The two 7-foot cultivators were worked not from end to end, but meeting mid-way; the track of one being a little in advance of the track of the other, so that the cultivators passed each other for a few feet, thus preventing any strip of ground from being left unbroken. The Bedford engine has the boiler placed crosswise upon a frame, thus enabling it to ascend or descend without liability to "prime." The rope-drums are upon horizontal axes, enabling them to coil the rope perfectly, although they have not so much advantage as drums on vertical axes for working with the ropes in an angular direction. The arrangements for throwing the drums in and out of gear for steering, &c., are very ingenious, and well under the command of the engine-man.

It is not necessary to say that the work done by Mr. Howard's plough, with the stationary-engine tackle, was first-rate. What we would call special attention to is, the great breadth of cultivating which can be accomplished by this new system of driving two implements at once.

In a field about a mile and a-half out of Bury, Messrs. Fowler's steam tilling apparatus was in action during several days of the Show week. Like Messrs. Howard, they have come to the conclusion that one form of tackle is not the best for all purposes and for every district, and therefore they showed at Bury five different forms of apparatus. First, there was the ordinary arrangement of a headland engine with clip-drum, travelling machinery, and rope slack-gear on the implement. Second, there was a set having two engines, each with a winding-drum, working one implement to and fro. Third, there was a new arrangement, of one engine having two winding-drums: this will work as a headland engine, in conjunction with a travelling anchorage, or it may be worked as a stationary engine, set down in a corner of a field, the ropes being led round two ordinary anchored snatch-blocks, and a travelling anchorage. Fourth, two of these double-drum engines are employed to drive two implements at once. And fifth, there was a cheap tackle, consisting of a separate winding drum upon two wheels, to be worked by a portable engine. The peculiarity of this apparatus is that there is a compensatory arrangement by which the power lost in the brake is given back to the other drum, and the implement is so made as to act either as plough or cultivator. For use on light land, or for any case where a great breadth of work per day is desired, Mr. Fowler has brought out a cultivator that will work at any width from 9 to 15 feet; and in the field at Bury, this implement, taking 12 feet breadth, and hauled by two engines, accomplished the largest area of performance per hour that we have hitherto heard of.

In the show-yard we saw a new eight-horse portable traction engine, which, for its combination of strength with lightness, its simplicity of arrangement, and general handiness as a steam-horse, is likely to command more attention than appears to have been given to it at the show.

We began our report by reflecting upon the manner of conducting certain of the trials: we must conclude with another complaint. Why were successful competitors in certain compartments deprived of much of the benefit

derivable from the award of prizes, by a strange delay in revealing the decision of the judges?

We believe that Messrs. Clayton and Shuttleworth took a position totally unexampled as regards prize-winning for steam-engines. There was no dispute as to the justice of the awards, there was no cause of hindrance that we are aware of, and yet it is a fact that this firm were not in a position to publish the result of the trials until the middle of the day on the Friday—the last day of the show week! Surely, if trials are worth conducting at all, such arrangements should be made as would enable them to be despatched in time to be of service to the competitors and to the public visiting the Society's great emporium, in which comparisons are made and purchases decided on.

The following new Members were elected at an adjourned Monthly Council held July 5th:—

Cooper, Robert, The Bank, Bury St. Edmund's.  
Graham, J. W. H., Wortham Hall, near Diss, Norfolk.  
Harlock, Henry, Great Thurlow, Newmarket.  
Harper, Thomas, Bury St. Edmund's.  
Hawkins, Chas. Sidney, Over Norton House, Chipping Norton.  
Mitchell, William, Northwold, Brandon.  
Palmer, Walter O., Bradfield, Bury St. Edmund's.  
Peacey, William, Chedglow, Tetbury.  
Phipps, the Hon. and Rev. Augustus, Easton Rectory, Thetford.  
Scott, Charles S., The Hill, Thorpe Monoux, Bildestone, Suffolk.  
Spurke, James, Bury St. Edmund's.

## AN ALPHABETICAL LIST OF THE EXHIBITORS

OF

### AGRICULTURAL IMPLEMENTS,

AT THE

BURY ST. EDMUNDS MEETING, in 1867.

AGRICULTURAL AND HORTICULTURAL ASSOCIATION, 29 Parliament-street, Westminster.—Hornsby's swing plough with steel breast; portable steam engine of Fox, Walker, and Co., and Richmond and Chandler's chaffcutter.

ALDERTON, T. W., Ipswich.—Four-horse horizontal engine, lockstitch sewing and embroidery machines.

ALCOCK, THOMAS, Ratchif-on-Trent, Notts.—Chaffcutters, horse hoes, horse rakes, lifting jack, rake wheel, and end.

ALLCHIN AND SON, Northampton.—Eight-horse power single cylinder portable steam engine; portable corn-grinding mill; eight-horse power mild steel-boiler portable steam engine; three-horse portable steam engine, and iron screw-jacks.

ALLEN, E. E., 40, Parliament-street, London.—Seven, eight, ten, and fourteen-horse double expansive portable engines; adjusting corn screen.

AMIES, BARFORD, AND CO., Peterborough.—Portable metal corn grinding and kibbling mills, chaffcutters, oilcake mills, portable straw elevators, Clayton and Shuttleworth's portable steam engine, vertical four-horse power engine, ditto one-and-a-half-horse power, farmer's steam cooking apparatus, portable boiler, sack barrow and elevator, water ballast and other rolls, clodcrushers, and self-acting field stiles.

ANDREWS, ALFRED, Bury St. Edmunds.—Sociable landau and miniature brougham.

ARMITAGE, JOHN AND JAMES, Chatteris, Cambs.—Combined liquid manure, corn, and seed drills, cloverseed sheller, dressing and blowing machine, brick and tile maker, and iron plough.

ASHBY AND JEFFERY, Stamford.—Haymakers, horse-rakes, handrakes, chaffcutters, crank shields, five and eight-horse portable steam engines, stone grinding mills, one-horse gear work, oilcake breakers, flax-breaking, scutching, and rippling machines, and portable saw bench.

AVELING AND PORTER, Rochester.—Eight and ten-horse locomotive engines, and travelling rope porter.

AYSHFORD, T. B., Walham Green, Fulham.—Village and

Stanhope phaetons, Middlesex dog cart, gentleman's safety cart, and wagonette.

BAGSHAW, J., Belstead, Suffolk.—Stuffed sheep to show the cures from scab and footrot accomplished by exhibiter's dressing.

BAKER, JOHN, Wisbech, Cambs.—Corn dressing machine, and combined blowing and dressing machines; self-raking reaper, and new patent reaping-machine rake.

BAKER, T., Compton, Newbury, Berks.—Portable iron liquid manure cart, cast iron pump with suction, and manure distributor.

BALL AND SON, Rothwell, Northamptonshire.—Prize ploughs, waggons, carts, scariers, diagonal harrows, horse hoes and rakes with steel teeth.

BARNARD, BISHOP, AND BARNARDS, Norwich.—Noiseless lawn mowers, garden rollers, chairs, stools, and tables; wire netting, pig troughs, sack barrow, lifting jacks, field and carriage gates, sheepfold hurdles, staples, fencing wire, straining tools, and wire fencing.

BARROWS AND CARMICHAEL, Banbury, Oxon.—Seven-horse portable steam engine, thrashing and finishing machine, lever lifting and screw jack, leather and indiarubber driving band.

BAYLISS, JONES, AND BAYLISS, Wolverhampton.—Various field gates, self-shutting entrance gates, sheep and cattle hurdles and continuous fencing, wicket and footpath gates, deer hurdles, wire netting, treguards, garden rollers, wheelbarrow, sack and heating barrows, chain harrows, vermin proof rickstands, carriage jack, palisading, and line posts (galvanized iron).

BEACH, JOSEPH, Dudley.—Ferriaceous food for stock.

BEAR, T. M., Bury St. Edmunds.—Lawn fountains, garden chairs, arbour tables, fire and thief proof safes, sewing machines, churns, sets of croquet, and ornamental hat and coat rack.

BEAR, WM., Sudbury.—French burr millstones.

BENNETT AND BOTWOOD, Ipswich.—Landaus, phaetons, broughams, dog-carts, pony-cart and sets of harness.

BENTALL, E. H., Maldon, Essex.—Variety of chaff-cutters, seed-crushers, oilcake mills, root cutters and pulpers, bean kibblers, horse gears, Goldhanger and other ploughs, ridge hoe, potato raiser, harrows, and cattle-troughs.

BEVERLEY IRON AND WAGGON CO.—Corn and bone mills, three and two-horse reapers, clod-crushers, carts, waggons, manure and water carts, pumps, root washers, portable farm railway and trucks, wheels and axles.

BOBY, CLARKE, AND CO., Bury St. Edmunds.—Circular-fronted kitchen range, hot closet, steam kettles, and roasting screen; draining tools, digging and other forks, spades, shovels, and axes.

BOBY, ROBERT, Bury St. Edmunds.—Corn-dressing machines, corn and barley screens, barley extractor, malt and lime screens, haymakers, chaff sifter, barley haveller, water and manure carts, horse rakes, young stock feeder, portable steam engine, combined single blast thrashing machine, rollers, wort pump, harrows, stock troughs, ploughs and plough wheels, whippetrees, lifting jacks and water-tank.

BOULTON, W. S., Norwich.—Galvanized wire netting, liquid manure carts, swing water barrows, garden chairs, and stools, and portable pump.

BRADFORD AND CO., Cathedral Steps, Manchester.—Large assortment of "vowel" washing, wringing, and mangling machines, vertical steam engine, butter maker, riddler, and cinder sifter.

BRAGGINS, JAMES, Banbury.—Park gates and posts; lodge, entrance, field, and bridle road gates, with iron work complete.

BRANFORD AND SON, March, Cambs.—Barley hummellers, diamond horse-hoe, Tweedside hoe, draining plough, and washing, wringing, and mangling machines.

BRIDGES, HARRY, Stowmarket.—Broughams, dogcart phaeton, wagonettes, Stanhopes, Oxford carts, gig, and St. Edmund's car.

BRIGHTAM AND BICKERTON, Berwick-on-Tweed.—Excelsior self-delivery reaper, and Buckeye Junior combined reaping and mowing machines.

BROWN AND LOCK, Shrewsbury, Salop.—Eight-horse portable engine, and portable combined thrashing and finishing machines.

BROWN AND MAY, Devizes.—Ten-horse, two eight-horse,

- and a two-and-a-half-horse power portable steam engine ; combined thrashing machine ; and combined thrashing, winnowing, and riddling machine.
- BROWN, B., 39, Charlotte-street, Blackfriars-road, London.—Steel-spring lever oil feeders, and vermin exterminator.
- BROWN BROTHERS, 43, Cranbourne-street, London.—Freezing machines, wine coolers, refrigerating decanters, ironing stove, and kitchen-range.
- BURGESS AND KEY, 95, Newgate-street, London.—Reaping machines with screw swathe, sheaf, and back self-delivery ; mowing machine for natural and artificial grasses, and combined reaper and mower ; American churn and wrought iron cornbin.
- BURNEY AND CO., Millwall.—Large house cisterns, water cart bodies, troughs and cornbins.
- BURRELL, CHARLES, Thetford, Norfolk.—Fowler's steam ploughing machinery without implements ; four-furrow balance plough and digger, without slack gear ; seven-tined balance cultivator, without slack gear ; ten-horse power single cylinder traction engine ; two eight-horse power single cylinder traction engines ; three eight-horse and one seven-horse portable steam-engines ; ten-horse and twelve-horse power double-cylinder engines ; one combined portable double-blast and three combined portable single blast thrashing machines ; straw elevators ; one-horse gear ; portable mill for grinding coprolites ; machine for shelling and dressing clover and trefoil seed ; and steam pump or donkey engine.
- BURY AND POLLARD, Southwark.—Model of self-regulating farm wind engines, for obtaining motive power on farms to work barn machinery ; double acting pump to throw 2,500 gallons per hour ; conical boiler, portable iron rack, iron wine bin.
- CANADIAN WASHING MACHINE CO., Worcester.—Washing machines, wringers, mangles, clothes dryers, and umbrella tent.
- CARSON AND TOONE, Warminster.—Chaff cutters for steam, horse, and hand power ; turnip cutters, horse hoes, cheese presses, curd mill, and safety iron horse gear.
- CARSON AND SONS, La Bella Sauvage Yard, Ludgate Hill.—Anti-corrosive paint and accessories.
- CATCHPOOL AND THOMPSON, Colechester.—Eight-horse portable steam engine, single blast thrashing machine, dressing machine, water cart, four-horse gear work, thrashing machine and intermediate motion for horse works.
- CATT AND SON, Ipswich.—Barouche waggonette, brougham, phaeton, tandem dogcart and phaeton.
- CHAPMAN, WILLIAM, Apethorpe, Northamptonshire.—Light two-horse waggon, light spring dray, superior single-horse prize cart, and improved general purpose prize two-horse cart.
- CHEAVIN, G., Boston.—Self-cleaning water filters.
- CHILDS, A. B., 451, Oxford-street.—Patent aspirators, for dressing corn and seeds ; self-feeding hand circular saw bench ; iron pivot hand boring machine ; iron carriage lifting jack, polished and mounted towel rack, broadcast seed sower, post-hole auger, and champion carpet sweeper.
- CLARKE AND SON, Brackley, Northampton.—Adjustable garden scythes, and improved kitchen range.
- CLARKE AND WALLACE, Bury St. Edmunds.—Photographs of various subjects.
- CLARKE, ROBERT, Bury St. Edmunds.—Miniature brougham, waggonette, park phaeton, pony car, village cart, gig, dogcart, and Stanhope phaeton.
- CLARKE, W. G., Bury St. Edmunds.—Collections of grasses in pots and seed, farinaceous food for cattle, sheep, and pigs, and condiment for horses.
- CLAY, CHARLES, Wakefield.—Cultivators and eradicators, horsehoes, grubber, and chain harrows.
- CLAYTON, SHUTTLEWORTH, AND CO., Lincoln.—Ten-horse power horizontal fixed steam engine, twelve-horse double-cylinder patent portable steam engine, eight-horse single-cylinder portable engine ; combined single-blast thrashing machine, combined portable double-blast finishing thrashing machine ; eight-horse single-cylinder portable steam engine, twelve-horse double-cylinder traction engine ; double-blast combined thrashing machine to finish corn for market, fitted with patent elevator and Penney's adjustable corn-sieve ; six-horse combined double-blast finishing thrashing machine ; portable straw elevators ; self-acting circular-saw benches ; patent combined two-row revolving liquid manure and drop drill for turnips and other seeds, and improved sack-lifting barrow.
- COLEMAN AND MORTON, Chelmsford, Essex.—Adjustable rotary cornsieve and general seed separator, patent oilcake cutters, steam cultivating apparatus, three-furrow steam plough, cultivators with five and seven tines, clod crusher and wheat presser, potato digger, street watering cart, liquid manure cart, one and two-horse gear, samples of shares for Coleman's cultivators.
- CORBETT AND SON, Wellington, Salop.—Combined corn-dresser fitted with oscillating screen ; blower and screener, metallic mills, oilcake breakers for hand and steam power, turnip cutter, root pulpers, scuffles and grubbers.
- CORNES, JAMES, Nantwich, Cheshire.—Chaff machines with two and three knives, and Cheshire cheese press.
- COTTAM AND CO., Winsley-street, London.—Sides of stable stalls, loose boxes, and a variety of stable fittings ; model of patent cow trough ; effluvium intercepter, fitting for two cows, corn bins, saddle and harness brackets, &c.
- CORCORAN AND CO., 48, Mark-lane, London.—French runner millstones and bedstones, smut cleaner, flour dresser, corn measures, stone proof, jack stick with spirit level, mill bills, malt kiln floor of woven wire, silk and wire work, seed cleaner, mineral sieve, needle lubricators, sack truck, shovels, and leather belting.
- COULTAS, J., Spittlegate, Grantham.—General purpose, turnip, mangold, manure, corn, small seed, and ryegrass drill ; manure distributor ; self-acting swathe-delivery reaper.
- CRANSTON, JAMES, Birmingham.—Patent conservatory, glazed without putty, thoroughly dry and air-tight, though thoroughly ventilated.
- CREASY, Wm., Wickham Market.—Desiccating machine for drying malt and brewers' grains, and grain cleaner and brightener.
- CROSSKILL AND SONS, Beverley.—Clod-crushers, carts, waggons, manure or water carts, portable pumps, wheels and axle, Archimedian root washer ; portable railway, turntable and truck, reaping machines, portable and fixture pig troughs, and single roller horse mill.
- CROWE, D., Gaywood, Norfolk.—Portable seven-horse thrashing machine.
- CUTLACK, H. AND J., Ely, Cambs.—Iron ploughs (Howard's), Beverley reaper, Hornsby's self-raking reaper, cattle troughs, and revolving churns.
- DARBY, T. C., Little Waltham, Essex.—Horse hoe and scarifier, agricultural boiler, and cattle crib.
- DAVEY, PAXMAN, AND DAVEY, Colchester.—Four-horse horizontal and eight-horse portable steam engines, thrashing machine, corndriving apparatus, and clod crusher.
- DAVIS, E. J., Globe Wharf, Mile End.—Compressed forage, and "new cattle food" prepared from brewers' grains.
- DAY, SON, AND HEWETT, 22, Dorset-street, Baker-street, London.—Stock-breeder's medicine chest, with appropriate medicines and works affecting the stock breeder.
- DEACON AND WOOD, Reading.—Oscillating steam engine.
- DENTON, HENRY, Wolverhampton.—Various chain harrows and haymaker.
- DIXON, A., 11, Adam-street, Adelphi, London.—Steam gages and driving pulleys.
- DODGE, G. P., 79, Upper Thames-street, London.—Rolls of vulcanized India-rubber and cotton machine bands, garden hose, van or engine cover, waterproof horse-loin and other covers, knee rug for driving, and gutta percha driving band for thrashing machines.
- DODMAN, A., King's Lynn, Norfolk.—Side and end tip waggons, and earth barrows.
- DUFFIELD, J., 2 A, Dean-street, Oxford-street.—Variety of churns, milk yokes, pails, and sundry dairy utensils.
- EASTBY, REUBEN, Stowmarket.—Waggouette ; French, Oxford, and Swiss carts.
- EASTWOOD, JAMES, Blackburn.—Variety of compound action churns.
- EDDINGTON, A. AND W., Chelmsford.—"Paragon" portable steam engines of ten-horse power with single cylinder ; American grist mill, cloverseed sheller, wrought iron water cart, combined portable thrashing machine, and patent straw elevator.
- FIRMIN AND CO., Grove-street, Retford, Notts.—Two sporting carts.

FISON, C. O., Stowmarket.—Improved pantiles, red and white; best white bricks.

FRISON, J., Ipswich.—Specimens of manures.

FOWLER AND CO., Leeds.—Single and double engine sets of tackle for steam cultivating machinery, with 14-horse power self-moving engine and patent windlass combined, six disc anchors, 800 yards of best hard steel rope, and 20 rope porters; also one of 10-horse power stationary engine, 1,200 yards steel rope, and 24 rope porters; also two 10-horse power self-moving engines, with 1,600 yards of steel rope and 20 rope porters; 8-horse self-propelling agricultural engine, three, four, six, and eight-furrow patent balance ploughs; steam harrows with steerage, balance cultivator, Norwegian harrow, subsoil plough, water cart, and draining plough.

GARRETT AND SON, Saxmundham.—Ten horse power portable steam engine, with double expansion cylinder; eight-horse power portable steam engine; eight-horse self-moving steam thrashing engine; eight-horse patent road locomotive traction engine; ten, eight, and five-horse power portable steam engines; twenty and fourteen-horse horizontal high-pressure fixed steam engines; combined single and double blast thrashing and finishing machines; patent staw elevators; mills for grinding coprolites and corn; Suffolk, corn, seed, and manure, and general purpose drills, artificial manure distributors, horse hoes, forecarriage steerage, and rick and corn ventilators.

GEDGE, C. J., Bury St. Edmund's.—File of "The Bury Post" newspaper.

GIBBONS, P. AND H. P., Wantage, Berks.—Portable steam engine, and combined thrashing machines.

GIBBS AND CO., Half-moon Street, Piccadilly.—Collections of grasses, grain, agricultural and other seeds, and of agricultural roots.

GOLDSMITH, T. AND H., Bury St. Edmund's.—Samples of Howard's ploughs, harrows, plough sledge, turnip cutters and pulpers, chaff cutters, feeding troughs, turnip drill, gathering and loading forks, washing machines, hurdles, and sundries.

GOODAY, G. O., Great Leigh, Essex.—Patent multiple-needle hatch-making machine.

GOSS, J., Plymouth.—Stencil plate letters for marking millers' sacks; branding figures for marking sheep's wool with paint; branding irons and other letters.

GOUCHER, JOHN, Worksop, Notts.—Portable thrashing machine, sets of beater plates, drum ends and hoops, drum without spindle fitted with Goucher's beaters.

GOWER AND SON, Market Drayton.—Corn and seed drill, two-furrow drill presser, manure drills for ridge and flat, drills for turnips and mangold, as well as beans; clover and ryegrass sower, being a double-box barrow; also a single-box sower; broadcast corn sowers for horse and hand power; and patching drill.

GRANT, J., Love-lane, Bankside, London.—Portable railway, turntable, ballast truck, and side truck, for clearing root crops off the land and running out manure.

GRAYSON, A., Ipswich.—Samples of French burr millstones.

GREENING AND CO., Manchester.—Machine-made wire sheep and lamb-proof fence, ox and sheepfold fence, game-proof and other wire fence, with wrought-iron supports; strained continuous fencing, with Scotch pillars for supports; wrought-iron hurdles, gates, palisading, tree guards, garden seats, wire pheasantry, poultry coop, and flower stands, garden rollers, lawn mowers, tubular boiler for heating conservatories, portable forge, garden pumps, vases, and roofing felt.

GROVER AND BAKER SEWING MACHINE CO., 150, Regent-street.—Lock-stitch sewing machines and samples of work.

HAYCOCK, J. AND F., Tipton, Staffs.—Pairs of light and heavy wheels, anatomical mattress, butter purifiers, carriage spring seats, garden seat and cinder sifter.

HARDON, E., Strangeways, Lancashire.—Royal patent cake, and condimental food.

HARE AND CO., 31, Essex-street, Strand.—Specimen illustrations of implements and machines, and illustrations of British and foreign prize medals.

HARWOOD, W., 36, King William Street, London Bridge.—Gauge glasses, steam fittings of all descriptions, weighing scales, articles for sharpening cutlery, &c.

HAWKES AND SPENCER, Tiverton.—Chain corn-drills, and corn, seed, and manure drill.

HAYES AND SON, Elton, Hunts.—Straw elevator, portable and patented.

HAYES AND SON, Stamford.—Waggons, lorrie, harvest, builders', and Plymouth prize carts, and an improved Alder-shot dog-cart.

HAYWARD, TYLER, AND CO., 85, Upper Whitecross-street, London.—Farm fire-engine, pumps of various sorts, garden engine, well engine-frames, hose, water-barrow, syringes, fountain jets, branch pipes, suction roses, coupling unions for hose, and one-and-a-half-horse engine and boiler.

HEADLEY AND SON, Cambridge.—Horse drag-rakes; cattle, pig, and water troughs; cultivators, water-cart, Samuelson's and Hornsby's reapers, weather vanes, garden chairs, garden vases and archways.

HEPBURN AND SONS, Long Lane, Southwark.—Double-leather belting, millband, strapping, hose pipe, and miscellaneous articles.

HILL AND SMITH, Dudley.—Chaff-cutters, field-gates, horsehoes, stubble-paring skins, light land roller, vermin-proof rickstands, sheep racks and troughs, rotary gravel screen, wheelbarrows, varnish, wire netting, garden seats, entrance gates, pillars and posts, sheep and cattle hurdles, continuous fence, stable fittings, and wicket gate.

HIRST AND SONS, Halifax.—Waterfall washing machines, wringers and mangles, and lawn mowers.

HITCHECOCK, T. P., Bury St. Edmund's.—Leather machine-driving bands, four convex thrashing machine-driving pulleys, composition for leather bands, white leather thongs, tanned leather sheep leggings, strap butt pieces, and sundry dressed skins.

HODGSON, JOHN, Louth, Lincolnshire.—Bundles of steel hay and pitch-forks, sets of duck-foot harrows and hedging tools, and collection of hand tools for draining.

HOLMES AND SONS, Norwich.—Ten-horse fixed steam engine, six to nine horse traction and portable engines, combined thrashing machines, straw elevators, condressers, barley hummellers, chaffcutters, horsegear, millstones, cakebreakers, circular-saw tables, cloverseed sheller, Beverley and Eclipse reapers, horse lever rake, seed and corn drills, manure and turnip drills, ridge roller drill, manure distributors, horse hoes, rollers, ploughs, harrows, and turnip mender.

HORNSEY AND SONS, Grantham.—Hand dressing machine, adjustable corn screen, oilcake breakers, turnip cutters and root pulpers, corn and seed drills, horse hoe for general purposes, "paragon" mower, "paragon" combined mower and reaper, improved mower for natural and artificial grasses, and combined reaper and mower ditto, one-horse reaper, reaper with grated drop sheaf apparatus, "universal harvester," self-acting swathe delivery reaper, "governor" self-raking reaper, and reaper with semi-manual delivery; "champion" and other ploughs, twelve-horse traction engine, washing machines and clothes wringers.

HOWARD, JAMES AND FREDERICK, Bedford.—Steam-cultivating machinery, including a pair of fourteen-horse self-propelling engines, winding drums, and double-action cultivators; two, three, and four-furrow steam ploughs; traction waggon; cultivating apparatus for single engine, side harrow, steam harrows, water carts, ridging bodies and subsoil tines, snatch-block slings, iron ploughs of various descriptions, harrow carriage, plough sledge, harrows, double action haymakers, horse rakes, whippletrees, dynamometers, single and combined reapers and mowers, safety steam boiler and superheater of forty-horse power.

HOWELL, T. AND E., Poole, Dorset.—Gardner's turnip cutter, and self-acting spring horsecakes.

HOWES AND SONS, Norwich.—Landau, barouche, waggone, and Norwich car.

HUGHES AND SON, Mark-lane, London.—Cement and French runner and bed millstones, snut machine, flour dresser, prober stone staff, pulley blocks, machine brushes, mill brooms and bills, corn measures, sack barrows, socket screws, kiln wire, tard oil, tube brushes, and sundries.

HUMPHRIES, EDWARD, Pershore, Worcestershire.—Combined portable double blast finishing machine, and a combined portable thrashing, shaking, riddling, winnowing, and sacking machine; and a seven-horse portable steam engine.

HUMPHRIES, G. T., Walton-on-Thames.—Double barrel lift and force pump, high lift pump with patent gear, double bucket continuous-acting pump.

HUNT AND PICKERING, Leicester.—Chaffcutters, corn crushers, kibblers, oilcake breakers, turnip cutters, slicers, and root pulpers, cheese presses, sack barrows, twitch rakes, iron and

wood beam ploughs, horseshoes, scarifiers, harrows, and whippletrees, drills, self-lubricating field rollers, grass mower, new patent knife bar for mowing and reaping machines, side-delivery reaper, one-horse power, flower vases, lawn mowers, garden seats, tables, and footboard.

HUNT, R. AND R., Halsted, Essex.—Corn and seed-dressing machines, corn blower, oilcake breakers, double and single action turnip cutters, disc root pulpers, root graters, cloverseed drawing machine, sets of one and two-horse gear, brush and cup drills, barrow seed drill, iron horse rake, harrows, garden and land rollers, Cambridge presswheel roller, steerage and furrow hoes, sheep folding hurdles, round hog and pig troughs, cylinder reaping machine, three-horse reaper, and sack barrow.

JAMES, ISAAC, Cheltenham.—Liquid manure distributors and pumps, cloderusher, water carts, gapping drills, mortar tempering machine, American clothes dryer, washing and mangling machine, and gas tar cart.

JOHNSTON, G. J., Ashley Cambs.—Two field gates.

JONES, JOHN MILTON, 21, Westgate-street, Gloucester.—Composition for softening and preserving leather, and specific for foot-root in sheep.

JOSLIN, H. AND J., Colechester.—Three-horse reaping machine to work on eight-furrow stetches.

KINSEY, H., Nottingham.—Horizontal steam engines with metallic base, of three, four, and ten-horse power; combined vertical steam engine and boiler of four-horse, two-horse, and one-and-a-half-horse power, requiring no brickwork.

KITMER, BENJAMIN, Fulston, Lincolnshire.—Combined corn dressing and blowing machines.

LARKWORTHY AND CO., Worcester.—“Excelsior” iron ploughs, scuffle drags, harrows, and whippletrees.

LAYTON, C. AND E., 150, Fleet-street, London.—Copies of “The Farmer,” “Journal of Agriculture,” and “Illustrated Farmers’ and Gardeners’ Almanac.”

LE BUTT, JOSIAH, Bury St. Edmunds.—Haymakers, screens, reapers, manures, beer casks, zinc, corrugated iron, malt kiln plates, wine bins, sash bars, netting, garden stakes, salad washer, skip, cinder sifter, poultry trough, iron tank, hay rack, lion-head gutter, rain water pipe, roofing felt, chimney top, lobster-back cowl, and meat safe.

LEE AND CO., Leicester.—Combined vertical engine and boiler.

LODER, JOHN, Woodbridge.—Freeman’s Farmers’ Account Book.

LYON, ARTHUR, 32, Windmill-street, Finsbury.—Machines for mincing meat, for making sausages, for assisting digestion, for shelling green peas, for mixing hounds’ food, for pulping roots, for slicing cucumbers, potatoes, and onions, for paring, coring, and slicing apples, and for chopping suet and parsley; whipping can, chopping board, coffee mills, shop or kitchen knives, and sundries.

MCNEILL AND CO., Bunhill Row, London.—Asphalted roofing felt, inodorous bituminous felt, dry hair felt, with models showing plans of framing and fixing.

MAJOR, H. J., Bridgwater, Somerset.—Construction for exhibiting roofing and other tiles.

MARSDEN, H. R., Leeds.—Stone breaker and ore crusher, and six-horse portable engine on wheels.

MARSHALL AND CO., Gainsboro’.—Eight and nine horse portable steam engines, thrashing and dressing machines, straw elevator, and circular-saw bench.

MASON, ROBERT, Alford, Lincolnshire.—Collection of weighing machines for cattle and agricultural produce, harrows, pumps, turnip cutters, trucks, barrows, garden chairs, lawn mower, and sack lifter.

MAYNARD, ROBERT, Cambridge.—Portable sifting chaff engines, oilcake crushers, six-horse portable engines, self-acting horse rakes, corn and general purpose drills, bean and seed barrow drills, three-row steerage horse hoe and weighing machines.

MEADOWS, C. J., Ipswich.—Roasting range, broiling stove, smoke-jack, steam-closet, cradle spit, kitchen requisites, kitcheners, garden seats, fire engines, and churns.

MELLARD AND CO., Rugeley.—Chaff-cutters, oilcake-breakers, root cutters and pulpers, food-preparing machine, seed drills, ridging plough, root grubber, horse drag rakes,

haymakers, cheese-presses, curd mills, carriage jacks, garden chairs, sack barrow, pig and poultry troughs.

MILFORD AND SON, Thorverton, Devon.—Two-horse waggon and one-horse cart, and lifting-jack.

MOORE AND CO., 54, Upper Marylebone-street, London.—Weighing scales, scythe-sharpeners, and various domestic articles.

MORLEY, J. R., Woodbridge.—Portable stand and office desk.

MORTON AND CO., Liverpool.—Self-acting winding straining pillars, tie and angle posts, straining brackets, patent galvanized iron fence and telegraph; indestructible wire cable strand fence, and variety of deer, sheep, and ox strained fences; field, bridle, and wicket gates; lightning conductor, sheep netting, hay-barn roof, galvanized corrugated iron cottage, cotton-ginning and fire-proof iron buildings, model of farm-yard wholly covered with galvanized corrugated iron fire-resisting roof, roofing tiles, and iron chureh.

MOUL’S PATENT EARTH CLOSET CO., 29, Bedford-street, Strand.—Earth closets in plain deal, with pail, to act by handle, apparatus for distributing the earth, and drying stove.

MUDFORD, GEORGE, Retford, Notts.—Waterproof covers for stack, cart, waggon, truck, machine, or engine; tents and marquees, waterproof coats, capes, horse covers and caps; sack, bag, waggon, cart, and block ropes; fish, game, sheep, and fence netting.

MURTON AND TURNER, Kenninghall, Norfolk.—Dressing-machines for hand and steam-power, steerage corn and mangold and turnip drills, eclipse reaper, and vowel washing machines.

MUSGRAVE BROTHERS, Belfast.—Horsestalls and necessary fittings, cowhouse accessories, piggery, dog kennel, encaustic and conservatory stoves, slow-combustion stove for shops, and ornamental lamp pillar for gas.

NALDER AND NALDER, Wantage, Berks.—Seven-horse outside single-cylinder patent portable steam-engine, portable compensation thrashing and dressing machine, noiseless winnower and dresser, Berkshire winnower, and graduated corn screens.

NICHOLSON, WM. NEWZAM, Newark.—Two-and-a-half-horse steam engine, winnowers, oilcake breakers, haymakers, clipper mowing machine and clipper combined mower and reaper; tubular-shafted horse rakes; hand rollers, sack lifters, combined sack lifter and weighing machine, direct-action steam hoist, garden rollers, maltster’s implements, wine and bottle racks, and Baker’s patent anti-inerustator.

NORFOLK, THOMAS, Bury St Edmunds.—Central fire double guns, and the same combined with pin cartridge, or on the latter principle only.

NYE AND CO., 373, Oxford-street, London.—Sausage makers, mills, coffee roasters, knife cleaners, and sundries.

OLDHAM AND BOOTH, Kingston-upon-Hull.—Six-horse bone mill, single roller bone mill, four-horse bonedust mill, six-horse single cylinder patent portable steam engine.

OWENS AND CO., Whitefriars-street, London.—Large assortment of pumps of every description, fire engines, hydraulic rams, and requisite fittings.

PACKARD AND CO., Ipswich.—Samples of raw materials used in the manufacture of artificial manure.

PAGE AND CO., of Bedford.—Chaff cutters, linseed cake mills, pulpers, horse rakes, pipe and tile machines, pugging mill, turnip and mangold horse hoes, field rollers, ploughs, harrows, scufflers, whippletrees, and sheep and pig troughs.

PAGE AND GIRLING, Melton, Suffolk.—Strong and light waggons, agricultural carts, flax thrashing machine, corn dresser, chaff engine, root pulpers, universal harvesters, horse hoe, jointed field roller, self-acting counterbalance lever horse-rake, and wrought iron scarifier.

PASHLEY, A. W., Harleston, Norfolk.—Samples of various manures.

PERCE, A. E., 109, Hatton-garden, London.—Ten-feet “nonpareil” field gate, garden engine; cattle, sheep, and pig troughs; wheelbarrows, sack trucks, pumps, garden engines; shepherd’s house or portable granary, barn shovels, aquapults, stiles, combs, milk pails, buckets, bowls, waterpots, skips, washing tubs, cisterns, and fire extinguishers.

PENNEY AND CO., Lincoln.—Adjustable rotary corn separators; screens with stone separator attached; sack lifters;

gravel, sand, lime, coal, and malt screens; wire meat safes and game netting; washing, wringing, and mangling machine; garden stools and chairs, rat trap, lime and foundry riddles, and flour dressing machine wire.

PHILLIPS, SAMUEL, Hadleigh, Suffolk.—Hand-dressing corn screen with reverse top screen, and malt screen.

PICKLEY, SIMS, AND Co., Leigh, Lancashire.—Chaff-cutters, variety of mills, oilcake breaker, bone rasper, turnip slicers and pulpers, six-horse portable steam-engine, two-horse gear, mowing machine, combined reaper and mower, one-horse reaper, two-horse reaper, lawn mowers, garden rollers, horse-rakes, garden chairs, wringing and mangling machines, drag rakes, hay-forks, and feeding troughs.

PORTER AND Co., Lincoln.—Cumstock's rotary spader; apparatus for producing gas from coal; and corrugated iron shed.

POWIS AND Co., 51, Gracechurch-street, London.—Mortising machine, hand sawing machine, joiner's saw bench, universal saw bench, moulding machines.

PRENTICE AND Co., Stowmarket.—Cereal and other manures, gun-cotton cartridges for breech-loaders, and for mining and quarrying.

PRIEST AND WOOLNOUTH, Kingston, Surrey.—Lever corn drills, drills for turnips and manure, dry or damp manure distributors, and lever horse-hoes.

RANDS, JOSIAH, Ipswich.—Riek-cloth with poles and pulleys, lamb-sheltering cloths, sheep-fold tarred netting, waggon-cover, thrashing cloth, and miscellaneous articles.

RANDS, GEORGE, Ipswich.—Waterproof riek and waggon cloths, and for sheltering sheep and lambs, and sheep netting.

RANSOME AND Co., 10, Essex-street, Strand.—Differential pulleys, lifting jacks, spanners, ratchet brace, shears, tube cutters, grinstone, punch machine, steam gauges, clitograph, forges, fire-bars, pumps, churns, breaks, sausage machines, knife cleaners, eak stands and bottle racks, boot cleaners, wringers, cornbins, hydropneumatic pump, mousetraps, scales, salt graters, and other miscellaneous articles.

RANSOMES AND SIMS, Ipswich.—Two fifteen-horse power double-cylinder expansion portable steam engines; two ten-horse and an eight-horse single-cylinder ditto; ten-horse, eight-horse, six-horse, and four-horse single-cylinder portable steam engines; horse-power thrashing machine; single and double-blast steam thrashing machines; straw elevator, dressing machines; self-cleaning rotary corn screens, Poyser's Burton barley screens, chaff-cutters, fixed and portable corn mills, linseed and corn crusher, smooth roller bruising mills, "universal" and other mills, oilcake breakers, Gardner's turnip cutters, root cutters and pulpers, iron beam ploughs with steel breasts; double-furrow, turnwrest, and other ploughs; iron plough sledge, whippetrees, pommeltrees, grubbers, harrows, horse-hoes, double-action haymakers, horse-rakes, lawn mowers, two-horse iron gear with intermediate motion, feeding troughs, water pans, eight and ten-horse power traction steam engines.

RAWLINGS, J. J., Melbourn, Cambs.—Eight-horse fixed and portable steam engines; portable stone grinding mill, and improved land roll and horserake.

RAYNBIRD AND Co., 89, Seed Market, Mark-lane.—Collections of cereals, grasses, and forage plants.

READING IRON WORKS Co.—Ten-horse fixed, and ten and fourteen-horse single and double cylinder portable, steam engines; hummeller, chaff cutters, grinding mill, oilcake breaker, ten-horse corless valve engine, thrashing machine and horse-gear, circular-saw bench, haymaker, and lever horserake.

REEVES, ROBERT AND JOHN, Westbury, Wilts.—Corn-dressing machine, corn screen; corn, manure, and seed drills; broadcast manure distributor, water carts, barrow pump, and delivering pipe for water barrels.

REYNOLDS, J., Compton-street, Soho.—Lengths of poultry fence, lattice-folding coops, seed protectors, pea-training trellises, croquet fence; poultry, game, and sheep netting, aviary lattice, garden seats, and flower stands.

RICHES AND WATTS, Norwich.—Eight-horse portable steam engine, and portable combined steam thrashing and finishing machine; American and Eureka grist mills, "nonpareil" chaff cutters, Maryland horse drag rake, American heated air engines, two-horse portable steam engine, and portable steam drilling machine.

RICHMOND AND CHANDLER, Salford.—Variety of chaff-

cutters and corn crushers, horse gears, root washers, turnip cutters, steaming apparatus, sack holder, bread-kneading machines, and four-horse steam engine.

RIVERS AND SON, Sawbridgworth, Herts.—Specimens of a new species of grass in a growing state.

ROBERTSON, COOK, AND Co., Bromley-by-Bow.—"Nonpareil" and other washing machines, clothes wringers, and mangles.

ROBEY AND Co., Lincoln.—Nine and six-horse portable steam engines; portable single-dresser thrashing machine, and combined double-blast thrashing and finishing machine; ten-horse-power double-cylinder portable engine, and six-horse vertical engine; straw elevator, and self-acting circular-saw bench.

ROLLINS, JOHN G., Old Swan Lane London.—Anti-freezing cistern pump, garden engine, rotary barrel and other pumps and hydraulic ram; collection of American hay and manure forks and rakes; axes, hatchets, and serew wrenches; weighing machines, shovels, and spades; broadcast seed sower and rotary parallel vice.

RUMBELOW AND KENDALL, Bury St. Edmund's Suffolk.—Pig troughs with hopper and centre cone.

RUSTON, PROCTOR, AND Co., Lincoln.—Portable six and eight-horse power steam engines, horizontal fixed engine of ten-horse power, thrashing and finishing dressing machines, circular-saw benches, portable corn grinding mill, single blast thrashing and dressing machine, and patent centrifugal pumps.

ST. PANCRAS IRON WORK COMPANY, London.—Field gates, stable-paving bricks, stable fittings, sheep and cattle hurdles, stiles, field gates, tree guards, and garden chairs.

SAINTY, JOHN, Burnham Market, Norfolk.—Field gate fastenings and gate posts, Gardner's turnip cutter, sheep hurdles, portable bullock yard, sheep and game fencing, sheep troughs, bullock bin, horseshoe fixed without nails, combined corn drill and horseshoe, iron tap for water cart, and wood stake for fixing sheep netting.

SALMON, TOMLIN, AND Co., Kettering, Northamptonshire.—Excentric treadle press, strong rollers for leather, wrinking press, serew press, pricking or marking machine, machines for cutting split lifts and for skiving, beading machine, and variety of miscellaneous articles.

SAMUELSON AND Co., Britannia Works, Banbury, Oxon.—Self-raking reapers, one-horse reapers, grass mowers, and combined reapers and mowers, single and double-action turnip cutters, lawn mowers, and chaff cutters.

SANDERS, FREW, AND Co., Bury St. Edmund's.—Model of farm buildings.

SAWNEY, W., Beverley.—Winnowers, corn screens, sheep racks, sack lifter, hay collector, grindstones, and ridding machine.

SAVAGE, F., Kings Lynn, Norfolk.—Two eight and ten horse portable engines, thrashing and dressing machine, universal joiner, chaffcutter, root pulper.

SCOTCHER, J. A., Bury St. Edmund's.—Collection of modern firearms, and case of Day's game paste.

SHAND, MASON, AND Co., 75, Upper Ground-street, London.—London brigade steam fire engines.

SINGER MANUFACTURING COMPANY, 147, Cheapside.—Variety of sewing machines.

SMITH AND GRACE, Thrapstone, Northamptonshire.—Chaff-cutters, gristmill for hand or horse power, double oilcake and bean mills, improved horserake.

SMITH, J. P., Hereford.—Drawings of agricultural implements.

SMITH, THOMAS, Ipswich.—Horserakes, cultivators, haymakers, harrows, and Scotch carts.

SMITH, W., 22, Arthur-street, Oxford-street, London.—Plates in zinc and brass for marking corn sacks, iron and steel brands for marking cattle and agricultural implements, steel letters in alphabets, stamps and blocks for marking dairy cloths, and "miscellaneous articles for agricultural purposes."

SMITH, WM., Kettering.—Improved winnower and blower, and various horseshoes.

SMYTH AND SONS, Peasenhall, Suffolk.—"Eclipse" and other corn and clover-seed drills, manure distributor; turnip, mangold, and manure drill, and general purpose drill.

SMYTH, JOSHUA, Saxmundham.—Mangold, turnip, clover-seed, and corn drills.

SPONG AND CO., 104, Fulham Road, London.—Mincing machines, egg boiler, and cucumber slicer.

STALKER, JONATHAN, Penrith, Cumberland.—Horseshoe for strong land, stetch grubber, horseshoe and grubber combined for light land, grubber for working between the rows, stetch harrow, and double plough steel breasts.

STUTTER, CAWSTON, Woolpit, Suffolk.—Specimens of bricks, pipes, and tiles.

SUTTON AND SONS, Reading.—Extensive collection of the most approved kinds of horticultural, floricultural, and agricultural seeds; one hundred and fifty sorts of natural grasses, growing specimens in pots, and agricultural roots.

SYRETT, WM., Bury St. Edmunds.—Water pressure turbine wheel, blast and compound fan, and double-armed outside movement smoke jack.

TANGVE BROTHERS AND HOLMAN, Lawrence Pointney Lane, London.—Variety of pumps, fire engines, lifting jacks, pulley block, hydraulic shears, gauge, pulling jack, blocks, lifting jacks, pails, and hose pipes.

TANNED LEATHER COMPANY, 81, Mark Lane.—Rolls of tanned leather driving straps, strap laces, and samples of leather.

TASKER AND SONS, Andover.—Eight-horse portable steam engine, four-horse thrashing machine, combined portable thrashing machine, combined finishing machine, corn dresser.

TAYLOR AND CO., London Bridge.—Chaffcutters, corn-crushers, carts, harness, pumps, weighing machines, field gates, boiler, grindstones, forge and bellows, portable bench, corn and flour bins, churns, dams, lawn mowers, garden seats and tables, arches, flower baskets, scythe, shoebrush, cask stand, and henceop.

TAYLOR, H. J., Bury St. Edmunds.—Rick, thrashing, elevator, sheep, machine, and waggon cloths; and four-hshel sacks.

THOMAS, CHARLES, Stratford, Warwickshire.—Flexible and improved side saddles and hunting saddles, safety stirrup, curb gag roller Pelham, Weymouth and other bridles, various bits, headstalls, &c.

THOMPSON AND STATHER, Kingston, Yorkshire.—Grinding and crushing mills.

THOMSON, HENRY, Buckden, Hunts.—Combined steam thrashing and finishing machine.

THORN, CHARLES, Norwich.—Miniature brougham, wagonette, dogcart phaeton; Norwich car, shooting and dog-carts.

TINKLER, ROBT., Penrith, Cumberland.—Assortment of revolving and other churns.

TOPIAM, C., 4, Ducksfoot Lane, London.—Sausage machines and "assortment of domestic inventions."

TRUNDLE, J. S., Ipswich.—An assortment of saddles, harness, and stable requisites.

TURNER, E. R. AND F., Ipswich.—Four to ten horse portable steam engines, thrashing and dressing machines, chaff cutters, grinding, crushing, and kibbling mills, malt mill and screen, oilcake breakers, horsegears, circular-saw bench, turbines, centrifugal pump, and cast iron tank.

TURNER AND ALLEN, 201, Upper Thames-street, London.—Field gate and posts, straining post, pair of ornamental cast iron gates and pillars, dwarf gas pillars, copper globe lamps, and cast iron fountain.

TURNER AND FARDON, Leighton Buzzard, Beds.—Four-horse power bolting thrashing machine and gear works, two-horse and one-horse Vandyke thrashing machines and gear works, corn mills, six and three horse portable engines, self-acting sheaf delivery reaper, independent-steerage corn and seed drills (the ten-row with press levers), cultivators, horse-hoes, dragrakes, mowing machines, and oilcake mills.

TUXFORD AND SONS, Boston, Lincolnshire.—First-prize eight-horse power portable steam engine, eight-horse power improved horizontal portable steam engine, fourteen-horse power improved horizontal portable steam engine, one, two, and three horse power improved horizontal portable steam engine, ten-horse power fixed steam engine, eight-horse power steepie engine, combined portable single blast thrashing, shaking, and winnowing machine, combined portable thrashing, shaking, and winnowing machine, combined thrashing, shaking, and perfecting machine, ten-horse power farmer's locomotive, nine-horse power steam engine and boiler, Tuxford's patent straw elevator, double grinding mill, portable

grinding mill, Appold's centrifugal pump, improved circular-saw table, mechanical hand or adjustable binding spring for holding deals to the parallel fence plate of saw table.

TYE, JOHN, Lincoln.—Corn-grinding mills, pearl barley mill, French millstone, crane, prover, and mill chisels.

UNDERHILL, W. S., Newport, Salop.—Six-horse portable steam and traction engines, thrashing machines, and combined thrashing, dressing, riddling, and finishing; blast elevator, barley horner, and wheat cleaner; zigzag traction wheels; Sketchley's universal joiner, cultivators, horserakes, ploughs, drills, harrows, sheep racks, cheese press, poultry fence and tree guards.

UNITE, J., 130, Edgware Road.—Rick cloths, nosebags, waggon cloth, loin cloths for thill and trace horses, and "miscellaneous articles."

VARTY, NATHAN, Royston, Cambs.—Eight-horse portable steam engine, self-cleaning and root horseshoes.

WAIDE, WILLIAM, Leeds.—Collection of revolving barrel churns of various sizes.

WALLACE, A., Colchester.—Collection of silkworms.

WALLS, HASLAM, AND STEEVENS, Basingstoke.—Eight and four-horse portable steam engines, horse power thrashing machine, combined single blast and also finishing thrashing machines.

WARD AND SILVER, Long Melford, Suffolk.—Thrashing and dressing machines, chaff cutters, oilcake breakers, turnip cutters, root graters, lever purchase, horseworks, Scotch cart, scarifiers, rolls, harrows, horserakes, stubble gatherers, drag rakes, winnower, hand drill, weighing machine, weights; cattle, sheep, and pig troughs; garden seats, and ornamental flower stand.

WARNER AND SONS, 8 Crescent, Cripplegate, London.—A variety of pumps, lift and force, with connected apparatus; horsegear frame with wheel and pinion, hydraulic ram, chain pumps, fire engines, garden engines, swing watering barrows, aquajets, syringes, hose reel and canvas suction, fountain jets, sheep and cattle bells, fire buckets and alarm bells.

WARREN, JOSEPH, Maldon.—Chaff machines, horseworks; turnip cutters, pulpers, and shredders; oilcake and bean mills, Essex and double-ton ploughs, mangel and surface-paring ploughs, cultivators, zigzag harrows, and horserake.

WEBB, JOHN, Hawkedon, Suffolk.—Combined mincer and turnip cutter, cattle troughs, adjustable beam ploughs, and ornamental iron foot-gate and pillars.

WEIR, EDWARD, 14-2, High Holborn.—Washing, wringing, and mangling machines; gollers and crimpers, clothes' horse, churns, butter carriers and forcers, squeegee for wet floors, bread maker and cutter; sausage, pork pie, and potted meat mincing machines; coffee and other mills, fruit press and cutter, levels, vice, sealing wax melters, garden and dairy sabots.

WHEELER AND WILSON COMPANY, 139, Regent-street, London.—A collection of sewing machines.

WHIGHT AND MANN, Ipswich.—Collection of sewing machines.

WHITE, ALGERNON HOLT, Hawkwell, Essex.—Double X field gate, adjusting hangings, and puzzle chain; and farm gate of oak and fir.

WHITEHEAD, JOHN, Preston.—Drain pipe, tile, and brick-making machines, for steam and manual power; brick presser, and Newcastle prize solid brickmaker.

WHITNEY AND CO., 101, St. John-street, Clerkenwell.—Corncrushers; and corn, flour, malt, linseed, and bean mills.

WHITMORE AND SON, Wickham Market.—Portable and horizontal fixed steam engines from six to ten-horse power, and ten-horse direct-acting fixed steam engine; fixed hurst for two pairs of stones, set of endless band conveyors and elevators, continuous rick, grinding mills, French burr millstones, flour dressers, portable turntable, millstone crane, circular-saw table, and miscellaneous articles.

WILKINS, W. P., Ipswich, Suffolk.—Five and eight-horse portable engine, five and ten-horse horizontal engine, patent grinding mills, feeding hopper, patent straw cutter.

WILKINSON AND SON, Ely, Cambs.—Self-regulating horseshoe, three-cylinder roll, chaffcutters, and two-horse gear.

WILLIAMSON BROTHERS, Kendal, Westmoreland.—Six-horse power portable steam engine, whirlpool centrifugal pumps, vortex turbine wheel, footvalve, and whirlpool blowing fan.



WILSON AND Co., 5, Lime-street, London.—Vertical portable steam engine with one cylinder; horse or cattle power gear for four animals.

WILSON, J. Penrith, Cumberland.—Preservative sheep bathing, the "perfect cure," concentrated tobacco juice, and two sheepskins that had been bathed in exhibitor's "Preservative."

WINDOVER, C. S., Huntingdon.—Dogcarts, phaetons, wagonettes, and broughams.

WINKEL, JOHN, Norwich.—Seven-horse power combined thrashing, chaff-cutting, and bagging machine.

WORDS AND COCKSEGE, Stowmarket.—Three to eight horse vertical steam-engines, portable corn mills, crushing mills, turnip cutters, root pulpers, and oilcake breakers, chaff-cutters, barley hummellers, corn blowers and dressers, thrashing machines, cattle byre fittings, pumps, horseworks, circular-saw benches, carts and waggons, mowers and reapers, rollers, weed extirpators, horse rakes, hay gatherers, harrows, asphalt apparatus, shafting mills, three and four horse vertical steam engines, chaff-cutters, root pulpers, and circular-saw bench.

WOOD, WALTER A., 77, Upper Thames-street, London.—Royal first prize grass mowing and corn reaping machines, and combined reapers and mowers.

WRIGHT AND SON, Great Bentley, Essex.—Grass specimens and seeds, agricultural seeds and roots.

WRINCH, ALFRED, Ipswich.—Garden seats, tables, and chairs; bronze hall tables, wrought-iron footstools, winebin, washing machines and mangles, wringers and clothes horse, lawn mowers, sets of croquet, garden arches, refrigerators, pumps, barrows, weather vanes, sewing machines, garden border, flower stands, and various other articles.

YOUNG, J. D., Portland-place, Clapham-road.—Self-shutting tee iron field-gate ten feet long.

## THE SUFFOLK HORSE.

### THE BURY PROTEST, AND WHAT BECAME OF IT.

SIR,—In your remarks on the Suffolk horses at the Bury meeting, you mention a protest "talked about, but not presented," or words to that effect. The protest you allude to was properly entered, and the case as it came before the stewards was a very simple one. The objection was urged by Mr. King, of Preston a gentleman well-known as an occasional exhibitor of Suffolk horses, and also as a judge at the local shows in the eastern counties. The animal against which the protest was lodged belonged to Sir Edward Kerrison, the president of the Suffolk Agricultural Association, and of late years one of the most successful exhibitors of Suffolk horses. The mare was bred by Mr. Cross, of Holbrook, near Ipswich, and the ground of the objection was that she was not a Suffolk, her dam being a grey, as was also her grandam. The stewards who heard the case were Messrs. Randell and Bowly. They did not dispute the facts alleged by Mr. King, nor call upon him to produce evidence in support of his objection: they decided the case on the brief statement I have given; and what was the decision they arrived at? Their award was in favour of the exhibitor, on the ground that as there was no stud-book to refer to, pedigree had nothing to do with the case, and thereupon ruled that any horse of a chestnut colour, with clean legs, and having the shape and appearance of a Suffolk, should be eligible to take a prize offered for the breed. In other words, let the sire or dam be black, brown, or grey, let either of them be a Clydesdale, Lincoln, or Leicester black, as long as the produce has the colour and character of a Suffolk, no objection can be raised against its entry in a class appropriated exclusively to Suffolk horses.

On learning from Mr. King what had passed, I immediately accompanied him to hear from the stewards if there would be any opportunity of further consideration of the question, and also whether the decision would be

made public. To this Mr. Randell replied, in few but decisive words, that the matter was finally settled; that there would be no public report of the protest, and that we should hear no more about the matter. Now, I do not for a moment suppose any such definition of a Suffolk horse, as given by these gentlemen, will be accepted by the Crisps, Woltons, Badhams, and other breeders of the county; and though the actual upsetting of the judges' award in this case is of little interest even to the gentleman who made the protest, there is a widespread feeling of dissatisfaction at the way in which the matter has been dealt with by the stewards.

Mr. Bowly may be, and probably is, a first-rate judge of Shorthorns, and his colleague may be great in greyhounds and Shropshire Downs; they may, for aught I know, both be excellent judges of cart-horses; but that either the one or the other is a competent person to define what constitutes a Suffolk horse is a bit beyond my belief. The decision thus given will engender endless mischief. The Council should take the matter up, and deal with the question in a more business-like way, and if it is worth their while to offer prizes for Suffolk horses as a separate class, surely it is folly to repudiate their claim to a distinct breed.

No blame whatever is attributed to the exhibitor: he may not even have known what the dam of the animal in question was; but I ask the Council to look at the facts of the case as their stewards have decided, and say what kind of position the breeders of Suffolk horses are thus placed in. The Royal Society offers a prize for a class exclusively Suffolks. One to which a prize is awarded is proved to come of a mare not a Suffolk: the case is brought before the stewards, the facts in support of the objection are not questioned, but the decision is, that as the animal looks like a Suffolk, it matters not what its parents were, and without further inquiry the stewards so settle the matter.

It is not disputed that a cross between a Suffolk horse and a mare of another breed may produce a better farmer's horse than either of the parent stocks; we have fair evidence of this in one of the Bury prize animals, against which no protest was entered, although his owner openly quotes an Essex pedigree, and shows him in a Suffolk class. But this is not the question. Sir Edward Kerrison has long been a breeder of Suffolk horses, and knows well the Suffolk farmers have hitherto carried on a brisk trade in exportation of horses to all parts of the world; but I would ask him, I would ask Mr. Randell and Mr. Bowly, I would ask the Suffolk breeders themselves, whether the buyers who come from Anstralia, from New Zealand, America, or the continent, will continue to come here for Suffolk horses if we show, award prizes to, and sell as such what we know come of other bred mares? These are awkward questions, but one day or other they will be answered.

I do not profess to believe that ours is a breed of purer origin than other kinds of English horses. They may be the result of a cross from the Flemish horse into the native stock: an infusion of Dutch blood may have been resorted to within the last 20 or 25 years; but that does not invalidate their claim to a distinct breed, any more than the Galloway stain does the "Herd Book" Shorthorn.

I hope other breeders will say something on this point, and perhaps some one will offer an explanation to the fact that the association which has for its motto "Præctice with Science" is foremost in allowing a cross-bred animal to compete in a pure-breed class.

Yours faithfully,

HERMAN BIDDELL.

Playford, July 24th, 1867.

## THE NEW FARM.

The author of the "New Farm," in quest of fresh ideas for the improvement of his practice and the enrichment of his pocket, set off duly for a week's hot study amidst the stock and machinery of the Bury show-yard. It was, indeed, hard sultry work; and if it had not been for the repeated pleasure of falling in with old friends, and a frequent drain of the sherry and claret flasks that kind-hearted exhibitors kept for the encouragement of customers' wearied spirits, it might have been hard times with our excellent self. The absence of the cattle classes took away much of the interest that usually attaches to the bucolic part of the scene. The pigs were cubic in form, and fragrant as ever, alongside their sticky meal troughs. The Black Diamonds were forward as their best friends could wish upon the prize list. Of sheep, the Southdown classes were superb; at the same time I protest against Lord Walsingham's sort being considered to have the true character that Ellman loved about the head. The nose he approved was straight—Grecian, if we may borrow an illustration from the human feature, rather than Roman. The Goodwood ewes, with their oval frames, long lashes that gave their grey eyes a dreamy look, and gentle faces all thickly nighteapped with soft wool, are beautiful to behold, as their flesh is delicious to eat beyond all other.

To enjoy it, however, in its sweetest, juiciest state, it is the meat of a three years old maiden ewe that you should kill for the table. "It will eat like a pheasant," was the description given to me by an old breeder of the sort. You direct your butcher to send you wether mutton as a precaution against being served with joints of a tough old matron ewe. The three years old maiden is quite another thing.

It was a great treat to saunter through the machinery department, having beforehand marked upon my catalogue the articles I desired to inspect; the consequence of which is that I have already arranged several alterations for the improvement of my implements, which will ensure a considerable saving in time and power.

I was amused to see the heterogeneous geological specimens that under the attractive name of "coprolites" were tastefully arranged on the specimen stalls of the artificial-manure makers. It gave me a considerably stronger idea of the value of the limestone road mud, which undoubtedly contains very many elements quite as manurial as those crushed materials can furnish. By the way, one more proof of the value that any burnt stuff has, in ensuring a good clover crop. It had been said that, if a building were burnt down and left, white clover will soon spring up and clothe the ruins. Anyhow, this last spring I had the wilderness adjoining our pleasure grounds uprooted of its nettle and rubbish growth, all which was burnt in a heap upon the outskirt. The surface of the cleared ground was worked fine, and sown with Dutch clover. Scarcely a plant, however, has come up, probably owing to the overhanging shade, except alongside the ash heap of the burnt weeds, where there is an abundant crop. I shall, consequently, redouble my efforts to accumulate ashes to mix with the bone-manure on my turnip land, having an eye especially to the clover that will follow in regular succession.

How murderous hot it is! There must be thunder somewhere, and it is felt with its effects in more ways than one. Just now, taking my usual nocturnal nursery rounds, I came upon the boy juveniles in the broiling bed-room. Yet they were boiling over with boisterous fun and larking in all sorts of ways. Just arrayed in a sheet each, they lay and tossed and chaffed, and frolicked one with the other, and were "cheeky" above measure, as their elder brother observed confidentially to his mother, whose pony-carriage whip I finding opportunely in the hall, I made my silent way up the back stairs to their room, the door of which being open. I found them rolling in their respective sheets upon their elder's bed. Catch a weasel asleep you won't, nor will you readily find our young French friend off his guard. One eye out somewhere he must have had; for immediately, when I aimed at them a quiet cut, as much to awe as to afflict them, the sharp youngster, by an effort getting undermost, upturned his brother's—not his head—so as to intercept the flick, and then rolled, roaring with delight, off the bed and underneath, there enjoying to the uttermost the juvenile's discomfiture and astonishment. The youngster squalled, of course; whilst underneath the bed cowered our French friend.

The wail has, however, caught the doting mother's ear; so, while little Benjamin's hurt is being looked to, we have urgent private affairs with the bailiff, to whom we confide our earnest feeling that a fall of rain, if it do damage to the corn crop, would be of inestimable service to the roots.

The swedes I find a splendid crop, on my return home, upon that land which I described to have been pared after harvest last autumn, the couch being then allowed to grow into a thick surface-mat that was the laughing-stock of my neighbours. When it came to be worked, as I had calculated, no rootlets had pierced beyond the cut sod; while, through taking care to work the land in favourable weather, I secured no less than nine waggon-loads of ashes, which, having been soaked in their thirsty state, before rain fell, with liquid manure from the tank in the foldyard, I drilled in along with the seed (Sutton's Champion), over and above a good dressing of muck, also ploughed-in wet.

How singular, however, in the management of a root-crop is the value even of a single day! Whether the weather be more favourable at one time than another, or whatever it may have been, anyhow it is astonishing to view the difference in the growth of two breadths upon land equally well dressed, the only difference being that a few hours intervened between the sowing of the one and the other.

The value of water to the flock must be greater than I ever suspected. A friend has a flock of sheep running upon a withered, bare trefoil stubble, where, to the naked eye, there would seem to be little or nothing to eat; still they are in excellent condition, and merry enough. The way he accounts for it is, that they have access to a brook at the bottom. Just opposite to where I am writing now, too, there is a large herd of Hereford cattle in capital trim upon a very naked pasture, besides that half their time is spent standing in the river. I shall at once order some nice low tanks on wheels, which were exhibited at Bury by Burney and Company, and hope by consequence henceforth to render my dry side-lands more prolific of mutton.

## THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

## MEETING AT GLASGOW.

A city of stone fronts, broad pavements, direct thoroughfares, busy quays, and tall-chimneyed mills and works, is too huge and too pre-occupied to disturb the sober current of its life about the visit of an agricultural society. Such vanities as flower festoons and banners, and triumphal erections of poles, lath-work, and ever-greens, have not entered into the preparations made for welcoming the biggest show that has been held in Scotland, and one that has not been held in Glasgow for ten years past. Even the Society itself appears to deprecate colour and excitement; and, instead of advertising itself by means of flaming posters arresting the eye with a pictorial heading, or a big total of prize money, it has placarded the railway-stations with extremely modest and medium-type announcements upon bills measuring less than three feet by two. But then, in such a thickly-populated neighbourhood the Meeting is sure of its money; and so it has not hurried for the favour of holiday-folk, beyond providing a little music—namely, a humble but meritorious brass band from the Blind Asylum, and another more pretentious band of thirty-one white-coated military performers, that seemed to blow resolutely, but without feeling the pathos or to the merriment of their own melodies.

Mr. Menzies may be complimented on the success of his first show; in a business-like and courteous manner he conducts both office and field business, and most of the arrangements have been thoroughly well contrived and effectively carried out. But never before were we so bothered to find out what the judges were doing; for there were no numbers on the animals; and when a lot of horses were being walked and trotted out—and rather too freely did the grooms career with their heavy stallions among throngs of people without fence of rail or rope, instead of being strictly limited to the parading, which took place at stated hours in the one large ring—it was impossible to tell what horse it was that had such a rare neck and head, and what that other was with the lumbering “go” and slouching manner.

But it was a grand show of horses: not of thoroughbreds and hunters, for when we want to see these we don't travel higher up than Yorkshire; but of the bone and muscle and vigour constituting the draught animals “for agricultural purposes.” Here was Mr. Riddell's Campsie, the prize Clydesdale stallion in 1863, and again Mr. Logan's Lord Clyde, a grand old horse that was first in 1864, but both surpassed for power and quality by Mr. Samuel Clark's Young Lofty, a six-years-old, light brown, with black legs and white feet; a model draught-horse, with splendid shoulders, middle, and quarters, superb head, and in rare condition, without being over-fat; not, however, exactly answering to his name, as “lofty” he is not, in the sense of standing on long legs; for from his withers down through his heart is half-way to the ground, and these more like Suffolk proportions than we sometimes see in a breed that occasionally turns out giants. Mr. Galbraith's second-prize horse in the same class, a four-year-old, has also very great substance, but not the beauty or the action of the other. The entire colts were a magnificent class: Mr. Rigg's three-year-old Young Victor, that took the first prize as a yearling, but was not shown as a two-year-old, having been nearly dead with strangles, is a wonder: thick through at both ends, and yet not wanting

in middle-piece, with much bone, and an active pace, and a neck and shoulders charming to look at. And one of the best Clydesdales we have ever seen is Sir W. S. Maxwell's two-year-old colt Pollock, by Baronet. Large and well-filled “sections”, as they call them here, of mares and fillies made up altogether the primest lot of this noble native breed that has ever been got together in a show-yard.

The cattle were arranged in double rows of stalls, head to head; the two rows separated by a close board partition; the stalls divided by open *grilles* of board, and still further closed in behind each animal by two or three-boards fitting in slots. Each beast was tied to a ring, excepting only the Highlanders, and each of these had two ropes round his horns, fastened to the top of the stall-partition; one right and the other left—a precaution deemed necessary, but certainly not very ornamental, for this spirited breed. The Ayrshires were very numerous, and, generally speaking, of unusual merit. The bulls of Mr. John Dick and Mr. John Fleming would be good anywhere. The great classes of cows and heifers were, of course, the chief attraction; and when once you get over your antipathy to thin necks not well united to the shoulder, your objection to drooping rumps that leave the tails set on too high, to a few other defects in symmetry, and to the stag's horns polished as if they were to be sawn off and sold for the adornment of an entrance-hall, you can admire the deep full udders, the milk-veins, and twists properly haired, which indicate great milking capacity. Of course they would have shown far better at any other season. The Short horns are of moderate excellence—rather disappointing to a visitor who may have expected great things of North Britain, and by no means to be compared with what Yorkshire and Lancashire, and some more southern shows, commonly produce. Sir Thomas Buchan Hepburn's bull Comet, bred by Mr. Marshall, of Howes, is a very fine animal, but for quality and beauty is surpassed by Sir W. Maxwell's bull Keir Butterfly I. in the two-year-old class. Mr. Lawrence Drew's yearling bull Keir Butterfly 4th has also very considerable merit. In a fair cow class there is nothing extraordinary, even Mr. Francis Brown's Lady Hay not coming up to our idea of a first-rater. The prettiest short horns we have seen for some time are Lord Kinnaird's heifers, Royal Helena and Baroness, which have won the two first prizes, and Mr. David Elmslie's heifer Thistledown; these, with the Duke of Buccleuch's Young Cherry, and the Duke of Montrose's Pride of the Morning, being the pick of two not very large but capital classes of heifers.

The Polls formed only a moderate show. Mr. McCombie was not an exhibitor, and there were lots of gaps in classes not particularly full of entries. The Earl of Southesk's Jupiter is a very fine beast, of rare shape and quality, and weighing probably 11½ stone. His dam was second at Kelso, and his sire “Windsor” is a Highland Society's prize bull. Mr. James Leslie's Aberdeen bull “Tillyfour” shows the McCombie blood. There were several exceedingly fine Galloways—as Mr. James Cunningham's bull “Robert Bruce,” Mr. William Clark's bull “Marksmen,” his heifer “Maggie,” and his yearling heifer “Daisy,” a wonderfully pretty thing, of course first in her class.

We have seen a better show of Highland cattle, but some of the specimens in pretty well-filled classes were

exceedingly fine—as Mr. Peter's bull, Mr. Maclaren's, and the Duke of Athole's two-year-old bull; and also the Duke's brindled bull "Oscar," having great length, extraordinary neck-vein, short head, and plucky eye, but which only got commended. The cream of this part of the show was in the three-year-old heifer class, namely, Mr. John Stewart's superb little heifer from Pertree, the only one in the yard having the splendid hair that should distinguish the breed. And her herdsman pointed out that her horns had not been sand-papered; that she had "no had bit nor bite, nor seen the inside o' a barn or byre" since her first winter as a calf; and this bit of a "character" from the Isle of Skye ventured to tell the "judges," "Ef ye no gev that the preeze I'll just expose ye: ye've naw skill."

In the small classes of fat oxen, the best were the shorthorn crosses; but the majority were merely good "fleshers"—beasts not overdone with quality.

Of Leicesters, "after the Scotch manner," big-framed, broad-backed, but tucked-up, leggy, and necky sheep, carrying their mutton a long way off the ground, the show was great and well-sustained. The Duke of Buccleuch and Queensberry and Mr. David Ainslie showed one or two pens having something like quality. The Cheviots were uncommonly good; but the pride of the sheep classes was the famous show of Blackfaced; which were even superior to the extraordinary show of this breed at Perth a few years ago. Mr. James Brigdon, Mr. John Watson, Mr. John Archibald, and Mr. John Malcolm won first prizes for magnificent specimens, and but few ordinary pens pulled down the high standard of general excellence throughout the class.

The few South Downs were not worth talking about, being moderately good animals and nothing more.

In the long-wool class was a good Cotswold, and, to our mind, a still better Lincoln tup, of Mr. J. B. Marshall's breeding, and the ewes were specially good. A few Shropshires were put in by Mr. Gibson, of Woolmet, and by the Earl of Strathmore; but were scarcely of average excellence. The Extra stock consisted of two entries of shockingly bad Blackfaced, and four entries of the black four-horned St. Kilda sheep.

The Pigs were pretty good, but not up to the standard of our best south-country shows; and a prize-winning pen was generally very superior to anything else in a class. The chief honours were divided between Mr. Duckering, Sir Thomas Miles Riddell, Mr. George Mangles, Mr. Thomas D. Findlay, Mr. Lawrence Drew, and Mr. M'Gibbon. The small-breed sows were good enough to be first anywhere.

The poultry show was small, numbering but 150 entries; but the quality of some of the classes was exceedingly good. Thus we have seldom seen such magnificent silver-grey Dorkings; and the Brahmas and Hamburgs were also of considerable merit. A singularity in the show consisted of the "Scotch Greys," or, as they might be called, Cuckoo Dorkings devoid of the fifth claw. But really they would knock up better pens than those make-shift wood-and-wire concernus, which have no merit but that of being roomy.

There was a large collection of butter in earthenware pippins, most of it presumed to be of exceedingly fine quality, and in splendid condition; and of Dunlop and other cheese the show was decidedly "select," the samples being few, but first-rate in taste and make.

The implement department has been gradually creeping up into importance. Just forty years ago the first admission of implements brought 11 entries; four years later there were only 4 entries; in 1847 there were but

49 entries; however, we had this year at Glasgow no fewer than 1,344 articles, shown by 108 exhibitors.

Proceeding, as in all things, upon the economical system, the Society is accustomed to present us with the old higgledy-piggledy arrangement of stands, each consisting of so much area of green grass, with a roof of blue sky or pouring rain-cloud, as the case may be, and a small card announcing to those visitors who may be lucky enough to catch sight of it what is the number of the stand in the catalogue. But in exhibiting implements at a Highland meeting, you come under much the same rule as that of a convivial club that we know of—in which the regulation is, that "you may have what you like, if you pay for it"; and, accordingly, some of the exhibitors pay extra for the accommodation of shedding. The consequence is, a most unpicturesque prospect of bits of board-roofed hovels popping up in various parts of the show-ground, and a classification of the contents of the catalogue certainly one of the most original, if not scientific, that we remember to have met with—the sections being thus entitled: "Implements and other articles under cover,"—"Implements partly under cover," and "Implements not under cover." What we were to understand by implements "partly" under cover, we could not for the life of us imagine, till we chanced to remember in old-fashioned waggon-shed, in which the body and wheels of a vehicle are taken care of, while the shafts are left out under the drip of the eave-tiles. As fair weather happened to smile upon the scene through all four days of the Show, luckily the shedding was hardly wanted; but had "the rain descended and the floods come," as they know how in North British latitudes, what a mess would have been made of all the open-air machinery! what a plight the polished metal-work and the barn mechanism would have been in! Unless, indeed, the whole display had been wrapped up in tarpaulins and water-proofs, and then, of course, it would not have been very instructive to the inquiring mind, or very convenient to purchasers.

The largest and most important assortments of implements were those of A. and J. Main and Co., of Glasgow; John Pringle, of Edinburgh; John Gray and Co., of Uddingston; Picketsley and Sims, of Legh; Bentall, of Heybridge; Hill and Smith, of Brierley Hill; Hornsby and Sons, of Grantham; Richmond and Chandler, of Salford; Kemp, Murray, and Nicholson, of Stirling; Morton and Co., of Liverpool; Eastwood, of Blackburn; Childs, of New Oxford-street; Bradford, of Manchester; Robey and Co., of Lincoln; and The Beverley Iron and Waggon Company. Some of Ransomes and Sims' machinery was shown on the stand of Main and Co., and some of Messrs. Howard's implements on the stand of J. Pringle. The chief novelties observed were among reaping-machines and potato-raisers; and, in accordance with the practice of the Society, judges have been appointed to subject selected implements and machines to trial at fitting seasons after the meeting. A public trial, however, was made with W. B. Dick and Co.'s "Extincteur," which, by emission of a flame-stifling gas, put out an artificial conflagration in a marvellously-rapid and the easiest possible manner.

*The Scotsman* says: "This exhibition, so far as monetary considerations are concerned, has been a brilliant success, no less than £2,830 having been taken at the gates, exclusive of about £190 in catalogues—in all, upwards of £3,000. This is the largest sum that has ever been collected at any show of the society, and is £600 more than was realized at Glasgow ten years ago. At the Liversmore show, in 1865, £833 was collected for admission; at Stirling, in 1864, £1,580; at Kelso, in 1863, £1,364; and at Perth, in 1861, £1,311; so that this exhibition, in pecuniary affairs, is nearly doubly better than any that have been held since 1860."

## PRIZE LIST.

## AYRSHIRE CATTLE.

JUDGES.—A. Buchanan, Garseadden Mains, East Kilpatrick; J. Maendram, Blairover, Drymen; J. Pollock, Raws, Kilmarnock.

Bulls calved before 1st January, 1865.—1, R. Wilson, Forehouse, Kilbarchan (General Grant); 2, W. A. Mac Lachlan, of Anchenstroig, Balfrou; 3, W. Buchanan, Coxithill, Stirling (Prince Charlie). Commended: J. Stewart, Burnside, Strathaven (Norval); breeder of best Bull, R. Kerr, Wattieston.

Bulls calved after 1st January, 1865.—1, J. Dick, Shirrel, Bellshill; 2, R. Wilson, Forehouse; 3, J. Parker, Broomlands, Irvine. Commended: J. Craig, Jellyhill, Bishopbriggs.

Bulls calved after the 1st January, 1866.—1, J. Fleming, Meadowbank-cottage, Strathaven; 2, D. Forrester, Woodcockdale-cottage, Linlithgow; 3, J. Fleming. Commended: A. Gall, Benthall, East Kilbride.

First Prize Cows at former Shows.—The Medium Gold Medal, The Duchess-Dowager of Athole, Dunkeld (Premium).

Cows in Milk calved before 1st January, 1864.—1, J. Jackson, Barnhill, Blantyre (Pride); 2, J. Cleland, Bellshill, Bothwell (Toddle Bony); 3, W. Wilson, South Biggart, Beith (Maggie). Commended: R. Wilson (Jess).

Cows in Milk calved after 1st January, 1864.—1, J. Pollock, Blackhouse, Mearns; 2, L. Drew, Merryton Home Farm, Hamilton; 3, R. Wilson (Favourite). Commended: L. Drew.

Cows in Calf, of any Age.—1, R. Wilson (Kate); 2, D. Forrester, Woodcockdale Cottage, Linlithgow; 3, J. Pender, Springhill, Motherwell (Murley). Commended: J. Stewart, Burnside, Strathaven.

Heifers calved after 1st January, 1865.—1, L. Drew; 2, J. Muir, Hardington Mains, Biggar (Cowship); 3, A. Campbell, Crosshill, Bishopbriggs. Commended: L. Drew.

Heifers calved after 1st January, 1866.—1, J. Meikle, Seafield, Bathgate; 2, J. Mitchell, Blackhouse, Newton Mearns; 3, L. Drew. Commended: L. Drew.

## SHORTHORNS.

JUDGES.—J. Gray, Lesswood House, Haydonbridge; R. Hardie, Harrietfield, Kelso; T. Harris, Stoneylane, Broomsgrove.

Bulls calved before 1st January, 1865.—1, Sir T. Buchan, Hepburn, Bart., Prestonkirk (Comet); 2, J. Whyte, Little Clinterty, Blackburn (Prince of Warlab); 3, Lord Kinnaird, K.T., Rossie Priory (Oxford Louis). Commended: The Duke of Montrose (Scottish Chief). Breeder of best Bull: T. Marshall, The Howes, Annan.

Bulls calved after 1st January, 1865.—1, Sir W. S. Maxwell, Bart., M.P. (Keir Butterfly 1st); 2, G. Robertson Barclay, Keavil, Dunfermline (Heir of Englishman); 3, Lord Kinnaird, Rossie Priory, Inchture (Royalist).

Bulls calved after 1st January, 1866.—1, L. Drew (Keir Butterfly 4th); 2, J. Geddes, Orbliston, Fochabers (Cachar); 3, W. Scott, Glendronach, Huntly (Amateur). Commended: A. Bell, Linton, Kelso (Duke of Edinburgh).

First-prize Cows of former Shows, The Medium Gold Medal.—Viscount Strathallan, Strathallan Castle (Rosa Bonheur).

Cows of any Age.—1, F. Brown, Mains of Leslie, Inch, Aberdeen (Lady Hay); 2, D. McGibbon, Inveravon, Polmont (Anna); 3, A. Longmore, Rettie, Banff (Camilla). Commended: A. Longmore, Rettie, Banff (Star of the Gloamin).

Heifers calved after 1st January, 1865.—1, Lord Kinnaird; 2, Viscount Strathallan (Rose of Strathallan); 3, D. Ainslie, Costerton, Blackshields (Zoe). Commended: A. Buchanan, Whitehouse, Stirling (Lady Stewart).

Heifers calved after 1st January, 1866.—1, Lord Kinnaird (Baroness); 2, D. Ainslie (Thistle-down); 3, Duke of Buccleuch and Queensberry, Dalkeith (Young Cherry). Commended: Duke of Montrose, Buchanan Castle (Pride of the Morning).

## POLLED (ANGUS OR ABERDEEN).

JUDGES.—G. Brown, Westerton, Fochabers; J. Graham, Shaw, Lockerbie.

Bulls calved before 1st January, 1865.—1, the Earl of Southesk, Kinnaird Castle, Brechin (Jupiter); 2, R. Walker,

Hillside House, Portlethen, Aberdeen (John). Breeder of best bull, the Earl of Southesk.

Bulls calved after 1st January, 1865.—1, J. Leslie, The Thorn, Blairgowrie (Tillyfour); 2, J. Leslie (President 5th); 3, J. Anderson, Newbiggin, Dundee (Cromwell).

Cows of any age.—1, Colonel Fraser, Castle Fraser, Aberdeen (Mina); 2, J. Leslie, The Thorn, Blairgowrie (Farnell); 3, R. Walker (Alice Maud).

Heifers calved after 1st January, 1865.—1, Colonel Fraser, Castle Fraser, Aberdeen (Lilly).

Heifers calved after 1st January, 1866.—1, J. Leslie (Young Farnell).

## POLLED (GALLOWAY).

JUDGES.—(As for Angus).

Bulls calved before 1st January, 1865.—1, J. Cunningham, Tarbrooch, Dalbeattie (Robert Bruce); 2, W. and R. Callander, Dalquhain, Dumfries (Prince). Breeder of best bull, J. Underwood Crofts, Castle Douglas.

Bulls calved after 1st January, 1865.—1, W. Clark, Corra, Kirkgunzeon, Dumfries (Marksman); 2, J. Thomson, Blakiet, Crocketford, Dumfries (Brigadier); 3, J. Graham, Parcels-town, West Linton, Carlisle (Sir John the Graham).

Bulls calved after 1st January, 1866.—1, J. Graham, Braidlee, Newcastleton; 2, J. Craik, East Glenarm, Crocketford.

First-prize Cows of former shows, the Medium Gold Medal.—J. Cunningham, Whiteairn, Dalbeattie (Kate).

Cows of any age.—1, J. Graham (Modesty); 2, J. Cunningham, Tarbrooch, Dalbeattie (Miss Hanning); 3, J. Cunningham, Whiteairn, Dalbeattie (Lizzie).

Heifers calved after 1st January, 1865.—1 and 2, J. Cunningham, Tarbrooch (Maggie and Nina); 3, J. Graham (Mary o' Leven).

Heifers calved after 1st January, 1866.—1, 2, and 3, J. Cunningham (Daisy, Louisa, and Nelly). Commended: J. Cunningham (Nanny).

## HIGHLAND.

JUDGES.—J. Macfarlane, Eskane Helensburgh; D. Stewart, Achallader, Tyndrum; J. Lorn Stewart, Coll, Campbelltown.

First Prize Bulls of former shows, the Medium Gold Medal.—The Duke of Athole, Blair Castle (Donald).

Bulls calved before 1st January, 1864.—1, R. Peter, Urral, Aberfeldy; 2, A. Clark, Garvie, Colmitraive (Gillie Duhl); 3, J. Malcolm, Poltalloch, Callton Mor, Lochgilphead. Commended: The Duke of Athol, Blair Castle (Oscar).

Bulls calved after 1st January, 1864.—1, Donald McLaren, Corrychron, Callender; 2, The Duke of Athole (Tormaid); 3, J. Stewart, Flodigary, Portree (Syke). Commended: J. Malcolm, Poltalloch, Lochgilphead.

Bulls calved after 1st January, 1865.—1, The Duke of Athole (Fear a Bhaile); 2, The Duke of Athole (Rob Ruadh); 3, D. McArthur, Achadman, Cairndow. Commended: D. McLaren.

First Prize Cows at former Shows, the Medium Gold Medal.—J. Malcolm, Poltalloch, Lochgilphead (Newrach).

Cows of any Age.—1, J. Malcolm (Reochoig); 2, The Duke of Athole (Troisag Odhar); 3, J. Malcolm (Molachach). Commended: A. Pollok, Ronaghan, Clachan, Kintyre (Seonaid).

Heifers calved after 1st January, 1864.—1, J. Stewart, Flodigary, Portree (Target Oig); 2, D. McLaren; 3, J. Malcolm. Commended: A. Pollok (Lily).

Heifers calved after 1st January, 1865.—1, 2, and 3, J. Malcolm. Commended: The Hon. Lady Menzies, of Menzies.

## FAT STOCK.

JUDGES.—J. Bell, Argyle-street, Glasgow; J. Geddes, Orbliston, Fochabers.

Oxen of any Pure or Cross Breed, calved after 1st January, 1864.—1, A. J. Balfour, Wittingham, Prestonkirk; 2, R. Heath, Harris, Earnhill, Forres; 3, H. L. L. Morrison, Guise, Whitehouse, Aberdeen.

Oxen of any Pure or Cross Breed, calved after 1st January, 1865.—1, G. Syme, Couston, Aberdour, Fife; 2, G. Syme; 3, The Duke of Montrose. Commended: A. J. Balfour.

Highland Oxen calved after 1st January, 1863.—J. Stewart, Newmarket, Aberdeen.

Highland Oxen calved after 1st January, 1864.—1, the Duke of Athole; 2, the Duke of Athole.

Cross Heifers calved after 1st January, 1862.—A. Bruce, Keig, Whitehouse, Aberdeen.

#### EXTRA CATTLE.

Highly commended: Cow and calf (Athole breed), Sir J. P. Orde, Bart., Kilmory, Lochgilphead.

Commended: Bull (Indian breed), Sir J. P. Orde. Cow and calf (Indian breed), Sir J. P. Orde. Cow (Jersey), W. Wingate, Nether Croy, Kilsyth.

#### HORSES.

##### FOR AGRICULTURAL PURPOSES.

JUDGES.—Stallions and Colts.—J. Crawford, Thirdpart, Greenock; J. Gulland, Tullygarth, Clackmannan; J. Steedman, Boghall, Roslin.

Mares and Fillies.—J. Curror, Comiston, Lothian Burn; R. Findlay, Springhill, Baillieston, Glasgow.

Extra Horses.—Major A. Gillon, Wallhouse, Bathgate; Alex. Kinloch, Gilmerton.

First Prize Stallions at former Shows, the Medium Gold Medal.—D. Riddell, Kilbowie, Duntocher (Campsie).

Stallions foaled before 1st January, 1864.—1, S. Clark, Manswrae, Kilbarchan (Young Lofty); 2, A. Galbraith, Croy, Cunningham, Killearn; 3, J. McDonald, Duntocher (Emporer). Commended: R. Brewster, Barnbeth, Kilbarchan (Young Garibaldi).

Entire Colts, foaled after 1st January, 1864.—1, W. Rigg, Banks, Kirkeudbright (Young Victor); 2, W. Moffat, Shirva, Kirkintilloch (President); 3, R. Arkley, Philipstown, Linlithgow (Rantin Robin). Commended: A. Galbraith, Croy, Cunningham.

Entire Colts, foaled after 1st January, 1865.—1, Sir W. Stirling Maxwell, Keir (Pollak); 2, S. Clark, Manswrae, Kilbarchan; 3, R. Andrew, Allans, Paisley. Commended: R. McKean, Lumloch, Bishopbriggs.

Entire Colts, foaled after 1st January, 1866.—1, D. Riddell, Kilbowie, Duntocher; 2, J. N. Fleming, Keil, Campbelltown; 3, T. Muir, Bowhouse, Lanark. Commended: W. Kerr, Newhouse, Dalry.

Mares with Foal at foot, foaled after 1st January, 1864.—1, J. Watson, jun., Glencairn House, Motherwell (Rosie); 2, J. Findlay, Boturich Castle, Dumbarton (Bessy Bell); 3, L. Drew.

Mares in Foal, foaled before 1st January, 1864.—1, L. Drew; 2, J. Hendrie, Kirkwood, Coatbridge (Brisk); 3, The Duchess Dowager of Athole (Dandie). Commended: W. Moffat, Shirva, Kirkintilloch (Bell).

Fillies foaled after 1st January, 1864.—1, L. Drew; 2, A. Buchanan, Coldrach, Drymen; 3, R. Weir, Browhill, Carnwath. Commended: W. Veitch, Castlehill, Houston.

Fillies foaled after 1st January, 1865.—1, A. Buchanan, Garscadden Mains, East Kilpatrick; 2, L. Drew; 3, M. Steven, Bellahouston, Glasgow. Commended: R. M. Buchanan, Livingston Mill.

Fillies foaled after 1st January, 1866.—1, P. Crawford, Dumbgoyack, Strathblane; 2, D. McGibbon, Inveravon, Polmont; 3, A. B. Yuille, Darkeith, Cardross. Commended: A. Kerr, Castle Hill, Durrissdeer.

#### EXTRA.

Mares or Geldings foaled before 1st January, 1863, suitable for the Field.—1, L. Drew (Hawk); 2, A. Hunter, Clelandstreet, Glasgow (Fox); 3, J. Mackie, Bargaly, M.P., Castle Douglas.

Mares or Geldings foaled between 1st January, 1863, and 1st January, 1864, suitable for the Field.—1, G. Stodart, Netherton, Newton Meurnis; 2, J. Newton, Chollerton, Hexham; 3, J. Hepburn, Pitcairn, Lochgelly.

Mare or Gelding foaled before 1st January, 1863, for Harness.—1, A. J. H. Somerville, Bothwell; 2, M. Clark, Croftenga, Alexandria; 3, W. Whyte, Nether Arthurlie, Barrhead.

Draught Mares or Geldings in Harness.—1, A. Wallace, West Burn, Cambuslang; 2, D. McGibbon, Inveravon, Polmont; 3, J. Wallace, Stonelaw, Rutherglen. Commended: J. Clark, Flender, Busby.

Mares or Geldings, not exceeding 15 Hands, for Milk-carts of heavy Draught.—1, R. Wilson, Forehouse, Kilbarchan; 2,

J. Young, Duncanridge, East Kilbride; 3, A. Bulloch, Milliken, East Kilpatrick.

Mares or Geldings, not exceeding 14½ hands high, for Milk-carts of light draught.—1 and 3, J. Robertson, Maryhill, Glasgow; 2, W. Cockburn, jun., Glasgow. Commended: J. Mackie, Springbank, Glasgow.

Commended: A. A. Spiers, Elderslie (Arabian stallion); J. Macarthur, Inverary (Highland stallion); J. Black, Fern Bank, Bishopbriggs (pony mare); T. Coutts Trotter, Bilston Lodge, Loanhead (pony gelding).

#### LEICESTER SHEEP.

JUDGES.—J. H. Buckley, The Cottage, Loughborough; A. Geekie, Baldowie, Coupar-Angus; W. Smith, East Learmouth, Coldstream.

Tups not above 4 Shear.—1, D. Ainslie, Costerton, Blackshields; 2, W. Ruxton, Farnell, Brechin; 3, T. Fergusson, Kinlochry, Coupar-Angus. Commended: D. McGibbon, Inveravon, Polmont.

Dinnont or Shearling Tups.—1 and 2, the Duke of Buccleuch and Queensbury; 3, D. Ainslie. Commended: G. Hope, Fentonbarus, Drem.

Ewes not above 4 Shear.—1, G. Simson, Courthill, Kelso; 2, J. Angus, jun., Whitefield, Morpeth; 3, G. Hope, Fentonbarus. Commended: The Duke of Buccleuch.

Shearling Ewes or Gimmers.—1, G. Simson, Courthill, Kelso; 2, W. Purves, Linton, Burnfoot, Kelso; 3, D. Ainslie. Commended: L. Drew.

#### CHEVIOTS.

JUDGES.—J. Oliver, Howpasley, Hawick; R. Paterson, Big-house, Thurso.

Tups not above 4 Shear.—1, J. Brydon, Kinnelhead, Moffat; 2, H. Brydon, Thirstaune Hope, Selkirk; 3, J. Brydon, jun., Appin, Tynron. Commended: T. Welsh, Eriestane, Moffat.

Dinnont or Shearling Tups.—1 and 2, J. Brydon; 3, C. Alexander, Easterknowes, Stobo, Peebles. Commended: J. McGregor, Beltridding, Dumfries.

Ewes not above 4 Shear.—1, J. Brydon; 2, J. Archibald, Glengelt, Lauder; 3, Sir Graham G. Montgomery Stanhope, Bart., M.P. Commended: R. Shortreed, Attonburn, Kelso; J. Brydon.

Pen of Lambs.—1, J. Archibald, Glengelt, Lauder. Shearling Ewes or Gimmers.—1, J. Brydon; 2, J. McGregor, Beltridding, Dumfries; 3, T. Elliot, Hundhope, Jedburgh. Commended: W. G. Hunter, Dumfelling, Langholm.

#### BLACKFACED.

JUDGES.—R. Elliott, Laignwood, Dumkeld; W. Moffat, Kinleith, Currie.

Tups not above 4 Shear.—1, T. Aitken, Listonshields, Balerno; 2, J. Archibald, Overshiels, Stow; 3, J. Malcolm, Poltalloch, Callton Mor, Lochgilphead. Commended: T. Murray, Eastside, Penicuik.

Dinnont or Shearling Tups.—1, J. Watson, Culterallers, Biggar; 2, J. Archibald, Overshiels, Stow; 3, T. Aitken, Listonshields, Balerno. Commended: J. Craig, Polquhays, New Cumnock.

Ewes not above four-shear.—1, J. Archibald; 2, J. McLaren, Corrie, Drymen; 3, T. Murray, Eastside, Penicuik. Commended: J. Malcolm, Poltalloch, Lochgilphead; T. Murray, Eastside, Penicuik.

Pens of Lambs.—J. Archibald, Overshiels. Shearling Ewes and Gimmers.—1, J. Malcolm; 2, J. Archibald; 3, T. Murray. Commended: J. Craig.

#### SOUTH-DOWNS.

JUDGES.—J. H. Buckley, The Cottage, Loughborough; T. Harris, Stonyclyne, Broomsgrove; and W. Goodlet, Bolshau, Arbroath.

Tups not above four-shear.—1 and 2, J. Bruce, Burnside, Pochabers; 3, R. S. Skirving, Camptown, Drem. Commended: R. S. Skirving.

Ewes not above four-shear, or Gimmers.—1, J. Bruce, Burnside, Pochabers; 2, A. Kiuloch, jun., Gilmerton, Drem; 3, R. S. Skirving.

#### LONGWOOLS NOT LEICESTERS.

Tups not above four-shear.—1, W. Reid, Drem; 2, J. B.

Irving, Whitehill, Lockerbie; 3, J. Gibson, Woolmet, Dalkeith. Commended: J. B. Irving.

Ewes not above four-shear.—1, J. Gibson, Woolmet, Dalkeith; 2, J. B. Irving; 3, W. Reid. Commended: J. B. Irving.

#### SHORTWOOLS NOT SOUTHDOWNS.

Tups not above four-shear.—1, J. Gibson, Woolmet, Dalkeith; 2, Earl of Strathmore, Glamis Castle, Forfar; 3, J. Gibson, Woolmet, Dalkeith. Commended: J. Gibson.

Ewes not above four-shear, or Gimmers.—J. Gibson.

#### EXTRA.

Commended: Sir J. P. Orde, of Kilmory, Bart. (for shearing tup, four ewes and lambs, and two shearling ewes, all of the St. Kilda breed).

#### PIGS.

JUDGES—J. Dudgeon, Almondhill; D. B. Sadler, Balmuck, Crieff; A. Young, Keir Mains, Bridge of Allan.

Boars, large breed.—1, Sir T. Riddell, Bart., Sunart; 2, R. E. Duckering and Sons, Northorpe, Kirton Lindsay, Lincoln.

Boars, small breed.—1, G. Mangles, Givendale, Ripon; 2, T. D. Findlay, Easterhill, Glasgow; 3, R. E. Duckering and Sons. Commended: L. Drew.

Boars of a breed not eligible for preceding classes.—1, R. E. Duckering and Sons; 2, T. M'Gibbon, Inveravon, Polmont; 3, L. Drew.

Sows, large breed.—1, R. E. Duckering and Sons; 2, T. D. Findlay; 3, L. Drew. Commended: T. D. Findlay.

Sows, small breed.—1, R. E. Duckering and Sons; 2, T. D. Findlay; 3, L. Drew. Commended: J. Wilson, Woodhorn Manor, Morpeth.

Sows of a breed not eligible for preceding classes.—1, R. E. Duckering and Sons; 2, L. Drew; 3, T. D. Findlay. Commended: J. Wilson.

Pens of three Pigs not exceeding eight months old, large breed.—1, T. D. Findlay; 2, L. Drew.

Pens of three Pigs not exceeding eight months old, small breed.—1, G. Mangles; 2, R. Philip, Royal Hotel, Bridge of Allan; 3, T. D. Findlay. Commended: J. Fleming, East Castleton, Carnunnock.

Pens of three Pigs not exceeding eight months old, of a breed not eligible for the preceding classes.—1, G. Mangles; 2, L. Drew; 3, J. M'Kay, Cross Arthurlie, Barrhead.

### DORCHESTER AGRICULTURAL SOCIETY.

The annual exhibition of stock in connection with this old-established society took place on Saturday, August 3, when the show of horses, sheep, and pigs was held in the fair-field, near the Great Western Railway-station.

The following gentlemen acted as judges: For Down sheep and pigs—Mr. H. Bone, of Avon; Mr. John Ford, Rushton, near Blandford; and Mr. T. Dowden, Roke Farm, near Bere Regis. For horn sheep and horses—Mr. V. B. Watts, of Melcombe Horsey; Mr. T. Bevis, Sydling; and Mr. W. C. Spooner, Eling Southampton. The following is a

#### LIST OF PRIZES.

##### PIECES OF PLATE.

Value £5, offered by the president, Mr. John Brymer, to the owner (being the breeder) of the best twenty Hampshire Down ewes, under two years old, Mr. James Chick, Cerne.

Value £5, offered by the Earl of Ilchester, to the owner (being the breeder) of the best three Southdown rams, under two years, the executors of the late Mr. G. J. Wood, Athelhampton.

Value £5, offered by the Lord Digby, to the owner of the three best breeding sows, of any breed, every one of which must have had a litter, and been in the possession of the owner six months previous to the exhibition, Mr. J. A. Smith, Bradford Peverell.

Value £5, offered by the Lord Poltmore, to the owner (being the breeder) of the best twenty chilver Down lambs, Mr. John Fookes, Cerne.

Value £5, offered by Mr. Gerard Sturt, M.P., to the owner (being the breeder) of the best twenty Dorset full-mouthed ewes, Mr. J. A. Smith.

Value £5, offered by the Hon. W. H. B. Portman, M.P., to the owner (being the breeder) of the best twenty chilver Dorset lambs, Mr. H. Mayo; highly commended, Mr. G. F. A. Flower, Stafford.

Value £5, offered by Mr. John Floyer, M.P., to the owner (being the breeder) of the best twenty Dorset ewes, under two years old, Mr. H. Mayo, Coker's Frome.

Value £5, offered by Colonel Sturt, M.P., to the owner (being the breeder) of the best twenty Hampshire Down full-mouthed ewes, Mr. T. H. Saunders, Watercombe.

Value £5, offered by Mr. Wingfield Digby, to the owner (being the breeder) of the 20 best Southdown full-mouthed ewes, the executors of the late Mr. J. G. Wood.

Value £5, offered by Mr. C. W. Digby, to the owner of the best cart mare and her foal, Mr. J. A. Smith; commended, Mr. W. Paull, Puddletown.

Value £5, offered by Mr. Hastings N. Middleton, to the owner (being the breeder) of the best 20 Southdown ewes, under two years old, Mr. Henry Fookes, Winterborne, Whitechurch.

Value £5, offered by Mr. Herbert Williams, to the owner of the best hackney colt or filly under four years old, Mr. W. Paull; highly commended, Mr. Levi Groves, Bingham's Melcombe; commended, Mr. L. Groves, Bingham's Melcombe.

Value £5, offered by Mr. William Eliot, to the owner of the best cart colt or filly under three years old, Mr. W. Hooper; commended, Mr. J. Chick.

Value £5, offered by Dr. Bisset Hawkins, to the owner of the best pair of cart horses, not exceeding seven years of age, Mr. J. G. Homer, Martinstown; highly commended, Mr. J. H. Saunders, Forston.

Value £5, offered by Mr. T. H. Saunders, to the owner of the best 20 chilver lambs, whose sire was hired or purchased of him, Mr. H. W. Hawkins, Martinstown.

#### SHEEP.

Best Southdown ram, £2, Mr. Henry Fookes, Winterborne, Whitechurch.

Best Short-wooled ram, otherwise than horned or Southdown, £2, Mr. J. Chick.

Best one-year-old Dorset ram, £2, Mr. Henry Mayo, Coker's Frome.

Best one-year-old Southdown ram, £2, the executors of the late Mr. G. J. Wood, Athelhampton.

Best one-year-year Short-wooled ram, otherwise than horned or Southdown, £2, Mr. J. Chick.

Best pair of Dorset ram lambs, £1, Mr. Henry Mayo.

Best pair of Southdown ram lambs, £1, the executors of the late Mr. G. J. Wood.

Best pair of Short-wooled ram lambs, otherwise than horned or Southdown, £1, Mr. J. Chick.

Best pen of 12 Dorset ewes, viz., four of four years old, four of three years old, and four of two years, £2, Mr. J. A. Smith, Bradford Peverell.

Best pen of 12 Southdown ewes, viz., four of four years old, four of three years old, and four of two years old, £2, Mr. Henry Fookes.

Best pen of 12 Short-wooled ewes, otherwise than horned or Southdown, viz., four of four years old, four of three years old, and four of two years old, £2, Mr. John Fookes, Cerne Abbas.

#### PIGS.

Best boar, £1, and best breeding sow, £1, Mr. W. Manfield,

## DRIFFIELD AND EAST RIDING AGRICULTURAL SOCIETY.

## MEETING AT DRIFFIELD.

The entries at this, the fourteenth annual show, were as follows: Horses, 286; sheep, 29; pigs, 17; poultry, 222; implements, 155; making a total of 709, being an increase over last year's entries of 34.

The horses constituted a magnificent lot, and in quality were never surpassed at any previous show of the society. The entire horses for hunters, coaches, roadsters, and carters numbered 42; the hunters were 102 in number, the coaches 37, the roadsters 38, the draught horses 16, the ponies 33, and extra stock horses 18.

Sheep and pigs were of fine quality, and the poultry pens contained birds in prime condition, and well feathered. The array of implements was more extensive than that of last year, although on this occasion there were no prizes offered to tempt exhibitors, the Society having discontinued giving premiums in this department.

## JUDGES.

**SHEEP, PIGS, AND CART HORSES.**—S. Robson, Louth, Lincolnshire; T. Wordsworth, Dirstear House, Wakefield; Mr. W. F. Barwick, Lund Head, Nawton.

**HUNTERS.**—Captain Barlow, Castle Donington, Derby; S. Slater, North Carlton, Lincoln; and W. E. Colton, Eagle Hall, Newark.

## PRIZE LIST.

## SHEEP.

Shearling rams, £10, J. Borton, Barton House, Malton; second, £5, J. Borton.

Pens of three shearling rams, £5, E. Riley, Kipling Cotes, Beverley; second, £2, E. Riley.

Aged rams, £5, J. Borton; second, £2, J. Borton.

Pens of five breeding ewes bred in the riding, having had lambs in 1867, and suckled them up to the time of showing, the lambs shown with the ewes, £2, W. Jackson, Garton, Driffield.

Pens of five shearling gimmers, bred in the riding, silver cup, W. Brown, Holme-on-Spalding-Moor.

**EXTRA STOCK.**—30s., J. W. Sharp, Ulrome, Lowthorpe, and 10s., J. Allanson, Kendale, Driffield.

## HORSES.

Thorough-bred stallions for hunters, £6, Sir G. Cholmley, Bart., Boynton (Angelus); second, £2, W. Hudson, Brigham, Driffield (Cathedral).

Stallions for coach horses, £6, J. Johnson, Brigham, Driffield (Prince Arthur); second, £2, Messrs. Lazenby, Hayton (Splendour).

Stallions for roadsters, £6, W. Richardson, Beeford (Wild Harry); second, £2, J. Webster, Allerthorpe, Pocklington (President Giles).

Stallions for agricultural purposes, £6, E. Ingilby, Market Rasen (Young Champion); second, £2, R. Cole, Gembling, Lowthorpe (Pride of the East).

Mares and foals for hunting, £5, J. Smith, Bridlington; second, £2, W. Hudson.

Two-year-old hunting geldings or fillies, £3, R. Botterill, Garton, Driffield.

Yearling hunting geldings or fillies, £2, Sir G. Cholmley.

Mares and foals for coaching, £5, G. Holmes, Beverley.

Coaching mares without a foal, £3, P. Dunn, Siggleshorpe, Hull.

Three-year-old coaching geldings, £5, G. Holmes; second, £2, Wm. Piercy, Driffield.

Two-year-old coaching geldings, £3, R. Taylor, Siggleshorpe Manor, Hull.

Coaching fillies under four years old, £10, W. Stephenson, Bushy Hill, Newbald, Brough.

Roadster mares and foals, £5, Mrs. Ann Cook, Huggate, Pocklington.

Roadsters, £5, T. Cordiner, Heselton, Seabro' second, £2, the Executors of the late F. Jordan, Eastburn.

Three-year-old roadsters, £3, G. Scott, Market Weighton.

Mares and foals for agricultural purposes, £5, the Executive of the late F. Jordan.

Three years old geldings or fillies for agricultural purposes, £5, A. Walker, Arram, Beverley; second, £2, Mr. J. Turner, Sewerby, Bridlington.

Two years old geldings or fillies for agricultural purposes, £3, G. Chatterton, Coniston, Hull.

Yearling geldings or fillies for agricultural purposes, £2, the Executors of the late F. Jordan.

Lady's ponies under 14 hands, £3, W. Simpkin, jun., Burton Agnes.

Ponies not exceeding 12 hands, £1, J. E. Moore, Cowden; second, a whip, W. Coleman, Fraisthorpe.

Four years old hunting mares or geldings, a silver cup, value £25, E. Hornby, Flotmanby.

The best hunting mares or geldings, open to all England, a silver cup, value £25, T. Gee, Dewhurst Lodge, Wadhurst.

The best three years old hunting geldings or fillies, open to all Yorkshire, a silver cup, value £10, Sir G. Cholmley.

## PIGS.

Boars, large breed, £2, J. Dyson, Leeds.

Sows, large breed, £2, J. Dyson.

Boars, small breed, £2, J. Dyson.

Sows, small breed, £2, J. Dyson.

Store pigs (age and quality considered), the property of a labourer or working mechanic, £2, J. Story, Warter.

**EXTRA STOCK.**—£1 to J. Dyson (for three pigs), 10s. to H. Adams, Beverley (for a boar).

## THE LEICESTERSHIRE AND WALTHAM AGRICULTURAL SOCIETY.

The annual Show in connection with this Society took place on the Leicester Race Course, on Wednesday and Thursday, August 1 and 2. It was a most successful meeting. The following is a list of the prizes:

## HORSES.

## HUNTERS.

**JUDGES.**—Mr. Clowes, Mr. Nainby, and Captain Percy Williams.

For the best hunter, gelding, or mare, not less than five years old, and under ten, open to all England, first prize, £20, W. G. Coleman, Great Glen; second (by C. Brook, Esq.), £5, J. Drage, Moulton Lodge, near Briamorth,

By W. A. Poehin, Esq., J. E. Bennett, Esq., and the Society.—For the best gelding or filly (four years old), adapted for hunting purposes, first, £15, F. Clifford, Keyham; second (by W. W. Tailby, Esq.), £5, J. Wilders, Croxton Kerrial.

By the Right Hon. Lord Berners.—For the best gelding or filly (three years old), adapted for hunting purposes, first, £10, J. Hobson, Isham; second, £5, J. Drage, Moulton Lodge, near Brixworth. Commended: W. H. Potterton, Boughton Grange.

By Captain Baillie.—For the best gelding or filly (two years old), adapted for hunting purposes, £5, Right Hon. Lord Berners, Keythorp Hall. Commended: J. Bennett, Husbands Bosworth Grange.

By his Grace the Duke of Rutland.—For the best mare,



calculated to breed hunters, that shall have suckled a foal up to the 1st of July, or is now in foal, £10, R. L. Healey, Hambleton.

By T. Frewen, Esq.—For the best mare and foal, adapted for hunting purposes, a Silver Cup, value £10, J. B. Tibbits, Barton Seagrave. Commended: Right Hon. Lord Berners.

By the Right Hon. Viscount Ingestre.—For the best heak, not less than fourteen hands and a-half, and not exceeding fifteen hands one inch high, a Silver Cup, or money, value £7, first, J. Webster, Peckleton; second, Right Hon. Lord Berners. Commended: J. Webster, Peckleton.

By the Right Hon. F. W. C. Villiers.—For the best cob, not exceeding fourteen hands and a-half, a Silver Cup, or money, value £5, first R. Milward, Thurgarton Priory; second, £5 (by the Society), W. Cook, jun., Manor House, Rothwell.

By C. W. Packe, M.P.—For the gelding or filly (two years old), best adapted to the general purposes of agriculture, a Silver Cup, or money, value £5, first, T. Allen, Thurmaston; second £2 (by the Society), T. W. D. Harris, Wootton. Highly commended: Ann Bass, Aylestone; commended, W. Saunder, Somerby.

#### CART HORSES.

JUDGES (and for Sheep and Pigs).—Mr. W. Daniels, Mr. J. Painter, and Mr. J. Topham.

For the gelding or filly (one year old), best adapted to the general purposes of agriculture, a Silver Cup, or money, value £3, Mrs. Ann Bass, Ayleston. Highly commended: W. Selby, Hlston-on-the-Hill.

By the Right Hon. Earl Howe.—For the in-foal mare, best adapted to the general purposes of agriculture, first, £5, J. E. Bennett, Husbands Bosworth Grange; second, £3 (by the Society), L. Richards, Glendon Lodge. Commended: J. Whittoff, Laddington.

By H. L. Powys-Keck, Esq.—For the foal best adapted to the general purposes of agriculture, £5, E. T. Heap, Rolleston. Commended: L. Richards, Glendon Lodge.

#### SHEEP.

By the Right Hon. Lord Berners.—For the best pen (of five) under twenty months old, of long-woolled, fat wether sheep, open to all counties, first prize, £5, Lord Berners, Keythorpe Hall; second, £2, W. Shipman, Eaton Lodge.

By the Right Hon. Lord Berners.—For the best pen (of

five) under twenty months old, of short-woolled or cross-bred fat wether sheep, open to all counties, £3, S. C. Pilgrim, Burbage.

For the best pen (of five) long-woolled ewes, which have suckled lambs to the 20th of July, 1867, open to all England, first prize, £5, Lord Berners; second (by the Right Hon. Lord Berners), for the next best ditto, £3, C. J. Bradshaw, Burley-on-the-Hill. Commended: T. Allen, Thurmaston; and Lord Berners.

By the Right Hon. Lord Howe.—For the best pen (of five) long-woolled theaves, under twenty months old, open to all England, £5, W. Shipman, Eaton Lodge.

For the best pen (of five) short-woolled theaves, under twenty months old, open to all counties, £3, S. C. Pilgrim, Burbage.

For the best pen (of five) long-woolled ewe lambs, open to all counties, £1, T. Allen, Thurmaston. Commended: T. W. D. Harris, Wootton, near Northampton.

For the best pure-bred Leicester shearing ram, the property of or hired by the exhibitor, £3, G. Turner, Allexton Hall. Commended: G. Turner.

For the best long-woolled shearing ram, the property of or hired by the exhibitor, £3, T. Bardett, Pytelley.

#### EXTRA STOCK.

By C. W. Packe, Esq., M.P.—For the best pen (of five) Leicester or long-woolled sheep, shown as extra stock, a Silver Cup, value £5, G. Turner, Allexton Hall. Highly commended: Lord Berners, Keythorpe Hall; and C. J. Bradshaw, Burley-on-the-Hill.

#### PIGS.

For the best boar, breeding open to all counties, to serve sows the next nine months, £3, W. Carver and Sons, Ingarsby.

For the best in-pigged or suckling sow, or gilt, breeding open to all counties, £3, W. Carver and Sons, Ingarsby. Highly commended: T. H. Ashton, Cliff Hall.

For the best fat pig, under twelve months old, open to all counties, £3, W. Carver and Sons, Ingarsby.

For the best fat pig, under eighteen months old, open to all counties, £3, W. Carver and Sons, Ingarsby. Highly commended: W. Carver and Sons.

### THE BATH AND WEST OF ENGLAND AGRICULTURAL SOCIETY.

The usual monthly meeting of the council of this Society was held at Taunton on Tuesday last, under the presidency of Sir J. T. B. Duckworth, bart. There were also present—Messrs. H. G. Andrews, Edward Archer, R. Brearidge, W. A. Bruce, C. Bush, J. H. Cotterell, Thos. Danger, E. S. Drove, T. Duckham, F. W. Dymond, Mark Farrant, H. Fooks, John Fry, Charles Gordon, John Gould, John D. Hancock, W. R. Hicks, R. K. M. King, J. E. Knollys, H. A. F. Luttrell, Rev. T. Phillpotts, Messrs. S. Pitman, G. S. Poole, J. C. Moore Stevens, and J. Goodwin (Secretary and Editor.)

THE FINANCE COMMITTEE presented their quarterly statement, and cheques were ordered to be drawn for all accounts received by the Secretary on or before the 5th of July, and therefore in time for audit, as required by the Society's rules.

THE FOREIGN CATTLE TRADE.—After a long discussion, originated by Mr. H. Genge Andrews, the following memorial to the Privy Council was unanimously adopted:

"The humble Memorial of the Council of the Bath and West of England Society, for the Encouragement of Agriculture, Arts, Manufactures, and Commerce, to the Most Honourable the Lords of Her Majesty's Privy Council in Council assembled,

#### "SHEWETH—

"That inspection of Foreign Cattle on landing does not prevent the passing of infected animals into the English markets.

"That the sale and slaughter of all foreign animals intended for slaughter should be confined to enclosed markets, as near the water side as practicable, at all places where foreign cattle are landed; and that no port or places should be licensed for the entry of foreign animals except such as

are provided with a suitable enclosed market with the necessary lairs and slaughter houses to the satisfaction of the Privy Council.

"That stringent regulations for the quarantine of all Foreign Store Animals should be established, to prevent the further introduction of disease.

"Therefore we pray your lordships to consider the propriety of enforcing the establishment of separate markets of a permanent character, for the sale and slaughter of foreign Fat Cattle at all ports licensed for debarkation, and an efficient permanent system of quarantine for foreign Store Animals."

NEW LIFE GOVERNOR.—Mr. C. H. M. Finch, Bemerton Lodge, Bemerton, Salisbury.

NEW MEMBERS.—Sir W. Throckmorton, bart., Buckland, Faringdon, Berks; Mr. J. Froude Bellow, Stockleigh Court, Crediton; Mr. Bower, Iwerne, near Blandford; Mr. J. M. Broad, Bath; Mr. Henry Butler, Tynning Farm, Kilmersdon, Bath; Professor Church, M.A., F.C.S., Royal Agricultural College, Cirencester; Mr. Walter Clapperton, Salisbury; Mr. Wm. Fooks, Sherborne; Mr. Walter Flower, Netton, Salisbury; Mr. W. E. George, Downside, Stoke Bishop; Bristol; Mr. Benj. Love, Springfield, Hinton St. George; Mr. Robt. Geo. Luxton, Brushford, Wembworthy, Devon; Mr. Thomas Ponting, Warminster; Messrs. Prangley and Co., Salisbury; Mr. Charles Raikes, Netheravon House, Amesbury; Mr. George Rawlence, Bulbridge, Wilton, Salisbury; Mr. Alfred Saunders, Market Lavington, Devizes; Mr. Samuel Saunders, Market Lavington, Devizes; Mr. Thomas Smith, Stratford-sub-Castle, Salisbury; Mr. George T. Townsend, Salisbury; and Mr. C. M. C. Whatman, Salisbury.

## MILLS AND MILLING.

ON THE FUNCTIONS OF AIR IN GRINDING,  
BOLTING, &c.

We have gone more at length into the details of hot-grinding than we at first thought it would have been necessary, and in the present article we propose extending our inquiries a little farther into the details of aëration, both in the grinding and dressing departments of the mill. The reason for thus going deeper into details is one in both cases, viz., a manifest lack of scientific and practical familiarity amongst millers and patentees with the facts of the case at issue. This was plainly indicated in a recent infringement case, the evidence on both sides being of a very stultifying and anomalous character, and on going over several other reported infringement cases involving the heating and aërating processes, the same lack of scientific and practical knowledge manifested itself. It is not to be inferred from this that we are accusing either party of gross ignorance; for the lack of knowledge appears to us to be rather an oversight than otherwise, so that all which we have got to do is to turn the attention of millers and patentees into the scientific and practical course of inquiry. And besides the above reason there is another, and not the less important one of the two, viz., it is absolutely necessary to go into the details in question before we could enter upon the details of the simple proposition of cool-grinding with any prospects of successfully furthering the cause of progress, the grand object which has throughout this long series of papers on "Mills and Milling" stimulated our pen. From the outset we have advocated cool-grinding; but in the patent-office, as in the mill, we have from first to last only met with hot-grinding and "hotter grinding!" The "bone of contention" in the courts of law at present being the hottest system of grinding ever yet reduced to practice, although it produces at the same time the coldest flour? as if purposely to exemplify *Æsop's Fable* of "Blowing cold and hot at the same breath!" But before we can explain the philosophy of the Fable, or of hot-grinding *v.* cold-grinding, it will be necessary to examine the peculiar nature of the atmosphere and its function in milling, quoting the substance of our remarks from acknowledged authorities old and recent.

*The compression of air between millstones evolves heat.* In other words, if air is forced in between millstones and there compressed by the rapid rotation of the runner and reduction of the grain, by the flour occupying more space than the unground corn, the air thus compressed will give off a portion of its heat to the millstones and grain being ground.

Although many difficulties may stand in the way of estimating the amount of heat thus produced in grinding, that cannot be received as an objection to the truth of the proposition itself, as the following experiments prove. "Thus," says Henry in his "Elements of Experimental Chemistry," ninth edition, A.D. 1823, vol. 1., page 137:

"If air be suddenly compressed in the ball of an air-gun, the quantity of caloric liberated by the first stroke of the piston is sufficient to set fire to a piece of the tinder called *umadon*. A flash of light is said, also, to be perceptible at the moment of condensation. This fact has been applied to the construction of a portable instrument for lighting a candle. It consists of a common syringe, concealed in a walking-stick. At the lower extremity the syringe is furnished with a cap, which receives the substance intended to be fired, and which is attached to the instrument by a male and female screw. The rapid depression of the piston condenses the air, and evolves sufficient heat to set the tinder on fire."

To those of our readers who may wish to follow up the details of the above two experiments we may add that Dr. Henry refers to the *Philosophical Magazine*, vol. xiv., 363, and xl., 424; for the former, the air-gun, and for the latter, *ibid.*, vol. xxxi., 130.

"When, on the contrary," quoting the same authority (Henry, vol. i., p. 137), "air is suddenly rarefied to many times its volume, its temperature falls sufficiently to sink a very sensible thermometer fifty degrees of Fahrenheit, its sensible heat passing, in this case, instantly into a latent form (see "Gay Lussac, *Ann. de Chim. et de Phys.*, ix., 303")."

At the meeting of the "British Association for the Advancement of Science," in 1859, J. P. Joule, LL.D., F.R.S., reported experiments which he had made on the heat developed by friction in air, and the following are the results at which he arrived, which we quote from the "Transactions of the Sections" (Report, xxix., 1860, pages 12 and 13):

"1st. The law of the thermal effect was, as obtained with the ether thermometer, proportional to the square of the velocity."

"2nd. The rise of the temperature was independent of the thickness of the wire which fixed the thermo-electric junction, which was whirled. This was decided by experiments on wires of various diameters, ranging from one-hundredth to one-eighth of an inch diameter. The rise of temperature was, in any, the same as that obtained with the ether thermometer, the air-bulb of which was nearly half-an-inch in diameter."

"3rd. The thermal effect appeared to be independent of the shape of the whirled body, little difference happening in whatever direction the wire was placed."

"4th. The average result was that the wire was warmed one degree by moving at the velocity of 175 feet per second."

"The highest velocity obtained was 372 feet per second, which gave a rise of 5.3 degs."

"A disc of zinc or cardboard was attached to the revolving axis. An ether thermometer was attached to the disc, the bulb being near the circumference, and describing a circle with a radius of about one and a-half feet. On rotating the disc at the velocity of one and three-fourths feet per second, as much as one-thirtieth of a degree of heat was developed."

In a former paper it was stated that the modern plan of forcing in a current of air between the millstones by mechanical means, instead of cooling the grinding surfaces and materials being ground, in accordance with the common popular notion, produced, in the first place, the contrary effect; and it was farther stated that the runner running empty would produce heat; and the above two quotations—the first from "Henry's Chemistry," and the second from the Report of the "British Association for the Advancement of Science"—will show the experimental data from which such conclusions were deduced. In the two sets of experiments, the facts of the case at issue in each may be left to speak for themselves as to their general application to milling, not only as to the modern method of aërating the grinding surfaces of millstones, but also as to the rotary turuol and heat-evolving processes to which the flour is subjected in bolting machines and the wheat in scouring mills. But while millers may be safely left to read the facts of the case as they appear before them each in his own mill, it may be as well to assist the general reader in piloting his way through the intricate channel in question.

Returning to *Æsop's Fable* (an experiment which any one may easily perform), in blowing cold, as against the hand, the air from the chest is of the same temperature as in blowing hot, but by being compressed in the mouth and forced out at a narrow opening, part of its heat is absorbed by the tissue of the mouth and lips. The moment, however, it strikes the hand it rapidly expands, thereby absorbing heat from the hand, thus producing the sensation termed "cold." And if the experimenter will pay close attention to the facts of the case, he will find that this sensation extends over a much greater surface area of his hand than the opening of his mouth, or a transverse section of the cold blast therefrom, and that the centre of the part of his hand struck by the cold blast feels warmer than the portion or ring which surrounds it; thus proving that it is the expanding air that is carrying off the heat from the hand in a latent form, and not the condensed air. On the contrary, in blowing hot the air from the chest expands in the mouth, and by so doing extracts heat therefrom, and as it is blown against the hand with the mouth wide open little or no condensation takes place, consequently it is of a higher temperature than the hand, or hotter; hence the warm sensation felt; *i. e.*, it gives off part of its heat to the hand.

In the modern system of aërating millstones we have a practical illustration of *Æsop's fable*. Thus, in blowing a current of air in between the stones there is a condensation of

the air in the pipe that leads from the blast-fan, and hence an escape of heat, which is obviously in favour of the practice, but against the soundness of some of the conclusions deduced therefrom by those who advocate or adopt them as will be shown in a subsequent paragraph, the millstones being thus fed with air of a lower temperature than the atmosphere in the mill.

In practice there are several ways of supplying the millstones with air, each differing in some respects from the others, so that it will be necessary to notice them separately.

In the unpatented examples introduced into this country from America, France, Denmark, and Holland, there is both a blast and exhaust-fan, the air from the blast-fan being forced in and confined between the grinding surfaces, the closing of the eye of the upper-stone, as it has been termed, being essentially necessary to render the action of the exhaust-fan effective.

In this example the confined and compressed air must suffer a still further condensation between the stones, partly owing to the flour occupying a greater space than the whole grain, and partly owing to the grinding surfaces being closer towards the periphery than the eye. On the old and common plan of natural supply, the air being drawn in along with the grain, it must be less or more condensed between the stones, according to the latter of the above causes; while the heat between the stones under the hot-grinding system would greatly add to the compression, especially when the air from the blast-fan was confined by the closed eye and prevented from escaping backwards up through the eye of the upper-stone, carrying along with it a spreading cloud of stive. Under such conditions the compressed air between the stones must exert a powerful action in forcing its way through to the millstone-case, carrying along with it much flour, which may thereby prevent heating, killing, and damage, as will subsequently be shewn in detail in another paper.

The functions thus performed between the grinding surfaces by the compressed air is purely a mechanical one, which may not inaptly be compared to a two-edged sword, as it cuts its way in every direction outwards to the millstone-case, and therefore it ought not to be confounded, as it too frequently is, with the chemical function of cooling the flour. That the compressed air is thus a powerfully effective agent, and an immense improvement upon the hot-grinding system, is a question too self-evident to permit of a formal proof; but for all this, it does not prove it cooler grinding, but the contrary; for the greater the compression of the air, and the keener its cutting-edge outwards, the hotter is the grinding.

In another class of examples the air is forced through pipes inserted in various parts of the bedstone between the eye and the circumference, the bedstone sometimes being uppermost and sometimes lowermost. In cases of this kind, the air is blown down or up against the face of the runner in lesser currents continuously as it revolves, the small current from each pipe thus forming a circle or ring upon the face of the runner. At each revolution of the runner there is thus one or more circular streams of cool air left upon its grinding surface, and from its centrifugal and fanning action this thin circular stream of air is worked outwards to the circumference; so that by this plan more air is supplied in a given time, and consequently a greater compression and outward force effected.

The next plan we have to notice is the influent current between the stones when an exhaust-fan only is worked. In the other examples there are exhaust-fans for the influent currents, but the influent current of each has an additional pressure of four or five pounds to the square inch besides, which makes a considerable difference to the action of the air between the millstones, especially when there is a tendency to soft grinding or "glazing;" &c.; but when "grinding lively" the effect of the exhaust-fan will greatly increase the velocity of the influent current of air, whether it is drawn in along with the grain at the eye of the upper stone, by fanning action, as if by the runner or bedstone, or in at the holes between the eye and the circumference, according to other propositions. According to an American patent of 1844, the grain is fed in at holes in the upper stone between the eye and the circumference, and not in the centre of the stone at the eye. In at these holes the influent currents of air also pass, so that under the example in question the influent currents of air are exhausted down through these holes in the upper and fixed stone, as it would be in the examples of horns upon the runner. Again, in some of the

progressive grinding mills of this country, in which the stones consist of a series of rings, the inner pair being above the outer pair, and of less diameter, &c., as formerly described, an exhaust-fan applied to the outer and lowest pair would have a tendency to make the fanning action of this ring draw in the rough meal and air, not at the mill eye, but at the inner edge of the fine grinding surface of the runner, or about eight or nine inches from the periphery or millstone case. Now, in all these examples, the function which the air performs is a mechanical one; but the effect which it produces from the force of compressions, and the central and fanning actions of the runners, must from the facts of the case be very much diversified, the effect in each case differing from the effects in the others, according to the great diversity of physical data which we have very briefly but imperfectly noticed above, but to which we shall return with the arrears of details in a subsequent article.

So much for "blowing cold" on the face of the millstones. We now come to the application of the other half of the fable, if we may so speak—"blowing hot" in the millstone-case, *i. e.*, the "hot-breath," with which millers, young and old, are practically familiar. The question under solution, therefore, is more of a chemical than a mechanical nature, and in the investigation of the subject, this difference cannot be too closely borne in mind.

As the thin sheet of air issues from between the millstones it rapidly expands in the millstone-case to many times the volume which it occupied immediately before its effluence from the grinding and compressing surfaces, and in its expansion it rapidly absorbs heat from the flour with which it is mixed in the effluent stream. In the experiment quoted from "Henry's Chemistry," in a previous paragraph, in which the thermometer sank 50 degrees of Fahrenheit, the suddenly rarefied air abstracted the 50 degrees of heat from the instrument. The steam which issues from between the stones along with the air is subject to the same law of expansion and absorption of heat, and the greater the quantity of air and steam, and the thinner the fine sheet with which it is compressed, the greater the expanding volumes and quantity of heat absorbed from the flour, provided the hot-breath thus evolved is removed from the millstone-case by the exhaust-fan, so as not to check the process of expansion; for if the hot-breath is not removed as fast as generated, condensation in the millstone-case will be the inevitable result, with blowing cold out at the slute, and so forth, along with heated flour, pasting, &c. All this is so plain that we need not go further into detail in this place.

The function which the effluent current of air from between the millstones performs is thus a very important one, when it is successfully drawn off by an exhaust-fan, so as to prevent subsequent condensation; and this applies with equal, if not greater force, to vapour. With such data before him, the youngest tyro in the mill need be at no loss how to account for the difference in the temperature of the flour, percentage of moisture which it contains, with the pasting and so forth, under the different examples of hot grinding now in operation.

Applying the above data to the Deptford Government experiments formerly alluded to, it will readily be seen how unsatisfactory most of the conclusions officially deduced from them are, relative to heating and aeration under the two systems on trial, not one of the comparisons being correct. Government officials are proverbial for their blundering in the performance of all public experiments; and in this case, which extended over several years, the patentee and those acting with him appear not to be more than qualified to set them right; anything like a formal criticism of reports of experiments, extending over such a period of time, is out of the question; in point of fact, so far as air, vapour, and heat are involved, there is not a correct statement in the blue-book before us.

When a current of air is forced into the scouring-mill or bolting-cylinder, a certain degree of compression takes place in the air-tubes leading from the blast-fan; so that on entering either the former or latter, expansion will take place, provided the air has a free egress from the mill or cylinder, so that it will both force the flour and dust outward, and carry off heat. But if confined, so that the condensation is greater than in the air-tube from the blast-fan, the cooling of the flour is a problematical question. In cases where the flour has been thoroughly cooled before bolting, its temperature may be increased by the compressed air and the

friction of the brushes and other apparatus working in the cylinder.

The general conclusion, therefore, is in favour of blast and exhaust-fans in aerating millstones, at least under the hot-grinding system. Although the compression of the air tends to produce heating in the first place, yet from its powerful mechanical action in clearing out the flour, which is thereby a much shorter period between the stones, the extra heat evolved is more rapidly carried off into the millstone-case than under the old system. In the millstone-case, again, the carrying off of the expanding air and steam removes the heat from the flour in the most effective manner, hence the general patronage the system has received.

#### COOL GRINDING, AND HAND-MILL AND ASS-MILL SYSTEMS.

Although hot-grinding has become the modern rule, there are nevertheless a few isolated exceptions to it, comparatively speaking, here and there throughout the kingdom, which must not be overlooked altogether. Why this should be the position of the milling trade is not very easily accounted for, unless it be admitted that the force of circumstances in the commercial department has carried before it the more important branch of the trade, *i. e.*, the art of cool-grinding itself. But the plea cannot be admitted, either on scientific or practical grounds; for if the exceptional practice has become unsuited to the demands of the trade, then millers ought to go back to the period when cool-grinding was the rule, and from that point commence the great work of progress, as formerly stated, thus laying the foundation on a sound and satisfactory basis.

The starting point for the pioneering work of progress is that happy period in the history of milling when the art was in the hands of the fair sex—

“Who warbled as they ground their parched corn—”

according to the description of the art given by an ancient poet, the work being then done the first thing every morning. Fifty pairs of millstones and as many happy hands grinding every morning for the royal establishment of the ancient King of Corfu is no inconsiderate point from which to start *de novo*, as the facts of the case involve practical data which silence, or ought to silence, objections that have been raised by millers, as to the possibility of grinding on the plan in question; for if steam has been taught to actuate spinning-wheels by thousands in a mill, why not train the same motive-power to actuate as many cool-grinding mills constructed on the hand-mill principle?

There are, however, other examples of cool-grinding ahead of that of the ancient hand-mill of Alcinoüs, or the British quern, in use in the northern isles in the time of Pennant. We allude to the ass-mills, the flour from which was preferred by the ecclesiastics of some of our old religious establishments formerly mentioned. These mills had evidently a very slow rotary movement, the runner probably not making more than three or four revolutions per minute, the diameter of the stones being less than those at the present time, which make a hundred revolutions per minute and upwards, or from sixty to two-hundred-and-fifty revolutions per minute, taking in the whole variations in the range of the velocity of the runner at the present time, while the mode of grinding was also different.

The Arabs, again, are said to prefer flour ground with a rolling-spindle—the principle of whose action closely resembles that of the pestle-and-mortar and edge-runner—the three plans of grinding thus brought together indicating as many different lines of direction, any one of which may be assumed as another line of progress in cool-grinding. In point of fact they have all three already been assumed as such by the pioneers of progress.

Counting the previous examples four lines of progression, the edge-grinding mills of Mortimer have been proposed as a fifth example, one which was at an early period reduced to practice; Williams's mill, which obtained a premium from the Society of Arts, in 1811, being constructed on this plan.

The various propositions of progressive grinding have been enumerated for the express purpose of cool grinding, so that the principle of their action also calls for notice as a sixth line of progression. While to these six plans, the various combinations which may be constructed out of them may be viewed as a new series of examples in the march of progress.

It will thus be seen that millers have ample materials in overflowing abundance, from which to select the best and most promising plan of cool grinding. In a former paper, No. xxvi., three different sources of heat were noticed—*viz.*, 1st, the atmosphere; 2nd, the friction of the grinding surfaces; and 3rd, the breaking up of the grain into flour; and, in making a choice of the best principle of grinding, these three sources of heat must be kept closely in mind. Also, the function which air performs in grinding, noted in our last paper.

In the quern and early ass mills, the runner rode upon the grain; but, in the latter, necessity soon gave birth to the invention of the runner revolving on a pivot fixed in the bedstone, the top of this pivot working in a socket, as in the mills dug from the ruins of Pompeii. The reader will bear in mind that we are just now discussing the principles of construction with a view to illustrate the elements of future progress, and not the peculiar mechanism of the quern or ass mill, such mechanisms having already been described in previous papers. What necessitated the supporting of the runner by means of a socket working on the top of a pivot, was the greater weight of the runner of the ass mill, as compared with the hand mill. Before the draught bar, to which the ass was yoked, was inserted in the runner, the runner would be equipped on the top of the pivot; but when only a single draught bar was inserted, its weight would press down the stone on that side, and the draught of the ass would still further add to the grinding action of the runner on the same side. Two asses in the mill yoked opposite each other, as in the mills of Pompeii, would, to a certain extent, counteract each other's motive-powers in this respect; but, however well they might be driven, the runner would have less or more oscillation, which would affect both the grinding and aerating processes.

Millers will readily perceive the peculiar principle thus involved in all cattle-mills so long as the draught-bar was fixed in the runner, and they will also be able to account for the manner it promoted cool grinding. They will, at the same time, observe how slow the motion of the runner of the ass-mill must have been, even in the smallest mill-courses; the velocity of the grinding surface being only a fraction of that of the ass, which also greatly favoured cool grinding. And, in the third place, it must be borne in mind that, as the flour and air issued out from between the stones, any heat or vapour evolved would rise upwards out of the flour, owing to the stones not being confined within a close case, while the flour would fall downwards in the opposite direction.

As the above three principles in question involve important practical considerations when applied to future progress, this being the grand object in turning attention to them, it may be as well to review them separately, somewhat more in their working details. Thus:—

1. However small may be the oscillation of the runner upon the top of the fixed pivot in the bedstone, however evenly the corn may be fed into the stones, and however uniformly the ass or ass-team may be driven, there would be an excess of grinding action, so to speak, on one side, and a diminution on the other—in other words, more grinding on one side than on the other. This was the case, and still is the case, in the East, in grinding with the quern or hand-mills, there being always a greater pressure upon the handle-side of the runner than upon the opposite one. This would affect the influent current of grain and air, and also the effluent current of meal, air, and vapour in the grinding of mudried corn. In the grinding of parched corn, or corn that had been deprived of its moisture by sun-drying, there would be almost no vapour; but there would be an increase of heat from each of the three thermal sources—the atmosphere, the friction of the stones, and the breaking up of the grain. But the slight oscillation of the stones, and their slow velocity, would reduce the compression of the air and the evolution of caloric, under each of these sources, to a minimum; while the discharge of the evaporation and air, and the removal of the heat thereby, would be increased to a maximum. Hence the cool flour.

2. The process of hand-mill or ass-mill grinding, when examined in its minute details, will be found to resemble more closely the principle of grinding with the pestle and mortar, or the rolling spindle of the Arabs, or the grinding of medicinal plants or drugs, than the modern system of grinding wheat into fine flour, in which the runner grinds equally all round the face of the stones. We can see a hundred and

fifty objections to the runner only grinding on one side, or grinding more closely on one side than on the opposite one; but objections of this kind go for nothing in the discussion of the principle in question, such being manifest, and therefore proof to all objections, whatever they may be; for, as the days of impossibilities are gone by, all the objections thus raised may be obviated by future improvements in carrying out the peculiar principle in question of cool-grinding, should no better principle of cool-grinding be discovered. The reader must bear in mind that we have gone backward to patriarchal times purposely to bring up the practice of cool-grinding, or at least the principles of that practice then in general use, with the view of adapting them to the exigencies of modern times, thereby turning the present hot-grinding system, with all its injurious consequences, (as previously noticed), out of the mill. With a four-feet diameter runner, for example, making one hundred and twenty revolutions per minute, it were difficult to trace the path of a grain of wheat between the eye of the millstone, where it enters between the grinding surfaces, and the periphery or lips of the stones, from which it is discharged into the millstone-case in the form of flour; and likewise to trace the path of each particle of flour round the millstone-case, until it is finally thrown out at the chute into the trough or creper below. Yet this path must be ascertained before the heating process, and the actual damage done by it, can be determined, experimentally; for when the heat evolved in the grinding is not quickly carried off by the air and flour, it accumulates, being absorbed not only by the flour between the stones, but also by the stones themselves—hence the chief reason why they get so hot at times. The flour and stones, again, will absorb the heat more rapidly the closer the flour lies upon the grinding surfaces; for when it lies loose, or, in the technical phraseology of the mill, when it passes lively through between the stones, less heat is generated per bushel of grain ground, while that heat is removed in less time; whereas, in the other case, the flour, after it has been reduced to a sufficient degree of fineness, is kept between the stones for probably twice or thrice the length of time it was in being ground, thus producing an accumulation of heat from the second thermal source, viz., friction against the grinding surfaces of the stones.

(3.) The third and last principle that demands special attention in reference to future improvement is the freedom with which the air and any vapour that may be produced are allowed to expand and carry off heat the moment they issue from between the stones, the heated air and steam rising upwards, the flour falling downwards. The grand object which our modern stive-rooms and exhaust processes have in view is the carrying out of this principle into practice; but in doing so our pioneers of progress have, up to this date at least, fallen into the anomalous mistake of first producing an extra degree of temperature, and a still greater amount of damage to the flour; and when all this mischief is done, it is problematical if the modern practice is as perfect and complete as the old one. Indeed, the odds against the modern plan are sufficiently manifest to warrant the conclusion that the old plan is the best of the two in this respect. It is not, however, to be inferred from this conclusion that, were the old practice of cool grinding to become the modern rule, the principle of the modern exhaust processes would not then be an improvement upon the old practice, the contrary being manifest. As questions of fact, the old system of cool grinding and the modern blast and exhaust processes are one and all subject to vast improvements.

Such is a very general review of the principles involved in the first line of progression, viz., the hand-mill or quern and old ass-mill. During the last fourteen years several patents have been obtained for given an oscillating movement to the millstones, but they are all wide departures from the above. In short, the peculiar oscillating movement and uneven pressure of the grinding surface of the runner of the hand-mill as it rode upon the grain being ground, and that of the ass-mill supported in the centre by a socket working on the top of a fixed pivot, but hauled down on one side by the ass, are each only adapted for a slow motion; while a slow motion is also essentially necessary for the grinding of parched and kilndried corn, or grain of any kind deprived of its moisture.

In the parching and kiln-drying the gluten and other properties of the corn thus dried, or rather roasted, undergo

changes which in the opinion of some are favourable to the dietetic economy of the flour. This topic has already been discussed at some length, and therefore we do not return to it; but besides this chemical change, corn thus roasted undergoes a mechanical change by which it becomes more easily ground, and this latter view of the subject has not yet been discussed, and therefore it requires investigation in this place.

This mechanical change raises three practical questions for solution, the first having reference to the small diameter of the millstones, the second to the slow rotary motion of the runner, and the third to the crushing, grinding, and aerating centrifugal action of the runner. In the form of interrogatories, they may be put thus: Does the cool grinding of parched corn require millstones of a small diameter? Is it necessary that such millstones should rotate at a velocity not greater than did the old hand-mills or ass-mills in which the ass made as many revolutions as the runner to which it was yoked? And must the runner be pressed down upon one side so as to produce a proper crushing, grinding, and aerating centrifugal action, so as to clear the grinding surfaces of made flour?

These are questions which are obviously pregnant with much that concerns future improvement, so as successfully to effect cool grinding on the old hand-mill and ass-mill plans. They are questions, too, which are not exclusively confined to the grinding of kiln-dried and parched corn, for they apply to the grinding of all sorts of corn, whatever may be the torrefied and hygrometric condition of the grain. No doubt they apply with greater force to dry hard corn than to soft corn, containing, say, for the sake of argument, from 15 to 20 per cent. of moisture.

In reference to the first, it has already been shown that the present diameter of millstones is less than it was at one time, and that the progress of things appears to indicate a still farther decrease for the future. Some considerable time ago, a Mr. Bennington, from Alabama, U. S. A., put millstones in St. Thomas's Mills, Staffordshire, only 17 inches diameter, and these were at the time reported as doing more work than the old large ones did. They were differently dressed, but into details of special mechanism, we need not go further, as a small diameter is only one of the three-joint co-operative conditions at issue.

As to the second, viz., *velocity*, that has been shown to be greatly on the increase, *i. e.*, hot and hotter grinding having become the general rule; and what calls for special notice is the fact that in grinding kiln-dried corn and sun-dried corn, the runner is driven at the same velocity as in grinding soft corn.

And, with regard to the latter, *the peculiar mode of grinding by hand-mills and ass-mills*, although once the rule in this country, and the exception so late as the middle of the last century, we must now send our pioneers to Arabia Felix, or some other happy corner of Oriental climes, to see it in successful operation. True, there are a few querns to be found in the far North, and in the sister country, Ireland, kept as heir-looms, and which are occasionally used by way of experimental teaching. But the more practical way of solving the miller's question, is to construct a small hand-mill and ass-mill, and thus learn experimentally the true practical philosophy, or the practice with science, which they teach, as this would enable experimentalists to make what improvements the experience thus learned might suggest. Under such a course of tuition millers will find that the hand-mill and ass-mill modes of grinding are somewhat different from each other, and that both differ still more widely from the hot-grinding plan, which they now use, and in favour of which a very strong prejudice may exist. A bias of this kind is natural; but it invariably gives way to the force of experimental evidence, such as that which we propose.

The three modes of grinding we shall compare under the pestle-and-mortar plan in our next paper. At present all we shall say is, that the ass-mill approaches the nearest to the plan of grinding medicinal plants, and, therefore, that it will be found to preserve the odorous and sapid properties, or "the life" or strength of the flour, better than the quern, and the quern better than the modern hot-grinding plan. The centrifugal, fanning, and aerating action of the ass-mill and hand-mill will also be found superior to those in use, the *rationale* of which will be given in a subsequent paper, to avoid repetition.

### COOL-GRINDING: ARAB-SPINDLE AND TROUGH—PESTLE AND MORTAR—EDGE-RUNNER MILLS.

In the preceding paper the principle of grinding with hand-mills and ass-mills—the latter actuated on the plan of those dug from the ruins of Pompeii—were discussed with the view of improving old mechanisms, so as to adapt them to the demands of the future. The two plans differ considerably from each other in their working details, and, although heat is evolved in both, they may nevertheless be termed cool-grinders, comparatively speaking. It follows, therefore, that the first departure from the principles involved in their construction was a step in the wrong direction, *i. e.*, an increase of heat in grinding. It is too far in the afternoon of progress for any miller to raise the practical objection that neither plan nor both plans could supply the English market with flour at the present day—prejudices of this kind being unworthy of a formal refutation. But there are many other plans of grinding corn, and three of these form the heading of our present article; and what demands a special introductory notice is the fact that the three plans thus under discussion are those adopted in the grinding of medicinal plants, so as not to destroy their active properties. The fact thus briefly stated raises at once the practical question for solution—Why should corn be ground on a different principle from medicinal seeds, plants, &c.? Why do millers continue to use the hot-system of grinding, less or more destroying the active principles—*alias*, the life of the flour—when the improvement of any one of the old plans still in use in Arabia and other parts—and in this country in grinding cattle foods, drugs, &c.—could be easily substituted in its place?

It would be easy returning practical answers to the above questions, but that such a course is foreign from our purpose. It is a well-known fact in the milling trade that a large number of intelligent millers are sick to the heart with the present system of hot-grinding, and anything but in favour of blast-fans and exhaust-fans, with the cooling apparatus and modes to which they give rise, could they only see their way clearly to cool-grinding on any profitable plan. Plain practical men, they are waiting, as it were, for the discovery of the improvements in question—a discovery which may not inaptly be said to be already looming in the distance to many of them, who are not insensible to the fact that the recent improvements made on the hot-grinding system are all leading them farther and farther from the old accredited maxim of the art—that “*cooler grinding*” meant in the mill “*driving the runner at a less velocity.*”

The principle of grinding of the three plans under consideration, *viz.*, the Arab spindle and trough, the pestle and mortar, and the edge-runner, have a close similarity to each other in many respects, as has already been stated, more especially the former two. But of the working of the spindle and trough we have no experience; while the account given by Niebuhr of the *modus operandi* of using it is by far too limited and general in character to determine its details. For example, Beckman, in his “*History of Inventions*” (vol. i. p. 149), says, “*Niebuhr found in Arabia, besides hand-mills, some grinding stones, which differed from those used by us in their consisting, not of a flat, but of an oblong hollow stone or trough, with a pestle, which was not conical, but shaped like a spindle—thick in the middle, and pointed at both ends. In this stone the corn, after being soaked in water, was ground to meal, and then made into cakes.*” Now, the reader cannot fail to perceive how meagre and imperfect this description is of details for the purpose we want them. The original (Niebuhr’s “*Description de l’Arabie*”), although much more explicit, is nearly as defective in illustrating practical detail, being merely a foot-note, with a drawing of the spindle and trough mill, under his description of the dietary of the Arabs.

According to the above description, the soaking of the corn was obviously for the purpose of loosening the husk; and most probably the wet husk was first separated from the dry kernel within by a gentle to-and-fro working of the spindle from end to end of the trough, so as to effect as completely as possible the decortication of the corn. The empty husk or bran would then be removed by the hand, as in the parallel case of hulling wheat, barley, &c. This done, the operator, seated on the ground with the trough between his legs, or standing at one end of it, or kneeling, would lay hold

of the spindle, one axis or extremity in each hand, and then, by a half or quadrantal rotation of the spindle, accompanied with a grinding action, he would work it forward and backward—or from end to end—until the whole was reduced to the required degree of fineness, when the trough would be emptied, and a fresh supply of soaked grain put under the action of the spindle. When the milling was over, and the meal sifted, the trough and spindle would then serve the former for a table, and the latter for a rolling-pin for rolling out the dough into their unleavened cakes, such as are used by the Arabs.

The pestle-and-mortar practice of grinding is very similar in principle to the above, the corn being first soaked and then hulled, before it is ground into meal, the principle of action being a rotating, grinding, and pounding of the grain.

The above two examples apply chiefly to the grinding of unparched corn, which is much more difficult to pound and grind, without being first decorticated, than parched corn. Parched corn is often pounded and ground in troughs and mortars without being soaked in water; but Niebuhr and other travellers in the East, so far as our inquiries extend, do not go into working details of this kind.

Niebuhr also found the Arabs working edge-runners in crushing oily seeds, &c., by means of oxen, and expresses his surprise that they did not yoke the ox to the grinding of corn. With the mode of using mills of this kind, and their principle of action in grinding, little requires to be said, as our readers generally are familiar with them. Although generally termed “*crushing mills*,” they have, nevertheless, a grinding action; while various plans have been proposed for increasing the amount of their grinding powers, so as to adapt them for the manufacture of wheaten flour.

We now come to the question of progress involved in the general application of the principles of such mills and the grinding of wheaten-flour, with a view to supersede the plan of hot-grinding at present in use. In their present form no end of objections could be raised to their introduction into the mill; but form and principle are often two very different things, and they are so in the case in question. The grinding by small quantities at a time, as in the spindle and pestle mills for example, would be fatal to their use in large manufactures; but this can be obviated so as to produce continuous grinding on the spindle and pestle principle; so can the objectionable half or quarter rotation given to both in hulling and grinding. There are doubtless many unseen difficulties in the way of successful profitable practice, but those that are cognisant to the miller’s organs of vision need not stand one hour in the way of progress, and those that are unseen yet will doubtless become subject to the same rule as fast as they are discovered in the mill. In short, a continuous stream of flour of any degree of fineness, and of any volume or magnitude required, can be made to flow from mills constructed on the principle of the spindle and pestle plans of grinding; so that the final question for solution is, Why then not have them?

The present form of edge-runners, although less objectionable than the spindle and pestle, is nevertheless unsuited for flour mills, and when brought up to the requirements of flour manufacture it is more than probable that they will merge into the improvement of the previous two plans, the improved spindle and pestle systems of grinding; the grain being decorticated by separate processes. Indeed, the successful removal of the husk with the downy flocculent covering that surrounds the kernel inside appears to be one of the cardinal *desiderata* which the pioneers of progress are just now in search of; for the moment this discovery is made, the grinding on the above or some of the other cool-grinding plans at issue may not inaptly be said to be a won cause. In other words, the moment such a discovery is made, there is an end to hot-grinding as now generally practised.

In the preceding article it was proposed to institute comparisons in this paper, between hand-mills and drug-mills, and the mills now in use, in order to avoid repetition: such comparisons we shall now proceed to notice

#### SPINDLE, PESTLE, AND EDGE-RUNNER MILLS.

*First.* Spindle, pestle, and edge-runner, mills break up the grain into flour between smooth surfaces, with a comparatively equal but slow rotary crushing and grinding action.

*Second.* The spindle, pestle, and edge-runner, as they crush and grind in the trough, mortar, and on the bed-plate, are

each continuously changing from one part of the grinding surface to another, thereby obviating one of the chief sources of heating (*viz.*, the friction of hot-grinding surfaces) and the accumulation of heat thereby produced.

*Third.* There is comparatively no compression of air between the grinding surfaces of the spindle, pestle, and edge-runner mills; and what little there is, together with the heat and vapour evolved in the operation of grinding, immediately escapes, as the rotating grinding surface passes on to a fresh portion of the fixed grinding surface; so that the latter, with the broken meal upon it, has time to cool before the former returns.

#### HAND-MILLS AND ASS-MILLS, THE RUNNER AND MOTIVE POWER MAKING EQUAL REVOLUTIONS.

*First.* Mills of this class have rough grinding surfaces, the runner having an unequal but slow rotary grinding action from the eye to the periphery; the hand and ass, or motive power, making equal revolutions with the runner.

*Second.* The grinding portion of the runner of the hand-mill or ass-mill, as it rotates on the bedstone, is continuously changing from one part of the bedstone to another, there being more pressure on one side than upon the other; but the active part of the runner itself does not so change place, it being continuously in operation, so that the grinding portion of the runner has a tendency to generate and accumulate heat; but it is otherwise with the bedstone and flour, as they have time to cool before the return of the more active grinding portion of the runner.

*Third.* There being a considerable portion of the grinding surface of the runner continuously in active operation, with a corresponding area of the bedstone, there is a certain degree of compression of air experienced; but the partial relief on one side of both stones produces a more powerful centrifugal and fanning action on the part of the runner than were there no such partial relief involved, so that the compressed air, flour, and vapour are a shorter time between the grinding surfaces, while the expansion of the compressed air and steam, as they issue from the lips of the stones, carries off heat, the flour, from these several causes, being prevented from carrying off accumulated heat, from over-grinding.

*Fourth.* There is, comparatively, no adhesion of the flour to the surface of the bedstone, in hand and ass-mills, the broken grain being kept continuously moving outwards in a "lively state," as it is technically termed, so that there is little or no overgrinding experienced, and consequent accumulation of heat; the tendency being in the contrary direction of over-grinding, considerable attention and artistic skill in the driving of the runner being required, in order to prevent coarse meal being thrown out before it is ground sufficiently fine.

*Fifth.* In hand-mills, the runner rides upon the grain being ground, thereby drawing it in between the stones, so that the distance between the grinding surfaces is regulated by the amount of feed, coupled with the quality of the grain, the fineness of the flour, and the velocity of the runner, the work of grinding commencing the moment a grain of corn enters between the stones, when first the runner is started.

*Sixth.* In the ass-mill the runner is supported in the centre, on a pivot fixed in the bedstone; but towards the outside, or periphery, or the flour-grinding portion of the runner, it rides upon the grain being ground, being only kept from the bedstone by the flour, immediately before the latter issues from the lips of the two stones. But the work of grinding does not commence until the space between the stones is filled up.

*Seventh.* The effluent current of flour from the lips of the stones, in hand-mills and ass-mills, is unequal, being greatest at the handle-side of the former and the draught-pin side of the latter, and least on the opposite or comparatively free and non-grinding side; while there is no generation and accumulation of heat from the millstone-case.

*Eighth.* When running empty, the runner of the hand-mill grinds upon the bedstone, all round, towards the periphery.

*Ninth.* When running empty, the runner of the ass-mill, if actuated horizontally, will revolve free upon its socket and pivot; but if hauled down by the draught of an ass, it will then touch the bedstone on the draught-pin side, but revolve free on the opposite side.

#### MODERN MILLS.—RUNNER MOVING AT A HIGH VELOCITY, *alias* HOT GRINDING.

*First.* Mills of this class have rough grinding and cutting surfaces, the runner having an unequal but rapid, rotary, clipping or cutting action from the eye to the periphery; and the runner, in the case of ass-mills, making a greater number of revolutions than the ass, and the like for other motive powers.

*Second.*—The action of the grinding surfaces is equal and continuous, so that heat is evolved from the three sources formerly noticed, *viz.*, the atmosphere, the friction of the grinding surfaces, and the breaking-up of the grain.

*Third.*—Air when forced in is compressed between the grinding surfaces, vapour also is condensed, and unless both are exhausted from the millstone case, expansion and the removal of heat are counteracted, the caloric and moisture thus passing off with the flour. If not so forced in between the grinding surfaces, the natural tendency of this class of mills is to grind with an insufficient supply.

*Fourth.*—The flour, unless a suitable supply of air is forced, has a strong tendency to adhere to the grinding surface of both stones, more especially the fixed one. This arises from the condensation of vapour, the partial exclusion of air, the decrease of centrifugal and fanning action, and the accumulation of heat, from over-grinding that follows, producing an increase of steam, condensation, pasting therefrom, and so forth.

*Fifth.*—The amount of feed and distance between the grinding surfaces are regulated, but when once so regulated they are arbitrary, so that the grain has to be worked into the grinding surfaces by furrows and other contrivances thereon, so as to keep the arbitrary space sufficiently filled for the clipping or shaving process of breaking up the grain into flour.

*Sixth.*—The effluent current of flour from the lips of the stones is equal all round, but, being less or more confined in a case, generates and accumulates heat.

*Seventh.*—When running empty the runner does not touch the bedstone, and the arbitrary space between the stones must be sufficiently filled up before the process of grinding commences.

Such are some of the principal conclusions deduced from the facts of the case under each of the three systems of grinding in question. Each of the three series of propositions might be greatly extended; but the above, we aver, will be sufficient for the purposes required, *viz.*, a comparison of principle. The reader need hardly be advised that the several propositions are deduced from the different kinds of mills, the former two as they were used in the olden time, and the latter as it is now generally used in this country, and not from the three kinds of mills after they have been improved. All three are doubtless subject to improvement; and in carrying out this, the force of principle may some future day merge them into a common system. But the discussion of this is not our present subject. Under the third kind of mills, the distances between the grinding surfaces have been assumed as arbitrary; but there have been exceptions to this rule, by giving a certain degree of oscillation to the stones, but such with a rapid velocity is objectionable. Millers may best be left to make their own comparisons between the different systems of grinding. That which will first arrest the attention of the non-professional reader is the laying aside of smooth surfaces in the manufacture of wheat flour, and the retention of them in grinding vegetable powders for the family doctor; and the second thing which will attract his notice is the departure from principles of cool grinding, comparatively speaking, to those of hot-grinding; and the third thing is the wide field for improvement which the several antagonistic propositions suggest to the pioneer of progress. Common conversation admits of much gossip in discussing the minor details of political life, and doubtless in many a mill the practical and scientific data involved in the above propositions will give rise to questions which up to this date have never received a satisfactory solution, owing it may be to the prevalence of popular error, or some other kindred cause which has come down to the present day, from the darker ages of the world, when the old familiar "rule of thumb" was the practical philosophy of every mill. "What," for example, "is the function of a master-furrow?" and "What the philosophy of crossing the

furrows of the runner and bedstone, seeing they do not touch each other like the blades of seissors, so as to clip?" Off hand there is hardly a "Dusty Coat" in the kingdom who would not have a ready-made answer to both these and many other questions involved; and yet when further questioned on the minor details of milling, such ready-made answers will in the majority of cases be found to cross each other, like the master-furrows themselves on the grinding surfaces. The art of milling is one of the highest order in a national sense, and it is certainly high time all such preconceived cross-chipping notions were blown out of the mill, for facts in physical science reconcile themselves to each other without crossing.

#### COOL-GRINDING—(5) CYLINDER MILLS—(6) PROGRESSIVE GRINDING-MILLS.

The fifth and sixth kinds of mills, although proposed to effect cool-grinding, have not, up to this date, realized the good wishes of their inventors and patrons; but, as the principles upon which they are both constructed have not been discussed in the preceding papers, they will form the subject of this, with a view to ascertain how far they coincide, or rather can be made to coincide, with cool-grinding, comparatively speaking, or may form part of future combinations.

In mills of the fifth kind, or cylindrical grinding-mills, the velocity of the grinding surface of the runner is uniform, and the area of this grinding surface is somewhat less than that of the bedstone, or "breaststone," as it has been technically termed.

The grinding surface of the runner is that of a perfect cylinder; but the surface of the breaststone—which forms from a quadrant to rather more than a quadrant of the circle, and against which the runner acts—is a departure from the circle, the grinding surfaces being further apart where the grain enters than where the flour is discharged; so that the proper curvature of the breaststone is a very nice professional question—one, we aver, which has not yet been satisfactorily solved by any of the examples which have been reduced to practice.

The distance between the grinding surfaces is arbitrary, or rather was arbitrary or fixed, in those examples which have been reduced to practice, so far as they have come under our notice.

In Williams's example (which we formerly described), which obtained a premium from the Society of Arts in 1814, the distance between the stones was arbitrary when working. The breaststone, which was about a quadrant of the circle, could be regulated so as to set it closer or further apart; but, when once so regulated and fixed, the intervening space between the two grinding surfaces, whatever it might be, remained the same.

This arbitrary or fixed distance between the grinding surfaces necessitates in this class of mills the rotating of the runner at a high velocity, in order to make the rough edges of the two approaching surfaces cut, or, as it is commonly termed in mill phrase, "grind." In other words, Williams's mill was constructed on the hot-grinding principle.

In the old Hebrew hand-mills and ass-mills, as in the querns and ass-mills of this country, and in the common mills of the present day, the velocity of the grinding surface is unequal, being least at the eye where the grain enters, and greatest towards the periphery where the flour is discharged, while the distance between the grinding surfaces is inversely as the velocity.

In Rustall's mill, another family mill which obtained a prize from the Society of Arts in 1800—also noticed in a previous paper, and also in the French military mills—the velocity of the grinding surface of the runner is the same as in the common horizontal mills; but the vertical position of the grinding surfaces gives a very marked diversity to the *modus operandi* of grinding and principles involved—differences that require to be carefully noticed when examined with a view to future improvements.

In the common mills and French military mills the runner has not a velocity sufficient to grind at the eye; and for half-way outwards to the lips of the stones the action of the two surfaces may not inaptly be said to be only a rough process of hulling or decorticate. Beyond the half-way circle the grinding, or rather cutting, begins—the velocity of the last four or five inches, when a four-foot stone is running at upwards of a hundred revolutions per minute, producing the

superfine shaving process, more especially in horizontal mills, the gravitation of the broken grain and flour downwards in vertical mills having a tendency to prevent over-grinding.

In edge-grinding mills, on the other hand, the velocity of the grinding surface of the runner has a cutting action over the whole quadrantal surface of the breast-stone, the velocity being as great where the grain enters as where the flour is discharged, the force of gravitation being more directly in co-operation with the centrifugal and fanning action of the runner than in either of the other two examples.

We need not go farther into the details of working principles of cylinder mills, as enough has already been said to show that the general conclusion is not in their favour in the manufacture of fine flour, as they manifestly have a tendency to produce "grays," by cutting up the bran into coarse flour, which cannot be separated in the bolting, and also to produce heating and its consequences.

Two objections to this conclusion may, however, be raised, and in point of fact have been raised—the first, that in grinding decorticated grain, the cutting up of the offal into grays falls to the ground as inapplicable; and second, the grinding surfaces may be so constructed as to work on the cool-grinding principle, *i.e.*, grind when the runner is only making three or four revolutions per minute.

In both these offsets we are evidently getting upon untrodden ground, more especially under the latter of the two propositions—*viz.*, cool-grinding; and therefore some degree of premeditated caution is necessary; but to a practical and professional reader a *simple hint on this head* is better than a thousand volumes of unmeaning amplification or book-rule routine.

Although grinding at a high or rapid velocity is still the fashion of the day—or rather the necessity of the modern practice of a fixed distance between the grinding surfaces—it is objectionable; and therefore the future proposition of grinding decorticated grain in cylinder mills is out of date and untenable, even at the present day. The first offset, therefore, must be thrown overboard without a hearing, as it can never form an element of cool-grinding in any mill.

The second offset, or proposition, may with greater propriety be enunciated in the form of an interrogatory—thus: As the middle or acting portion of the spindle of the Arab-spindle mill bears a close resemblance to the runner of the cylinder mill, and the trough of the former to the breaststone of the latter, can future discovery make a cool-grinding mill out of the two?

The practical answer to this question of course belongs to the future, and the discussion of the combinations of principles which it involves to the seventh or last head of this division of our subject—*i. e.*, to our next paper. The propriety of this course will appear all the more necessary, if not imperative, when it is borne in mind that the combination in question is inseparably connected with the pestle-and-mortar and edge-runner mills noticed in the previous article. Not a few combinations of two or more of the six kinds of mills under consideration have already been tried, while other combinations have been proposed; so that the more commendable plan is to discuss the whole under one heading.

6.—PROGRESSIVE MILLS, as they have been termed, form the next or sixth kind of mills which have been tried as cool-grinders; but, like the last (*i.e.*, cylinder mills), all the examples which we have seen in operation or in scientific works, English, French or American, are hot-grinders—the runner moving at a rapid and cutting velocity, owing to the distance between it and the bedstone being a fixed distance when at work. At one time the proposition was a very popular one amongst the pioneers of progress; and, accordingly, we find many patented examples in the publications of the Patent-office, and those of patent agents, of this kind of mill. In a former paper the peculiar mechanism and object they had in view were noticed from a patent-office point of view. In this piece the principles of their mechanism and working will be discussed, with a view to their improvement individually or in combination with some of the other five kinds of mills.

"Practice with science" being our motto, we shall take the following examples to illustrate principle:

1. The old plan of putting the wheat first through a pair of hulling stones; second, a pair of stones set so as to grind coarse meal; and third, a pair of stones to grind this coarse



meal into fine flour. In small mills with only one pair of stones, they were first set for hulling; second, for grinding coarse meal; and third, for making fine flour.

In the former two processes little heating was experienced; but in the grinding of meal into flour the heating is excessive and damaging in the extreme. Hence the reason why the practice was publicly prohibited by the French Government, several centuries ago. To obviate the damage done from overgrinding or grinding a second time, the fine flour that always largely exists amongst the coarse meal was sifted out; but the plan, although an improvement, does not appear to have been crowned with complete success. And why?

This is just that particular question in the practice which calls for our special investigation, with a view to progress. In the form of an interrogatory, it may be put thus: If very coarse meal can be made with the runner moving at a slow velocity, so as to produce comparatively little heating, and as this coarse meal always contains much fine flour, which can be easily sifted or bolted out, why cannot the grits remaining be ground cool? In grinding with the quern, it was a common practice to put the grits through the mill a second time; and there have been numerous patented propositions reduced to practice for grinding the oil, in order to separate the flour that adheres to the bran—a view of the subject which brings us to the next example. But almost all these attempts to economise flour from the bran have been on the hot-grinding principle, the runner being fixed on the spindle, and driven at a velocity sufficient to cut; whereas the practical question raised for solution implies the moving at the slow pace of the ass, or rather making an equal number of revolutions per minute. In point of fact, the hand-mill and ass-mill were not driven faster to make finer flour, but, on the contrary, slower; and in this lies the whole secret of cool grinding, practically speaking.

2. The object of the second example which we shall quote for the illustration of principle is the practical solution of the above question, thus: Two or three pairs of stones are driven by the same spindle, together with one or two disc-sieves between them, each pair downwards being a step lower than the pair above. If we assume two pairs of stones, then the lowest pair were what have been termed by some patentees "ring millstones;" and if three pairs, then two pairs were ringstones. Assuming three pairs, for an example, then the first and uppermost pair would be small hulling stones of the usual kind. The hulled corn from these stones would pass over a screen, the portion next the hulling bedstone having fine meshes, or holes, for taking out dust, &c., by means of brushes. Outside this, the hulled grain would pass through into the middle pair of stones, forming a ring of from six to twelve inches in breadth, which would grind it into coarse round meal. This meal would pass over a fine disc-sieve for taking out the fine flour, a coarse one for sifting out the bran and allowing the grits to pass through to the third pair of stones, which also form a narrow ring set sufficiently close to reduce the whole to fine flour, such being removed and bolted in the usual way. Several mills, constructed with a progressive series of three pairs of stones as above, were in use long ago, and for aught that we know to the contrary, may be working still; but the meal pair and flour pair were both driven at a hot grinding pace, so that justice was not done to the principle involved in this progressive series. In other words, it was used as a hot-grinding progressive series. Query, Can any of our go-ahead millers work it as a cool-grinding progressive series? To the non-professional reader we may add that the dust, bran, and different qualities of flour are removed to their respective places by creepers or travelling bands, or both, in the usual way; while blast and exhaust fans, &c., may be applied to the fine-flour ring pair of millstones, should such apparatus be required in the practical solution of the question. We must here, however, further add that it is very problematical if either blast or exhaust fans will be included in the solution of the problem of cool-grinding; for all such are great consumers of motive-power, as is also the driving of the runner at a high velocity. It has long been a growing conviction in the minds of many successful practical millers that the extra power consumed in actuating blast and exhaust fans, with the other new-fangled elements of the hot-grinding system of late years, would drive as many additional millstones as would do the work of grinding better and more economically. Hence

the reason why they continue the old plan of driving at from one-third to one-half the velocity, or from thirty to sixty revolutions per minute; but of this more afterwards, under a different heading.

There is an objection to the principle of the large diameter of the fine-flour pair of ring-millstones in this progressive series that requires to be pointed out in this place, viz., the greater length of the tangential path which the flour has to travel outwards in being ground; the greater length of time it is thus between the grinding surfaces, and the greater liability of the flour to adhere to the grinding surfaces, so as to be carried round, and thus be over-ground to heating, and so forth. It has already been shown that for some time past millstones have been greatly reduced in diameter—the old notion that the grinding powers of millstones increased with the increase of radius having been found to be a fallacious one; the reverse, in point of fact, being true. No doubt the breadth of the ring could be narrowed so as to obviate to a certain extent the objection raised; but we have never heard of such being realized in practice; for, with narrow rings, other objections arise—hence the *finale*.

3. A third progressive series is to decorticate and bruse the grain prior to grinding it into flour, the series being thus—a decortivating mill, a bruising or crushing mill, and a grinding mill. In other examples there are only two in the series, a bruising mill and a grinding mill. Some ten years ago an example of this latter kind was extensively worked in Glasgow, the grinding mill being a pair of ring-millstones, a blast-fan working in the eye of the stones for aëration; but the method of aëration is as objectionable as the ring plan of grinding, so there are more reasons than one why it has not won its way into general use.

4. A fourth series comprises an infinite variety of cones and cylinders rotating on vertical spindles. A great many examples of this kind belong to what are termed steel mills, the majority of which are frustrums of cones, rotating on horizontal spindles, or on spindles only making a small inclination with the plane of the horizon. A large number of mills of this class have, however, been made with French burrs—small mills for family use, and also large mills for public service.

It is not so easy to define the members of this series so as to illustrate principle, but generally speaking the work they perform is—first, hulling; second, making meal; and third, flour, the sifting and bolting being performed as in the preceding examples; but to this general view of the series there are many exceptions. These exceptions, however, have reference rather to differences of special mechanism, or of mechanical details in doing the work, than to new principles, and therefore it will be unnecessary to go into such for illustration. When two frustrums of two cones are joined base to base, the greatest velocity is at the middle, or where the two bases join; and the least where the corn enters, and flour is discharged. In some cases the two pairs of frustrums are not joined, the uppermost or meal-grinding pair being small, and the lowest, or flour-grinding pair large, there being a horizontal sieve between them. In other examples the corn enters at the base of the upper cone, and is discharged at the base of the lower cone, so that in this case the velocities are the reverse of what they were in the preceding examples. In the above examples, the axes of the conical stones are both vertical, but in some cases they are placed at certain angles, the upper pair of stones always feeding the lower pair. In one very old example there is a small pair of conical stones on the top of a verticle spindle, with a cylinder ring stone working between two bedstones below the runner of the cylinder, being on the same spindle as the cone, the two thus forming a combination.

In all the vast variety of examples of this class there is a sameness of principle throughout, too manifest to require further pointing out in detail.

#### COOL-GRINDING: (7) VARIOUS COMBINATIONS OF MILLS.

(7). The principles on which (1) hand mills and ass mills, (2) spindle and trough mills, (3) pestle-and-mortar mills, (4) edge runner mills, (5) cylinder mills, and (6) progressive grinding mills are constructed and work, have been noticed, and found wanting in several respects to meet the demands of future improvement; and the question for discussion in this paper is, Can successful combinations be formed out of two or

more of these six kinds of mills, so as practically to solve the general problem of cool-grinding?

We shall have to claim the professional reader's closest attention to the combination of principles, inasmuch as not one miller in five hundred has had any experience in grinding wheat with any of the above six kinds of mills. The construction of querns, ass mills, spindle and pestle mills, with the other varieties for experimental inquiry, have already been suggested in a previous article, the opinions of practical men, however eminent in their profession they themselves may be, being no longer admitted in the investigation of questions of this kind, and, indeed, in any questions in physical science. Experiment, and experiment alone, must therefore lead the way in the march of improvement, and to this general rule progress in the mill will be found no exception.

Having made a French-burr quern, the miller or experimentalist will find a short apprenticeship necessary, to master the successful working of it; the pressure upon the handle, the velocity, or number of revolutions per minute required, and the feeding-in of the grain with the other hand—being all mechanical questions that cannot otherwise be taught. A great many patents have been obtained for peculiar modes of balancing the runner on the hot-grinding system, and a great many plans carried out that were never patented; but in the hand mill and ass mill it is the grain being ground that balances the runner; and to keep it thus successfully balanced in the grinding process, so as not to touch the bedstone, requires a keen eye to the influent and effluent currents, an acute ear to the sound of the mill, and a pair of trained and attentive hands to the two respective functions they have to perform, viz., the feeding and driving. Hence the principles involved.

As to the effects produced, viz., the fineness and quality of the flour. It has already been stated that fine quern-made flour was obtained by sifting and bolting, and that the round meal which did not pass through the sieve or bolting cloth was ground a second time, in order to reduce it to fine flour, there being no objection to grinding a second time with the quern. And we may add, these results also apply to ass mills on the slow movement or cool-grinding principle.

The reader will thus perceive that the principles involved in the last two paragraphs are neither more nor less than those of cool-progressive grinding, or of cool-grinding on the progressive principle, so that the combination which such suggests is no less manifest than simple, viz., two or three, or any requisite number of quern or ass mills with sifting apparatus between each pair of stones, until the grain is reduced to any degree of fineness of flour. *First*, for example, the grain is fed in at the eye of the upper pair of millstones, the round meal sifted or bolted out being fed in at the eye of the second and third pairs of millstones; and so on, as formerly explained under progressive grinding.

All this is plain enough, the feeding and driving being done by manual labour. But tiers of fair millers "*warbling*" in the mill are, we fear, out of date; and when either steam, wind, or water is applied as a motive-power to feed and actuate the stones, additional mechanical appliances are absolutely necessary. Other questions also arise—such as the following: Will the meal from the first pair of stones keep the second pair of stones going? and the second pair the third? and so on.

Questions of this kind may all be tossed to the winds together; for at the bar of DISCOVERY they are solved as fast as they arise. In point of fact, the solution of such commonplace problems hardly deserves the name of discovery, the greater number of them having already been solved. And this is not all; for in future practice, cool-progressive grinding will, in all likelihood, embrace a much more comprehensive combination than two or three pairs of small stones grinding on the principle of the quern or ass mill, for at the present time the finger of DISCOVERY is obviously pointing to the moist decortication of wheat, with a subsequent process of drying and another of scouring, the better to remove the flocculent downy matter that covers the kernel. Thus, from the granary the wheat may *first* pass through a scouring mill; *second*, through a damping or moistening mill, as by steam moist endless bands, &c.; *third*, through a decortivating mill; *fourth*, through a drying mill; *fifth*, a cooling and crushing mill; and then *sixth*, through the first pair of grinding stones, the meal from which would pass through the second pair of stones, as the

third member or mill in the combination. This latter pair,

the seventh in the series, may grind the meal from two or three pairs of corn-grinding stones, whether the corn is decorticated or not, and so on; such details being determined by the quality of the corn, the fineness of the flour, and the like practical data at issue involving principle.

In the above series we have coupled the quern and ass mill together, although there is a wide difference between them in one respect, the runner of the latter being supported on a pivot in the centre; and it hardly requires a grain of inventive power to perceive that the pivot plan is most in favour of the application of inanimate power, as steam, wind, or water, in driving the runner, although this favour is at the sacrifice of other principles, as subsequently noticed.

A second combination which the facts of the case suggest is the grinding of the meal from the first pair of stones in a spindle and trough mill; a third combination, the grinding of the meal in a pestle and mortar mill; and a fourth combination the grinding of the meal in edge-runner mill—the round meal in these three examples being ground into fine flour between comparatively smooth surfaces.

In these combinations it must be borne in mind that the spindle and pestle have a pounding action as well as a grinding; while the edge-runner crushes by its weight, and grinds by the difference in the velocities of different parts of its periphery or grinding surface.

We do not recollect having met with an example embracing a pounding action in any English patent for the common kind of flour mills; but "*jumping bars*," and like devices to make the runner pound, have been patented in the United States of America oftener than once. Should a pounding action therefore be considered necessary by any of our readers, no difficulty can be experienced in applying cams to effect this purpose, whether the spindle and pestle rotata around the central pair of millstones, or whether they rotate on fixed fulera, the circular troughs and mortars being made to rotate under them, the pounded and ground flour being swept out of the trough or mortar by brushes set obliquely for that purpose. But when once the wheat is broken into meal, little or no pounding, we aver, would be required, a not very heavy spindle or pestle being sufficient to grind, conditions which would greatly simplify the details of mechanism. It must likewise be borne in mind that in working the spindle in the trough and the pestle in the mortar the rotation is opposed to the course of horizontal progression, from end to end of the trough and around the mortar, the grinding action in this respect being very different from that of the edge-runner; and the principle of this peculiar mode of spindle and pestle grinding must be preserved in the combination in question, in order to make them grind.

To pass the meal from the disc sieve on to the bed plate of an edge-runner would be a very simple contrivance, the crushed and ground meal being swept on to a second sieve, and so any number of runners and sieves required being added to the series. But, like our millstones, our edge-runners are driven at by far too rapid a pace for cool-grinding; while the grinding course must be narrower than is contemplated in the above hypotheses of runners working outside central grinding millstones with disc sieves, &c. And the same practical objection would apply to the combination of spindle and pestle mills, if the latter were driven at a rapid pace around the central millstones.

From the nature of the above objections, it follows that the meal from the first pair of small millstones would have to be collected and ground separately in either of the above kind of smooth-surface grinding-mills, and this collecting of the meal could be more readily done from bolting cylinders and reels than from disc sieves—results that would give rise to various modifications in the details of mechanism in the construction of such mills. Such modifications, however, would be more in favour of the combinations than against them, as they would be more simple and effective, and, we may add, less expensive, both in the construction and in the working.

Cylinder mills would have to be constructed on cool-grinding principles before they could be admitted into combination with either quern or ass mill for the purpose of grinding the meal from them. Various plans have already been patented, and adopted without patent, for effecting this; while others might be suggested so as to crush and grind the meal into fine flour with a reduced velocity. These in some cases are combinations of edge-runner mills and cylinder mills, and these latter

again with disc-grinding mills, although in all these combinations the velocities were by far too great for cool grinding, always bearing in mind that the expression "cool grinding" is used in a comparative sense. Thus Mortimer, who first proposed the cylinder mill about a hundred and fifty years ago, suggested also in his work on agriculture two cylinders moving at different velocities, which would produce a grinding as well as a crushing action between them. This he proposed for bruising malt; indeed, he made a mill of this kind for his own use, and he says it had this advantage, that it did not grind the malt to powder, but only bruised it flat. This, however, he adds, depends upon the size of the rollers and how they are set and driven; for it is a well-known fact that large cylinders set close, and moving at different velocities, have a grinding action, whether they are both driven the same way, or in opposite directions. Now between two grinding cylinders, working vertically, a rotary disc-grinder on a horizontal axis has been made to work, for the purpose of increasing the grinding action, the disc having also a comparatively smooth surface; and in such a mill, or series of such mills, working at a slow velocity, the meal from the first pair of stones might be ground into flour of any degree of fineness required, any heat evolved in the process of breaking up the meal, &c., being permitted to escape, while heat from over-grinding, or from grinding a second time, and from the continuous rubbing of the grinding surfaces against the flour, would be almost wholly obviated.

It does not take a very great expenditure of motive power to reduce meal to fine flour between smooth-grinding surfaces, and the less power that is wasted in the process of grinding so much the better, both as to the quality of the flour and the expense of manufacture, and the wear and tear upon the mill.

The grinding with rough surfaces at a high velocity, as in the present practice of milling, involves an incredible expenditure of motive power, while the heat evolved corresponds with this enormous sacrifice. As already stated on several previous occasions, experiments are much needed to determine, according to the rules of applied science, both these questions. In a subsequent paper some American experiments will be quoted, showing that to grind twice the quantity of wheat with double speed requires four times the expenditure of motive power; or, in the words of the report in the *Franklin Journal*, "To grind in equal times twice the quantity of wheat by grinding it at double the velocity, requires four times the power." And from experiments made to determine the degree of heat evolved by friction, the general rule is, that the heat evolved is as the square of the velocity—i. e., if a given number of revolutions of the millstone, for example, produce 1 deg. of heat, twice that number of revolutions will produce 4 deg., and three times that number of revolutions 9 deg. But the experiments from which this startling rule is deduced were not from the friction of millstones in grinding wheat, the friction of the latter being manifestly exceptional. Hence the objection, and the experiments needed to settle the question. Into both these questions—the expenditure of motive power and the evolution of heat from grinding at high velocities—we shall go at greater length in a subsequent paper, quoting experimental authority, with a view to induce further experiment. At present our object in drawing attention to them is to enable the reader to form a proper estimate of the preceding combinations, compared with those that follow.

In the preceding combinations the wheat, either decorticated or not, is broken or ground into fine flour and round meal, in mills constructed on the principle of hand-mills or ass-mills actuated by steam, wind, or water, the fine flour being sifted or bolted out from the round meal preparatory to its being ground in a second mill. But the practical question arises, Is this the best plan of breaking-up the wheat? Or would any of the other kind of mills be better? Many practised millers have proposed crushing and bruising, &c.

In the two examples of quern and ass-mill it has been said that the principle of the runner of the latter, i. e. of the pivot working in a socket, would be more easily actuated by inanimate power than the runner of the former, owing to its eccentric rotation; but this gain in the simplicity of mechanism will readily be seen to be at a certain sacrifice of effective action in the process of grinding. Between the two the difference may not be very great, but whatever it may be, it requires to be closely borne in mind in the solution of the question now raised as to which of the various principles is the best for the primary one in any combination. We must here remind the reader that the inquiry is truly an experimental one, as formerly stated; and in the experimental investigations of grinding with the various kinds of mills in question, there can be no greater mistake than to overlook small differences of the above description.

In breaking-up wheat into coarse meal by any of the above three mills with smooth grinding surfaces, the work is done partly by percussive force or by grinding, and partly by crushing or bruising. Between smooth-surfaced cylinders—mills with rollers of considerable diameter, and moving at different velocities or in opposite directions—the action is partly bruising and partly grinding, very little pounding action being involved. The Arabs, for example, first break up their wheat and dharra into coarse meal by pounding before they grind into flour.

Percussion is another source of heat to the three already mentioned (No. xxvi.); but although it is possible to give a pounding action to the spindle and pestle sufficient to break up the hardest flinty wheat, the proposition can hardly be entertained in any other light than speculation. On the contrary, bruising wheat under edge runners and between cylinders preparatory to grinding, has had many advocates for upwards of a century; and, besides, numerous examples of both have been extensively used with undecorticated wheat; but in neither case was the wheat so reduced as to yield a small proportion of fine flour; so that they rather form an additional member or mill to the combination of mills than a substitute for either the quern or ass-mill. The object, however, may be overrated, as both mills are subject to improvement, while hitherto they were worked at too high a velocity. Moreover, their merits with decorticated wheat deprived of its moisture have not, to the best of our information, been tested at the bar of Experiment: hence the practical conclusion.

When kiln-dried wheat, or wheat deprived of its moisture by sun-drying, or by heated air, &c., is crushed by passing an edge-runner over it, the kernel is at once reduced to such a finely subdivided state that were it put through a small hand-mill, moving at a slow velocity, the greater portion of it would be ground into fine flour, yielding very little rough meal from the bolting cylinder for the second pair of stones or grinding surfaces. It may also be assumed that thus reduced to flour a minimum degree of heat would be evolved in the process; while that little could be removed from the millstone case, so as to obviate its being absorbed by the flour, from which the greater proportion of it had been evolved, assuming that all the mills in the combination are closely covered in, each in its respective case, and ventilated by artificial means; for although very little heat and floating stive would be produced, that little of both would require to be removed, or rather prevented, as shown in a subsequent paper on hydrothermal improvements, &c., otherwise they would accumulate in a large manufactory and do harm.

The reader will thus perceive that a great many combinations could thus be formed out of the five or six kinds of mills in question. Farther into the details of these combinations we need not go, as they all belong to the province of the future. Enough has been said to give a general idea of how they can be formed, so as to comply with the demands of cool grinding, this being the simple object of their discussion. ENGINEER.

## THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MONTHLY COUNCIL: WEDNESDAY, AUGUST 7, 1867.—Present, his Grace the Duke of Richmond, K.G. (president), in the chair; the Earl of Powis, Lord Chesham, Major-

General the Hon. A. N. Hood, Mr. Amos, Mr. Barnett, Mr. Cantrell, Colonel Challoner, Mr. Brandreth Gibbs, Mr. Hassall, Mr. Hornsby, Colonel Kingscote, M.P.,

Mr. Randell, Mr. Rigden, Mr. Thompson, Mr. Robert Smith, Mr. Stone, Mr. Torr, Mr. Wells, Major Wilson, Professor Wilson, Mr. Frere, and Dr. Voelcker.

The following new members were elected :

Abbotts, R. W., Burton-on-Trent  
 Amcotts, Colonel W. C., Hackthorn Hall, Lincoln  
 Beard, C., Bury St. Edmunds  
 Beman, Thomas, Weston-sub-Edge, Broadway, Worcestershire  
 Bevan, William Robert, Bury St. Edmunds  
 Bowstead, James Cooper, Hackthorne Hall, Penrith  
 Brownsmith, Joseph, Bury St. Edmunds  
 Davey, Charles M., Witham, Essex  
 Davey, H. M., North-street, Colchester  
 Denton, Edward H., Great Barton, Bury St. Edmunds  
 Dowsett, Herbert, Park Farm, Pleshey, Chelmsford  
 Edwards, Thomas Foster, Eye, Peterborough  
 Fothergill, William, Cefnrhydydd, Tredgar, Monmouth  
 Freer, F. Hubert, Hampton, Evesham  
 Hammond, Edward, Gesnys, Newmarket  
 Henniker-Major, the Hon. J. M., M.P., Woodlands, Ipswich  
 Holme, John, Parkside, Milnthorpe  
 Horton, William, Livermere Park, Bury St. Edmunds  
 Howard, Wm. N., Bury St. Edmunds  
 Ion, John Watling, Bury St. Edmunds  
 Kemp, Francis, Spalding  
 Kerry, T. R., Lockford, Bury St. Edmunds  
 Land, B. H., Bury St. Edmunds  
 Lofts, Jacob, Great Barton, Bury St. Edmunds  
 Nunn, John, Fornham All Saints, Bury St. Edmunds  
 Pain, George John, Risby, Bury St. Edmunds  
 Partridge, C., Clyro Court, Hay, Radnorshire  
 Paxman, James, Bank Buildings, Colchester  
 Penny, Thomas, Taunton  
 Pettitt, Edward, 18, St. John Street, Bury St. Edmunds  
 Poyser, Josiah T., Burton-on-Trent  
 Pratt, W. B., Stradishall, Newmarket  
 Ravenshaw, James, Bridleway Gate, Shrewsbury  
 Roberts, M. Henry, Alushoe Bury, Hitchin  
 Robinson, James Charles, Stevington, Bedford  
 Rodwell, John, Bury St. Edmunds  
 Rolfe, James, Bury St. Edmunds  
 Scott, Thomas, Great Barton, Bury St. Edmunds  
 Sims, Reuben, Grove House, Moor Park, Preston, Lancaster  
 Talbot, John, Jane House, Burton, Westmoreland  
 Thomas, Edward Charles, Bury St. Edmunds  
 Turner, Jabez, Haddon Grange, Peterborough, Hunts  
 Webb, G. B., Stanfield, Clare, Suffolk  
 Webster, Crayston, Kendal  
 Woollard, Joseph, Broxton Lodge, Haverhill, Suffolk

**FINANCE.**—Major-General the Hon. A. N. Hood, Chairman of the Committee, presented the Report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, and Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on July 31 was £5,278 12s. 3d. Cheques to the amount of £6,551 8s. 9d. were ordered to be drawn, and the Committee recommended that £2,000 stock be sold out of the Funds. This report was adopted. The half-yearly audit of the Society's accounts to the 30th June, 1867, took place on the 6th inst.

**JOURNAL.**—Mr. Thompson, chairman, announced that the prize of £25 in class X., on the "Rise and Progress of Herefords," had been awarded to H. H. Dixon, Esq., 10, Kensington Square, W.

The Committee recommended that the application of "Agricola," the winner of the prize in class V., to remain *incognita*, and that the money should be paid in another person's name to the Agricultural Benevolent Institution, be declined.

They recommended that the pamphlet on "Steam Cultivation" be sold at 2s. 6d.

The following list of subjects was recommended for prize essay for 1868:

- (1.) Farming of Middlesex, £30.
- (2.) Improvement of grass-land, £20.
- (3.) For the best report embodying the experience of those who are at work on the edges of cultivation on mountains, moors, and wastes, £20.
- (4.) The domestic economy of the agricultural labourer, with reference to his food and its cooking, £15.
- (5.) The preservation of timber by painting, steeping, or other methods, £10.
- (6.) Comparative statement of the outlay and returns on 100 acres of arable and grass land respectively, £20.
- (7.) The retention of moisture in the soil of arable lands in dry climates, £10.
- (8.) The best mode of providing a continuous succession of green crops, including roots, £15.
- (9.) History of the Devon breed of cattle, £25.
- (10.) History of the Leicester breed of sheep, £20.
- (11.) Any other agricultural subject, £10.

This report was adopted.

On the motion of Mr. Thompson, it was resolved that information of the visits of distinguished personages to the showyard should be sent to all Members of Council.

**BURY COMMITTEE.**—The Earl of Powis reported the recommendation of the committee that for the future the price of the catalogues should be reduced to 6d. on the days when the admission is at 1s., in order to prevent loss by their remaining unsold; and that in consequence of a suggestion from some of the implement makers, a limited number of implement catalogues be bound at 2s. 6d. The Secretary to communicate with makers, to see what number will be bespoken. That the Secretary ascertain from Messrs. Clowes on what terms they would print the judges' awards at Leicester.

This report was adopted.

**LEICESTER COMMITTEE.**—Mr. Thompson, chairman, reported that the draft agreement with the Corporation of Leicester having been read and considered, the Committee had resolved on recommending the Council to approve it and order it to be sealed, subject to the acceptance by the contractor of the clause stating the time at which he can take possession of the show-ground. This report was adopted, and the common seal of the Society was then affixed to the agreement.

**SHOW-YARD CONTRACT.**—Mr. Randell presented the following report from Mr. Hunt, the Society's Surveyor:—

I beg to report that the whole of the works comprised in the contract with Mr. Penny were completed and ready for use by the time specified, viz., the 30th June; and I am pleased to add that everything, both as regards the time for completion of the various works and their construction, was carried out in strict accordance with the specification and contract-agreement to my entire satisfaction.

The works included in the contract to be done after the close of the exhibition comprise the collection of the whole of the Society's plant and portable buildings; the packing, carting, and loading of the same into railway-trucks for transit; the carting and depositing thereof at Leicester; also the removal of the contractor's material and plant from Bury, and the filling-in of all holes and all reparation to the ground. These works are to be completed on or before the last day of August; and I will report thereon on the final winding-up of the account, according to the contract, on the first Wednesday in November. The cost of these works is included in the account now delivered.

The Society's original plant has been compared with the inventory, repaired, and the inventory corrected; and the whole of the portable buildings purchased of Mr. Manning requiring it have also been repaired; and these, together with the new entrances and new ladies' cloak-room, are now in the possession of the contractor.

The cost of new buildings, the repairs to those purchased of Mr. Manning, and the repairs to plant, will be charged on a separate account.

The fourth payment on account of the show-yard works is now due—15 per cent. : I therefore beg to hand in my certificate for the same.

As the question of the continuance of the contract with the present contractor will no doubt occupy your attention, I have for your information compared the cost of the show-yard works as executed by Mr. Penny with the average prices of the five others who tendered for the work.

The total cost of Bury show-yard will be £3,618 2s. 9d.; according to the above average it would have been £4,565 7s. Under these circumstances I strongly recommend the Committee to continue the present contractor for the remainder of the full term of five years, subject to his agreeing to any alterations of time for taking possession of the ground, commencing and completion of the work to meet the requirements of the Local Committee at Leicester or elsewhere, the mode of payment, and such other additions and alterations to the contract as the Committee or surveyor may think desirable.

The Committee recommend that, subject to these conditions and agreement, the contract with Mr. Penny be continued for the full term—viz., four years from the present time.

The Committee recommend the following alterations and additions to the show-yard, plant, and works :

1. *Ladies' Cloak Room.*—Accommodation to be increased.
2. *Parcels Office.*—Erect temporary shed, and charge for care of parcels.
3. *Stewards' and Judges' Refreshment Room.*—Add 15 feet in length, to form an office for their use.
4. *Exit Gates.*—Provide padlock and chains to each.
5. *Portable Crane or Crab.*—Referred to Mr. Amos.
6. *Council Room at Main Entrance.*—Fix counter across Council room, and form a lobby near entrance door to prevent other than Members of Council having access to table; form a small private room out of the present lavatory with door out of Secretary's office; remove the present outer door leading to Show-yard out of the Council room, and fill in the opening with similar framing to other compartments.
7. *Catalogue Boxes.*—Better method of fixing signboard, and iron barriers restored.
8. *Telegraphic Office.*—A second door leading to lunging-yard out of office; a better table, and half-a-dozen hat-pins; the yard for examining horses to be large enough for two rings.

9. *Horse Ring.*—Should be 20 yards longer than at Bury; rope and posts to be used instead of rail and posts.

10. *Horse Boxes.*—The double horse boxes should be 2 feet longer and 1 foot narrower; roof same height, covered with stout canvas instead of boards; all mangers in left-hand corners; the boarded divisions of single boxes one board higher; in both an iron rail substituted for the present top rail, and a 2-inch pipe-drain to carry off water from front eaves; an open gutter at back.

11. *Open Horse Stalls.*—A cattle shed is used for these stalls; the boarding of the back should be under the wall plate.

12. *Men's Sleeping Rooms* should be discontinued.

13. *Class Boards.*—Sheet iron should be substituted.

14. *Directors' Office.*—More shelves in each compartment, and additional keys to locks.

15. *Yard Men's Room* should have boarded floor, and the lock-up should adjoin the building.

16. *Machinery in Motion.*—The Society should erect the whole of the sheds required by exhibitors, and place them together in lines.

17. *Trial Yard.*—An officer required at each end of trial shed, and water-closet for judges.

18. *Threshing Shed.*—One centre post instead of two.

19. *Traction Engines* should be confined to certain spaces set apart for the purpose.

20. *Water Tanks* in trial yards for steam engines to be at an elevation of 16 feet.

21. *Implement Exhibitors and Purveyors of Refreshments* to have copy of so much of the Show-yard contract as concerns them.

This report was adopted.

HOUSE.—Major-General the Hon. A. N. Hood stated that the Committee recommended that the new rooms in the roof and two servant's rooms at the back of the house be papered, at a cost not exceeding £10, and the kitchen and basement whitewashed. This report was adopted.

A despatch from H.M.'s Consul at Nantes on a system lately patented on the preservation of wheat and the destruction of weevil was read, and referred to the Journal Committee.

The Council having granted the usual leave of absence to the Staff, adjourned to their Monthly Meeting on the 6th November.

## THE YORKSHIRE AGRICULTURAL SOCIETY.

### MEETING AT THIRSK.

Notwithstanding that this must be considered as the very home of the Shorthorn, there are few gatherings which would seem to suffer less from the withdrawal of the cattle classes than that of the All-Yorkshire Society. The reason is sufficiently obvious. The Show depends upon no one certain section for its success; or, if it did, the horses furnish a far more material element than any other kind of live stock. Even further, there is something really enjoyable in the management of such a meeting. Instead of anticipating, as it were, a failure with a set of half-sulky, half-saucy officials, who can be brought to do little or nothing save upon compulsion, everyone appears to take his tone from the Secretary and Director, Mr. Tom Parrington; and there is, consequently, an energy and alacrity or positive enthusiasm in putting and keeping things "to rights" that is rarely seen in any agricultural exhibition of similar dimensions. The Thirsk, for the actual strength of the entries either of horses or sheep, was by no means the strongest show we have known in the North; but with plenty still to see, people were more than satisfied, and the continual commentary was, "How capitally everything is done!" After the

blundering business they made of the horses at Bury, in comparison with the stuffy boxes, heated atmosphere, and absurdities of the Islington Circus, a place by the side of the Thirsk Ring was something like living in another hemisphere. There were certainly no mounted stewards exhibiting themselves as the very centres of attraction, and doing nothing with the most sedulous apathy; no Lords, or would-be Lords intruding where they had no right to be, on the strength of their titles or their self-assumed importance; and no fussy orders and counter-orders, twice cursed, as bound to bother alike him that takes and him that gives them. Never was the *ars celare artem* more happily illustrated. Class after class came regularly into the ring as it was called for by the judges; and yet these gentlemen, beyond one single attendant to either set, were left, as they ever should be, entirely to themselves the whole day through. Once or twice, perhaps, Mr. Parrington just flitted across to see that all was going smoothly; but the very President of the Society, Sir George Wombwell, looked on from afar; and others, like the Duke of Grafton, Lord Wenlock, Lord Macclesfield, and Sir John Trollope, took their chance at the sides

of the rails, in the exercise of the best possible taste. Then, beyond the roomy boxes, there was a range of stabling, with a broadway promenade running through, that reminded one of the long stable at Quorn; and two companion-rings, which only required an avenue, by way of division, to have been quite perfect. For it must be understood that all possible elbow room was required, as more people visited the show at the little town of Thirsk on Thursday than when this was held last year in the city of York, and under the countenance of his Royal Highness the Prince of Wales. It would be idle to say the charm of these occasions is dying out—that is, if they be only done justice to by those into whose hands their fortunes have fallen.

The show of horses was a credit to the county, although some of the principal classes have been much better filled. The judges commenced at ten o'clock on the Wednesday, and did not finish till late on Thursday; as it was the general opinion that a slower and more undecided trio had never entered a ring. It was, indeed, quite laughable at first, when they got between a couple of horses, of something like equal merit, to watch the way in which they turned from one to the other, time after time, without coming to a decision; but, as the day grew on, this sort of thing became most tedious and tantalizing. The thorough-bred stallions for getting weight-carrying hunters were the first to come out, and anything but an All-England eleven they were, although amongst them there were the first, second, and highly-commended at York, last year. Engincer by Voltigeur headed the lot, an animal with nothing in his appearance to commend him as a getter of weight-carrying hunters. Autwerp was the next, a handsome muscular wiry horse when at Howden a year or two back, but now reduced to a shadow of what he was, and disfigured by a broken tail. His stock have been anything but good; and his late owner, Mr. R. W. Drax, of Selby, got out of him, for eight sovereigns! Grand Master, who was nearly getting a third prize at York last year, and now a four-year-old, does not seem to have improved, although neat, fair-sized, and the truest-made horse of the eleven. But then he has thrown out a good-sized splent or two, and a cataract has shut out the light from one eye. Angelus by Orpheus, the York prize horse, and the chosen of Thirsk, though a powerful and hunting-like stallion, is coarse, and a middling mover; while the bloodlike little Motley, by Touchstone, who had the second honours, is a very taking horse, with lots of good about him, but a long way from perfection in form. He has, however, a name as a prize-taker throughout the country, as well as for a getter of very handsome and useful stock, and is now consequently returning his owner good interest for the trifle laid out in his purchase. Volturo, by Codrington, was placed next to him; a rather good-looking horse of power, but not quite right in his shoulders or ankles, as he turns his toes a little too much out, has puffy-looking hocks and cowish hind-leg action. Yorkshire Grey by Chanticleer, a small, neat, lathy good-limbed one, and a fair race-horse in his time, has no chance of going to the front in a class for getting weight-carriers; nor the light hollow-backed Lancewood by Lancelet; nor the gig-horse, Ballot, by Underland, who, with the round thickest Cain by Spenser, and the tall big-limbed Tippler by Tumbler, the second at Birmingham this summer, are judged,

“And fly like chidden Mercury from Jove.”

The roaster stallions, always a favourite class with Yorkshiresmen, were very fairly represented by a bakers' dozen. Wild Harry is a good-looking brown four-year-old of power; and a very handsome gentlemanly cob.

Young Pretender, with more breed and symmetry, were proclaimed first and second, after a deal of pottering; although great unanimity had been displayed in dismissing All-fours, a well-known prize cob, before he could get round the ring. This little “sensation business” was also put in force, “with a bridegroom's fresh alacrity,” upon old Marigold, a noted hunting brood mare, and taker of plenty of prizes, she being the first sent away out of nineteen! Prince Charley, of Mr. Cook's of Thexendale, is a fair-going cob, but overtopped; Mr. Pease's of Darlington “Norfolk Cob” is of a good old-fashioned sort, rather out of date; and Mr. Moor of Driffield had a neatish three years old cob of character, while Pretender of Mr. Stillhorn's of Darlington is a rare stamp of former days, but a wooden goer. The hunting brood—but we will give the heading—the “Brood mares for breeding hunters, with foals sucking”—with or without the sucking, were an excellent class; but, as good as they were, the banished Marigold, looking more blooming than ever, was a long, long way from being the worst. They stood in the ring such a time, waiting for the verdict, and during several growing showers, that it was almost a miracle that they did not take root. However, as the sun was sinking in the West, and the mares' shadows growing in length, the judges ultimately woke up, and decided on Slippers, by Little Known, with a foal by Voltigeur—a very compact mare, with breed, but nothing extraordinary; and Lady Dalkeith, a lengthy, short-jointed mare, but light in her thighs, that, nevertheless, was put first. The prize-mare at the Royal show at Newcastle, by Galaor, a one-eyed bay, is full of hunting character on a short leg; and Mr. Booth's Becky Sharpe, a prize-taker and a dam of prize-winners, including Bird of Passage, has length and size, with breed and good short-jointed limbs. An old flea-bitten grey of Mr. R. Pinkney, Borrowby, is a neat mare, full of hunting points, and so is Go-a-head, from Mr. Robinson, of Thirsk. Mr. Muezzin's Slingsby, Lady Audley, is of a good stamp on a short leg with bone, and Mr. A. Swarbeck's Stella, of Sowerby, hunting-like. Old Crafty scored her fifty-ninth prize with the twelve roaster brood mares; a heavy-shouldered deformity, Polly, with hammering action, but a previous prize-taker, being second; whilst a very neat hackney, Favourite, of Ann Cook, Pocklington, and Scullery Maid, a long, low, showy mover of Mr. Hart, of York, were passed over; as was also Mr. Hawell's The Maid of Thirsk, neat, with action, but short in her quarters. Owston, placed at the head of the fifteen two-year-old hunting geldings, has a plain head, but length and short big limbs, and with a foot off his tail would look much better; the second, Don Juan, was a nice-topped horse, with breed, but very high from the ground, and his fore-legs anything but models for a hunter. But by far the most taking colt in this class was Mr. Booth's Birdseye, with plenty of breed, a nice clean head and neck, good ends, and capably placed well-formed limbs. Roulette, the Birmingham colt, was exhibited, and Mr. Preston's (York) Good Friday, is a colt of fair shape. Mr. Pottinger, of Easingwold, had a black, of breed and form, and Mr. Thompson, of Thirsk, another commendable one in the class. British Queen, a well-known winner of Mr. Booth's, took the fillies' prize; Eleanor, a good grown chesnut, a little heavy at her shoulder-points, being second, and a chesnut filly by Cain, of Mr. Mansfield, Thirsk, was well formed, with big limbs; while there was but one other. The three-year-old hunting geldings were a very good class, numbering seventeen, the first prize going to Coburg, who also won the cup for the best two and three-year-old colt or filly. He has a good hunting forehead, back, and quarters, but is weak-looking in his hocks, which are not well placed; whereas the second, Collegian, is very handsome, with breed and form, but not

a good mover; Mr. Harrison's, Bawtry, Prospect is a well made one, with action; and Mr. Buckworth's, Brough, Jew's-eye, Mr. Emmerson's, Darlington, Marksman, Mr. Johnson's, Newton-Je-Willows, The Squire all are good-framed horses. Mr. Muren's Hardianute is short, powerful, and hunting-like, and Mr. Clarke's, Howden, Rival very neat, but lame. The Bird of Passage has greatly improved since Birmingham, and is now the property of Mr. Fielden, of Todmorden. The three-year-old hunting fillies were poor, with the exception of the winner, Eurydice by Orpheus; the second, Silkstone, being just a neat wiry bay.

There was only an entry of three for the three-year-old roadsters—the first being a thick cob, up to weight; the second a neatish bay. The nineteen hunting four-year-olds were a fair class. Tom being a long way the best; and with a good open level ring, the black galloped away in first-rate form, carrying off the cup as the best of all the hunting horses of all ages. His stable-companion—that wooden animal, Master of Arts, with his short choppy action, labouring away by the side of Tom, was the most ridiculous thing seen for many a long day, the chesnut boring away with his head, his back roached, and his tail going like a pump-handle. "The elephant hath joints; but his legs are legs for necessity, not flexure," says Shakspeare, who, we feel sure, would have passed over The Master for want of merit, or have refused to countenance him, as did those courageous judges at Driffield a week or two since. The General, another stable-companion of Tom's, and much fancied, was the next best four-year-old; and Tom himself, if temperate in the field, is too good for a mere show horse; and as he has been passed as sound by Mr. Holmes of Beverley and Mr. Spooner of London, he ought to meet with a purchaser at almost any figure. Othello, a horse of Mr. Constable's, of Hull, was very hunting-looking, with good ends; Mr. R. Green, Bedale, had a useful chesnut that could move: Mr. S. L. Lane, a fair one, and Mr. C. Rose's, Malton, Septo is long and low, with great character; while Mr. J. Robson's (York) Gaylad is a useful horse, with too much carcase; and Mr. Boye's, of Slingsby, a corky brown. There were five four-year-old fillies, the only good-looking one being Springwater, a well-formed wiry mare, and a fair goer. For five-year-old hunters, geldings or mares by a thorough-bred horse, up to 14 stone and upwards," to which was added, "the winner to be certified sound by the veterinary inspector;" but to no other class was this condition affixed. The five-year-olds up to 14 stone were but a poor class of thirteen entries; the best-looking horse, as a hunter, being First Flight, a very gentlemanly brown, with white heels, of Mr. Harrison, Hull. Master of Arts was first; and we would willingly

"Have skipped from sixteen years of age to sixty,  
To have turned our leaping time into a crutch,  
Than have seen this."

Black Bess, the second to Master of Arts, was a fair-made one; of the others, Mr. J. P. Foster's Wigton, Crofton was a handsome charger, with power; Mr. Foden's (Ripon) The Conductor, very useful looking; Mr. Borton's (Malton) St. Patrick, a compact hunter; and Mr. Viner's (Ripon) Humbarton, a good-looking chesnut, with apparently a slight inclination to be master pig. Then the five-year-olds, up to 12 stone, were very poor, the second, The Doctor, being a better-shaped one, though a very hanging, sluggish goer; and The Greek, a short horse with a drooping quarter, nothing too look at. The six-year-olds and upwards, mares or geldings, were a very good-looking class of fifteen, containing the first and second prize horses of this and last year,

namely, Sprig of Nobility and Voyageur, but with two worse horsemen up we never saw. Voyageur's rider took him over the rail that separated the rings, of about three feet high, which he accomplished with great effort; this, we understand, and a canter round the ring, being his greatest achievements. Mr. Jewisson, Raithorpe, showed The Moor, the most hunting horse of the lot, and a nice oily goer, but said to be nothing more than a shopkeeper. Mr. Sewell's (York) Damascus is a very stylish corky chesnut, with a little too much weight at the point of his shoulder, and with such forelegs and toes should have been sent to the Orthopedic Hospital in his infancy. Mr. W. Robinson, Easingwold, had a bay servant's horse, a strong, rough going, unmanly fellow that would be cheap at £100 to any one troubled with Soapy Sponges or Hunting Correspondents. Mr. Brown, Wigton, showed a big chesnut charger kind of horse, but a slashing goer in his gallop, though a quick shuffling walker, and not quite right in his shape. In the hackneys of any age or sex, a very good class, Mr. W. Pease came off victorious with Whitefoot, an old hand, beating eleven others, and some better goers than himself, the second being a good lengthy cobby brown. Sir G. Wombwell showed a very light, rather leggy thorough-bred-looking hack, that some called a scarecrow, but who bent his knee nicely, and went so easily that we have no doubt that he is a very pleasant horse to ride. In the twelve-stone class, in which there were many very nice ones, out of the one or two and twenty, the first prize went to a beautiful cob, Garibaldi, with breed, action, and grand colour, being a very rich chesnut; and the second, Corkey, was a very neat cob, and a good mover. Mr. Muzeen had a neat hack in The Nun; Mr. W. Green, Leeds, a cob, in form to suit an old gentleman, but a little too lively in his movements; Mr. Cooper's Brown Bess is a nice six-year-old mare, and Mr. W. Plummer's, a clever hack; while Mr. Harrison's Duchess, Mr. Smithson's Brown Stout, Mr. Holmes's Harkaway, the Hon. G. E. Lascelles's Chance, with some others noticeable for good looks and character, we have not space to describe. The ladies' hacks were good, but nothing grand in look or manners; the first going to Belinda, by Orpheus; the second to Seaboy, a thorough-bred, by Mildew, out of Merry Sunshine. Mr. Brown's Poodle showed good form and breed; Mr. Arrowsmith's, of Sowerby, was well made; and Mr. Barwick's Elastic is a very neat one, of good form, with a switch tail.

There was a large entry of coaching stallions, but, with few exceptions, nothing of peculiar merit, there appearing to be no recognized type amongst them; one horse, Tottenham, looking like a hunter sire, with plenty of blood, and several being more fit to go to plough than bowt along with a carriage. The first prize went to a grand old-fashioned sort of coach-horse, called Governor, very like his sire Inkerman Hero; and the second to Burland, a good-looking one, showing more blood, Mr. Johnson's compact Prince Arthur being the reserve number. There were ten mares for breeding coach-horses, the well-known old favourite Venus winning easily, with Mr. Johnson's long-backed mare for second. Venus is losing some of her bloom; though she is, nevertheless, a beautiful animal, and really worthy of her name; but several mares in this lot were far too light of bone. The three-year-old geldings were a good class, the winner being a very handsome colt, showing some little breeding, and got by Aiuderry; the second prize going to a backward, but very coach-horse-like colt of Mr. Mansfield's, and the reserve number one of Mr. Holmes', a plain-headed but otherwise nice horse. There was also a brown colt, about which there was a deal to fancy as he stood still, but his action spoilt him; and a good style of grey belonging to Mr. Flood. The two-year geldings and fillies do not require any particular mention; but the first prize three-

year-old filly was a very fine mare, the property of Mr. Stephenson, of Bushy Hill.

Although the class of agricultural horses were not numerically strong, there were several animals shown possessing very great merit; while, as we have frequently remarked, this sort of horse is not well represented at the Royal Shows; though it is surprising that the owners of such animals as were here met with should not be sufficiently proud of them as to exhibit their stock whenever and wherever there may be an opportunity. The class of aged stallions was the worst, however, and the judges had some difficulty in finding two good-looking sound horses to take the premiums offered. There was an otherwise nice short-legged chesnut, that had a spavin as large as a man's fist; and a bay horse which was at first selected for a place, but whose pipes were sadly out of order. The chief prize went to a great roan three years old, with nasty, coarse-looking hocks; and an old grey, looking much the worse for wear, took the second place. The two-year-old stallions were an improvement on the older class, the winner being a fine brown colt, with good action and clean legs; a grand-looking grey, with faulty fore-legs, but a good mover, being put second. The best brood mare was a fine bay, from the neighbourhood of Pontefract; and the second, a rare, thick, short-legged chesnut of Mr. Upton's, with, as the reserve number, Mr. Linton's grey, Jewell, backed by a good foal. Mr. Upton shows a clever chesnut two-year-old filly from his old mare, that is worthy of her dan, and takes the first prize; the second going to a light-legged upstaring grey of Mr. Tennant's. There were six pairs of mares or geldings of four years old and upwards, and a grand lot they were, the winners being such a pair of black geldings as seldom or ever have been seen. They were as active as ponies, but still with enormous weight and power, and with plenty of what the Suffolk men call "quality," and well may their owners, Messrs. W. and R. Jewitt, be proud of such cattle. A pair of grey Clydesdales get the second honours, and nice short-legged horses they are, with good action, but not the power of the blacks. In the next class for mares or geldings, two black mares are shown, that are worthy of any showyard, being nearly as heavy as the prize geldings, and really much like them. Mr. Tennant gets the one prize offered, for his eleven-year-old mare Jet, although we altogether preferred Mr. Thompson's Diamond. There were three pairs of carriage-horses shown in harness, Mr. Cole, of Thirsk, winning with a pair of fine-looking blacks, while the others entered were not worthy of the county. The class for ponies above twelve and not exceeding fourteen hands was one of the strongest ever out, there being no less than 25 entered, though several of the larger sort could scarcely be called ponies, and it could have been no easy task to select the winners, which however eventually turned up in the same pair that took similar positions of first and second at the Royal show at Bury. Mr. Milward's Steward is a very smart showy little horse, and Captain Barlow's black, lately rechristened, a beautiful mover, and just the sort of hack for a summer afternoon. Mr. Simpkin had a very nice one, which was made the reserve number, and the whole class was deserving of commendation. The judges, however, quite missed Mr. Wood's (of Clipstone) Fanny, that only a few days since took the first place from Steward at the Thorne Meeting. The Marquis of Hastings won the first prize with his stallion Bobby, who goes fast and well, in the class for ponies not exceeding twelve hands, in which nothing else of particular merit was shown.

With the exception of the Leicesters, the show of sheep was not strong, the competition amongst the shortwools being very limited. There was, in fact, but one exhibi-

tor of Southdowns, and it was arranged accordingly to award one prize in each class and no more. Lord Walsingham's prize shearing ram, amongst the commended of Bury, is a sheep of some size, and he was consequently able to hold his own against the Shropshires when the two classes came together for the Cup. The Merton old sheep, a three-shear, took no place at the Royal Meeting; but there were one or two of the second-prize ewes in the pen sent North, by no means an extraordinary lot, lacking weight and size, and with not much counterpoise in the way of looks or quality. The Shropshires, again, were very poorly represented, and, with one or two entries picked out, there was not a prize sheep amongst them, the class of shearlings being just saved by Mr. Horton's ram, who has some character and size, with a very good back, but a weak, bad neck. Lord Wenlock's second was very moderate, and his next best perhaps the worst sheep that ever took a prize. He was so bad all over, either to touch or to look upon, that the chief wonder was that he should ever have been entered, or, at any rate, ever have been sent; and the third prize should certainly have been withheld. However, as somebody said there were yet worse going to the Bingley Hall sale, this ram was possibly brought out on the principle that "bad is the best." Two very poor old sheep from Eserick were also so exhibited, and of very different stamp and appearance, there being no uniformity about them, so that his Lordship's flock would seem to be going back, that is if the Shropshire Shrops be no better than the Yorkshires. Still, they were good enough to get first amongst the few pens of ewes; but the award was pretty generally admitted to be *the* mistake of the meeting, two or three of the five being wretchedly bad about their necks, and for spread, use, style, or match, Mr. Horton's pen was infinitely preferable—at least, to the eye of the general customer. Mr. Davies' three-shear ram is a compact, true stamp of sheep, wearing very well; but the two pens of ewes all by him were by no means so good, and fairly enough passed over in a class which extended no further than to the two prize lots to which we have just referred. Mr. Peel's old blackfaced mountaineer is quite a picture in his way for *wild* nobility of character, what with his finely-twisted horn, his grand air, and his ample robe of rough wool; but the Knowhere flock was beaten for once amongst the shearlings, by Mr. Rudsdale from Grosmont, with a very hardy-looking, as perhaps a more rough-and-ready sort than usually find favour on the prize-list. But when a mountain sheep does earn his own living on the hill-side, he must "prove" in all kinds of ways, and in none more so than in the short-bite, dark, dripping haunch, "about the finest eating out," as one connoisseur would have such mutton to be.

Mr. Borton is this year scarcely maintaining his place amongst the Leicesters; and yet his sheep never individually looked better, or never went more generally to the type he would seem to have been aiming at. In each class of rams he had eight or nine all of a row, as like as peas, and combining size and constitution with blood and symmetry. These sheep are wonderfully good forward, very grand to meet, with neat heads, and especially good masculine necks—points that are sure to tell in the flock, as we believe there are no show sheep which are more thoroughly used during the season. In the class of all-aged rams Mr. Borton had two very remarkable entries in his two own-brothers, the one being the three-shear Blair Athol, a still-famous prize sheep, and the other the six-year-old Sir Tatton Sykes, the Royal first at Newcastle, and a ram that never escaped notice until he came to Thirsk. For the last three or four seasons, however, Sir Tatton has been with Mr. Tremaine down in Cornwall, while his owner confidently expects that the dam will still drop him another lamb or two. These older rams



were placed very much as at Bury, the second and third in Suffolk being first and second here; and, indeed, for the matter of that, the second-prize shearing was also the Royal second, although the Thirsk award created some considerable discussion. At Scarborough, a few days back, Mr. Borton's sheep was first, and Mr. Stamper's second; but their placing was now reversed, although Mr. Mann held out as long as he could against his two fellows, on the possible plea, perhaps, of giving some representation to the minorities. But the two-to-one ultimately prevailed, and the best Leicester shearing came, of course, also to be declared the best of all the long-wool shearings, and so won the cup offered on these conditions. Mr. Stamper's ram, bred from Sir Tatton's sort on one side of his head, and from the Brandsby flock on the other, is to be particularly distinguished for his style and fashion. It is seldom, in fact, that a smarter sheep has been seen, or a truer; for his touch is capital, and his frame admirable, being good in his back, and beautifully ribbed up, while his head is as thorough-bred as that of a race-horse, and the quality of his wool as clear a proof of his high breeding. On the contrary, there is no doubt that he carries himself badly, being especially weak behind, as some went so far as to say that he was already broken down. Hence the argument over "the exquisite" and Mr. Borton's thoroughly serviceable, straight, square sheep, that if really as well descended does not quite carry this in his appearance, and hence upon a division the former judgment was revised. But for pure pretty sheep, the strain to go to when you mean to improve again, there are none like Mr. Wiley's, though they have not, when left alone, size for the show-yard, and so a cross with something else comes continually to defeat them. Mr. Riley has always some creditable entries, if not quite strong enough for "the best of all good company," and the Messrs. Tindall won again with their Royal ewes, that looked even better than they did at Bury; but these pens of ewes are all good, Mr. Wiley getting second with a very blood-like sorry lot, and Mr. Stamper's two smart pens honestly sharing the general commendation of the class, for they are all quite good enough to win in their turn.

The other long-wools were made up of Lincolns and Cotswolds, which the judges were anxious to put into two distinct sections, but as this would have necessarily involved another set of prizes, the management was not prepared to act upon such a suggestion, while the extent or quality of the entries would have hardly warranted any additional outlay. The shearings were only a moderate lot, Mr. Marshall carrying off everything with his Bury Lincolns bred by his late brother, that are far better for wool than anything else. The first prize sheep was very weak in his neck, and the other two as it seemed rather overdone in their preparation; but the judges here went all one way, and Mr. King Tombs' couple of Cotswolds and Mr. Abraham's Leicester crosses were quite out of it. In the older and better class they did better, Mr. Abraham winning with quite a magnificent capital-wooled ram, and Mr. King Tombs taking second with his big Cotswold, that has been out so often this year, and that by this time must be as well known about the country as Mr. Thurnall himself. Mr. Wright, of Nocton, and the Barrowbys, of Thirsk, had also entries in these classes; but Mr. Richardson, of Kirton Lindsey, withdrew all his sheep, and Mr. Charles Lister's nice blood-like ewes were consequently indulged with a walk over.

The show of pigs, or of "swine" as they love to write it a little further North, was either for entries or excellence really admirable. Of course, with the exception of a so-called Berkshire or two, it was confined to whites, large, small, and middle-size. The chief objections to a big Yorkshire pig hitherto have been that he is very

coarse in his quality, and very bare in his coat. The weak point in truth with show-pigs, as we have continually insisted, is that they get very bare, with so little protection either against heat or cold as to be able to thrive only under an artificial state of existence. There appears to be some amendment coming about, that the judges, if they so choose, can do much to encourage. And certainly at Thirsk some considerable advancement was observable. The big pigs were big without being horrible; and Mr. Dyson's famous Hero, for instance, the first-prize old boar, is a really handsome animal of his sort, with great length and depth, a good head and collar, and by no manner of means in that emphatic state of distress in which it is too often the custom to exhibit a breeding animal. Mr. Duckering's Bury boar was quite plain by comparison; and Mr. Chapman's should never have had a prize in such company. Amongst the sows of a large breed, again, Mr. Duckering was but third, although three finer sows have seldom been seen together, or we might say *four*, and take in one of Mr. Dyson's, which was, or should have been, commended. Mr. Jakeland's two sows are even better than the Leeds boar, as we should say of better quality, with immense size, and quite a line of beauty from their tails to their shoulders. But whatever could the Reverend James Charles Wharton, of Gillinge Vicarage, intend to illustrate when he sent in such a wretched razor-backed hungry-headed beast as his white Whorlton, without it might be by way of a joke? Mr. Johnson had also another bad one from close by, and the merits of the class rested with the four extraordinary sows we have already named.

Over the small boars there was another sensation, and some of the exhibitors went so far as to say that a judge of Southdown sheep had no business amongst Yorkshire pigs. But it so happens that Mr. Turner is engaged quite as often in one way as the other, or if anything during the hundred occasions on which he has acted it has been more frequently amongst pigs than sheep. Moreover, there was very little cause for complaint. In the sty where you see nothing beyond his good coat and head, Mr. Mangles no doubt had the better pig; but up and out Lord Wenlock fairly won for style and symmetry, the Ripon boar being very faulty behind, so much so that the long pull in favour of his good hair was more than told off. Mr. Duckering was still behind with one of his previous winners, and Mr. Hatton next with a nice curly-coated smart pig bred by Colonel Towneley. Some of the small sows were unusually good, and Mr. Dyson's little sow, for her "inches," about the most perfect ever exhibited. She was so deep, round, level, and fine, that she had only one fault, and that was her want of size. Some people certainly took exception to her ears as being too large and prominent; but a small ear is generally a sign of delicacy, and we could scarcely have fashioned Purity otherwise than she is. There were few prettier sights than when all the first-prize pigs, boars, and sows, little and big, were brought together in competition for the President's Cup for "the best pig in any of the classes," and which the little lady won. The judges in the first instance divided, Mr. Buckley and Mr. Turner going for the small sow, Mr. Rigby for one of the middle breed, and the other two judges for one of their own large size. Mr. Rigby then came over to his colleague, and the decree was received with as much satisfaction as when Tom's slashing action won him the hunter's cup. Lord Wenlock's second was here also short of coat, Mr. Duckering once more third, and Sir George Wombwell nowhere, with a very middling sow. In truth, the Newburgh Park pigs seem to have trained off, as with the exception of the prize pen of three there was nothing extraordinary sent, though so handy home. But the real merit of the class may be more properly estimated by Mr. Mangles'

five capital sows, which could still get no higher than a special commendation for one of them. Of the other sorts there were but two small entries of boars and sows, but some of these were particularly good; as, for example, Mr. Dyson's early-coated boar, Mr. Wright Sagar's lengthy sow, Mr. Akroyd's clever second, or Mr. Dyson's almost equally excellent third. Mr. Keyworth's sow was also good enough to have gained some notice, and Mr. Duckering gave a certain tone to the companion class of boars where he was second.

The pens of three store pigs generally show well, but Sir George Wombwell's lot eclipsed all previous doings in this way, and for growth, development, feeding, and so forth, quite ran away from Mr. Dyson's good sizeable lot, and Mr. Mangles' neat but younger pigs, as well as from Mr. Duckering and others. So remarkable, in fact, was this early maturity, that a rumour straight-way arose that the prize pen was considerably over the ninth month's limit as to age, that they had been exhibited more than eight months since, though entered as only just over eight months old, and so forth! Then came the question as to veterinary examination. Does Professor Spooner deign to look into a pig's as well as a horse's mouth? Or, if not, can exhibitors enter at a Yorkshire show at any age they please to put their animals? Amongst the younger pigs Mr. Duckering got more to his old form with the large breed, taking two prizes out of the four, his first-prize boar at eleven months old being quite a wonder for his age. In the young small breed the sows were only a moderate though a very even lot, and another set of judges would most likely have changed the placing, as they most assuredly would that of the first and second small boars, Mr. Sagar's at almost every point for length, symmetry, and coat, being better than Lord Wenlock's weak, bare, and by no means happily-named *BETRUS*. But the pigs took a deal of "joodging," and it would be quite as well if for the future the pig-men had this section to themselves. Is there any logical sequence in a man being qualified to place a big boar because he can a long-wool ram? Or why, putting Mr. Turner out of court, should a Southdown breeder be necessarily as well up in small pigs?

There was a very good and very well-arranged show of machinery; most of the leading firms, with the exception of the Howards and the Garretts, putting in an appearance, although declining to go into competition, which was chiefly confined to the more local makers. The implements put this year upon trial were those fitted for cultivation in the field, such as ploughs, harrows, scariers, scutflers, drags, and drills, and the prize list will speak pretty much for itself. The Messrs. Cooke, however, had the advantage of a capital ploughman—a great point in these matches, and it was reported on the ground that the Hornsby's had again borrowed Howard's best man; so that the wars of the White and Red Roses, otherwise of the rival houses of Spittlegate and Orwell, may be expected to rage with all their pristine intensity during the autumn.

The hound show was a pretty sight, an original observation made by many of the spectators, with kennelling and flags, for judging the hounds, nicely laid out, and the hunt-men in full canonicals, all but the cap, excepting Orvis, of the York and Ainsty, who we think should have had an extra prize, not only for setting so good an example—for a huntsman in a hat and scarlet to us is quite as *outré* as a grenadier would be in one—but as being one of the best built and most varmint and workmanlike of the seven and-a-half couple in scarlet. Then, there was a catalogue very well arranged, containing the names and pedigrees of every hound, of the packs, Master and huntsman; but there were no numbers on the hounds, which made the guide all but useless. This could

be easily done, and make it a really pleasant and interesting exhibition, which under the present system is not, for without you play the caves-dropper to a Master of Hounds, or some one that hunts with one of the packs, you stand as much chance of getting at the name of a hound you fancy as you would of a child in the Foundling Hospital. "That's Lounger," said one in our circle, pointing out a rather light flashy hound—"that's Lounger;" then, after a while, "or Merlin." "I think you are wrong," said another; "I fancy it must be Scaman." "Of course," it's Scaman," said the first speaker; "I meant Scaman." And it turned out at last to be Rallywood! There was a capital entry of hounds—considered to be the best they have ever had.

The Cottesmore.—Sir John Trollope's: Sending two couple of entered bitches, a couple of unentered dogs, an unentered bitch, a stallion hound, and a brood bitch; J. West is their huntsman.

The Bramham Moor.—Mr. George Lane Fox's: Sent two couple of entered dogs, two couple of entered bitches, a couple of unentered dogs, a couple of unentered bitches, and a stallion hound; F. Turpin.

Mr. Scratton's.—Sent two couple of entered dogs, two couple of entered bitches, an unentered dog, an unentered bitch, and a stallion hound; H. Rees.

The York and Ainsty.—Sir C. Slingsby's: Two couple of entered bitches, an unentered dog, an unentered bitch, a couple of stallion hounds, and a brood bitch; the Master; W. Orvis, kennel huntsman.

The Cheshire.—Mr. R. Corbett's: Two couple of entered dogs, two couple of entered bitches, a couple of unentered dogs, a couple of unentered bitches, a couple of stallion hounds, and a couple of brood bitches; P. Collinson.

Lord Yarborough's.—Two couple of entered dogs, two couple of entered bitches, a couple of unentered dogs, one unentered bitch, a couple of stallion hounds, and a brood bitch; N. Long.

The Quorn.—Marquis of Hastings: Two couple of entered bitches, a couple of unentered dogs, a couple of unentered bitches, a couple of stallion hounds, and a brood bitch; T. Wilson.

The Shropshire.—The Hon. R. C. Hill's: Two couple of entered bitches, a couple of unentered dogs, a couple of unentered bitches, and a couple of brood bitches; J. M. Bride.

The Durham.—Mr. J. Henderson's: A couple of unentered dogs, a couple of unentered bitches, a stallion hound, and a brood bitch; T. Dowdeswell.

The Badsworth.—Lord Hawke's: A couple of unentered bitches, and a couple of stallion hounds; E. Owen.

Lord Fitzwilliam's: A couple of unentered dogs; J. Orbell.

The Snainton.—Mr. Harecourt Johnstone's: A couple of unentered dogs and an unentered bitch; the Master, C. Barwick.

The Burton.—Mr. H. Chaplin's: A couple of unentered dogs, a couple of unentered bitches, and a couple of stallion hounds; C. Hawtin.

The Duke of Grafton, Captain Percy Williams, and Mr. W. H. Williamson judged the two couples of entered bitches and the unentered dogs; and Lord Macclesfield, Lord Poltmore, and Mr. Mark Milbank, the others. The Bramham Moor, Lord Yarborough's, the Cottesmore, and the York and Ainsty were the most admired; but the others came in for their fair share, as they were all very good. The bitches, it was thought by the judges, had a trifling advantage over the dog hounds on the whole. Such is fashion, or what the eye accustoms itself to, that Lord Fitzwilliam's couple, with their ears in a state of nature, looked quite Frenchified among the others, and were the subject of many remarks.

## PRIZE LIST.

### HORSES.

#### JUDGES FOR HUNTERS AND ROADSTERS.

J. E. Bennett, Husbards' Bosworth Grange, Rugby.  
E. H. Maxwell, Teviot Bank, Ilawick, N.B.  
H. Thurnall, Royston, Cambridge.

JUDGES FOR COACHING AND AGRICULTURAL HORSES  
AND PONIES.

N. G. Barthropp, Hacheston, Wickham Market.  
S. Robson, Westgate, Louth.  
E. Waddy, Barnumpton, Darlington.

Thorough-bred stallions for getting weight-carrying hunters.—First prize, £50, Sir G. Cholmley, York (Angelus). Second, £20, J. Casson, Carlisle (Motley). Third, £10, C. W. Strickland, Malton (Vulturno). *Highly Commended*, W. Nixon, Stockton-on-Tees (Lancewood).

Stallions for getting coach horses.—First prize, £20, P. Whitehead, Howden (Governor). Second, £5, E. S. Bell, Howden (Burland). *Highly Commended*, J. Johnson, Driffield (Prince Arthur).

Stallions for getting roadsters.—First prize, £20, W. Richardson, Beeford (Wild Harry). Second, £5, T. A. Jackson, Branley (Young Pretender).

Stallions for getting Agricultural horses.—First prize, £20, W. Johnson, Hatfield (Active). Second, £5, R. Gibson, Newcastle-on-Tyne (Young Blythe).

Entire two-years colts for getting agricultural horses.—First prize, £20, J. Henderson, South Shields. Second, £5, H. Morris, Selby, Warwick. *Highly Commended*, R. L. Moffett, Gateshead (Dusty Miller).

Brood mares for breeding hunters, with foals sucking.—First prize, £20, T. Cordiner, York (Lady Dalkith). Second, £10, C. C. Preston, York (Slippers). Third, J. Brown, Wigton. *Commended*, A. Swarbeck, Thirsk (Stella); J. B. Booth, Catterick (Becky Sharpe).

Brood mares for breeding coach horses, with foals sucking.—First prize, £10, W. and F. Conson, Castle Howard (Venus). Second, £5, J. Johnson, Driffield. *Highly Commended*, J. Mason, Thirsk (Betty).

Brood mares for breeding roadsters, with foals sucking.—First prize, £10, H. J. Percy, Cumberland (Crafty). Second, £5, W. Major, Malton (Folly). *Commended*, Ann Cook, Pocklington (Favourite).

Brood mares for breeding agricultural horses, with foals sucking.—First prize, £20, Elizabeth Emmerson, Pontefract (Star). Second, £10, T. Upton, Tadcaster (Diamond). *Highly Commended*, G. Linton, Kirkby Fleetham (Jewel).

Two-year-old hunting geldings.—First prize, £10, W. K. Goodbarne, Tadcaster (Owston). Second, £5, Sir G. Cholmley (Don Juan). *Highly Commended*, Viscountess Downe, Thirsk. *Commended*, C. C. Preston, York (Good Friday); J. B. Booth, Catterick (Bird's Eye).

Two-year-old hunting fillies.—First prize, £7, J. B. Booth, (British Queen). Second, £3, R. Wise, Sewerby, Bridlington (Eleanor). *Commended*, T. Mansfield, Thirsk.

Two-year-old coaching geldings.—First prize, £10, G. Leng, Highelife Hall, Staindrop (Carbincor). Second, £5, M. and W. Boville, O-motherly. *Highly Commended*, T. Plummer, Birdforth.

Two-year-old coaching fillies.—First prize, £7, W. Robinson, Easingwold. Second, £3, E. Thompson, Northallerton.

Two-year-old agricultural geldings or fillies.—First prize, £7, T. Upton, Tadcaster. Second, £3, W. Tennant, Selby (Trip).

Three-year-old hunting geldings.—First prize, £15, and silver cup, value £20, for the best hunting colt or filly, Sir G. Cholmley (Coburg). Second, £5, G. W. Appleyard, Easingwold (Collegian). *Highly Commended*, G. Harrison, Bawtry (Ashbury Lad); R. Emmerson, jun., Darlington (Marksman).

Three-year-old hunting fillies.—First prize, £7, Sir G. Cholmley (Eurydice). Second, £3, A. Swarbeck, Thirsk (Silkstone). *Highly Commended*, T. Hodgson, Stokesley (Jess).

Three-year-old coaching geldings.—First prize, £10, W. Clarke, Thirsk. Second, £5, T. Mansfield, Thirsk.

Three-year-old coaching fillies.—First prize, £7, W. Stephenson, Brough. Second, £3, R. Myers, Helmsley (Maid of the Mill).

Three-year-old roadsters, geldings or fillies.—First prize, £7, A. Perkins, Darlington. Second, £3, J. Smith, Catterick.

Three-year-old Agricultural Geldings or Fillies.—First prize, £7, S. Thompson, Selby (Rose). Second of £3, W. Tennant, Selby (Spark).

Pairs of four-year-old and upwards Agricultural Geldings or Mares.—First prize, £10, W. and R. Jewitt, Howden (Tom

and Jack). Second of £5, Major Stapylton, Boroughbridge (Charlie and Dick).

Agricultural Geldings or Mares, four years old and upwards, the property of tenant farmers for at least six months previous to August 8, 1867.—Prize, £10, W. Tennant, Selby (Jet).

Four-year-old Hunting Geldings.—First prize, £20, and a silver cup, value £25, for the best Hunting Gelding or Mare, T. Gee, Sussex (Tom). Second of £10, T. Gee (The General). *Highly commended*: T. C. Constable, Hull (Othello).

Four-year-old Hunting Fillies.—First prize, £10, J. Robson, Ganton (Springwater). Second of £5, J. Smith, Boroughbridge (Bondmaid). *Highly commended*: J. Mason, Boroughbridge (Shifty).

Pairs of Carriage Horses, four to six years old, shown driven in harness.—Prize, £25, T. Cole, Thirsk (Undertaker and Midnight).

Five-year-old Hunters, Geldings or Mares, by thoroughbred Horse, up to 14 stones and upwards.—First prize, £25, T. Gee (Master of Arts). Second of £10, G. Robinson, Middlesbrough (Black Bess). *Highly commended*: T. Gee (Buffoon).

Five-year-old Hunters, Geldings or Mares, by a thoroughbred Horse, up to 12 stones and upwards.—First prize, £25, J. Smith (The Greek). Second of £10, H. Jewison, Raisthorpe (The Doctor). *Commended*: S. B. Robson, Malton (Emigrant).

Hunters, six years old and upwards, Geldings or Mares.—First prize, £25, T. Sutton, Darlington (Voyager). Second of £10, J. Sanderson, Pontefract (St. Clare). *Highly commended*: H. Jewison (The Moor). *Commended*: J. Brown, Wigton (British Yeoman).

Gentlemen's Hackneys, of any age or sex, up to 14 stones and upwards.—First prize, £15, J. W. Pease, M.P., Darlington (Whitefoot). Second of £5, F. P. Newton, Malton.

Gentlemen's Hackneys, of any age or sex, up to 12 stones and upwards.—First prize, £10, H. Milner, Harrogate (Gari-baldi). Second of £5, J. Gresham, Bradford (Coekney). *Highly commended*: W. and B. Muzeen, Slingsby (The Nun).

Ladies' Hackneys, of any age or sex.—First prize, £10, Sir G. Cholmley, (Belinda). Second of £5, H. Bentley, Woodlesford (Seaboy). *Highly commended*: Sir G. Cholmley (Jemima).

Ponies above 12 and not exceeding 14 hands high.—First prize, £10, R. Milward, Southwell (Steward). Second of £5, F. Barlow, Donnington (Jet).

Ponies not exceeding 12 hands high.—First prize, £7, Marquis of Hastings, Donnington (Bobby). Second of £3, W. A. Mawson, Tadcaster (Point-a-Cape).

EXTRA STOCK.—First-class Silver Medal, R. Hunter, Stockton-on-Tees (Carbine, two years old, hunting colt). Second, A. Macbean, Thirsk (two years old, roadster).

## S H E E P .

## JUDGES (for Long-wools).

J. Buckley, The Cottage, Loughborough.  
G. Mann, Seasby, Doncaster.  
M. Stephenson, Fourstones, Hexham.

## JUDGES (for Short-wools).

T. Rigby, Darnhall, Over, Winsford.  
J. S. Turner, Chyngton, Seaford.

## LEICESTERS.

Shearling Rams.—First prize, £15, and cup value £10, as best of all the long-wool shearling rams, T. Stamper, Oswaldkirk. Second of £7, J. Borton, Barton, Malton. Third of £3, J. Borton. *Highly commended*: J. Borton. *Commended*: S. Wiley, York.

Rams of any age.—First prize, £10, J. Borton. Second of £5, J. Borton. *Highly commended*: J. Borton. *Commended*: J. Borton. The class commended.

Pens of Five Shearling Gimmers.—First prize, £15, J. and E. Tindall, Malton. Second of £5, S. Wiley, York. The class highly commended.

LINCOLN OR OTHER LONG-WOOLS (not qualified to compete as Leicesters).

Shearling Rams.—First prize, £15, W. F. Marshall, Riseholme, Lincoln. Second of £7, W. F. Marshall. Third of £3, W. F. Marshall. *Highly commended*: J. K. Tombs, Lechlade.

Rams of any other age.—First prize, £10, W. Abraham, Ulechy. Second of £5, J. K. Tombs.  
Pens of Five Shearling Gimmers.—First prize, £15, C. Lister, Lincoln.

## SOUTH-DOWNS.

Shearling Rams.—First prize, £15, and cup value £10, as best of all the short-wool shearling rams, Lord Walsingham, Merton, Thetford.

Rams of any other age.—First prize, £10, Lord Walsingham. *Commented*: Lord Walsingham.

Pens of Five Shearling Gimmers.—First prize, £15, Lord Walsingham.

## SHROPSHIRE DOWNS.

Shearling Rams.—First prize, £15, T. Horton, Shrewsbury. Second of £7, Lord Wenlock, Eserick, York. Third of £3, Lord Wenlock.

Rams of any other age.—First prize, £10, D. R. Davies, Knutsford. Second of £5, T. Horton.

Pens of Five Shearling Gimmers.—First prize, £15, Lord Wenlock. Second of £5, T. Horton.

## MOUNTAIN OR BLACKFACED SHEEP.

Shearling Rams.—First prize, £10, W. Rudsdale, Gosmont. Second of £3, J. Peel, Clitheroe.

Rams of any other age.—First prize, £5, J. Peel.

Pens of Five Ewes certified to have reared lambs in 1867. First prize, £5, J. Peel.

## EXTRA STOCK.

First-class Silver Medal, G. Wright, Malton (two four-shear Leicester ewes). Second-class Silver Medal, W. Rudsdale (three blackfaced shearling gimmers).

## WOOL.

JUDGE.—T. Clayton, Stainley House, Ripley.

Five Hogg Fleeces (long-wool).—First prize, £5, C. Barroby, Thirsk. Second of £2, R. Harrison, Pond Dale, near Richmond. *Commented*: T. Marris, Ulechy.

Five Hogg Fleeces (short-wool).—First prize, £5, T. Horton, Shrewsbury. Second of £2, T. Mansell, Shrewsbury. *Commented*: D. R. Davies, Knutsford.

## PIGS.

JUDGES (for Large Breeds).—J. Buckley.

G. Mann.  
M. Stephenson.

JUDGES (for Small Breeds).—T. Rigby.

J. S. Turner.

Boars of a large breed.—First prize, £5, J. Dyson, Leeds. Second of £2, R. E. Duckering, Kirton Lindsey. Third of £1, G. Chapman, Scarborough.

Sows of a large breed, in pig or milk.—First prize, £5, J. Lakeland, East Retford. Second of £2, J. Lakeland. Third of £1, R. E. Duckering.

Boars of a small breed.—First prize, £5, Lord Wenlock. Second of £2, G. Mangles, Ripon. Third of £1, R. E. Duckering. *Highly commended*: W. Hatton, Leeds.

Sows of a small breed, in pig or milk.—First prize, £5, and cup value £5, as "best pig in the show," J. Dyson. Second of £2, Lord Wenlock. Third of £1, R. E. Duckering. *Highly commended*: G. Mangles.

Boars of any breed.—First prize, £5, J. Dyson. Second of £2, R. E. Duckering. Third of £1, J. Leeming, Bradford. *Highly commended*: W. Sagar, Bradford. *Commented*: T. Eden, Barnsley.

Sows of any breed, in-pig or milk.—First prize, £5, W. Sagar. Second of £3, E. Akroyd, M.P., Halifax. Third of £1, J. Dyson. *Highly commended*: J. Lakeland.

Three Store Pigs of any breed, and of the same litter, from four to nine months old.—First prize, £5, Sir G. O. Wombwell, Bart., Easingwold. Second of £2, J. Dyson. Third of £1, G. Mangles.

## PIGS NOT EXCEEDING TWELVE MONTHS OLD.

Boars of large breed.—First prize, £3, R. E. Duckering. Second of £1, H. Whittaker, York.

Sows of large breed.—First prize, £3, J. Dyson. Second of £1, R. E. Duckering.

Boars of small breed.—First prize, £3, Lord Wenlock. Second of £1, W. Sagar. *Commented*: W. Linton, York; J. Dyson, Lord Wenlock, and W. Sagar.

Sows of small breed.—First prize, £3, W. Hatton. Second of £1, Lord Wenlock. *Highly commended*: Lord Wenlock. *Commented*: H. Whittaker.

## EXTRA STOCK.

First-class silver medal, Lord Wenlock (two sows). Second-class silver medal, J. Dyson (six young pigs).

## DAIRY PRODUCE.

JUDGES.—J. Dixon, North Park, Bradford.

J. Douglas, Clumber, Worksop.

Cheese, not less than 1 cwt. in quantity, made since October 1st, 1866, the produce of one dairy.—First prize, £5, J. Peirson, Northallerton. Second of £2, J. Hewgill, Wensleydale. *Commented*: E. Wells, Thirsk.

Butter, fresh, 6lbs., in single lbs.—First prize, £3, A. T. Attwood, Thirsk. Second of £2, J. E. Routledge, Northallerton. Third of £1, J. Nightingale, Guisborough. *Commented*: M. Gregg, Thirsk.

## IMPLEMENTS.

JUDGES.—J. Wilson, Woodhouse Manor, Morpeth.

E. Wortley, Riddington, Oakham.

Ploughs for light ploughing.—First prize, £10, Cooke and Co., Lincoln. Second of £5, Cuthbert and Co., Leeming, Bedale.

Ploughs for deep ploughing.—First prize, £10, Cooke and Co. Second of £5, C. Busby, Newton-le-Willows, Bedale.

Ploughs for digging.—Prize, £5, Cuthbert and Co. *Highly commended*: A. Ogle, Catterick, Richmond.

Double Mould-board Ploughs.—Prize, £5, C. Busby. *Commented*: Ord and Maddison, Darlington.

Scarifiers or Stubble Parers.—Prize, £5, E. H. Bentall, Maldon, Essex.

Cultivators.—Prize, £5, Coleman and Morton, Chelmsford.

Drags for three or more horses.—Prize, £5, Coleman and Morton.

Scufflers, to work between rows of roots or plants.—Prize, £2, W. Jacque, Baldersby, Thirsk.

Grubbers, to work between row of roots or plants.—Prize, £2, B. Stead, Barnsley.

Heavy harrows.—Prize, £3, W. Jacques. *Highly commended*: T. Thompson, Bagby, Thirsk.

Light harrows.—Prize, £3, C. Busby.

Corn drills.—Prize, £10, J. Coultas, Grantham. *Highly commended*: J. Teasdale, Burneston, Bedale.

Turnip drills, with manure, on the flat.—Prize, £10, J. Coultas. *Highly commended*: R. and J. Reeves, Westbury.

Turnip drills, with manure, on the ridge.—Prize, £10, R. and J. Reeves.

Water drills.—Prize, £5, J. Coultas.

First-class medals.—To Clayton, Shuttleworth, and Co. Lincoln, for a two-row revolving liquid manure and drop drill (Gillyatt's patent); to Hornsby Sons, Grantham, for a corn screen, and also for a turnip cutter and a turnip pulper; to Richmond and Chandler, Salford, for chaff cutter; to John Fowler and Co., Leeds and London, for a new steam cultivator; to Ruston, Proctor, and Co., London, for a new variable eccentric in portable steam engine.

Second-class medals.—To Ransome and Sims, Ipswich, for a double active turnip cutter; to G. Russell, Elstone, for an improved coultter fastener; to Reeves, for a water cart; to T. Harrison, Lincoln, for a barrel drill; to A. Ogle, for a plough-coultter clearer; to Vickers, Snowden, and Morris, Doncaster and Sheffield, for a scuffler, for working between root drills; to Ord and Maddison, for patent chain corn drill; to R. Duckering and Co., Beverley, for market cart; to Coleman and Morton, for a corn screen.

## HOUNDS.

JUDGES.—The Duke of Grafton.

Mr. W. H. Williamson.

Captain Percy Williams.

The Earl of Macclesfield.

Lord Poltimore.

Mr. M. Milbank.

Two couple of entered Dog Hounds, not being older than seven-season hunters, a piece of plate value £20, and a gratuity of £5 to the huntsman; second prize, a piece of plate

value £10, and a gratuity of £3 to the huntsman.—First prize, Mr. George Lane Fox (Bramham Moor); huntsman, F. Turpin. Second prize, Earl of Yarborough (Brooklesby); huntsman, Nimrod Long.

Two couples of entered Bitches, not being older than seven-season hunters, a piece of plate value £20, and a gratuity of £5 to the huntsman; second prize, a piece of plate value £10, and a gratuity of £3 to the huntsman.—First prize, Earl of Yarborough; huntsman, Nimrod Long. Second prize, Sir John Trollope, Bart., M.P. (Cottesmore); huntsman, J. West.

Single un-entered Dog Hounds pupped since December 1, 1865, a piece of plate value £10, and a gratuity of £5 to the huntsman; second prize, a piece of plate value £5, and a gratuity of £2 to the huntsman.—First prize, Sir John Trollope; huntsman, J. West. Second prize, Sir Charles Slingsby (York and Ainsty); kennel huntsman, W. Orvis.

Single un-entered Bitches, pupped since the 1st December, 1865, a piece of plate value £10, and a gratuity of £5 to the huntsman; second prize, a piece of plate value £5, and a gratuity of £2 to the huntsman.—First prize, Lord Hawke (Badsworth); huntsman, E. Owen. Second prize, Mr. G. Lane Fox; huntsman, F. Turpin.

Stallion Hounds, not less than three-season hunters, and certified to be the sires of living puppies, a piece of plate value £10, and a gratuity of £3 to the huntsman.—Prize, Sir John Trollope; huntsman, J. West.

Brood Bitches, having reared litters since the 1st of December, 1866, a piece of plate value £10, and a gratuity of £3 to the huntsman.—Prize, Hon. R. C. Hill (Shropshire); huntsman, J. M. Bride.

#### COUNCIL MEETING.

The Council of the Society met on the Ground to receive the deputations from Leeds, Wetherby, and Ripon, inviting the Society to hold its next meeting at these towns. Sir George O. Wombwell, Bart., President of the Society, was in the chair. The Wetherby deputation was first introduced. Captain Gunter, their spokesman, said that, in addition to the £250 required by the Society, they were prepared to give £500 or £600 in special prizes. Two grass fields of thirty acres each were available for the show ground. They were close to the spot where the Wetherby Agricultural Society held their show. Mr. Moorson, agent to the Earl of Harewood, mentioned that on the occasion of holding the Grand National Steeple Chases at Wetherby, 100,000 people were conveyed thither from Leeds by horses in

one day, in addition to those taken by rail. That could be done again. The Earl of Harewood stated that there were only ten subscribers to the Society in Leeds and neighbourhood; while at Wetherby there were forty, and most of them were tenant-farmers. Seven members of the Council belonged to the neighbourhood of Wetherby. This deputation then retired, and that from Leeds was introduced. The Town Clerk said they were there to invite the Society to hold the next year's show in Leeds. The Royal Agricultural Society held their show in Leeds in 1861, and it was the most successful meeting they had had. As many as 72,000 persons visited it in one day. He was authorized to say that they had secured for the purposes of the show the greater portion of the piece of land in Kirkstall Road, occupied by the show of the Royal Agricultural Society in 1861. There was a railway siding at Burley, close to the show ground. In case the Society accepted this invitation, the people of Leeds were prepared to comply with all the requirements of the Society, and a subscription list would be opened to raise a sum to be awarded in special prizes. At present £3,000 had been subscribed for the necessary expenses, and he had no doubt £6,000 could be obtained if required. The proposed show ground was 26 acres in extent, was in grass, and was all fenced in. There was another advantage in holding the show at Leeds next year, which he was sure could scarcely be over-rated. The Fine Arts Exhibition would be opened in the new Infirmary, and no doubt a great number of people would come to Leeds on account of it, and most of them were certain to visit the show, so that one would naturally support the other. The Leeds deputation then retired, and that from Ripon was introduced. The Mayor of Ripon said it was thirteen years since the show was last held at Ripon. It was a most successful show, and if this invitation were accepted they should spare no exertion to contribute to its success. They proposed holding it on the new race-course close to the water works. He thought they could guarantee £100 for special prizes in addition to the £250 required by the Society. The deputation then retired. The Earl of Harewood proposed that they hold the show at Wetherby next year. Mr. Jordan seconded the motion. Earl Cathcart proposed, as a matter of form, that they should go to Leeds next year. The Society had been put to great expense by the Royal visit to York last year, and that might be considered in taking it to Leeds. Mr. J. Wells (Boothferry) seconded the motion. A show of hands was then taken for Wetherby and Leeds, when 19 were held up for the former and none for the latter. Wetherby has consequently secured the show for next year.

### ROYAL NORTHERN SHOW.

#### PRIZE LIST.

##### CATTLE.

##### SHORTHORNS.

JUDGES.—John McKessack, Balnaferry, Forres.

John Gorrie, Inverdunning, Perth.

Charles Lyall, Old Montrose, Bridge of Dun.

Bulls of any age.—First prize, Robert Bruce, Johnston; second, A. Cruickshank, Sittyton; third, Gilbert Mitchell, Meikle, Haddo. James White, Little Chinterty, highly commended; Alexander Ronaldson, Little Gight, commended.

Two-year-old bulls.—First prize, Alex. Souter, Strocherie; second, W. S. Marr, Uppermill.

One-year-old bulls.—First prize, A. Cruickshank, Sittyton; second, Walter Scott, Glendronach.

Cows of any age.—First prize, Francis Brown, Mains of Leslie; second and third, A. Cruickshank, Sittyton. Henry A. Rannie, Mill of Boyndie, highly commended; Silvester Campbell, Kinellar, and William S. Marr, Uppermill, Tarves, commended.

Pairs of breeding cows.—First prize, A. Cruickshank, Sittyton; second, Jas. Cochran, Little Haddo; third, George Milne, of Kinaldie. William S. Marr, Uppermill, Tarves, highly commended; Silvester Campbell, commended.

Two-year-old heifers.—First prize, John Gordon, of Cluny;

second, A. Cruickshank, Sittyton; third, George Milne, of Kinaldie. William S. Marr, Uppermill, Tarves, highly commended; A. W. Collie, Lairhill, commended.

Pairs of heifers, two years old.—First prize, A. Cruickshank, Sittyton.

One-year-old heifers.—First prize, A. Cruickshank, Sittyton; second, Silvester Campbell, Kinellar; third, Henry A. Rannie, Mill of Boyndie.

Pairs of heifers, one-year-old.—First prize, A. Cruickshank, Sittyton; second, Silvester Campbell, Kinellar.

##### POLLED.

JUDGES.—William Fullarton, Ardestie, Monifieth.

George Brown, Westerton, Fochabers.

George Philip Boynds, Keith Hall.

Bulls of any age.—First prize, A. Morison, Bognie; second, Robert Walker, Hillside House; third, D. R. L. Grant, of Kingsford.

Two-year-old bulls.—First prize, James Scott, East Tulloch; second, William M'Combie, of Easter Skene; third, James Scott, East Tulloch.

One-year-old bulls.—First prize, James M'Knight, Pitcairnie; second, W. M'Combie, of Easter Skene; third, Robt. Walker, Hillside House.

Cows of any age.—First prize, Colonel Frazer, of Castle Frazer; second and third, Wm. M'Combie, of Tillyfour. Wm.

M'Combie, highly commended; R. Walker, Montbletton, commended.

Fairs of breeding cows.—First prize, Wm. M'Combie, of Easter Skene; second, Robert Walker, Montbletton.

Two-year-old heifers.—First prize, Colonel Frazer, of Castle Frazer; second, Wm. M'Combie, Tillyfour; third, William Walker, Ardunkart. James Stephen, Conglass, highly commended; Robert Walker, Hillside House, commended.

Pairs of heifers, two years old.—First prize, W. M'Combie, Easter Skene; second, Robert Walker, Montbletton. Robert Walker, Hillside House, commended.

One-year-old heifers.—First prize, Wm. M'Combie, Tillyfour; second, D. R. L. Grant, Kingsford; third, Robert Walker, Montbletton.

Pairs of heifers, one-year-old.—First prize, Wm. M'Combie, Tillyfour; second, Robert Walker, Hillside House.

#### HIGHLAND.

Cows.—First prize, J. Reid, Graystone, Alford; second, H. L. L. Morrison, of Blair, Guise.

#### CROSSES.

JUDGES.—Messrs. George Milne, Haddo, Methlic; George Cruickshank, Comisty, Forgue; Richard H. Harris, Earnhill, Forres.

Cows of any age.—First prize, Gilbert Mitchell, Meikle Haddo; second, R. and W. Matthew, Mill of Selattie.

Pairs of Breeding Cows.—First prize, H. L. L. Morrison, of Blair, Guise; second, R. and W. Matthew, Mill of Selattie.

Two-year-old Heifers.—First prize, Robert Bruce, Johnston; second, John Gordon, of Cluny.

Pairs two-year-old Heifers.—First prize, J. Reid, Graystone, Alford; second, Thomas Knowles, Aberdeen.

One-year-old Heifers.—First prize, H. L. L. Morrison, of Blair, Guise; second, Robert Bruce, Johnston.

Pairs of Heifers, one year old.—Prize, Major Ramsay, of Barra.

#### SHORTHORNS OR CROSSES.

Oxen, four years old.—Prize, J. and W. Martin, Aberdeen.

Oxen, three years old.—First and second prizes, J. and W. Martin, Aberdeen; third, Walter Scott, Glendronach; commended, H. L. L. Morrison, of Blair, Guise.

Oxen, two years old.—First and second prizes, Alexander Cowie, Cromblybank; third, Walter Scott, Glendronach; commended, Thomas Knowles, Aberdeen.

Oxen, one year old.—First prize, Thomas Knowles, Aberdeen; second, Alexander Cowie, Cromblybank; third, John Gordon, of Cluny.

#### POLLED.

Oxen, four years old.—First prize, William M'Combie, Tillyfour; second, J. and W. Martin, Aberdeen; third, Thomas Knowles, Aberdeen.

Oxen, three years old.—First prize, James Stephen, Conglass; second, Thomas Knowles, Aberdeen.

Oxen, two years old.—First prize, James Stephen, Conglass; second, William M'Combie, of Easter Skene.

Oxen, one year old.—First prize, William M'Combie, of Easter Skene; second, Robert Bruce, Johnston.

#### ABERDEENSHIRE HORNED.

Oxen of any age.—Prize, Thomas Knowles, Aberdeen.

#### HIGHLAND.

Oxen of any age.—First and second prizes, James Stewart, Aberdeen.

#### DAIRY COWS.

Cows of any age.—First and second prizes, R. and W. Matthew, Selattie; third, James Sangster, Shielhill.

#### EXTRA STOCK.

Heifers showing most symmetry, fat, and weight, of any age and breed.—Prize, Henry A. Rannie, Mill of Boyndie.

Bull, Cow, or Heifer, without any restriction.—Prize, Silvester Campbell, Kinellar (Shorthorned bull).

#### CHALLENGE CUTS.

Best animal in the breeding sections of the shorthorned breed.—A. Cruickshank, Sittyton.

Best animal in the breeding sections of the polled breed.—Colonel Fraser, of Castle Fraser.

Best fat ox or heifer of any breed.—Wm. M'Combie, Tillyfour.

#### HORSES.

JUDGES.—Robert Copland, Mill of Ardlethen, Ellon. William Lawson, Lessendrum, Drumblade. John Valentine, Afloch, Skene.

Draught stallions.—First and second prize, John Thomson, Newton, of Skene.

Draught (entire) colts, three years old.—First prize, John Nixon, Scotston; second, William Henderson, Rebog; third, James Scott, East Tulloch.

Draught (entire) colts, two years old.—First prize, William Alexander, Airyhilllock; second, Peter Beattie, Dunnydeer; third, Alexander Sim, Fawells.

Draught breeding mares.—First prize, James Cochrane, Little Haddo; second, James Sangster, Shielhill; third, C. P. Gordon, of Wardhouse.

Draught mares.—First prize, A. Cruickshank, Sittyton; second, A. F. Williamson, Caskieben; third, A. Pirie and Sons, Waterton.

Draught fillies, three years old.—First prize, John Gordon, of Cluny; second, A. Cruickshank, Sittyton; third, William S. Marr, Uppermill, Tarves.

Draught fillies, two years old.—First prize, Thomas Cumming, Upper Buckie; second, John Wattie, Ladybank; third, William S. Marr, Cove, Nigg.

Draught geldings, three years old.—First prize, A. Cruickshank, Sittyton; second, Major Ramsay, of Barra; third, John Gray, East Fingask.

Draught geldings, two years old.—John Gordon, of Cluny.

Roadsters, under 13 hands.—First prize, James Turnbull, Ash-hill; second, Alexander Sim, Fawells; third, John Smart, Glasgoforest.

Roadsters above 13 hands.—First prize, William Wilson, Balquharn; second, John Ritchie, Pettens; third, John R. Trail, M.D., Tombeg.

Draught horses or mares in harness.—First prize, Gilbert Mitchell, Meikle Haddo; second, Alexander Pirie and Sons, Waterton; third, John Grey, East Fingask.

Extra horses.—First prize, Robert Thomson, Terrievale, Skene; second, Alexander Pirie and Sons, Waterton.

#### SILEEP.

#### LEICESTERS.

Tups of any age.—First prize, Henry A. Rannie, Mill of Boyndie; second, George Thompson, of Pitmedden. Highly commended: Henry A. Rannie, Mill of Boyndie. Commended: John Bruce, Lightnot.

Shearling tups.—First prize, John Garland, Cairnton; second, George Thompson, of Pitmedden. Highly commended: Ben. L. Reid, Balcairn.

Ewes.—First prize, John Garland, Cairnton; second, Henry A. Rannie, Mill of Boyndie. Highly commended: John Garland, Cairnton.

Gimmers.—First prize, George Thompson, of Pitmedden; second, Ben. L. Reid, Balcairn. Highly commended: John Garland, Cairnton.

Wedders.—First prize, J. Bruce, Burnside; second, John Garland, Cairnton.

#### CHEVIOTS.

Shearling tups.—Archer Fortescue, of Kingcausie.

Ewes.—Ben. L. Reid, Balcairn.

#### SOUTH DOWNS.

Tups of any age.—First and second prize, James Bruce, Burnside. Highly commended: John Garland, Cairnton.

Shearling tups.—First prize, John Gordon, of Parkhill; second, James Bruce, Burnside. Highly commended: John Gordon, of Parkhill.

Ewes.—First and second prize, James Bruce, Burnside. Gimmers.—First and second prize, John Gordon, of Parkhill.

#### COTSWOLDS.

Tups of any age.—Wm. Johnston, Cairnbeg.

Shearling tups.—Wm. Johnston.

Ewes.—Wm. Johnston.

Gimmers.—Wm. Johnston.

#### BLACK-FACED BREEDS.

Wedders.—First prize, James Stewart, Aberdeen; second, J. and W. Martin, Aberdeen.

## CROSS BREEDS.

Wedders.—First prize, J. and W. Martin, Aberdeen; second, James Stewart, Aberdeen.

## PIGS.

Boars.—First and second prize, Edward Savage, Royal Lunatic Asylum; third, Alex. Davidson, 72, George-street. Highly commended: John Davidson, 72, Shiprow. Commended: Alex. Davidson, 72, George-street.

Sows.—First prize, Edward Savage, Royal Lunatic Asylum; second, James Dow, Regent Quay; third, Edward Savage, Royal Lunatic Asylum. Highly commended: George Isaac, Alexander. Commended: Alex. Davidson, 72, George-street.

Pens of two pigs.—First and second prize, Edward Savage, Royal Lunatic Asylum. Highly commended: Edward Savage, Royal Lunatic Asylum. Commended: George Isaac, Aberdeen.

## REVIEWS.

CATTLE AND CATTLE-BREEDERS; by WILLIAM M'COMBIE, Tillyfour. *Blackwood and Sons, Edinburgh and London.*

It does not require that a man should have travelled

"All along the lowlands fair,  
And through the pleasant shire of Ayr,  
And far as Aberdeen,"

to know the name of William M'Combie. He has been for many a year "a standing menace to the vegetarians" at Poissy and our own Christmas shows and fat markets; while his Charlotte and his Pride of Aberdeen have been famous at the Highland Society. Even the late Hugh Watson, of Keillor, did not come up to him in his prizes for polled Angus. Besides his store and fat prize beasts, he ties up more than three hundred "commercials" a-year; and his "heavy blacks and greys" have long formed a brigade of their own on the Big Monday at Smithfield. The keenness of that practised eye, which was first educated at the Falkirk trysts, has not failed him with years. It was but the other week that a four-year-old poll Angus of his own breeding took the fat cup at Aberdeen; and on the same day he united precept with practice by speaking with his pen on the subject which has been his life-study. While his laurels are still green, he is open to tell how they have been acquired, and to show to our young cup and medal aspirants "how fields were won."

The kernel of the present work is a lecture on the feeding of cattle, which he delivered about a year since before the Scottish Chamber of Agriculture. It is re-written and enlarged into a pleasant pastoral theme, under the five heads of (1) Cattle Feeding; (2) Reminiscences; (3) The Cattle Trade then and now; (4) Angus Polls, Galloways, and Shorthorns; and (5) Hints on the Breeding and Care of Cattle. The style is quiet and unaffected: instead of dogmatizing, he merely tells his experience, and makes the confession, which can never be wrung from the *Ego* school, "I am learning something new every day." The bits of character are given in quite a colloquial fashion; as, for instance, where a big bad beast is called "a great, big buffalo dog." He does not trouble himself with scenery and word pictures; but the language comes, as it were, hot from the lips, and has lots of grapple in consequence. The author is virtually talking to you about himself, his old comrades, their hits and reverses, and experience in selling and breeding cattle—with his feet on the fender, and a pleasant pipe in aid.

We hear, at the outset, of the author's father, who was in the lean-cattle trade, and could sell his fifteen hundred beasts at a Falkirk tryst. He did not wish to see his son in the same line, but the lad would not be denied. Two years at college had not given him any airs: doffing the gown and the trencher-cap, he took to the hodden grey, and not only worked with the servants, but shared their diet. It was in such a smithy that the future leader of the northern cattle-feeders was fashioned. His first specu-

lation was a £12 grass field, in which an old servant went him shares, and they divided £15 of profit the first year. His maiden beast-bargain did not turn out trumps. Money was given him to buy half-a-dozen beasts; but he went in for credit and fifteen. Being a bachelor, he could not suffer in the spirit as Bobby Banks did, when he was returning from Keswick market to his Betty, with the egg and "butter brass," and without his cart:

"For Bobby lad, thn's hur to fæce,  
She'll m'appen change thy sang;"

but, at all events, his father told him that his purchases had "not the countenance of beasts," and he was glad to have his first bargain forgotten until now. Under such a Mentor his eye soon acquired all the education it needed, and he became able to hold his own with the experienced but "impulsive" William Thorn on the stance. They set each other, like cocks for a crown, when it was their interest to do so; and, when it suited them and they had the buyers in their grip, they stood shoulder to shoulder.

The secrets of the trade are very freely treated of in the first chapter. We have, *inter alia*, sage hints as to who should *not* be the divider when a cut of cattle—say, 20 out of 60—are bought from a dealer; on the positions and the number in which cattle look best on the stance; and on the desire of the dealer to show the cattle on the off-side, and to keep stirring them cleverly up, so that the biggest should be always in the buyer's eye. These little pieces of high art in selling may have made lean cattle-jobbing a "fascinating business"; but, according to Mr. M'Combie's own admission, it was a most difficult and dangerous one, and at times he would be almost up to the knees in mud at Hallow Fair, and without food for twelve hours. The science of feeding in field and stall will not bear extracting, except as a whole. Suffice it to say that you must never lose your calf-flesh, never give your cattle nurpie tares, and that, "with turnips, one ignorant man may inflict more injury on the cattle than they will recover in the course of the season."

Mr. M'Combie's remarks apply principally to the Angus and the Shorthorn crosses, many of which, in Aberdeenshire, would satisfy the "Herd Book" qualification. Still, while he allows that the latter are good rent-payers, he maintains that for "the same value of keep no other breed of cattle will pay the grazier more in the North than the Angus." As for their degenerate cousins, the "Highland hummies," they "can be made older, but it takes more ability than ever I had to make them bigger." The feeding of show bullocks he calculates at £40 a year. Six weeks is his cake or corn limit for 'commercial beasts,' and he generally gets £35 a head for all but the culls of the winterers, calculating about 25s. to 30s. a month for every one he had them."

The "Reminiscences" principally concern his old brother-craftsmen, beginning from nearly half-a-century ago, when there were no Shorthorns in the North, and very few turnips grown or cattle fed. Now Aberdeenshire

alone can claim nearly 500 jobbers, butchers, and dealers; and in 1865 no less than 13,589 cattle were sent away from "Bon Accord" by sea or rail, and 10,135 tons of dead meat. In early days Messrs. Williamson and Reid were the butcher-monopolists of the Aberdonian best market, and breeders were obliged to deal with them or send the beasts a month's journey, on hay, to Barnet. The Williamsons had a great spring trade, and acted on the principle of "bidding little and lying far back." When beef was going down, they would sometimes buy up all the cattle on sale to arrest it; but the north and the south rallied, with the elder McCombie at their head, and eventually held their own at all seasons. These pages recall James Anderson, learned in Acts of Parliament, and James Milner, with his hair powder and saddle-bags, and "a pretty man but for these ugly skulls of feet of mine." The latter stood him in bad stead once, as a rival driver, who wanted to have the first offer of a lot, boiled his shoes to pieces over night at an inn; and as there was no last in the place big enough, he had to wait some days for new ones. We hear, too, of ready-witted and deep-tongued Allardyce, from the "Kingdom of Forgue;" of the Armstrongs, once Border-kings in their way, and yet only good for 3s. 6d. in the pound at last; and of John Geddes, who could sit twenty-four hours at a stretch over the punch-bowl, and whose black-horned cattle bore down all before them as they advanced with steady tramp, led by the owner, in the long blue coat and worsted overalls, to their wonted place in Old Keith market. There are divers other stories of Alexander Davidson, the poacher, who was almost "as hairy as an ox," and shot in a straight line from Braemar to Aberdeen; of James Innes, who always would have pace, and fairly kept his teams on the gallop each leading day; and of George Bruce, who could beat four good average reapers, single-handed, with only a little girl to tie for him.

"The Black Polled and Shorthorns" is a *résumé* of the leading herds in the north of Scotland, and very useful for reference. One curious fact is mentioned in it of Captain Barclay's love for size, that he did not like to have his cattle in a field, "where they can see each other every day." Perhaps, after all, there is no chapter of the five so characteristic of the writer as the one in which he lays down the canons of taste and practice in the "Breeding and Care of Cattle." They have always been his delight, "and butter and even corn are secondary to them." Space forbids us to dwell longer on this textbook of the steddin. It has no pictures, no preface, no table of contents, and no index; but it is on this account all the more in keeping with the man who wrote it, and who was not tied by any of the rules of bookcraft. Be that as it may, he has achieved a success, and we can only trust that this appearance as a man of letters will be followed up ere long by the M.P. addition to his own good name, for the county whose beef resources he has done so much to develop.

A PRACTICAL TREATISE ON THE CULTIVATION OF THE GRAPE VINE. By W. THOMSON. 5th edition, enlarged. W. Blackwood and Sons, Edinburgh and London, 1867.

There is not a doubt that the grape vine was cultivated to a large extent in the "open" in England in former times; but we much question whether in any part of the kingdom it would now succeed except when sheltered and supported by a wall with a southern aspect. From hence it is argued that the climate of England has undergone a change for the worse. In neither Scotland nor Ireland can the grape, under any circumstances, be ripened in the open air, and we suspect that, such is the general coldness of our modern English

summers, except in very sheltered situations, the same will be the case here. Mr. Thomson's work refers chiefly to the artificial culture of the grape vine; and the circumstance of its having gone through four previous editions is itself a proof of the estimation of it entertained by the public. But in the last section he treats on the "open-air cultivation" of the vine, which, to be successful, must be dealt with as an exotic, and protected, both in the autumn and spring, from the late frosts when the wood is ripening, and the early ones when the flower is forming. The work is a complete and valuable *guide* *verum* on the treatment of the vine in its artificial culture, whether by amateurs or professional Floriculturists.

## RAISING TURKEYS.

A correspondent of the *Germanstown Telegraph* gives the following as his experience in raising turkeys:—My first experiments with the turkey were all unsuccessful, and most of my good neighbours, when they heard of my failure, were prompt to exclaim, "I told you so." But the loss of my eggs the first year, and but little better success the next, did not convince me that turkeys could not be raised; and for two or three years past I succeeded so well that I feel some confidence in saying that others will run no risk in adopting my plan.

He who would succeed well in this business must, during the winter, feed his flock well and familiarly. By the middle of March or first of April they will probably commence laying. If they are quite tame, as they can readily be made to be, they will be likely, if allowed to run at large, to lay about the farm or outbuildings; but the best way is to drive them into some shed every morning and let them out at noon. They will lay in the corners of the room, and when they come to sit they will be content to be taken care of, and by closing the door at night they are free from harm.

I never fed the turkey on the nest, and am decidedly opposed to the practice of so feeding them. It is well enough to place food where they can get at it; but if the turkeys are hardy and in good condition this is not necessary.

Most turkeys are good sitters, and will commence hatching in twenty-eight days. They should be kept on the nest until the young are dry and able to stand. The hen may then be put with a coop in a warm, dry place, and the chicks be permitted to run out, but should not be fed for twenty-four hours, or for even a longer period, I am very particular on this point, as I think many young turkeys are destroyed by over-feeding soon after they are hatched.

After the first day a little curd or hard boiled egg may be scattered upon a board or flat stone. If the weather is cold or wet, it is well to sea-on their food with pepper. I have experimented with giving young turkeys food very highly peppered, and have seen no bad effects from it, but have frequently noticed cases where I was quite sure that the use of it produced much good.

After the first two or three weeks, it is well to let the old turkey out some four or five hours each pleasant day, if you have pasture or other suitable grounds. There is much danger in leaving them out at nights, as they are disposed to wander about while the dew is on the grass.

I would also again caution all who hope for success not to feed too high for the first week or two; afterward feed often, but sparingly.

If during the first four or five weeks any of them should droop and decline eating in the morning, give them pepper by taking a small quantity of their regular food and about an equal quantity of pepper; mix it, and give to each one as much as a healthy one of the same size would eat.

One of the most important points is to prevent the turkeys from getting wet during the first six weeks or two months of their life, for during this period a good soaking will generally prove fatal to a large majority of the flock. Nor should they, for this reason, be turned out too soon in the morning—not until the dew is entirely dried off the grass.

For feed during the first week I use common cottage cheese with a small amount of pepper, and to prevent the old hen from eating it, feed her on whole corn, which the young chicks cannot eat.

Others have found the food best adapted to young turkeys was a mixture of curds and bran.



## A SOJOURN IN NORTHERN GERMANY AND IN SCHLESWIG-HOLSTEIN.

When, a few years ago, Europe was concerned in the troubles brought about by Schleswig-Holstein affairs, which, by the way, no one is said to understand—neither Bismarck “nor any other man”—we little thought that the whirligig of time would bring round about to us a journey through this—shall we call it?—*very* debateable land; and yet it was so; for, finding ourselves in the busy town of Hamburg, on the very day the Austrians crossed the Elbe from Altona, on their way through Hanover, and immediately, therefore, blocked up therein, through the breaking out of the war, which speedily followed, and which made travelling in the direction we intended to follow, if not dangerous, certainly inconvenient, with the usual “impedimenta” of a family travelling, we had only two courses open to us—either to return home again from Hamburg, or spend the weeks or months we had set aside for the purposes of travel in travelling north, through Schleswig-Holstein. The first course by no means suited “our book:” we had no idea of returning home so soon with—to use a very expressive phrase—“the finger in our mouth,” after all the trouble we had had in preparing for a somewhat lengthened absence from home, and in crossing what the Irishman graphically called the “troubled shees”—troubled in more senses than one, as it turned out to be for at least the “fatal part of the community,” on board the good ship we went by.

Approaching the Elbe, we see, that is, wind and weather permitting, the Island of Heligoland, the red cliffs of which rise abruptly from the sea, and on one side of which, nearest to Great Britain, is a curiously-detached portion of rock. The island is a favourite resort in summer of the Hamburgers, who are fond of sea-bathing, and have a relish for a kind of life which is made up of a quaint admixture of old-world fishermen and of a fashionable style of existence, which altogether makes up what we have authority for saying, a very charming change for men of business. The island belongs to this country, and was the *dépôt* of the recruits obtained in the north of Europe for the Foreign Legion enrolled during the Crimean war. Heligoland is famous also for its rabbit-warrens, the inhabitants of which are, we believe, so very numerous that grave apprehensions are entertained, or at least expressed, as to the stability of a large portion of the island, which has been, or is said to be, almost entirely undermined by their burrows. The island is very small, and must—surrounded by the eternal waste of waters, and away from the sight of the mainland—be, we should fancy, as gloomy a place of residence in winter as it is said to be gay and glad some in the time of summer. Further on towards Hamburg we see Cuxhaven, lying on a low, flat coast, the shoals of which are particularly dangerous to vessels entering the Elbe, many of which strike on and are lost upon them. The sail up the Elbe is tame and uninteresting, resembling very much in its flat and monotonous character of its banks those of the

Scheldt leading to Antwerp; although every now and then a quaint old town, with its red-tiled roofs and its invariable church or churches with heaven-kissing spires, is met with; or no less quaint and comfortable-looking farm-haunlets, with their huge barns and tree-embosomed cottages. Rural quietness and peacefulness are the prevailing characteristics of the scenery; and where these are, although the scenery may be tame and monotonous, it cannot be said to be uninteresting, possessing as it thus does that human interest to which, at all events, our readers cannot be thought to be indifferent. On what *was*—but thanks or no thanks, as the case may be, or as the opinions of our readers may decide, but what no longer *is*—the Hanoverian side of the Elbe, we see the queer old town of Freiburg. Before we left this part of Germany we paid a visit to this place, the neighbourhood of which is celebrated for its wheat crops, and also for its fine pastures and the making of butter and cheese, which are the results of these. We spent a day or two in the district, and, living as we did at one of the houses of an old-fashioned hamlet, we had an opportunity of seeing much of the real inner-life of the Germans. The ride from Freiburg to Krumentich is through a road much more famous for the number of farmhouses and rows and clumps of fruit trees which are to be met with on its borders, than for the excellence of its surface, which much more resembled a hilly or undulating country than a level plain—a characteristic by no means pleasant when the rough nature of the carriage, or cart, for to give an exact name to so nondescript a vehicle we made our journey in. Krumentich can scarcely be called a village; it is rather a hamlet, made up of a row of houses, with their quaint old-fashioned gables on the road, and each provided with a spacious garden at the back. The house we put up at, for it could not be called an inn, was a capital specimen of a German house, with its somewhat rude but in every sense comfortable and thoroughly clean fittings. The upper part was formed into a large room or hall, round which were very old-fashioned tin sconces for candles or lamps, used to light up the “gay and festive scene,” for the room was the assembly-room of the hamlet. At one end of this, and entering from it, was our bedroom. Our accommodation, although primitive in its appointments, was unexceptionable in respect to cleanliness, and the providing of all appliances to insure comfort; and our living—that is, our meals—was such as almost to satisfy the most fastidious, not only as regarded the dishes of which they were composed, but the way in which they were served, at once quaint and comfortable. It was not difficult to tell that we were in a district where the pastures were superb, and the management of the dairy thoroughly understood, so fine was the quality of the butter and the cream; and so cheap withal, that we received a large supply of the former to bring home with us, and in connection with which supply we had only, and still have only, one regret, that we did not treble or quadruple the quantity. Krumentich is separated from the Elbe by a wide belt of low flat land, reclaimed from the river, and the inner edge of which, within a few yards of the house, is bordered by a high embankment. This runs for many a mile down the river, indeed as far, we believe, as Cuxhaven; and for a considerable distance up, towards Hamburg. The land on the river-side is laid out in pastures; and where cultivated, the crop is chiefly rapeseed, although wheat and rye are taken also. We

saw the thrashing-out of the rapeseed in the open air. A large square space being enclosed with stakes, between which rough sail-cloth was stretched, forming a fence some three feet high. The ground within this was also covered with cloth, and on which the rape was laid, thrashed out by men with the flail, and cleaned by women with brushes or brooms. The stalks and refuse are taken generally at once to the manure-heap. The sides of the embankment, covered with goodish grass, are used chiefly for the feeding of sheep, of which every cottager has one or more, and of which the milk is used for household purposes. The farm-steadings are large, chiefly composed of brick, although much wood is also employed in their construction. The large barn is always an imposing feature. The buildings are generally arranged on the two sides of a court-yard, the dunghill being between them, and almost—we may, indeed, say—always exposed to the atmosphere.

Some three or four hours' drive from Krumentreich is a very favourite resort of the Hanoverians, or Prussians as we suppose we must now call them: it is called the German Mount Olympus, and is a somewhat high hill rising out from a beautifully undulating country, and furnished at top with a high tower, from the summit of which a really splendid view is obtained. The name of the place in which this resort is, is Dalbrook, but there is no village or town near it, at least that we saw or heard of. A house with stabling is erected, the former kept by an old crone who lets out coffee-pots and cups, and finds all materials with which an *al fresco* entertainment may be had in the woods; these are very beautifully laid out, and seats, &c., are numerous and judiciously planted near the house, tea-garden fashion: tables and seats are placed at one end of a raised platform, crowned with fine trees. Altogether the attractions of the place are such that we do not wonder at its being so much frequented, as was indeed evidenced by a most portentous array of coffee-pots and cups and saucers ready for visitors. It is the fashion for parties going to take their own provisions, which we did. The afternoon we spent there was exceedingly pleasant, and as we were the only Englishmen of the party, we had an excellent opportunity of witnessing how much more rationally the Germans contrive to enjoy themselves than we do. There was nothing partaken of but coffee, the more potent liquor being taken solely out of compliment to us, who were supposed, in virtue of being Englishmen, to require strong waters, but nothing could exceed the joyous hilarity and natural joyousness of the whole of our German friends. Other parties we saw also, mixed indeed freely with them, who belonged to the class on a level with our working-classes; but it was impossible to refrain from making the contrast with their joyous but still quiet conduct with what under similar circumstances would have been the boisterous, rude, and coarse conduct of our working men. Not but what, when occasion serves—and in many cases it serves much more frequently than some would allow—the Germans drink beer, and plenty of it too; but, nevertheless, in their cups they are courteous, never coarse: and we have seen not a little of them.

The drive from Krumentreich to Dubeche was very interesting in an agricultural view, for plodding steadily along we had ample time to observe and take down notes. The road for many a mile was an excellent example of what we have never in this country, namely, a brick-paved road. The bricks are laid on edge, well rammed down, and the retaining sides are carefully made. Nothing can be better than this material in a country or district where stone is scarce, and we could not help contrasting it with the too often wretched state of the roads in some other parts we have travelled in, not to name some districts in our own country. It is, of course,

scarcely necessary to say that the bricks used were thoroughly well burnt, and not of the wretchedly soft character we too often meet with amongst us. We have, indeed, no hesitation in saying that we scarcely know what bricks and brickwork are, if we compare them with what are to be met with abroad, especially in some parts of Italy, and nearly throughout the whole of Northern Germany, of which more hereafter.

The crops met with as we drove along were good, the wheat and beans specially so. Flax is grown to some extent, and many of the cottages had little patches of it, and at several places we saw the cottagers preparing it. The German housewives are all really deserving of the name, and during the winter months they are most industrious in all manner of work, and the spinning-wheel, both for flax and wool, is seldom nor for long idle.

The fallow plays an important part in much of German farming, and considerable care is taken in its preparation; manure is pretty freely used, and the furrow in ploughing is deep and broad; in one field we saw six horses, two abreast, dragging along a plough with two wheels, and with only one handle, as frequently met with on the Continent, and which was taking a furrow of at least 14 inches in depth. We crossed the river Oosted, which runs into the Elbe; at this point it was both broad and deep, and vessels of considerable burden came up. Bridges over many of the Continental rivers in country districts are conveniences not often to be met with, and the boat-bridge, capable of taking over two or three carriages at a time, is substituted.

Leaving the Hanoverian district and taking the steamer once more on the Elbe, and proceeding upwards towards Hamburg, we find the scenery increase in interest as we approach that celebrated and busy seat of shipping and of commerce. Within the distance of some eight or ten miles from it, the scenery on the left bank becomes picturesque and romantic; the monotonous level plain is succeeded by abrupt risings of sand-hills, until at a place called Blankenese, and all the way up from there until we reach Altona we find the scenery, fine in itself, has a higher interest attached to it, from the number of cottages romantically situated on the picturesque and pretty banks, and the villas and mansions of a more pretentious order, which give evidence of the existence of ample means and fine taste, and tell us that we are approaching a wealthy and important city; for this, and nothing less is Hamburg, with its stately streets, the fine shops, the lovely gardens, the attractive(?) cafés, restaurants, singing saloons, and pleasure gardens, of all which we say little or nothing, although, did space and fitting opportunity permit, we might say much. We shall, therefore, proceed at once to detail the course of our journey, and what we saw in it likely to be more especially interesting to our readers; only here informing the reader that if disposed to spend a week in this fine city, he may spend it very pleasantly and agreeably. The gardens and pleasure places are both fine and numerous, and in the part of the city near the large sheet of water called the Alster Basin, and the Exchange, he will find fine noble streets, with magnificent shops, filled with the rarest and most expensive goods, which London, Liverpool, or even Paris may match, but not excel. The Exchange should be visited by all means, it is "high change" between half-past one and two, and this is a sight to see. Viewed from the galleries, which are easily accessible, the vast area below, filled with a moving mass of people—4,000 have standing, or shall we say crushing, room in it—is something wonderful: we might have called it "high tide or water," for the hum of the vast number of voices more resembles the noise of many waves than the aggregation of human voices.

Leaving Hamburg, we took rail to Lubeck. This is a fine old town, the chief—the only city of the free state of the same name. It is a charming place in every way, fitted for a pleasant sojourn during the heat of the summer months. Living is cheap; lodgings, in private residence or hotel, easily obtained; the walks and gardens beautiful in the extreme, and most extensive, and the town itself rich to a degree in quaint streets and still quaint houses in them. We have already mentioned the fact that the brickwork of Northern Germany is remarkably fine, and nowhere can evidences of the truth of this be more strikingly displayed than in this fine old city. A magnificent example of brick-work, so far as size goes, is to be met with in the Marine Kirche, and for the matter of that in many of its details, which are remarkably fine, considering the nature of the material in which they are constructed, which does not admit of cutting and carving like stone, but the value of which consists almost entirely in the setting of the bricks. The interior of this church is grand and imposing: the style is the pointed Gothic. It possesses two organs, of which one for stateliness and magnitude and fine decoration, is about the finest we have seen. A clock with curious mechanism is also to be seen here, and at the hour of twelve a procession of the Twelve Apostles come out from a door at the side, turn round and make obeisance to the Saviour in the centre, after which they disappear at another and opposite door. The movements of these figures are more curious than elegant. Still, the toy is worth looking at if you happen to be passing at the time it is at work—scarcely worth waiting an hour or so to see, as some we believe do wait. There are a few good paintings to be seen in the church. Those of Overbeck's are worthy of notice, and the celebrated picture, with its quaint and crowded panels, of the "Dance of Death" should be examined. The panels go right round a pretty large room. The "dance" begins with the tiny baby puking in its mother's arms, and ends with the lean and slippered pantaloon. It is a suggestive series. The side chapel should be sought out, from the centre of the floor of which springs a single and graceful pillar, which joins the groined roof far above. The Cathedral should also be visited. It contains some fine and very old carvings in wood, some fine brasses or tablets, and some paintings which are good specimens of mediæval art. The Rath-haus or town-hall presents also a fine specimen of brickwork and picturesque balconies and woodwork. It contains a fine hall, in which in olden times the representatives of no fewer than eighty-five cities of the Confederation used to meet. But it is perhaps in the streets that the finest specimens of brickwork and domestic carved work are to be met with, because on a much smaller scale, and consequently demanding a higher degree of care in designing and in workmanship. The town stands on a somewhat high ridge, and is surrounded with water. Two rivers or streams, the Trave and the Wackenitz, encircle it. These rivers give rise to some most picturesque combinations of town, tree, and water scenery; one particularly worthy of notice is to be met with looking from the Travemünde Road; another is near the cathedral. What were once the extensive ramparts—evidences of the importance of the town in olden times—are now laid out with a range of most beautiful gardens. Altogether, the fine old town is worthy of a visit, and of a few days' sojourn in it. While staying there, an excursion down the Trave to the little village of Travemünde should be made. The river is not broad, but so deep from bank to bank that large steamers can sail with safety. Many large steamers leave Lubeck for ports in the Baltic, such as Copenhagen, &c., &c. Travemünde is a fashionable bathing-place, and sports a kursaal and gambling-table. This certainly does not attempt to rival the splendid establishments met with in

other parts of Germany which we have visited, such as Homburg, Ems, or Wiesbaden; but it is well-arranged and conducted, the gardens are pretty, the music good, and the green-covered "table" quite large enough, and the play at it high enough to ruin very quickly any "green" fellow who plays at it, and who is possessed of more money than wit, of more bank notes than brains. The village, almost wholly made up of hotels and lodging houses, some of them very elegant, and all moderate in price, is situated close to the mouth of the Trave, where it debouches upon the Baltic. Our first acquaintance with the waters of this famous sea was in a small row-boat, and on a lovely moonlight evening; so delightfully calm was it, that we rowed far out, and extended our trip till morning was approaching. In returning to Lubeck from Travemünde, the traveller should come by land, taking either the well-appointed and rapid four-horse omnibus, or the more easy-going, but comfortable "post" coach. The river Trave is crossed by a floating bridge. The road from Travemünde to Lubeck throughout is first-class, presenting in many of its features more the drive in a nobleman's park than a public road. Seats here and there are provided for weary wayfarers, a point which displays more kindness in the people than might at first be thought of. The cultivation on both sides of the road is in many respects good. Near the Trave there is much swampy land, and the borders of the river for some considerable breadth inland are covered with long and strong reed grass; this is often cut down green, for the forage and bedding of cattle. The farm houses and buildings are large, and comfortable-looking, and in nearly all cases are built substantially of brick. The orchard-garden, well cultivated, and abounding in fruit-trees and in gay flowers, is a feature attached to nearly every farm house, and, indeed, almost to every cottage. Dairy farming and sheep farming are both extensively carried on; the sheep are, we believe, always brought to the steading at night and folded. Approaching Lubeck, a magnificent avenue of elm trees, each of them large enough to be the monarch of the forest, is entered; this is nearly two if not more than two miles in length, and leads up to the "Burg Gate," which is a fine specimen of mediæval brickwork. On each side of the avenue beautiful villas spring up, characterized with all the light grace and elegance of continental villa architecture. Near the town the cemetery is passed, which in the style of laying out and grand elegance of the monuments is, perhaps, as good as any we have met with, considering the flat, and by no means otherwise picturesque character of its site.

Lubeck is, perhaps, as good a starting point as any for a run through Schleswig-Holstein; we took the diligence to Plon, which is within a short ride by railway, only recently opened, to the celebrated town and harbour of Kiel, and from Kiel we went further on into various districts of this interesting country. And here will, perhaps, be the most fitting opportunity to glance at its general characteristics. Schleswig-Holstein is situated behind two seas, the Baltic and the North or German Ocean, and is divided transversely by a canal which runs across from the North Sea to the Baltic, passing by the important town of Rendsburg. The part on the side of the canal towards Hamburg is called the Province of Holstein; the part on the other or north side of the canal, towards Flensburg, is called the Province of Schleswig. The province of Holstein has an area of 155 geographical square miles, with a population of over half-a-million, of which by far the largest proportion live in rural districts. The Province of Schleswig has an area of 167 geographical square miles, with a population of 395,795, of which 325,000 live in rural districts.

The towns in Schleswig are—Haderslove, Apenrade, Tondern, Sonderberg, Aroes, Kjöbing, Flensburg, Schles-

wig, Husum, Tönning, Garding, Friedrichstadt, Eckemförde, Friedrichsort, Burg. Divided into 9 Amter or Landschaften (districts).

The towns in Holstein are—Altona, Crempe, Glückstadt, Heiligenhafen, Itzehoe, Kiel, Lüjtenburg, Oldenburg, Neüstadt, Oldesloe, Plön, Rendsburg, Segeburg, Wilster. Divided into 21 Amter or Landschaften, and into 11 Adelige districts.

In Schleswig there were, according to the last published report, arable land (ackerland) 786,040 tonnen,\* wheat, pasture, and grass land, 195,995 tonnen; land under forest, excepting royal lands, 47,605 tonnen. Of stock, there were horses and foals, 54,781; milk cows, 152,194; horned or fattening cattle, 127,775; sows, 43,817; Sheep, 183,827; goats, 571. The land under culture was occupied as follows: Rapeseed, 71,390 tonnen; wheat, 173,040 tonnen; rye, 404,160 tonnen; barley, 420,290 tonnen; oats, 834,090 tonnen; peas, 41,470 tonnen; beans, 40,000 tonnen; buckwheat, 186,400 tonnen; clover, 1,000 tonnen; the yearly value being 605,030 marks. The population was 362,900, of which 125,382 were occupied in agricultural pursuits.

In Holstein, according to the last published report, there were of lands (ackerland), 850,000 tonnen; wheat, pasture, and grass land, 187,840 tonnen; land under wood, 66,135 tonnen; lakes and moor, 201,780 tonnen. Of stock, horses and foals, 70,612; milk cows, 169,256; fattening cattle, 79,278; sows, 67,814; sheep, 139,287; goats, 5,271. The land under culture—Rapeseed, 121,780 tonnen; wheat, 350,000 tonnen; rye, 532,165 tonnen; barley, 423,260 tonnen; oats, 1,230,140 tonnen; peas, 77,920 tonnen; beans, 80,000 tonnen; buckwheat, 175,995 tonnen; clover, 1,867 tonnen. The population was 479,364, of which 127,976 were engaged in farming.

In für Oeide Herzogthümer there are 1,636,040 (ackerland) tonnen; wheat, pasture, and grass land, 383,835 tonnen; land under wood, including the royal forests, 166,505 tonnen; and unvertantes cereal, 440,580 tonnen. Of stock, horses and foals, 125,397; milk cows, 321,750; fattening cattle, 207,053; sows, 111,631; sheep, 327,064; goats, 5,845. Of land under culture there were rapeseed, 193,170 tonnen; wheat, 523,650 tonnen; rye, 936,325 tonnen; barley, 813,550 tonnen; oats, 2,064,230 tonnen; peas, 119,390 tonnen; beans, 120,000 tonnen; buckwheat, 362,395 tonnen; clover, 2,867 tonnen.

One of the peculiarities of the Duchies of Schleswig and Holstein is the number of large pieces of water inland. These are termed seas, of which the most beautiful, if not the largest, is that of Plön. The following is nearly a complete list of these inland seas or lakes: (1) The Seelentur See at Seelent, (2) Post See at Pohnsdorf, (3) Lanker See at Preetz, (4) Tresterfer See at Tresterfer, (5) Doberstoben See at Tekendorf, (6) Varen See at Varen. Nothing can surpass the exquisite loveliness of some of these pieces of water, and the scenery which surrounds them. The visitor to Kiel or Lübeck should not omit to go to Plön (pronounced Ploen, or Ploim), where he will find as much beauty of natural scenery compressed into little space as he can well wish for. Plön is by no means a large town—little more, indeed, than what we would call a large village; but, like most of the old towns of Germany, it is quaint in general appearance, and possesses some rich tit-bits for the tourist with architectural or antiquarian tastes. It is almost surrounded with water, the Great Plöner See being on one side, and the Little See on the other; but these take such bends and curves and picturesque windings, that upon looking down upon the district, the town looks as if it was in reality

surrounded by water. This bird's-eye view can be obtained from the terrace of the towers of the Schloss, a castle which surmounts an elevation of considerable height, and faces the Great See. This castle belongs, or belonged, to the King of Denmark. The rooms in it are very numerous, some of them very large, and the great hall is a fine apartment. They are all unoccupied, and, with the exception of one suite of apartments, unfurnished; the whole calling up feelings of melancholy. Nothing can surpass the beauty of the walks of the Schloss garden, laid out with all the taste everywhere met with on the continent. They are made to take in the loveliest glimpses of the lake, or of forest scenery. The avenues are peculiarly fine.

The marsh and moorlands are very extensive. The former lie on the side nearest the North Sea, and are almost exclusively confined to the province of Schleswig, although there are some but not extensive in Holstein.

The following are the general rotations of Schleswig-Holstein:

(1) Six-Year Course.—1st year, potatoes or turnips; 2nd, barley; 3rd, clover (mähklee); 4th, wheat or rye; 5th, peas or beans; 6th, oats.

(2) Ten-Year Course.—1st year, oats (dreschhafer); 2nd, fallow, dunged; 3rd, rapeseed; 4th, wheat; 5th, peas and rauhfatter; 6th, barley; 7th, clover and grass; 8th, wheat, with clover; 9th, pasture; 10th to 11th, ditto.

(3) Eight-Year Course.—1st year, wicken; 2nd, rapeseed; 3rd, wheat; 4th, potatoes or turnips; 5th, barley, with clover; 6th, mähklee; 7th, wheat; 8th, oats.

(4) Another Eight-Year Course.—1st year, buckwheat; 2nd, rye; 3rd, peas; 4th, oats, with clover; 5th, mähklee; 6th, pasture; 7th, ditto; 8th, ditto.

(5) Eleven-Year Course.—1st year, clover fallow, manured; 2nd, rapeseed or turnips; 3rd, wheat or rye; 4th, barley; 5th, oats; 6th, oats, with clover and grass, manured; 7th, mähklee; 8th, pasture; 9th, ditto; 10th, ditto; 11th, ditto.

(6) Second Eleven-Year Course.—1st year, manured fallow; 2nd, wheat or rye; 3rd, barley; 4th, oats; 5th, rye, manured; 6th, oats, with clover and grass; 7th, mähklee or pasture; 8th, pasture; 9th, ditto; 10th, ditto; 11th, ditto.

(7) Third Eleven-Year Course.—1st year, manured fallow; 2nd, wheat; 3rd, barley, with clover; 4th, mähklee, ploughed in; 5th, wheat or rye; 6th, oats; 7th, oats, with clover and grass; 8th, pasture; 9th, ditto; 10th, ditto; 11th, ditto.

On the Baltic side of the country there are many fine harbours—especially those of Kiel and Flensburg; but the whole coast is cut up into numerous bays or fiords, which give ample and secure shelter for shipping. The coast on the north side is quite of an opposite character, and has no harbours worth calling such—that of Tönning, from which so many cattle are exported to England, being very insignificant, and approached by a tortuous and narrow river channel.

The climate of Schleswig-Holstein is somewhat damp and remarkably changeable, although there is a fineness and freshness and purity in the atmosphere which make it, as we find it to be, healthy and bracing withal. Nothing, indeed, surprised us more than the rapidity with which changes came on, from the extremes of clear blue and cloudless skies to that of heavy and portentous clouds, which threw down their burdens in no contemptible showers. The prevailing wind is the south-west, the west, and the north-west; but in spring, as with us, the east and north-east winds blow pretty frequently.

\* An imperial acre is equal to 0.71 of a tonnen.

## THE FARMERS OF ENGLAND.

BY A PRACTICAL FARMER.

The Farmers of England have peculiar grievances, and heavy and exclusive burthens to bear—burthens and responsibilities which were all right enough in a normal state of society: but which are quite incompatible in an age of Great Cities and wondrous commercial and manufacturing prosperity. Why are The Farmers of England to be so heavily burthened with the support of the church, the poor, the county cess, highways, and land tax, in this age of The Kingdoms, when the populations of other interests and other departments of British industry and skill are predominant? Why are The Farmers of England to provide for and to pay for the religious instruction of these populations? or to maintain their poor? *The Land*—the Land is yet called upon to pay for all and everything, *i. e.*, all assessments are yet made upon land or buildings thereon, according to assessments. Manufacturers may employ their thousands, and become millionaires; but how comparatively trilling are their poor rates! They only pay for the support of their poor according to the annual value of their manufactures and dwellings, and nothing, or next to nothing, for their religious instruction. Is this in accordance with the growth and importance of our wonderful country? We say, by no means. We say that all classes of the community ought to bear a fair and equitable share of the public burthens, and not fatten upon the industry of their fellow countrymen.

We do not quarrel with the institution of tithes. It might be very proper in the early periods of British history; but what an astonishing change has come over our country in the past three hundred years, and more particularly in this nineteenth century! Surely, if the Church is to be upheld in its efficiency, some other source of income should be sought than titheable lands wherewith to instruct our immense populations. Nobody would desire to deprive the clergy of their incomes, and many of these incomes are derived from real properties, which in some perverting age of the Church were converted from life holdings to real properties. Nothing could be more unjust than to take these ecclesiastical properties away from their present holders. These family "*livings*" are their own property, and under any change must be held to be inviolable and entitled to the fullest compensation. But this is not the case with the great majority of livings: they are merely life holdings—many of them may be gifts at the caprice or favour of individuals, but only for the life of the incumbent. The privilege of these donors of *Church Livings* is, however, valuable, and in any change that may ultimately occur would be taken into consideration. In all cases where such privileges were attached to "the estate," if such estate is in some measure to be relieved from the exclusive burthen of title, the compensation would be nil, or rather it would be on the other side—it would be called upon to contribute to the Church Income Fund. In these and all other cases all titheable property must undergo an equitable supervision and valuation, so that according to my scheme every department of British property, industry, and skill, shall bear their fair and equitable share of the public burthens. And let me observe that it is very important that these momentous questions should ere long be taken up and fairly settled in accordance with the present state and requirements of the country, or it may be too long deferred, to the just injury of the Church Establishment.

The support of the aged, the infirm, the imbecile, the dissolute, the impoverished of the poor, with the thousands of orphans and homeless, together with the prisons, union-houses, asylums, and official establishments thereof is for the most part thrown upon the land. It all comes from the assessed annual value of real property. This subject, like that of tithes, must ultimately undergo a thorough investigation, and other than farming interests must be made to bear their fair share in their maintenance, and the expensive management of such vast establishments. Land and other real property has no right to bear exclusively these burthens. The general community incur them; but when any portion of this general community become pauperized, they are passed over to the real-property-holders for them to take care of. This, I say, is unjust. The burthen should be universally distributed. Those who have employed either men, women, or children as aids to the acquisition of wealth, or in the conduct of their business, are the very parties on whom their maintenance should devolve when incapacitated for labour. Why are they to be passed over to the real property holders? This exceedingly important question then must ere long be also fully inquired into, and all payments for these just and necessary purposes be also so imposed and justly regulated, that, as I have above stated, every department of British property, industry, and skill shall bear their fair share of the public burthens.

The highway is another of the exclusive burthens I complain of, but it has the appearance of greater equity than those above named, inasmuch as real-property-holders make more use of highways than the general public, but that is no reason why they should bear all the cost of maintenance. It must be borne in mind that the land was burthened with the formation of these highways, with all their bridges and materials of construction and maintenance. The only relief or aid has been the collection of tolls from passengers over the main roads, *i. e.*, turnpikes; these have in many districts now ceased, and the repairs are from the highway-rate. This also is a proper subject for inquiry and equitable regulation. The land-tax is not very important; but it is unjust. Why is land with all its burthens to be subjected to a "tax" in addition? surely it has enough to bear.

I name these four items of exclusive burthens upon land or real property; but there are others which press very heavily: the worst of these is the malt-tax; then the income-tax; income or no income the farmer must pay; many a farmer is so circumstanced as to be gradually losing his property; but as an occupier of land he must pay income-tax till he fails. There are many minor matters coming under legislative control and interference, which affect a farmer's interest, which I need not particularly notice, but which influence his prosperity, *i. e.*, cattle plague regulations, corn returns, agricultural statistics, game-laws, road reforms, uniformity of weights and measures, equitable tenant-right, county-rate, expenditure, education of labourers' children, women and children employed in field labour, the gang system, besides private bills affecting the agriculture of various localities. Having enumerated these many items of Parliamentary subjects connected with agriculture, I would wish further to give my views upon the present position of The Farmers of England in property and public usefulness, and what I deem to be their future course under the new Reform Bill.

## TRIAL OF REAPING MACHINES AT THORNEY.

"If you can cut the Fen crops, you can cut anything; and when we say 'cut' we mean cut and deliver too": this is a maxim of the heavy wheat-growers on the rich alluvial lands of the Bedford Level. And the proposition will be disputed by nobody who is acquainted with the tremendous weight of the wheat and oat crops there: often having straw 5 and even 6 feet long (we ourselves have measured oat-straws more than 8 feet in length), generally laid by wind and wet as if a roller had crushed all down flat, or twisted and "shocked up" in all positions, often "thorough-grown"; sometimes matted together by bindweed and other vegetation. This kind of crop, in which neither scythemen nor sicklemen can make straightforward work, but have to drive "breeds" in all directions (according as they can get the scythe-point under, or can get at the back of the straws for a handfall), has been supposed to be beyond the power of any reaping-machine; and the makers themselves admit that crops may be found presenting difficulties too great to be overcome by the "horse-power scythe." The fen-men do employ these mechanical reapers to some extent; but there has hitherto been no public exhibition of what the various machines now before the world really can accomplish in excessively-laid and "touselled" crops; and accordingly a number of gentlemen on the Duke of Bedford's estate, at Thorney, near Peterborough, have just provided an occasion for bringing the matter to a test, handsome prizes being given by the Duke and by his tenantry.

The trial came off upon Mr. Alexander Goodman's Willow Hall Farm, about three miles from Thorney railway-station; not, however, upon Fen peat soil, although upon perfectly flat land, the soil being a gravelly loam; and the crop was not exactly the heaviest and roughest that could have been procured had the contest been postponed for a week or ten days, till the black-land wheats were ripe. However, the time had been publicly advertised, the weather kept back the ripening later than was expected, and the managing committee could not do better than accept the spirited offer of Mr. Goodman, who placed a field of 65 acres of wheat at their disposal, and himself opened out the crop in 2-acre and 3-acre plots by his own Crosskill machine. The crop was of nursery-wheat, with  $3\frac{1}{2}$  to 4 feet straw, heavy enough to yield 40 bushels per acre, remarkably free from weeds and without clover, prostrated so that nearly all was flat, the ears lying within a few inches of the ground, the "lay" being so far in one direction that about one-fourth of the straws overlaid other straws in cross bunches, while only occasional bunches leaned in the opposite direction. To describe the condition and posture of the crop is not very easy; but it will be understood when we say that the machines could "throat," that is meet the stuff one way, without finding very much corn sloping away from them, and the chief difficulty was in "dividing" the cut stuff at the side from what we may call (by courtesy) "the standing." The crop being laid out in rectangular, long, and narrow plots, all the machines were obliged to work one side only, returning empty after each "breed," or half-boat. The land was quite level, smooth, with a few small stones, and owing to the thunder-storm and rain of Thursday, moist and, for part of the time, "soapy," quite wet enough for the machines to work on, and the crop was damp and clammy, and by no means in a good condition of slipping easily off the rakes or platforms. In fact, the state of the crop may be judged from the circumstance that pouring rain on Thursday (the first day of the trial) prevented anything further than a false start, in which several of the machines cut a woeful figure trying to deliver stuff wet as thatch; and the crop being so flattened, was only just dry enough for the renewal of proceeding at noon on Friday. The judges were Mr. William Shepperson, of March; Mr. George Martin, of Hubbert's Bridge, near Boston; Mr. Seanson, of Deeping St. James; and Mr. Edwards, of Eye, near Thorney; and the prizes they had to award were as follows: Class 1. For the best self-side delivery reaper, first prize, £20 (offered by his Grace the Duke of Bedford); second prize, £10 (offered by the tenantry). Class 2. For the best manual back-delivery reaper,

£5. Class 3. For the best manual side-delivery reaper, £5. Semi-manual machines were not allowed to compete in these classes; but an extra prize was placed in the hands of the judges to be awarded if they found sufficient merit. It will be seen that "swathers" and "sheafers" were classed together, thus obliging the judges to decide between "sheafing" and "swathing" for such crops as that at Willow Hall, as well as to pronounce upon the relative performances of the different machines. "Class 1," consisted of five swathers, namely, those of Banlett, Hornsby, Burgess and Key, the Beverley Company, and Mr. Goodman's "Crosskill," and four sheafers, namely, those of Hornsby, Sannelson, Baker, and Brigham and Bickerton. Turner and Fardon had entered a new machine, but it could not be completed in time. Messrs. Howard did not make an entry. After each machine had been worked on its "preliminary" plot, it was set to a plot of three acres; but time did not allow of the whole being cut; one day having been completely lost through the wet weather, and it being of importance to wind up the trials on Friday night, the machines were tested for a few bouts, and then all were made to follow one another along one side of a plot.

Hornsby's swathing machine is worked by two horses with a pole (which is placed outside the main wheel); it takes a five-foot cut, measures  $8\frac{1}{2}$  feet from out to out, and weighs about 14 cwt. The main wheel is in advance of the knife-bar, and the small off-side wheel follows the knife-bar. The platform is inclined at an angle of about 45 degrees, and delivers the swathe by endless chains; and the reel of 8 feet diameter has six blades or "fans." A peculiarity is in the fingers, and the smooth-edged knives pointing more downward than in other machines. This machine made a beautiful cut, and deposited what we thought was, upon the whole, the best-laid swathe; but the reel occasionally carried over, and littered considerable quantities of corn.

Burgess and Key's improved screw-reaper (the machine which won the Cup at the Peterborough trial last year) is worked by two horses with a pole, which is placed outside the main wheel; it takes a cut of 5 feet 4 inches, measures  $8\frac{1}{2}$  feet from out to out; it has smooth-edged knives, the delivery-screws are driven directly by spur-gearing, and its four-bladed reel is driven by a chain. A peculiarity is that the knife-bar is a line with the main-wheel axis (the off-side small wheel following the knife-bar); so that the main-wheel and the cutting-bar rise over elevations or sink into hollows together. The driver's seat is placed so as to nearly balance the platform, and thus relieve the off-side small wheel of weight. This machine cut splendidly, delivered a very good swathe considering the awkward state of the crop, and the reel carried over very little stuff; and the revolving conical divider (recently improved) effected a perfect separation of the stuff, appearing to pick up the lodged and twisted corn in a wonderful manner; but this machine showed a somewhat greater amount of side-draught than the others.

The Beverley Company's machine is worked by three horses following behind; it takes a cut of  $7\frac{1}{2}$  feet, measures  $8\frac{3}{4}$  feet from out to out, and weighs about 16 cwt. It has a six-bladed reel, and delivers by means of a chain and two studded belts on a slanting platform. It had sickle-edged knives, but works with plain-edged knives when there is green stuff among the crop. In the trial, this machine delivered particularly well, but it worked at great disadvantage, because the plot, being only 22 yards wide, did not allow the machine to work in such a direction as to cut both in going and returning—a peculiarity of the machine being its ability to deliver the swathe from either side of the platform.

Mr. Goodman's machine is an old Crosskill, worked by two horses following behind, and Mr. Goodman has added a dividing-roller to each side of the slanting platform. That this machine is quite capable of denling with almost any crop, no matter how rough, was fully shown by its having "set out" the work in all directions on the day before the trial, but the cutting was not super-excellent.

A novelty was Banlett's new swathe-delivery machine; remarkably light in construction; but the platform (delivery by a chain and two belts) too short and set too upright for dealing with long-strawed crops.

The sheathing-machines included Hornsby's "Governor" self-raker, taking 5½ feet cut, and measuring about 8 feet breadth from out to out, and weighs about 11½ cwt. It delivers by two rakes, revolving on a centre, placed 18 inches in advance of the cutter-bar, so that the far-end of each rake enters the stuff first, and the axis being vertical, the rake-teeth are always vertical also. This machine cuts exceeding well, and made an admirable division; but the sheaf-bunches were so spread as to measure 9 feet in length upon the ground.

Samuelson's self-raking reaper takes a cut of five feet, weighs about 10½ cwt., and it delivers by two rakes and two gathering-boards, balanced. The cutting was good, but the sheaf-bunches was open to the same objection as those of the preceding machines—a man would be longer in tying them than he would be in gathering and tying a swathe.

Baker, of Wisbeach, competed with a Samuelson's self-raker, improved in sundry details of dividing-irons, and so on, and fitted with Baker's patent elastic rakes, which are constructed with springs, allowing the teeth to bend backward upon encountering an immovable obstacle upon the platform. The work done was very fair, with the exception of the shapeless form of the delivered bunches.

The other machine in this class was Brigham and Bickerton's "Excelsior" self-raking reaper, which also cut and divided pretty well.

The judges could not possibly sanction such untidy delivery as all the sheathing machines made of this crop; and the two awards to the swathers it was not difficult to foretell; Burgess and Key's "improved screw" swathe delivery reaper obtained the *first prize*, and Hornsby's swather took the *second prize*.

The manual back-delivery machines were those of Hornsby (with tipping slat platform); Cuthbert (improved in detail of

gearing and framework, a remarkably strong and serviceable machine); Kearsley (with wrought-iron framing and tipping platform); Samuelson's "Eclipse" (with single lever-gear motion for driving the crank); Banlett's (with drop slat platform); Brigham and Bickerton's "Buckeye Junior" (with tipping platform); and Wood's left-handed machine, with tipping slat platform. The plots of work had been so laid out, that this machine found the lay of the corn entirely the wrong way for it, and good work was not made until the latter part of its trial. Cuthbert, in our opinion, did the best work, taking a full five-feet breadth at once, and the bunches were well laid for tying. Hornsby's machine took 4½ feet breadth at once—the cutting exceedingly well done, and the sheaf bunches well laid. The Judges awarded the prize to Hornsby, and highly commended Cuthbert.

In the class of manual side-delivery machines, the prize was awarded to Hornsby's "Universal Harvester," which has a tipping skew-shaped platform, and a sort of mould-board for shunting the cut stuff to the side behind the horses. A high commendation was given to Cuthbert's machine fitted with quadrant platform.

An extra prize of £2 10s. was awarded to Messrs. Hornsby's "semi-manual" reaper (which has a tipping slat-platform, and also chains for delivering the sheaf-bunches at the side) as being a good machine for its purpose.

The trial may be taken as conclusive in favour of "swathing and against sheaving machines, for heavy and flat-laid crops; for though the swathers were not of the neatest description, the sheaf-bunches were not business-like, either for tying or lying to be weathered. And the manual-delivery machines left their work in better trim, and easier for binding than did any of the self-delivery machines.

The contest is to be held again next year, when even greater prizes and a more important trial may be "got up" by the energetic tenantry at Thorney.

## LOSING MONEY BY FARMING, AND HOW TO PREVENT IT.

STR,—I see so many painful instances around me where an extensive acreage of arable land (over 2,000 acres, in farms varying from 100 to 500 acres), has been causing a loss to the occupiers annually of more than £1 per acre, besides interest of capital, that I am induced to point out the causes, and suggest a remedy. I wish to show how it is that I, on the contrary, realize on a similar soil the improved rent of 40s. per acre, and, in addition, a farmer's profit of 35s. per acre.

It becomes time that I should speak out on this matter, for I have submitted long and patiently enough to the cuckoo cry, "Mr. Mechi, it is the business in town that supports the farm," which implied that the practice I pursued was a wrong and fanciful one, and therefore unfitted for a practical farmer.

The rent of these lands varies from 23s. to 30s. per acre, the former of the same natural quality as my own, the latter very much better than mine. It is not a question of too high a rent, for 3s. or 4s. more or less per acre will never break or make a farmer, although, of course, every man has a right to try and get his farm on the cheapest terms. The immediate cause of loss is that the crops are too small, and in money value less than the expenses.

How is this to be altered? Clearly only by making the crops large and more valuable. You can't reduce or avoid certain fixed expenses, however poor the crop may be. Rent, rates, tithes, taxes, tradesmen's bills, depreciation of horses and machinery, horse labour, manual labour, must be paid, and the farmer can't live without a profit to purchase his food and clothing. Therefore with such minimum crops he loses his money, and leaves his farm too often a ruined man.

The only remedy for this disagreeable state of things is increased crops of much greater value, and how are these to be obtained? Only by increased manure, aided by drainage where required, and deeper and cleaner cultivation. But how is this greatly increased quantity of manure to be got? Principally and most economically by keeping a much larger quantity of live stock, and by feeding them with a good deal of something that did not grow on your own farm, in addition to your own

consumable produce. Don't be afraid to put your hands in your pockets for the wherewithal to purchase cattle food and manure. "But then, Mr. Mechi, suppose that there is no money in the pocket, but is already in the hand, what shall we do then?" My answer would immediately be, Get rid of your farm, and take one of half or one-third its size. It is your only chance; and this brings me to the testing-point of the question—why I succeed, while some of my neighbours fail, in making a profit.

My farming capital is fully £15 per acre, theirs probably less than half that amount. £6 of my capital per acre is invested as an average in live stock, all well-fed, growing, and fattening, and of course I make three times as much manure as those who only have £2 per acre so invested; and as a logical consequence my crops must be proportionately larger than theirs, while the only increase in my expenditure is a somewhat higher rental and the additional labour required for so much more stock and produce. This is the main weakness of heavy land arable farming—too much land in proportion to capital; and it will never be generally altered until landlords and tenants bring themselves to believe that £15 per acre is a much more profitable investment on ordinary land than £5 per acre.

I say £5 per acre, because I am informed by a gentleman of great practical valuing knowledge in this county that the average capital of farmers of 100 to 200 acres in this county is only £5 per acre. Taking the average farm capital of the United Kingdom, I believe it to be only £4 per acre, and the produce £3 12s. per acre.

Those who do not believe in this necessity for a larger acreable capital, and will not adapt themselves to the new conditions of agricultural progress, must pass rapidly to the wall, for they have to compete with many British farmers who are keenly alive to the altered state of things, and are employing a capital in many instances of nearly £20 per acre.

It also becomes necessary to believe that an increased rental (15s. per acre in my case) for paved and covered yards, steam

power, well-drained land, good roads, and few trees and fences, and better general accommodation for man and beast, is profitable; for all these things have a most material influence on farm profits; but I will not go into details in this paper.

The fact is that agriculture is in a transitional condition; we are passing from a large area and a small population to a large population and a consequently small comparative area. Our population was only 10 millions in 1800, now it is 30 millions. The change is rapid from pastoral to arable, and the greatly increased competition for land arising from the greater population has naturally heightened the item of rent, which, at its present high rate, will not permit of cheap and natural, or primitive farming, as in former times.

I know of several instances where farmers have passed from a small to a large farm, and have been ruined by this thinner spreading of their capital. How can they hope to compete successfully with men who I know, on a farm of 1,200 acres in Norfolk, buy £3,000 worth of linseed cake annually to be consumed upon the farm, and thus fill it with fertility?

In another instance, of about the same extent, £120,000, or £100 per acre, has, during a tenure of 25 years, been expended in purchased food and artificial manures. The farmers who only consume what they grow upon their own farms have no chance with such competitors.

My £15 per acre capital is at Christmas stock-taking generally employed as follows:

Live stock... ..	£6	0	0
Horses ... ..	1	0	0
Tillages (including manurings) ... ..	2	10	0
Implements and machinery ... ..	2	10	0
Hay, corn, &c., unsold ... ..	3	0	0
	£15	0	0

I find the capital of £15 per acre insufficient, and that £18 per acre would be more advantageous in many ways.

We should never forget that when we take our corn or stock to market, every other farmer is our competitor, and if he is a cheaper producer than ourselves, we must suffer by the competition as much so as any tradesman or manufacturer who is undersold by his more successful competitor.

Yours, &c.,  
J. J. MECH.

### SMALL FARMERS.

*Small Farmers have no Chance now!*—I am often told this, but I deny the correctness of the proposition. 'Tis true that if a farmer holds 150 to 200 acres of inferior land with an insufficient capital of £5 or £6 per acre, he is likely to succumb to competition; but if a capital of £15 per acre is judiciously invested on such a farm, he may hold his own against the largest occupier. I speak practically on this point, for my own farm is only of 170 acres, and my rent is 40s. per acre on 130 acres of it. The fact is, we are only just awakening to the absolute necessity for intensifying farming, both by the landlord and tenant. It is not now so much a question of rent as of manure; that is the great want of British agriculture, and it is that want that keeps agricultural produce at a minimum, and agriculture poor and humble. Seeing that our farmers multiply rapidly and that our acres have no children, the question of diminishing the size of our holdings should be entertained and commended by landowners. I know so many instances where tenants have been ruined by changing from a small farm to a large one, that it is to me a painful subject. Their capital, barely sufficient for the smaller, became so thinly spread upon the larger farm, that care, anxiety, and ruin speedily followed. I am afraid we are not at all agreed as to what is sufficient capital for the proper and profitable farming of poor heavy land. This, surely, might be worth the consideration of our landowners, and no doubt does in many cases receive it; but a great mass of attachments to old customs must be broken down, and new ideas prevail, ere the proper figure per acre is arrived at either by tenant or landlord. I am not so utopian as to suppose that all this necessary change can take place at once. A nation cannot give up its former and established notions except by slow degrees, and after much examination and discussion. But mighty steers has so changed the general circumstances of the country

that agriculture must really move on a little faster, or it will be, as it has been already, left in the rear of the forward rush of steam-excited progression. I need hardly advert to the necessity for a concurrent action, as between landlord and tenant, on the question of draining, leases, &c.

*London Horses.*—The value of straw as a feeding substance was never better proved than by the following fact. A firm having a large number of heavy waggon horses had frequent occasion for the veterinarian until they were recommended to mix a certain portion of fine cut straw with the clover hay. This has been practised now for some years, and their bill for horse-doctoring is at a minimum. The partner of the firm who told me this said how advantageous it was not to be deprived, as they formerly were, of the use of several horses—to say nothing of the saving in expense and loss. The fact is, the food was too rich or too mucilaginous, for I have often been told that fine-cut hay, unmix'd by straw chaff, balls in the stomach, and thus is, I suppose, deprived of the action of the gastric juices. We know that too succulent or rich grasses are injurious, and no doubt straw chaff mixed with it acts mechanically, if not chemically, with advantage. It would be well for our agricultural friends to know that for several thousand horses belonging to the London General Omnibus Company the food is all passed through the chaff-cutter, with, I believe, a certain proportion of straw. While spring grazing our bullocks on tares, we mix straw with it in their early growth; but as they advance to flowering and podding this is not required, because there is much wheat and oats grown with this, which gets intermixed on passing through the chaff machine.

J. J. MECH.

July, 1867.

### MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY.

THE CENTENARY SHOW, AUG. 16.

PRIZES FOR BEST CULTIVATED FARMS.

FOR FARMS SITUATE IN THE LOW-LYING PORTION OF THE SOCIETY'S DISTRICT.

To the tenant and occupier of not less than 150 acres, £10, the Executors of the late Thomas R. Birch, Netherton, near Liverpool.

To the tenant and occupier of not less than 100 acres and under 150 acres, £8, Mr. John Birch, Orrel, near Liverpool.

To the tenant and occupier of not less than 50 acres and under 100 acres, £6, Mr. R. J. Owden, Halewood, near Liverpool.

To the tenant and occupier of not less than 25 acres and under 50 acres, £4, Mr. John Southern, Colchester, near Warrington.

DAIRY OR GRAZING FARMS.

The best-managed dairy and grazing farm of not less than 200 acres, £10, Mr. R. Lowe, Calverley Hall, near Handley.

The best-managed dairy and grazing farm of not less than 100 acres and under 200 acres, £8, Mr. Thomas Finchett, Rushton, near Tarporley.

FOR FARMS IN THE HIGH-LYING PORTION.

To the tenant and occupier of not less than 100 acres and under 150 acres, £8, Mr. S. Dorning, Swinton, near Manchester.

To the tenant and occupier of not less than 50 acres and under 100 acres, £6, Mr. John Hulme, Pilsworth, near Bury.

Special prizes for best arable farms awarded in the low-lying portions of the district: £20 to Mr. Thomas Atherton, Speke, near Liverpool; two medals, one to Mr. John Grilliths, Rake, near Haverward, and one to Mr. John Fairhurst, Woodlands, near Ormskirk. In the high-lying portions: £15 to Mr. H. Neild, Worsley, Manchester; medal to Mr. George Baultine, of Boleford, near Leigh; best dairy or grazing farm, medal to Mr. Joseph Robinson, Lea Green Hall, Middlewich.



## CUMBERLAND AND WESTMORELAND AGRICULTURAL SOCIETY.

On Wednesday, Aug. 14, the nineteenth annual meeting of this Society was held at Barton Lows, Wigton. The present Show was looked forward to with unusual interest, and in every respect may be termed a complete success. The show of all classes was so good that it becomes a rather difficult task to select any one class for special reference. The show of hunting horses was splendid. The show of cart horses embraced some good specimens. A divided opinion prevailed respecting the show of sheep; but the exhibition was very good.

The following gentlemen acted as Judges:—

**LIGHT HORSES.**—Mr. Usher, Stone Rigg, Kelso; Mr. McCulham, Crackmoor, Straucher; Mr. Jacob Smith, Homberton, Borough Bridge.

**CART HORSES.**—Mr. Carr, The Blooms, Midealder; Mr. D. Dobbie, Tindal Parks, Dumfries; Mr. Marshall, The Haaws, Annan.

**SHEEP, LEICESTER LONG WOOLS, DOWNS, AND PIGS.**—Mr. Ashburne, Seales, Ulverstone; Mr. Bell, Irving, White Hill, Ecclefechan; Mr. Wilkinson, Gift Hall, Garstang.

**HERDWICK AND BLACK-FACED SHEEP.**—Mr. T. Nelson, Bewaldeth, Cockermouth; Mr. W. Noble, Bampton.

## PRIZES.

## CLASS I.—HORSES.

The best mare with foal at her foot for breeding hunters, £3; second, £1; also a cup of the value of £10 to the owner.—First, Mr. J. Brown, Wiggonby. Commended: Mr. H. J. Percy, Howsenrigg, Aspatria; and Sir R. Brisco, Bart., Crofton Hall.

The best mare in foal for breeding hunters, £3, Mr. G. Smith, Papcastle; second, £1, Sir Wilfred Lawson, Bart., Brayton.

The best four-year-old gelding for hunting, £3, Mr. J. Casson, Burgh-by-Sands; second, £1, Messrs. Norman and Son, High Close. Commended: Messrs. Norman and Son, High Close.

The best three-year-old gelding for hunting, £2, and also a cup of the value of £10, Mr. J. Steel, Southerfield; second, £1, Mr. J. Pearson, Langrigg. Commended: Mr. T. Milburn, Grinsdale.

The best three-year-old filly for hunting, £2, Mr. H. Percy, Eskrigg; second, £1, Messrs. Norman and Son, High Close. Commended: Sir R. Brisco, Bart.

The best two-year-old gelding for hunting, £2, Mr. T. Gibbons, Burnfoot; second, £1, Mr. H. Percy, Howsenrigg. Commended: Mr. T. Hodgson, High Flat.

The best two-year-old filly for hunting, £2, Mr. Pattinson, Broomfield Hall; second, £1, Mr. T. Chambers, Felutho. Commended: Messrs. Norman and Son, High Close.

The best one-year-old colt for hunting, £1, and second, 10s., Messrs. Norman and Son, High Close. Commended: Mr. J. P. Foster, Kilhow.

The best one-year-old filly for hunting, £1, Mr. Brockbank, Burgh-by-Sands; second, 10s., Mr. H. J. Percy, Howsenrigg. Commended: Mr. Tordill, Wolsty Stangs.

The best mare with foal at her foot, for breeding carriage horses, £3, Mr. John Jennings, Thornby Villa; second, £1, Messrs. Norman and Son, High Close.

The best mare in foal for breeding carriage horses, £3, and second, £1, Mr. W. Battey, Blennerhasset.

The best four-year-old gelding for harness, £3, Mr. Stamper, Waverton; second, £1, Mr. Carriek, Wigton. Commended: Mr. Donald, Sandon House.

The best three-year-old gelding suitable for harness, £2, Mr. Stamper, Waverton; second, £1, Mr. Pearson, Langrigg. Commended: Sir R. Brisco, Bart., Crofton.

The best three-year-old filly suitable for harness, £2, Mr. Ellwood, Cannonby Hall; second, £1, Mr. Geo. Moore, White Hall.

The best two-year-old gelding suitable for harness, £2, Mr. Wm. Thompson, Eagle Gill; second, £1, Mr. Baxter, Broomfield. Commended: Mr. Moffat, Kirklington Park.

The best two-year-old filly suitable for harness, £2, and second £1, Mr. Tyson, Low Moor House, Kirkhampton.

The best one-year-old colt suitable for harness, £1, Sir W. Lawson, Bart., Brayton; second, 10s., Mr. Timiswood, Grey-stoke. Commended: Mr. Pearson, Langrigg.

The best one-year-old filly, suitable for harness, £1, Mr. Bewley, Warthole Guards; second, 10s., Mr. J. P. Foster, Kilhow.

The best mare with foal at her foot for breeding agricultural horses, £3, Mr. G. H. Head, Rickerby; second, £1, Mr. H. Railton, Snittlegarth. Commended: Mr. Wm. Lawson, Blennerhasset.

The best mare in foal for breeding agricultural horses, £3, Mr. G. H. Head, Rickerby; second, £1, Mr. Brockbank, Burgh-by-Sands. Commended: Mr. S. Blaylock, Wormanby.

The best three-year-old gelding for agricultural purposes, £2, Mr. Blamire, Cumbdovock, Carlisle; second, £1, Mr. Black, Longburgh. Commended: Mr. Blackstock, Hayton Castle.

The best three-year-old filly for agricultural purposes, £2, Messrs W. and A. Skelton, Drumsburgh; second, £1, Mr. Fawkes, Smahmstown.

The best two-year-old gelding for agricultural purposes, £2, Mr. Barnes, Greenrigg; second, £1, Mr. Hodgson, Holly Bush. Commended: Mr. Redmond.

The best two-year-old filly for agricultural purposes, £2, Mr. Fawkes, Smahmstown; second, £1, Mr. Joseph Woolf, Poke Mills, Penrith. Commended: Mr. Frank Meller, Kirkbride.

The best one-year-old colt for agricultural purposes, £1, Mr. Redmond, Spittal; second, 10s., Mr. Henderson, Moorhouse.

The best one-year-old filly for agricultural purposes, £1, Mr. S. Blaylock, Wormanby; second, 10s., Mr. Shadwick, Moorhouse-hall.

The best pair of horses for agricultural purposes, both to belong to the exhibitor, £3; second, £1 10s., Mr. H. Railton, Snittlegarth.

For the best pony, not exceeding 14 hands, £2, Mr. Bell, Inglewood House; second, 10s., Mr. Casson, Burgh-by-Sands. Commended: Mr. Bell, Inglewood.

For the best pony, not exceeding 13 hands, £2, Mr. Graham, Whitrigg; second, 10s., Mr. Carriek, Wigton. Commended: Mr. Battey, Blennerhasset.

For the best colt foal by a blood horse, £3 10s., Mr. J. Stirling, Bridekirk, Cockermouth; second, £1 15s., Mr. Brown, Wiggonby. Commended: Mr. Steel, Lathes.

For the best filly foal by a blood horse, £2 15s., and second £1 12s. 6d., Mr. Steel, Southerfield.

For the best colt foal for agricultural purposes, £1 15s., Mr. H. Railton, Snittlegarth; second, 17s. 6d., Mr. Cowx, Ireby. Commended: Mr. Stamper, Waverton.

For the best filly foal for agricultural purposes, £1 15s., Mr. Barnes, Laythes; second, 17s. 6d., Mr. Hetherington, Park Head. Commended: Mr. Robinson, Low Houses.

For the best hunter, T. H. Parker, Esq., Warwick Hall; second, Messrs. Thompson, Kirkhouse; third, Messrs. Norman and Son, High Close.

For the best hackney, £5 10s., Mr. Casson, Burgh-by-Sands; second, £3 15s., Mr. Wm. Postlethwaite, The Oaks; third, Mr. Graham, Whitrigg. Commended: Mr. Blackstock, Hayton Castle.

## GEORGE MOORE, ESQ.'S, PREMIUM.

The best saddle horse (mare or gelding), up to seven years of age, and of any size, £1, Mr. J. Casson, Burgh-by-Sands; second, £2, Mr. Moffat, Kirklington Park.

## J. P. FOSTER, ESQ.'S, PREMIUM.

The best harness horse (mare or gelding), up to seven years of age, and of any size, £1, Mr. Stamper, Waverton; second, £2, Mr. Carroek, Wigton.

## R. H. WATSON, ESQ.'S (BOLTON PARK), PREMIUM.

For the best foal, got by his horse Reviver, £1, Mr. Pear-

son, Lorton; second, 10s., Mr. Brown, Lorton; third, 5s., R. H. Watson, Esq., Bolton Park.

## SHEEP.

The best Leicester tup, £3, and second, £1, Mr. Jefferson, Preston Hows. Commended: Mr. Watson, Gelt Hall, Castle Carrock.

The best shearing Leicester tup, £3, second, £1, and highly commended, Mr. Jefferson, Preston Hows; commended, Mr. Bell, Townfoot Farm.

The best pen of three Leicester ewes which have reared lambs this year, £2, and second, £1, Mr. Jefferson, Preston Hows. Commended: Mr. Watson, Gelt Hall, Castle Carrock.

The best pen of three Leicester gimmer shearlings, £2, and second, £1, Mr. Jefferson, Preston Hows. Commended: Mr. Watson, Gelt Hall, Castle Carrock.

The best Leicester tup lamb, £1, Mr. Jefferson, Preston Hows; second, 10s., Mr. Parkin, Leegate. Commended: Mr. Jefferson, Preston Hows.

The best Leicester gimmer lamb, £1, and second, 10s., Mr. Jefferson, Preston Hows. Commended: Mr. Parkin, Leegate.

The best long-wool tup, not being a Leicester, £3, and second, £1, Messrs. Norman and Son, High Close. Commended: Major Sanderson, Eden Lacy.

The best shearing long-wool tup, not being a Leicester, £3, second £1, Messrs. Norman and Son, High Close. Commended: Mr. Jefferson, Preston Hows.

The best pen of three long-wool ewes not being Leicesters, which have reared lambs this year, £2; second £1, Messrs. Norman and Son, High Close. Commended: Mr. Crosby, Kirkbythore.

The best pen of three long-wool gimmer shearlings, not being Leicesters £2, second £1, Messrs. Norman and Son, High Close. Commended: C. R. Saunders, Nanwick Hall.

The best long-wool tup lamb, not being a Leicester, £1, second 10s., and commended, Messrs. Norman and Son, High Close.

The best long-wool gimmer lamb, not being a Leicester, £1, second 10s., and commended, Messrs. Norman and Son, High Close.

The best Down tup, of any age, £2, second £1, and commended, Mr. Fothergill, Uldale Hall, Wigton.

The best pen of three Down ewes or gimmers, £2, Mr. W. Parker, Carlton Hill, Penrith; second £1, and commended, Mr. Fothergill, Uldale, Wigton.

The best Herdwick tup, £2, Mr. E. Nelson, Gatesgarth, 'The Cup'; second £1, Mr. R. Brown, Troutbeck, Windermere; third 10s., Mr. G. Irving, Wythop Hall, Cockermouth.

The best shearing Herdwick tup, £2, Mr. E. Nelson, Gatesgarth, Boggle; second £1, Mr. Geo. Irving, Wythop Hall, Cockermouth; third 10s., Mr. Geo. Brown, Troutbeck, Windermere.

The best pen of five Herdwick ewes, which have reared lambs this year, selected from one stock, bred in the district, £2, Mr. E. Nelson, Gatesgarth; second £1, Mr. Geo. Irving, Wythop Hall.

The best pen of five Herdwick gimmer shearlings, selected from one stock, bred in the district, £2, Mr. A. Parker, Nether Row, Caldbeck; second £1, Mr. E. Nelson, Gatesgarth; third 10s., Mr. J. Smith, Branthwaite.

The best Herdwick tup lamb, £1, Mr. G. Brown, Troutbeck, Windermere; second 10s., Mr. Harrison, Augertree, Ireby; third 5s., Mr. G. Brown, Troutbeck, Windermere.

The best black-faced tup, £2, second, £1, Mr. Irving, Shap Abbey.

The best pen of five black-faced ewes, which have reared lambs this year, selected from one stock, bred in the district, £2, second, £1, Mr. Irving.

The best pen of five black-faced gimmer shearlings, selected from one stock, bred in the district, £2; second, £1, Mr. Irving.

The best black-faced tup lamb, £1, first and second, Mr. Irving.

## PIGS.

The best Boar of the large breed, £2, Mr. C. Wills, Burghby-Sands; second £1, Mr. Jonah Taylor, Ireby Mill.

The best Sow Pig of the large breed, of any age, in pig o milk, £2, Mr. Brown, Kirkbampton; second, £1, Mr. Millican, Newton Arloch, Wigton.

The best Sow Pig of the small breed, of any age, in pig o milk, £2; second, £1, Mr. Thomas Moffat, Red Dial.

## AGRICULTURAL GANGS.

The following is a copy of a Bill introduced into the House of Lords by the Lord Chancellor, entitled an Act for the Regulation of Agricultural Gangs:

"Whereas in certain counties in England certain persons known as gangmasters hire children, young persons, and women, with a view to contracting with farmers and others for the execution, on their lands, of various kinds of agricultural work; and whereas it is expedient to make regulations with respect to the employment of children, young persons, and women, by gangmasters: Be it enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords spiritual and temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

"This Act may be cited for all purposes 'The Agricultural Gangs Act, 1867.'

"2. This Act shall come into operation on the 1st of January, 1869.

"3. The following words and expressions shall in this Act have the meanings hereby assigned to them, unless there is something in the context inconsistent with such meanings—that is to say, 'child' shall mean a child under the age of thirteen years; 'young person' shall mean a person of the age of thirteen years and under the age of eighteen years; 'woman' shall mean a female of the age of eighteen years or upwards; 'gangmaster' shall mean any person who hires children, young persons, or women, with a view to their being employed in agricultural labour on lands not in his own occupation; and, until the contrary is proved, any children, young persons, or women employed in agricultural labour on lands not in the occupation of the person who hired them shall be deemed to

have been hired with the aforesaid view; 'agricultural gang' shall mean a body of children, young persons, and women, or any of them, under the control of a gangmaster.

"4. The following regulations shall be observed by every gangmaster with respect to the employment of children, young persons, and women: (1) No child under the age of eight years shall be employed in any agricultural gang; (2) No females shall be employed in the same agricultural gang with males, or under a male person acting as gangmaster; and any gangmaster employing any child, young person, or woman, in contravention of this section, and any occupier of land on which such employment takes place, unless he proves that it took place without his knowledge, shall respectively be liable to a penalty not exceeding 20s. for each child, young person, or woman so employed.

"5. No person shall act as gangmaster unless he has obtained a licence to act as such under this Act. Any person acting as gangmaster without a licence under this Act shall incur a penalty not exceeding 20s. for every day during which he so acts.

"6. No licence shall be granted to any person who is licensed to sell beer, spirits, or any other excisable liquor.

"7. Licences to gangmasters shall be granted by the justices in petty sessions, on due proof to the satisfaction of such justices that the applicant for a licence is a good character, and a fit person to be entrusted with the management of an agricultural gang. Any person aggrieved by the refusal of the justices to grant him a licence to act as gangmaster may appeal to the next practicable court of general or quarter sessions; and it shall be lawful for such court, if they see cause, to grant a licence to the applicant, which shall be of the

same validity as if it had been granted by the justices in petty sessions.

"8. Licences under this Act shall be in force for one year only, and may be annually renewed on the same proof on which an original licence is granted.

"9. There shall be charged in respect of each grant or renewal of licence a fee of 1s., and such fee shall be accounted for and applied in manner in which the fees ordinarily received by the authority granting the licence are applicable.

"10. On any conviction of a gangmaster of any offence against this Act, the justices who convict him shall endorse on his licence the fact of such conviction; and on any conviction of such gangmaster of a second offence against this Act, the justices may, in addition to any other penalty, suspend his licence for a period not exceeding six months; and on any conviction of any gangmaster of a third offence against this

Act, the justices may, in addition to any other penalty, suspend his licence for a period not exceeding two years; and after a fourth conviction for an offence against this Act, the gangmaster shall be disqualified from holding or receiving a licence under this Act.

"11. All penalties under this Act may be recovered summarily before two or more justices in manner directed by an act passed in the session holden in the 11th and 12th years of the reign of Her Majesty Queen Victoria, cap. 43, intituled 'An Act to facilitate the performance of the duties of the justices of the peace out of sessions within England and Wales with respect to summary convictions and orders,' or any act amending the same.

"12. This Act shall not apply to Scotland or Ireland."

The Bill was read a third time in the House of Commons on Aug. 10.

## THE GANG SYSTEM AND THE CLERGY.

At the West Derham ram letting last week the following somewhat sensational discussion occurred:—

Mr. R. C. WINEARLS, the Chairman, said there was one subject which more particularly was exciting attention—namely, the Bill to prevent the employment of women and children in agriculture. This was an effort to strike a blow at the employment of gangs and companies in agriculture. He did not see how the younger branches were to be employed in those operations which went to secure the good cultivation of the soil. He knew it had been said that good domestic servants were rare, in consequence of the employment of women in the field, and also that domestic servants no longer served an apprenticeship in farm-houses. He fancied that the next imposition which would be enforced was that they would have to provide training institutions for domestic servants that they might be forwarded to town "ready made" and "to order." He thought also that perhaps it would be as well to enforce a further regulation—that no young lady should undertake the state of matrimony who was not fully cognizant with household duties, and could then give to those raw girls from the country a domestic education. He knew that Agriculture was charged with great immorality, arising from the employment of women in the fields; but if they looked to the towns they found that there vice was great, with all its concomitants of poverty and privation. They heard in the crowded cities of the overworked sempstress, in whom the lamp of life scarcely flickered. They heard of telegraph clerks dying in ill-ventilated offices; but seldom did it happen that illness seized the English peasantry from overwork, or excessive bodily fatigue (cheers). It was too common amongst those who were large employers of labour, that the weekly expenditure was not adequately represented by the work performed. The combination of labour against capital and the effect of trades unions had done much to discourage the industry of the rural classes.

Mr. JOHN HUDSON, of Castleacre, said he had been an employer of that class for forty years and more, and he did not know how he was to conduct his business without their assistance. They were industrious and, he believed, moral, just as much as the classes above them; so that, with care and attention, he did not see why they should not be enabled to earn their daily bread at weeding corn, and that sort of work, as well as others gained their livelihood at the needle. The consuming class of England could not afford to have poor and weedy crops, for farmers knew that if there was half a crop of weeds there would only be half a crop of corn, which the consumers would not put up with. For the next month the country would be dependent upon foreigners to supply it with corn, there not being enough in England to support the people for five weeks before the new wheat was brought into the market. He feared that he sat between two fires (alluding to his position between the Revs. E. J. Howman and T. White) as the parochial clergy of England had been working against the farmers. (Cries of "No, no," and "Yes, yes"). He lived in a parish where the first move was made against the gangs. A book was published by the present Vicar of Castleacre, who could not pay a compliment to the occupiers

of the land twenty or twenty-five years ago without having a fling at the gangs, which was an unfortunate name. He did not call them "gangs," but "companies." If the clergy would go at noon into the field and give the young people a few words of good advice, it would do more good than depriving them of their daily bread. If those young people were deprived of their work, where were they to go? Join a class of a higher grade? Not long ago he was taken a round by a young man, when he saw elegant young ladies—educated young ladies—leading an immoral life. If they wanted female servants let them go to that class for them! He was told the other day that there were not only scores but hundreds of the daughters of the poor clergy in that class. (Expressions of disapprobation). He would answer for what he said. The farmers had been assailed, and he would tell the clergy to their face that they were doing more to drive the people from the churches than John Wesley did. Let us alone, gentlemen, Mr. Hudson added; let us employ the poor as we think proper; we will take care of them and contribute to their education. Let us alone and nor interfere with us too much; if you do, you will have empty churches, and the chapels will be full.

Mr. AYLMER said he could not allow the remarks of Mr. Hudson to pass unnoticed. He was convinced that the clergy were as well aware as the farmers themselves, that the gangs of this county (if they chose to call them gangs) were as moral as any class of people that existed. Most of them were overlooked by old and respectable men. He was quite satisfied that the clergy were the best friends the farmers had. He had found it so in his neighbourhood, and he would be very sorry to have any remarks passed at his board to their detriment. Mr. Hudson, in his kindly feeling towards the poor, rather too much intermixed the clergy, perhaps, with his remarks on the gang system.

The Rev. T. WHITE said he had not intended to speak a single word on this occasion; but with all the burning soul of a Briton, he protested against such a firebrand as had been thrown down. The clergy and the farmers were one; they were united together heart and soul, mind and tongue; and they knew perfectly well that Mr. Aylmer had expressed the feeling of every man on this point, when he said that if there were any evils in the farming system or in the gang system, he had never yet known a clergyman, who if he went to the chief farmer in his neighbourhood, and would talk and consult with him, would not find a friend in need and a friend indeed (cheers). Perish the atrocious doctrine (for it ought to be only hatched in the darkness of midnight and buried in the tomb of the illegitimate) that the clergy wanted to do anything contrary to the broad common sense and good feeling of the farmers of England (cheers). He did not and would not believe it. He always had maintained, and always should while he had the power of speaking, that there never lived a clergyman true to his calling, who wished to do good in his profession, but he would find the laymen to rally round him and defend the altar, the church, and the throne (cheers).

Sir W. BAGGE said he happened not to be in the house the evening Professor Fawcett brought forward his motion about agricultural gangs, or else, little as he was willing to intrude

on the House of Commons, he should have been moved to make some observations upon his violent attack, not only upon the clergy of the English church, but also upon the squires and landowners. It was a violent attack, not only upon them, but upon the farmers—to the effect that they cared nothing for what the poor people had or what they did, but only for the work they got out of them. From his experience of the farmers of West Norfolk, he was perfectly convinced that it was not their wish to oppress the poor, but to give them every facility for improvement. But the question was (and it was an important one) how were you going to deprive these poor people of their legitimate right? They knew well the difficulty (he had seen it even in his small parish) of getting the poor people to send their children to school at the proper times, even the Sunday school. They knew well that their children could earn something, and what right had you to prevent a man earning sixpence or a shilling by his children if he could do it? Professor Fawcett and John Stuart Mill, and all those of his school—were they prepared to go down to the House and propose that so many millions of taxation should be voted not only to provide these children with education, but to pay for the deficit caused by their going to school? If they did, he told them frankly they would not get it; and

he for one should vote against it. But they must go further. His friend there (Mr. Hudson) had always voted for free trade, and how were they going to carry out that principle, if they did not begin with the children themselves? They had as much right to free trade as any one, and you had no right to stop them earning their money. It was the principle of free trade that you should earn what you could; but then down came these philosophers upon you, and told you that you should educate your children till they were thirteen years old. Then, he answered, "Give us the money, and they shall stop at home." But where was the money to come from? It was the old story—the breeches pocket (laughter). As long as you had plenty of money you could do a good many things, and that was the whole secret. His friend (Mr. Hudson) had mistaken the matter. He had, probably, come across a clergyman who rode a hobby very hard; but let him not say as the old proverb said, "*Er uno discit omnes.*" He (Sir William) said that that clergyman was the exception, and the exception did not prove the rule. He (Sir William) had seen the evil of these gangs, and heard the language used by these boys and girls, and he said it was most disgraceful; but let them not make sweeping allegations, but have some proposition by which they should come to something definite on the subject.

## THE PARIS EXHIBITION.

### TRIAL OF MOWING AND REAPING MACHINES AT FOUILLEUSE.

Never did the advantages of *punctuality* in public festivities receive more striking an illustration than in connexion with the event it is now our duty to relate. We must observe, however, that this demonstration was by no means of a positive character, but on the contrary evidently negative; that is to say, the advantages of punctuality were in this instance set forth by all the drawbacks, all the failings, ill-luck, and grumbings which invariably attend any celebration that has once been put off.

The trials of the mowers, reapers, and hay-makers, which were exhibited in that *terra incognita* rejoicing in the name of Billancourt, and which turns out to be an island somewhere down the River Seine, and the bearings of which must be diligently searched for on the map, if any one wants to find where it is—these trials, we say, were duly announced to take place at his Majesty's imperial farm of Fougilleuse, on Monday and Tuesday, the 22nd and 23rd July. This announcement was the more to be relied upon as authentic and official, that it appeared in the *Moniteur*, and consequently great was the stir, intense were the preparations of the various competitors, English, American, French, and Spanish. All the machines were duly sent to the trial-ground, of course at the expense of the exhibitors; and the morning of that auspicious Monday, which, strange to say, happened to be as fine and favourable as could be wished in this unusually wet season, shone bright and smiling upon a good assemblage of visitors and exhibitors. The plots had been set out and divided; the machines were at their stations; the horses brought to the place at great expense and no small trouble, were duly harnessed; and everything was ready for a start, only awaiting the arrival of the commissioners and jury.

Even the English judge, as fair a specimen of our staid Yorkshire yeomen as could have been selected to represent English agriculture on this auspicious occasion, was on the spot ready to enter upon his arduous duties, and may-be he had travelled all the previous Monday to be in good time that morning. Everything, then, and everybody were on the tiptoe of expectation, all eyes being strained towards the road leading from Paris to the farm. But, alas! all were doomed to disappointment and dismay. After some time of tedious waiting, scarcely relieved by a faint attempt at chaffing, down came a messenger bearing the astounding announcement that, owing to the bad state of the weather (the sun was then shining beautifully, and there had been no rain for the last two days) the trials had been put off till the ensuing Friday and Saturday. Was it not strange that the *Moniteur*, which had duly announced the trials, did not deign to give equal publicity to their postponement? It was evident that the same fatality of mismanagement, want of or-

ganisation, and impotency which have hitherto too prominently characterized all the doings of the Imperial Commissioners in regard to the Agricultural Department of the Paris Exhibition, was again busily at work. But there was no help for it, and horses were speedily unharnessed, the machines taken back, and the exhibitors, together with the forlorn English jurymen, whose adventures have proved ludicrous in the extreme, as will be presently seen, left the Imperial farm wondering and bewildered.

What earthly reasons the Imperial Commissioners had to think that the weather would be more propitious at the end than at the beginning of the week is best known to themselves; however, if such were their computations, they were only doomed to be greatly disappointed. Friday morning came, but lo! the rain — it did rain, the torrents did pour! Those whose ill luck led them to be present can alone form an idea. It seemed as if, in bitter irony, all the clouds of heaven had combined to punish the Imperial Commissioners and overtimid jurymen for their blunder in putting off the trials on the score of bad weather, by pouring on that devoted spot all the watery contents of their huge reservoirs. However, this time all were at their post, except the English jurymen, who thought that in such an emergency discretion is the better part of valour, and who wisely stayed at home. Nor could we succeed in discovering the honorary English Commissioner, Mr. Braudreth Gibbs, who never turned up, although his presence, not to mention his great experience, would have been extremely useful to protect the interests of English exhibitors. The absence from his duty of the English Commissioner is the more strange that no one better than Mr. Braudreth Gibbs knows how to acquit himself in the diligence and zeal of the duties he assumes, however *honorary* they may be. Another circumstance rendered his attendance on that occasion still more imperative, and that was the attendance of American Commissioners and officials. These were in full force and full activity, and we think that it will be found that the results of these trials will pretty well run in the groove which American cuteness, and diligence have so strenuously set them a going. We do not make the observation in reproach, but, on the contrary, in sincere commendation: the Americans stuck manfully to their colours by diligently watching over the interests of those competitors who were their countrymen.

Useless to say that this so-called *public* trial was totally destitute of the element which could give it that character, that is the *public*. There were, during the whole day, barely a score of uncomfortable-looking visitors, completely hidden under their dripping umbrellas. However, that wretched day

was destined to witness the trial of mowers and haymaking machines. The plots, which consisted in a thin crop of clover and lucern on a light soil, rendered awfully sticky by the down-pour of rain, were set out, and each machine placed in front of its task. In order to expedite the trials the Commissioners had the strange idea of dropping *one* jurymen to each machine, and at a given signal all started. The Americans were in full force. Mr. Wood had no less than five of his machines at work, presented by himself and his agents; there were besides Mr. McCormick and Mr. Perry. Among the English exhibitors we remarked Samuelson, whose excellent mower did its work beautifully, and appeared to elicit great admiration among the whole assemblage, jurymen and exhibitors included. There were also the Messrs. Howard with their new Anglo-American mower. It was with great regret we missed the well-known machines of Messrs. Burgess and Key: this was an absence, both on that day and the next, when the reaping machines were tried, which is to be regretted.

Notwithstanding the drawbacks of the wretched weather, the unevenness of a light soil which evidently had never been rolled in the spring, and the frequent occurrence of large ant hills, all the mowers did their work beautifully; especially those of Woods, Samuelson, Perry, and others. Messrs. Howard's new Anglo-American mower, also, did its work admirably; but owing to the restiveness of the horses, after the third round, this mower came to an untimely end, the rack board suddenly broke, and this accident unfortunately put an end to its competition. There were one or two other accidents of the same nature with other machines; but on the whole the work was capitally done; and the result of this trial, accomplished as it was in the midst of the most untoward circumstances of weather, soil, and crops, will at least convince continental agriculturists that the problem of mowing forage crops by machinery is at last practically solved, a fact in which few of them were inclined to believe.

An attempt was made later in the afternoon to try the hay-makers. Among the competitors were the Messrs. Howard, who had two machines, one being their new implement, presenting the novel improvement of the barrel revolving on a central axis. Mr. Nicholson, Messrs. Smith and Ashby were also at work. There were besides a host of others, most clumsily imitated from English models by foreign makers.

At the time we write the awards are not officially known; but as regards the mowers, we should be surprised if the American element, which, as we have already remarked, was so strongly represented, does not carry the principal honours of the day.

The morrow of that wretched Friday broke out a little more encouragingly as regards the weather, and early in the morning every one was at his post; exhibitors, commissioners, and jurymen were in full force, and visitors showed a little more respectable appearance, although their number certainly did not at any time reach one hundred. Even the English jurymen turned up at last, but only to suffer the affront of being disowned by his French and American colleagues. They would not recognize him in any shape or form: the unfortunate Yorkshireman had come without his credentials, and owing to this unlucky omission he was most unceremoniously turned out of the body of men which he had been especially sent all the way from Yorkshire to grace by his presence and illuminate by his judgment and practical intellect. This poor man hung about the place the whole day, forlorn and dismayed, like a haunted spirit. The last we saw of him was in the congenial barn, sheltering from the pitiless rain, and consolingly quaffing champagne.

There were some sixteen or seventeen mowers to be tried on a crop of wheat, the like of which we have seldom seen abroad and never in England. It was a thin crop as regards the wheat element, but a heavy one in reality, owing to a perfect matting of the most heterogeneous growth of weeds we ever saw. Anything so foul we defy our readers to imagine. We heard an English farmer who was present say there was more dirt and nastiness in one of the small plots devoted to each machine than in his whole farm of 600 acres. Add to this the condition of the whole crop, which the heavy rain of the previous day had completely had flat down, so much so that some of the mowers passed over whole tracts of several yards in extent without even touching a single stem of wheat. There was, however, a great difference in the condition of the various plots. There was, for instance, Plot No. 1, which was allotted

to Samuelson's reaper. This was next to the hedge, and it would be almost impossible to imagine a piece more unpromising. Let the reader fancy a strip of wheat first trampled down by one of Crosskill's heavy clod-crushers, then smartly worked by the American rotary harrow, and then, as a finisher, carefully rolled down again with Amies and Barford's water-ballast roller, and he will form an idea of the condition of the crop which fortune had allotted to Mr. Samuelson's machine. This was most unfortunate, inasmuch as Mr. Samuelson's reaper is certainly one of the very best; but owing to the nature of the crop it had to cut, no justice could be done to its qualities.

The next plot, which was infinitely better, fell to the lot of McCormick's reaper, with Burgess and Key's improvement. This machine cut very clean and very close, but the raking apparatus is by far too energetic in its action, as it flings and tosses about the corn, and in very dry weather would be apt to thrash a great deal of the grain. Such a defect might no doubt be very easily remedied, and then this implement would be almost perfect.

Next to McCormick came a small one-horse mower, which did its work remarkably well, although cutting too high, and leaving a great deal of laid wheat untouched. The draught appeared also very heavy for one horse.

Some ten or eleven mowers, English and foreign, were then tried with various success, but more generally with failure; and complete collapse attended their efforts to wade through the entangled mass of weeds and laid corn they had to encounter.

No. 14 plot was allotted to Messrs. Howard's Anglo-American reaper. Considerable curiosity was excited by this new machine, which did its work admirably. There was no plot more closely or more evenly cut. We do not know what the decision of the judges will be, but we can affirm that no machine that was tried at Fouilleuse last Saturday accomplished its task to the greater satisfaction of the bystanders.

In the first part of the day the weather was propitious enough; but as the afternoon wore on, ominous clouds began to gather on the horizon, and before the trials were half over, the rain began to fall again in torrents. Notwithstanding this, the jury at first manfully remained at their post, hoping the weather might clear; but hope was in vain, and the rain continued with pitiless abundance and penetrating intensity, until it fairly drove everybody out of the field. The jurymen ran away to their tent, and the exhibitors, visitors, and others adjourned to the Imperial farm, where an enterprising Frenchman had displayed a good array of eatables, to which the English portion of the assemblage seemed to do great justice. This was a most unfortunate *finale* to a trial, which, notwithstanding all the difficulties which men and nature had so painfully combined to create, offered many points of great interest.

There was, for instance, an excellent machine exhibited by Messrs. Brigham and Bickerton, which did its work beautifully, but which, owing to the pelting rain, was obliged to stop before its task was accomplished. The raking apparatus of this machine is very cleverly contrived; but it seems to us very similar to that of Samuelson's. We remarked also that the draught is very heavy, for the stout horses that pulled it seemed awfully distressed.

Just as we left the field we saw the three-horse Beverley reaper hopelessly waiting to begin its work. "Skedaddle!" was then the order of the day; and we returned to Paris, wet and hungry, without being able to ascertain whether these unfortunate trials will be renewed or not.

The very unsatisfactory nature of the trials at Fouilleuse on the 26th and 27th of July, in the midst of a storm of rain such as is not often witnessed in France, and with a crop trodden down, as if a host had passed over it, led, as a necessary result, to another adjournment. Early on the Monday, notice was given that on Tuesday, the 30th of July, a selection of reaping machines should undergo a fresh trial on the Imperial farm of Vincennes. This was an improvement indeed in every respect. Vincennes, in the first place, is much easier of access than Fouilleuse. Then on that Tuesday the sun was shining, and the crop of oats allotted to the work of the competing machines was upstanding and of fair average.

The soil of the Vincennes farm is extremely light and naturally dry. Judging from a good crop of barley we saw near to the field of oats where the machines were to be tried, we should think that with plenty of manure, of which the camp

and garrison close by must give a good and plentiful supply, fair crops of spring cereals may be grown on that soil. We saw also some good mangolds, but no turnips, although we should think that swedes would thrive better than mangolds.

The homestead at Vincennes is well worth visiting. It is plain, but well built, and to the purpose. Only the buildings are too far apart, too straggling, so that the whole farmstead, including sheepcotes, barns, horse and cattle stalls, piggeries, dwellings, &c., cover two or three times as much ground as necessary.

We saw some magnificent specimens of the large white breed of pigs in the piggery—a building, the arrangements of which are excellent in every respect. We never visited any breeding establishment so beautifully kept. The boxes are sweet and clean, filled up with nice dry litter. At the back, there is a gangway for the attendants, and in front there is a large court-yard, well paved, and kept very clean. Through this court-yard runs a stream of pure spring water, with a kind of wallow bath, in which the pigs may bathe and wallow at pleasure.

It is at this farm that the Emperor keeps his flock of South-downs. We saw this year's lambs, but we were not greatly impressed with their merits. The shepherd, in reply to our questions, said that they were just weaned, and therefore in low condition. It appears that ill-judged economy prevails at Vincennes, and no other food but green fodder is given to the flock—no cake nor pulse of any kind! Even the rams are kept on that economical (?) diet. The result of such a parsimonious penny-wise-and-pound-foolish system is, that with the exception of one or two good animals, the whole lot cut a very poor figure.

Leaving the farmstead, we were directed to the trial-field some good distance away towards the celebrated Vincennes butts, where a large number of soldiers were practising the new Chassepot rifle. Only the road divided the two experimental fields. But what a contrast between the two! On the one were tried machines, the object of which is to save labour, lighten the lot of man, spare the sweat of his brow, and by a cheaper and more rapid process render the harvest of his crops safer because more speedily secured. On the other, so near that the smoke of powder as wafted by the wind creeps over the harvest field, a weapon of terrible power is being tried—not to aid production, but to compass destruction with fearful rapidity. Both implements are intended to save work and time, but there stops their point of resemblance; in all else how diametrically they are opposed! The aim of the one is to preserve mankind, that of the other to destroy it. No one could help being struck with this strange proximity of two trials so opposite in their nature.

It appears that this international jury, of which our countryman had as much a right to be one as any Frenchman, or American, or Spaniard present, had even the bad taste to walk coolly into their tent, where a sumptuous lunch was laid and champagne corks flying, and leave their English colleague at the entrance, without asking him to join their party. We really think that some explanation should be required by our authorities for the sake of the dignity of our commissioners, and an apology ought to be demanded.

This time our countryman was ornamented with a piece of green ribbon, similar to the one which graced the button-hole of the jury. What was the object of that distinction we are at a loss to understand, for this badge did not in any way admit the Englishman to the deliberations of the jury; and although we understand that they condescended so far as to invite him to lunch, an invitation which he very properly declined, his exclusion was as rigorously enforced as on the previous occasion. We cannot help thinking our countryman would have best consulted his own dignity and that of the body who delegated him, by withdrawing altogether after his first snubbing.

Who were the men that composed that jury? With the exception of two or three gentlemen well known, and in a high position, nobody could tell us. There was a host of American gentlemen conspicuous for their activity, and quite a crowd of young gentlemen with eye-glasses stuck up in their eyes, looking very much impressed with the importance of the duties they had to perform. We were informed that most of them belonged to the Imperial Commission, and were actually intrusted with the supreme management of the Great Exhibition in the Champ de Mars. This accounted in our mind for the scandalous shortcomings and mismanagement of that huge

political speculation, which, however great its attractions may be, will remain in the records of history as a lamentable monument of a great idea wrecked upon the narrow spirit and rapacious imbecility of those who were intrusted with its management.

We know not whether the favourable circumstances of this adjourned trial had attracted the full attendance of the judges, but it seemed to us that the staff was much more numerous than at Fougilleuse.

There had been twelve machines selected from those that were tried on the previous Saturday for further trial at Vincennes, where they were placed in the following order:

1st, Wood; 2nd, Peltier (French); 3rd, Crosskill; 4th, Howard; 5th, Seymour and Morgan of New York, presented by Durand of Paris; 6th, Pinaguy and Jarvi (Spanish); 7th, Samuelson; 8th, Brigham and Bickerton; 9th, Kiersley; 10th, Massey; 11th, M'Cormick, with Burgess and Key's improvements; 12th, Lallier (French).

Each plot measured about three-quarters of an acre, and the time spent by each machine was as follows:

Wood .....	32 minutes.
Peltier .....	60 "
Crosskill .....	50 "
Howard .....	30 "
Seymour and Morgan .....	32 "
Samuelson .....	24 "
Brigham and Bickerton .....	—
Kiersley .....	38 "
Massey .....	26 "
M'Cormick (Burgess and Key) .....	25 "
Lallier .....	" "

Unfortunately for Messrs. Brigham and Bickerton's machine, it broke down, and could not accomplish its work. The heavy furrows and bad condition of the surface were evidently against that otherwise good machine. This shows how important it is to give all lands intended for the work of mowers and reapers a good rolling in the spring. Had such an operation taken place at Vincennes, no doubt Messrs. Brigham and Bickerton's machine would have been more successful.

At the time we write this report, the award of the Judges is not officially known, but there seems little doubt but M'Cormick's machine, with Burgess and Key's improvements, takes the first prize, and this, we must say, most deservedly, not only on account of the excellence of its performance, but also as a well-earned tribute to the two names connected with this machine. M'Cormick may be considered as one of the first inventors of reaping machines, and the firm of Burgess and Key is perhaps more closely identified than any other with the improvements and manufacture of that class of agricultural machinery. Indeed, the absence of that firm from the trials at Vincennes was again much regretted by the heads of the jury, who expressed to the writer of this report, in reply to his explanation of the reason which had prevented the Messrs. Burgess and Key from exhibiting in Paris, the high opinion they entertained of their machines, and the regret they felt at their absence from the trial field on that day.

It is obvious that the policy of the French jury in making their award is perhaps more to recompense the men who have made themselves most conspicuous by their efforts to bring any class of machines to perfection than the merits of the machine itself. This, after all, is a just and proper spirit, which every sensible man must commend, especially when the trials are, like the one under our notice, in connexion with a great international exhibition. We must not be understood, however, to say that M'Cormick's machines did not do its work satisfactorily, but no one who is able to judge will cavil with us when we affirm that a few other machines—such, for instance, as Samuelson's, Howard's, and one or two others—did their work, not better certainly, but equally well, and yet the award must be acknowledged as a just one and the only one which the Judges could make consistently with justice. We take this opportunity of qualifying here the remarks we made in our last report respecting the action of the rakes in M'Cormick's machine, which at Fougilleuse we thought too energetic. This must have been caused by the bad condition of the crop, because at the Vincennes trial we observed nought of that jerking motion we had remarked at Fougilleuse. At Vincennes the machines worked beautifully, cutting clean and even, and laying down the sheaves as gently as can be done mechanically.

After the trials were over, a gangway was cleared right across the work done by the machines, and when the judges had retired we were enabled to make a careful survey of the various plots. We were particularly struck with the evenness and regularity of the work done by Samuelson's machine. It will be seen, by referring to the account we have given of the time each machine took in doing its work, that Samuelson's did it in the shortest time. In point of excellence the work done by that machine was surpassed by no other in the field. The next plot had been worked by the very ingenious machine of Messrs. Seymour and Morgan, the raking apparatus of which consists in a mechanical arm most cleverly contrived. This machine cuts very clean, and lays the sheaves evenly, but we remarked that the raking apparatus cuts and wastes many ears of corn. The only fault of this machine is that it is too favourable to the gleaners at the expense of the farmer.

Then we came to Messrs. Howard's plot, which looked really splendid. In no other were the bundles more regularly and smoothly laid down on the stubble. The gathering was also complete, as no stray corn could be detected. In one spot only was the stubble irregularly shorn. It was explained to us that this was owing to the breaking of one finger. The way these machines crossed the furrows was the subject of wondering remarks on the part of the bystanders, many of whom, no doubt, had thought such a feat almost impossible. As regards the straightness of driving we think the palm of merit must go to Messrs. Howard's machine; and this will create no wonder when we state that our old friend John Hullatt, the ploughman, that hero of so many competing trials, had charge of the Bedford horses—a splendid team, by the way—who, like their skilful conductor, seemed to know what they had to do, and did it with a will.

The Beverley machine came next, but we must say it was no favourite with the French judges and public. It was first propelled by a miserable French team, not only unused to the novelty of the draught, but unequal to its heaviness. Had it not been for the loan of the Bedford team we doubt very much whether Mr. Usher would have been able to accomplish the work allotted to him. After all, this machine worked well and the swathe was beautifully laid, but it was of no use; neither the judges nor the public would look at it. The thing is evidently too unwisely and clumsy for continental agriculture.

Mr. Wood's machine is too well known to need a description, and its work was very good.

As regards the trials at Vincennes, we may conscientiously state that nothing could exceed their fairness and completeness. The circumstances in this instance were as favourable as they were the reverse at Fougereuse, with one exception, however, and that was the commissariat department, which at Vincennes was sadly deficient. Like the cavalry at Hounslow, the mere public at Vincennes were totally unprovided with victuals. The enterprising Frenchman who at Fougereuse had so bountifully provided, in the Imperial barn, for a public who were conspicuous by their absence, had unfortunately received no notice of the adjournment to Vincennes, and consequently did not come, to the great dismay of the spectators. The only miserable substitute for the well-garnished tables of Fougereuse was provided by a poor woman who fixed a small table by the roadside, on which she displayed a few loaves, a bit of cheese, and a string of dry sausages, which had certainly the colour, and seemingly the consistency, of mahogany. Wretched as this fare was, it soon vanished under the attack of the first comers, and the bulk of the public had to return to Paris literally starving.

The staff, among whom we noticed many of our American friends, adjourned to the homestead, where M. Tisserand, of the Imperial household, entertained them.

Late in the afternoon the trial took place of the new American machine called the *rotary spader*. It is a kind of digging machine drawn by horses, and said to accomplish the work of the spade. We know not what impression it produced on the mind of the jury, but it seemed to us of little practical use in its present shape. The draught is very great, and its really most ingenious contrivances and mechanism by far too delicate for the rough work of the field. If the digging system of cultivation as advocated by Mr. Wren Hoskyns is ever to be realized, it is evident that mighty Steam alone can be the motive power.

As soon as we can ascertain the official award of the judges

we will communicate it to our readers; but although our American friends, who seem to know every thing beforehand, most confidently circulate a prize list of their own, we think it more advisable to wait patiently for the official announcement. Useless is it to say that in the American list all the American machines are far ahead of the English, nor should we be surprised if such were really the case.

#### AWARDS OF THE JURY UPON FIELD TRIALS OF MOWING AND REAPING MACHINES AND HAYMAKERS.

The following list has been published since our correspondent's report was received:

##### GRASS-MOWING MACHINES.

First prize to W. A. Wood, New York and London.  
Second prize to M. Perry, Kingston, Rhode Island, America.  
Third prize to C. H. McCormick, Chicago, Illinois, America.  
Honourable Mention.—Samuelson and Co., Banbury, England.

##### REAPING MACHINES.

First prize to C. H. McCormick (Burgess and Key).  
Second prize to M. Durand, à Lignières.  
Third prizes to Samuelson and Co., and W. A. Wood.  
Honourable Mention.—J. and F. Howard, Bedford, England, and M. Massey, Canada.

##### HAYMAKING MACHINES.

First prize to N. Nicholson, Newark, England.  
Second prizes to J. and F. Howard, Bedford; and Smith and Ashby, Stamford, England.  
Third prize to M. Heyland, à Colmar.  
Honourable Mention.—Silas Herring, New York.

#### BILANCOURT AND ITS MANAGEMENT.

##### THE DOG SHOW.

Some surprise has been felt to find that the Messrs. Howard only came second in the award of prizes for haymakers at the Fougereuse trials, on the 26th of July last, Mr. Nicholson obtaining the first prize. This is only another instance of the same policy on the part of the Commissioners, to which we alluded last week, and which consists rather in rewarding men than implements. Mr. Nicholson is considered here as the first inventor of the haymaker, or rather the one manufacturer whose name has the longest been connected with the manufacture of haymakers; and to him the first prize was awarded. After all, there is something in that policy which one can understand; but the question will naturally be asked, Why, then, try the implements at all, with the view of testing their respective merits, if the award is to be so directly influenced by the more or less time an exhibitor has been in the trade? That is the incomprehensible part of this fresh instance of the extraordinary inconsistency and bungling infatuation which have hitherto characterised all the doings of this precious Imperial Commission. It is, however, with great pleasure we come at last to something more creditable, as a result of their efforts to draw visitors to the lonely shores of that forlorn island of Billancourt, and this is the Dog Show.

Our readers are aware that it was imagined by the Imperial Commission, and regarded by them as a most luminous idea, from which great results would flow and plenty of money be realised, to shift a portion of the agricultural department of the Great Exhibition to a lonely island, some three miles away from the Champ de Mars, down the river Seine. The selection was most unfortunate, as there is no railway communication to that spot, to which the only access is by a dusty road, and over a bridge where toll is levied on every man and beast that crosses it; or by the crazy boats which slowly ply on the river. People say that this precious scheme of Billancourt originated with the enterprising owners of the island and lessees of the bridge. However this may be, never was a scheme ushered into existence with greater expectations on the part of its sanguine originators. This deserted spot was not only to be set up with agricultural implements, exhibited under ornamental sheds, built of course at the expense of the grateful exhibitors who would have the privilege of displaying their goods and their ingenuity on that favoured spot; but the place was to be rendered even more attractive by a

serial round of cattle and other exhibitions, where sales by auction would take place, to which, exhibitors were told, great crowds of anxious buyers from all parts of the world would eagerly flock.

So great were the expectations raised, that enterprising men were found to bid very large sums of money for the various privileges attending such a scheme. We are almost afraid to quote the sum paid for the privilege of advertising. Equally large sums were paid by a poor fellow for the boon of erecting all kinds of sheds for refreshment, so unbounded was to be the amount of creature-comforts that would be sold to crowds of hungry visitors. A very handsome and costly building called a "kiosque" was erected, at an enormous outlay, on the river-side, with dining-rooms, and cabinets, &c. In one word, every preparation which ingenuity stimulated by speculation could devise was made, regardless of expense; and it was with great self-satisfaction that the Imperial Commissioners fixed their turnstiles and prepared their cash-boxes, on every available spot of this highly-favoured island.

The whole space of time during which the Great Exhibition would remain open—that is, from April to October—was divided into fourteen periods of a fortnight each, during which the various shows were to be held. Thus the first fortnight of April was allotted to what is called in the official catalogue "Races ovines de boucherie (reproducteurs)," which we can only translate thus: "Various meat-producing breeds of sheep (breeding stock)." The second half of that month was devoted to a fat-cattle show.

The merry month of May saw first a show of milk-producing bovine breeds, and, secondly, one of wool-producing breeds of sheep.

In June we had first a show of draught horses, and then one of poultry.

In July there was a show of draught cattle breeds, and in the second fortnight one of carriage and saddle-horses.

In August we have just had the dog show we are about to describe; and afterwards we are to have one of draught oxen, in pairs, to be given to the strongest and best-trained with yoke or collar.

In September there will be a pig show, and then one of asses and mules.

In October there will be another show for meat-producing breeds of cattle in fat and breeding conditions; and, lastly, one of divers animals already acclimatized, or susceptible of being acclimatized.

Those who planned this comprehensive scheme must have thought that farmers and breeders are a class of men who have plenty of idle time on their hands and a vast amount of money in their pocket. Suppose a breeder wants to exhibit his sheep, he must send his animals and the necessary attendants to the island of Billancourt early in April; and suppose he is also an exhibitor of cattle, he must send again in July and September. If he has good horses to show, or else poultry; oxen, pigs, or dogs, as most breeders have, he must either send every time the particular show takes place, or else keep a regular staff on the island, and himself take a set of rooms in the Kiosque. This for the exhibitor. But what about the unfortunate visitor? Suppose a man wants to study the various French breeds of sheep, cattle, horses, poultry, and dogs: to satisfy his desire he must either make as many journeys as there are shows that may interest him, or else remain in Paris the whole of the seven months.

The natural consequence of such an incongruous scheme has been a most lamentable failure. Every expectation has been doomed to disappointment. The refreshment sheds have remained tenantless; the Kiosque silent and empty; the usual solitude of the island only disturbed by a few persevering exhibitors, hoping against hope to receive the visit of a stray customer. The turnstile-keepers sleep over their forsaken barrier, and the natural desolation of the spot is only rendered more desolate by the vain attempts made to galvanize it into something like animation and activity.

On one of the extremities of the island a small area has been set apart for the trials of ploughs and other implements, the same space being tilled over and over again, until the soil, naturally sandy, has been reduced to the condition of ashes. It is on that spot that the Imperial Commissioners wished Messrs. Fowler and Howards to work their steam ploughs: about three acres were offered to each, and they were bid to work on that space over and over again (at their own

expense) the first week in every month. We have no need to say that these gentlemen peremptorily declined that privilege.

Last week was devoted to the dog show, and we thought we would once more risk our lives on one of the river boats and make another voyage to the islands. When we landed we were immediately impressed that an unusual stir was disturbing the wonted solitude of the place, or rather breaking the silence that usually sits upon it like a gloom. But this was not indeed owing to the throng of visitors, for they were as few as ever: but to the barking of a multitude of dogs, which, from the deep growl of the St. Bernard to the shrill squeaking of the Havanaese lap-dog, filled the air with such a chaotic noise as can be seldom heard, especially at Billancourt. There was, besides, Messrs. Ransomes and Sims' thrashing machine in full activity, the representatives of that extensive firm having, as we were told, improved the occasion by thrashing the wheat crop of a neighbouring farmer to turn in an honest penny. In the trial field there was a Bedford plough at work, with no other witnesses of its achievements than a solitary Frenchman and the man that held it.

A first glance at the show convinced us at once that it was one of no ordinary merit, and we inquired immediately where a catalogue could be obtained; but no such thing was to be had; the one published by the Imperial Commission was so inaccurate and incomplete that only a very small number were printed, and the jury were actually obliged to make a fresh catalogue of their own, and have it printed at their own expense. That edition was also exhausted; but we were coolly told that on the Monday following—that is, on the day after the last one of the show—parcels of new catalogues were expected, and would then be available to visitors!

By dint of begging we obtained at last a fragment of a catalogue, fortunately containing a list of the French breeds of dogs. These alone we shall examine here, as any account of the English and other breeds well known in England would possess no interest for our readers. Suffice it to state that beyond one or two English dealers in dogs who are settled in Paris, there were no other English exhibitors besides the Messrs. Howard, of Bedford, and a Mr. Green, hailing from St. Pierre-lès-Calais, near Calais. The Messrs. Howard obtain a great many prizes. They exhibit some very fine Spaniels, and carry the first prize for retrievers, and also for greyhounds. We may also notice the other classes not indigenous to France—such as Newfoundland, Danish, Pomeranian, and Great St. Bernard—all well known in England, by saying that better specimens of these breeds we never saw. Of the English breeds there was a numerous exhibition. An English dealer who had exhibited a wonderful pen of King Charles's dogs, which he described as the best in England, was very wroth at having only the second prize; and we must say that in comparing his dogs with those to whom the first prize had been awarded, his anger was somewhat justified. There was a wonderful lot of Skye and bull terriers, breeds which seem to be great favourites with the French. The show of lap-dogs, little things with white curly hair and blue ribbons, resting on crimson-satin cushions made of the softest down, and attended by smart French maids, was most extraordinary. These dogs, which we never saw before so numerous nor so carefully exhibited, were described in the catalogue as Havanaese. The pugs were also in great force; but having no particular liking for all those fancy breeds, or what the angry English exhibitor called *salons* breeds, we speedily entered the sheds where the sporting breeds of France were exhibited.

France has always been conspicuous for the sporting character of its inhabitants; not, indeed, in the same sense as is understood in England, for French taste lies rather in the pursuit of game than in fox-hunting, and such like thorough English sports. On the other hand, game is not so plentiful in France as it is in England, owing to the difficulty of preserving on highly-divided properties, such as they are in France. This relative scarcity has naturally led to the rearing of various breed of dogs suitable to the peculiarities of each district. We may particularly remark the Vendean *Griffon* dogs as a breed well adapted to that marshy and wooded country. It is a kind of half-spaniel half-sheepdog breed, with a most intelligent head, shaggy hair, and a very distinct and well-defined character. There is also a breed called *Braques*, comprising wonderful pointers, in which class there were many splendid dogs.



The *Griffon* breeds comprise, besides the Vendean tribe above described, all the various breeds of setters; while the hound tribes are divided into what are called large and small *brigquets*, *Bussels*, and *Bussels Griffon*—the latter chiefly used for hare hunting, and the former for deer, wolf, and wild boar. Some of the larger breed of *Briquets* are grand animals, with beautiful heads, and great muscular power.

We remarked also the Pyrenees breed of dogs used for boar-hunting. Their size is immense, and their heads very large, with formidable fangs, and great power.

Among the many varieties of hounds, we were also very much struck with a breed called the *Languedoc*. They are of

middle size, white, with black and tan spots, long-lapped ears, and a tan spot over either eye, which gives them the appearance of wearing a pair of spectacles. In the same class was exhibited another breed called the *St. Hubert*, and belonging also to the South of France. Like the *Languedoc* hounds, these have a very peculiar head, with a long curved nose, and long ears hanging down almost to their knees, the very hound, in fact, that Shakespeare describes so truly.

On the whole, this was a fine show, and had it been held in a more favourable spot and under better auspices, it would have attracted the attention of every sportsman in Europe.

## SALES OF STOCK.

**SALE OF LORD FEVERSHAM'S SHORTHORNS.**—On Tuesday, August 6th, at the Griff Farm, Duncombe Park, Helmsley, Mr. Stratford sold some of the Shorthorns bred by the late Lord Feversham. Almost all the better animals were retained by the present Lord Feversham, and those sold made very poor prices. Cows and heifers: Mint, in-calf, Mr. T. Dawson, Poundsworth, 32 gs.; Laurel Leaf (winner of 27 prizes), Mr. J. Borton, Barton, 19 gs.; Saucelox, in-calf, Mr. Hawthorne, 21 gs.; Valetta, in-calf, Mr. Stamper, Highfield, 25 gs.; Bilberry, in-calf, Mr. Wayman, Pannal, 43 gs.; Pride of Southwick (winner of 27 prizes), Major Stapylton, 61 gs.; Charity, in-calf, Mr. Cattley, Stearsby, 38 gs.; Fancy Lady, in-calf, Mr. Wilkinson, Whitby, 30 gs.; Lucia, in-calf, Mr. Fenwick, Kirbymoorside, 27 gs.; Calcutta, in-calf, Mr. W. J. Robson, Ouseburn, 25 gs.; Gertrude, in-calf, Mr. J. H. Phillips, 40 gs.; Camellia, newly calved, Mr. Ashton, Workop, 36 gs.; Magdalen, in-calf, Mr. Dawson, Otley, 52 gs.; Cherry Blossom, in-calf, Mr. Wayman, 40 gs.; Gwendoline, in-calf, Mr. Dennis Peacock, 13 gs.; China Rose, in-calf, Major W. C. Worsley, 25 gs.; Susannah, in-calf, Mr. Watson, Seaton Ross, 26 gs.; Cowslip, in-calf, Mrs. Pierce, Bedale, 23 gs.; Princess 3rd, Mr. Bolton, 20 gs.; Gem, Mr. J. H. Phillips, 27 gs.; Lioness, Mr. Cattley, Stearsby, 31 gs.; Crimson, Capt. Challoner, 26 gs.; Georgina, Sir G. O. Wombwell, 30 gs. Bulls: Vesuvius, by Vice-Chancellor, Mr. S. Loy, Pickering, 38 gs.; Veteran, by Vesuvius, Mr. Stamper, 25 gs.; Clifton Down, Mr. Jas. Hopper, Kirby Grindalith, 45 gs.; Cherry Duke, by Vesuvius, Major Stapylton, 26 gs.; St. Alban, by Orestes, Mr. Chapman, Laughton, 40 gs.; St. Michael's Mount, by Vesuvius, Lord Herries, 30 gs.; Grand Duke Vladimir, by Orestes, Major W. C. Worsley, 43 gs.; Cecil, by Orestes, Mr. Phillips, 115 gs.; Columbus, by Vesuvius, Mr. Fox, Luton, 31 gs.; Marquis, by Lord Lyon, Mr. Dawson, Otley, 30 gs.; Laucelot, by Lord Lyon, Mr. Brooksbank, Tickhill, 25 gs.; bull calf, by Orestes, Mr. Danby, Routh, 22 gs.; bull calf, by Orestes, Mr. Hawthorne, 11 gs.; g. calf, by Veteran, Mr. G. B. Hall, Birch, Oswaldkirk, 8 gs. Several Alderney cows were also sold, at prices varying from 15 gs. to 25 gs. each.

**SALE OF MR. J. RAWLENCE'S HAMPSHIRE DOWN RAMS AT BULBRIDGE.**—The business commenced with the letting of 18 ram lambs. Lot 6 was let to Mr. A. Morrison, of Fonthill, for £63, and lot 3 was let to the same gentleman for £42; lot 11 was let to Mr. Moore, of Littlecot, at £37 16s., and lot 16 to Mr. Budd, of Hatchewarren, at £23 2s.; lot 4 was let to Mr. Brown, of Avebury, at £21; lot 15 was let to Mr. Lewis, of Chilton Candover, Hampshire, at £31 10s.; and lot 18 to Mr. Fleetwood, of Coombe, also at £31 10s. The letting of these 18 lambs averaged £24 3s. per head. The next class consisted of ram lambs for sale, singly and in pairs. Lot 27, a single ram lamb, was sold to Mr. Moore, of Littlecot, for £37 16s.; and lot 25, also a single lamb, to Mr. Russell, of Farningham Court, Kent, for £26 5s. There were six 2-tooth rams for letting, and eight for sale. There were also five 4-tooth rams for letting, and five for sale. The biddings concluded with the sale of three 6-tooth rams. The whole of the stock offered, rams and ram lambs, for sale and letting, averaged £14 6s. 5d. per head. The total amount realized on the 107 lots was £1,954 1s.

**SALE OF MR. BENNETT'S HAMPSHIRE DOWN RAM LAMBS.**—The sale and letting of about 100 ram lambs, the property of Mr. W. F. Bennett, took place at Chilmark. Messrs. Ewer and Winstanley were the auctioneers. Business commenced with the letting of 12 very superior Hampshire Down ram lambs. These realised 16 gs., 12½ gs., 11½ gs., 11 gs., 9½ gs., 8½ gs., 8 gs., 7½ gs., 7 gs., and 6½ gs. A two-tooth ram was let for 14 gs., another for 9 gs., and a third for 7 gs. The ram lambs were sold in singles and pairs. The prices for singles were 10 gs., 9½ gs., 9 gs., 8 gs., 7 gs., 6 gs., and 5 gs. Pairs realised 14 gs., 13 gs., 12 gs., 11 gs., 10 gs., 9 gs., and 7 gs. One of the two-tooth rams sold for 9½ gs., and the rest at from 5 to 6 gs.

**SHEEP SALES AND RAM LETTING.**—Mr. Sexton's sale: The upset price was in all cases 5 gs. and only three of the ram lambs for letting were passed. Mr. Newson conducted the business with his accustomed address, and knocked down the first sheep to Mr. St. George Burke for £6 10s. The second lot was bought by the Hon. C. G. Talbot for £8; and the same gentleman subsequently bought three other sheep for £7 15s., £8 5s., and £6 10s. The top price realized for two-shear sheep was £10 10s., given by Mr. Hawkins, who also bought another for £9; and Mr. Brightwell gave £9 for the last of the two-shear sheep. The first shearling brought a smart competition, and eventually was knocked down to Mr. Luck for £14, and the next was bought by Mr. G. Wood for £16. The fifty rams sold averaged over £7 each. The ram lambs for letting were then taken, and only three were passed. The prices ranged from £5 10s. to £7 5s.; the average was nearly £6. The two-shear sheep came next, and the first was hired by Mr. G. K. Cooper for £18 10s., and the next by Mr. Ranson for £10. The shearlings brought from £5 15s. to £15. The average of the two-shear and shearling sheep was as nearly as possible £8.—The flock of long-woolled Norfolk rams of Mr. Hugh Aylmer, of West Dereham, was let by Messrs. Salter, Simpson, and Bacon, on Thursday, at the Abbey Farm, and attracted a number of the leading flockmasters in Europe. The prices realized were in advance of all Mr. Aylmer's previous lettings. One hundred lambs were let for £64 7s. 6d., or an average of £6 8s. 10d.; one realized £12 10s., that being the highest price of the lambs. Eighty shearlings were let for £839; one was secured for £31 10s. by M. Amyot for his Imperial Majesty the Emperor of the French; the first fifty averaged £10s. 16s. 1d. each, and the whole eighty £10 9s. 9d. Ten two-shear sheep realized £99 5s., or an average of £9 18s. 6d., the highest-priced one being hired by Mr. Symonds, of Auckland, New Zealand, the price being £24.

**THE MARHAM NORFOLK RAMS.**—The annual show and letting of Mr. T. Brown's, took place at Marham, and was the most successful ever known here. Messrs. Lane Garne, and Fletcher, from Gloucestershire, Mr. Allen, Monks-hall, and other noted ram-breeders were present, and the most valuable animal offered, No. 34, was secured by Mr. Garne of Oldsworth, Gloucestershire, for £30. Moonham and Allen also secured rams. The eighty shearlings realized £896 3s., being an average of £11 4s. 6d.; the eighty lambs realized £508 14s. 6d., or an average of £6 7s. 8d.; nine two-shear sheep let for £80 17s., and a three-shear sheep left or £8 8s., and the total result of the letting was £1,494 2s. 6d.

**SALE OF MR. TREADWELL'S RAMS**, by Mr. Mumford, auctioneer.—The following are the prices realized for the different lots with the purchasers:—No. 1 was a two-year-old shear sheep, knocked down to Mr. Bryan, of Soutley, near Witney, for 15½ guineas. No. 2, also a two-shear, was let for the season to Mr. Pell, near Wellingborough, for 7 guineas. No. 3, a shearding, was let for the season at 11 guineas, to Mr. Roberts, of Casswell, near Witney. These gentlemen are two of the most eminent Oxfordshire Down breeders, and the hiring of these tupps by such good judges must have been gratifying to Mr. Treadwell. No. 4 fell to the bid of the auctioneer for 11 guineas, who is starting an Oxfordshire flock. No. 5 went for 12½ guineas, to Mr. Smith, near Rickmansworth. No. 6, for 6½ guineas. No. 7, for 8 guineas. No. 8, for 9½ guineas. No. 9 fell to the bid of Mr. Sanders, of Bletchley, for 12 guineas. With No. 10 in the ring, it soon became evident that high prices would now be the order of the day, and he was quickly knocked down to Mr. Day, of Brickhill, for 20 guineas. This was the first of 10 very large grand heavy woolled Shearlings for which Oxfordshire, Sussex, Bucks, Beds, Herts, and Northamptonshire breeders spiritedly competed. The other lots fetched the following prices:—11, Warr (Lenborough) 20 guineas; 12, Bennett (Hillesden), 16½ guineas; 13, Stilgoe (Adderbury Grounds), 20 guineas; 14, Wright (Sussex), 15½ guineas; 15, R. Mumford (Chilton), 18 guineas; 16, Edey (near Northampton), 16½ guineas; 17, Edey, 14 guineas; 18, Everett, 13½ guineas; 19, Edey, 20 guineas; 20, Warr, 18½ guineas; 21, Day, 14½ guineas; 22, Brett (Waddon), 14 guineas; 23, Claske (Iver), 16½ guineas; 24, Linnell (near Towcester), 14 guineas; 25, Kimble (Worminghall), 15 guineas; 26, Bennett (Dr. Lawford, Linslade), 12 guineas; 27, Attenborough (Wing), 12½ guineas; 28, Day, 13½ guineas; 29, Day, 10½ guineas; 30, Lines, 12 guineas; 31, Perkins (Winchendon), 12 guineas; 32, Watts, 11 guineas; 33, Maydon (Salden), 11 guineas; 34, Guy (Whitchurch), 9½ guineas; 35, Watts 11½ guineas; 36, Newitt, (Wappingham), 8 guineas; 37, H. Parrott (Whitchurch), 10 guineas. The whole 37 sheep averaged £14 each within a fraction, a figure never before obtained we believe in Bucks. The 12 ram lambs were soon disposed of at an average of about 5 guineas each—they being in only store condition, in fact only the draft lambs from the flock. The following is a list of the prices: Ram Lambs—Lot 38, Partridge (near Luton), 5 guineas; 39, Jones, 4½ guineas; 40, Horwood (Drayton Beauchamp), 3½ guineas; 41, Stevens, (Lodge Hill), 4 guineas; 42, Day, 6½ guineas; 43, Saunders, 4 guineas; 44, Cooper (Milton), 5 guineas; 45, F. Denchfield (Aston Abbotts), 4½ guineas; 46, Hickshaw, 5½ guineas; 47, Partridge, 4½ guineas; 48, Thorn, 4 guineas; 49, Smith, 5 guineas.

**MR. G. A. MAY'S SALE OF THE ELFORD PARK FLOCK**.—The three-shear ram "Great Eastern" was let at thirty-five guineas to Mr. German. Mr. Negus secured No. 4, a shearding ram, at twenty-nine guineas. No. 9, another shearding, was sold to Mr. Webb at twenty-three guineas; and Mr. German bought at thirty another, others following at eighteen, sixteen, fifteen, down to six guineas. The average for the forty was close upon £12 15s. The ewes were sold at very low prices, ruling from 45s. to 63s., the average being about 54s. Three old rams, the property of the late Mr. Thacker, were sold at 15, 8, and 5½ guineas respectively. Mr. John B. Lythall, of Birmingham, conducted the sale.

**THE BINGLEY HALL SALE**.—The sale opened with Mr. E. Lythall's rams, the first a three-shear, "Double X," bred by Mr. G. A. May, being let at 25 guineas, the others following at from 6½ to 13 guineas.—Mr. W. Yates' rams were very young, and the prices were from 5½ to 11 guineas.—Mr. Pilgrim's lot were in low condition: an average of 7 guineas only was obtained.—Mr. Nock, who has recently risen into notoriety as a Shropshire breeder, let to Mr. Eyke of Stanton, the first at nine guineas, and others went at from ten to twenty-five guineas, the average being over £15.—Lord Wenlock's rams were extremely moderate, ranging from five to twelve guineas.—Mr. Yates' yearling ewes made from 42s. to 50s.; Mr. Lort's, 42s. to 70s.; Mr. Nock's 52s. to 82s., the highest price given for ewes; Mr. Briscoe's, 40s. to 46s.; Mr. Pilgrim's, 55s. to 57s.; Mr. Coleman's, 36s. to 44s.; Mr. P. Lowe's, 50s.; Mr. Steedman's, 41s. to 49s.; and Mr. Osborne's, 37s.

**MR. EDWARD WATERS' ANNUAL SALE OF IMPROVED HAMPSHIRE DOWN RAM STOCK AT STRATFORD-SUB-CASTLE**.—This sale took place on Aug. 14th, under the hammer of Mr. John Waters, of Salisbury, and attracted a large and influential company of agriculturists. The biddings were exceedingly quick and spirited, and prices ranged as under: Mr. Thomas Ferris (who also bid 40 guineas for the two-teeth ram bought by Mr. Blake) hired a single lamb for the season at 40 gs.; Mr. F. Long hired another lamb at 26 gs., Mr. Olding, Mr. Lunn (Whitchurch), Mr. W. Taunton, and Mr. W. Melseome taking the other let lambs. Nine of the single lambs sold for 26, 25, 23, 22½, 21 (two), and 20 (three) guineas respectively, the purchasers being Mr. J. Long, Mr. Lyne (of Compton), Mr. Melseome, Mr. Olding, Mr. Rawlence, Mr. Ford, and Mr. Lunn. The remaining single lambs realized 18½, 18, 17½, 17, 16½, 16, 14, 13½, 13, 12½, 12 guineas, &c. For pairs the prices reached were 33 gs., Mr. Hayter; 32 gs., Mr. Courtney, for Mr. Cordery; 21 gs., Mr. Phillips; 30 gs., Mr. Stubb; two at 28 gs., Mr. Robertson and Mr. Allen; 25½ gs., Mr. Hoddinott; 24 gs., Mr. Fookes; 23½ gs., Mr. Brake; 22 gs., Mr. Line; three at 20 gs., Mr. Robertson, Mr. Porter, and Mr. Parnham; (two) 19½, 18½, 18, and 15 guineas; 16½ gs., Mr. Earle, &c. The two-teeth rams realized as under: 42 gs., Mr. Brake; 17 gs., Mr. Rooke; two at 13 gs., Mr. Fookes and Mr. Lunn; and 11 gs., Mr. Nockolds. The average of ram lambs was £14 8s. 10d. per head, and of the whole stock £14 15s. 3d. per head.

**THE YEW-TREE FARM ANNUAL SALE**.—Mr. W. G. Preece disposed of thirty-three rams and eighty ewes, the property of Mr. C. R. Keeling. The first ram was secured by Mr. C. Stubbs at twenty guineas, from which figure prices ranged for the shearlings down to six guineas. The interest of the day centred in Chadbury, a splendid two-shear used last year by Mr. C. Randall, and which, after a brisk competition between Mr. Lythall, Mr. C. Byrd, and others, was secured by the last-named gentleman at thirty-four guineas. One other two-shear concluded the rams, the thirty-three averaging £13 5s. each. The ewes followed, and though low in condition realized from 65s. to 105s. each, the average being about 73s.

**THE LEESE FARM SALE**.—Mr. Sampson Byrd's sale was held on Tuesday, Aug. 6; Mr. J. B. Lythall auctioneer. Twenty ram lambs, being very young, and having been brought direct from their pasture, without the assistance of any other food to develop their points, showed to much disadvantage, and realized but low prices, the average being £3 15s. each. The rams followed, commencing with Model Patentee. He was let for the season, after a sharp competition, at the (we believe) unprecedented sum for a Shropshire of £90 6s., the hirer being Mr. Allen, who last year secured the same sheep at £47 5s.; four other rams were then let for the season at from eight to twelve guineas each, and a shearling by Pride of Weston, from a Patentee ewe, was offered for half the season, and realized forty-five guineas, to W. O. Foster, Esq., M.P. The sale of shearlings followed, and, though low in condition, readily commanded buyers at prices ranging from six to twenty-five guineas, the general average being £15 8s. A few pens of choice old ewes were offered, which made from 100s. down to 62s. 6d. each.

**THE LITTYWOOD FARM SALE**.—Mr. Charles Byrd's first sale was held at Littlywood, near Stafford, on Monday, Aug. 5. Mr. Peake, of Lammascote, purchased the best at thirty guineas, and hired the other at twenty guineas. The shearlings, though strong and as a rule with good fleeces and colour, went low, ten guineas being the highest price given, and a few were unsold. The average was £9 12s. 6d. Some very useful breeding ewes followed, which ranged from 70s. downwards; and the wethers and wether lambs realized satisfactory prices. Mr. Preece, of Shrewsbury, conducted the sale.

**MR. COTHER'S RAM SALE**.—The thirty-seventh annual auction of Mr. Cother's Cotswold rams came off on Tuesday, Aug. 6. The sheep were of the usual Middle Aston quality and condition—strong of constitution, heavy of fleece, and, without being over-fed, in thoroughly good working order. There were 80 in all, either for sale or letting, and they realized an average price of £10 17s. 6d., the highest being £25.

## HOW AGRICULTURE MIGHT PAY.

Before the war, cattle and sheep were raised, and though for the last three years meat and dairy produce have made three times the price of the preceding time, yet there are gentlemen with large tracts of land who do not make interest on the capital invested. Are good accounts kept? There should be; each field ought to have one against it—the crops should be every bushel entered and charged to the particular stock consuming it, and the different kinds of animals should have set against them the pasture, hay, feed and roots they eat, as also the attendance they receive, not forgetting to credit them with the manure they make. A journal correctly kept, with remarks on the seedings, mode of culture and harvesting, stating at least once a week how the crops are prospering, and what condition the live stock is in, giving reasons for either good or ill progress, recording continually where the stock is lying in summer, and the food they are eating in the winter, will, with the figures in the regular account books, soon discover where the cause of failure lies. But instead of thoroughly investigating the system and going into the working of every branch and department of husbandry, one gentleman will blame his stock, when it is his own fault in not selecting and managing better; a second will think his foreman to blame, when he has made nought but a machine of him, giving him no discretionary power; others will condemn the land, which has only become exhausted through their own want of knowledge in renovating, by timely applications and proper rotation of cropping, and a few acknowledge in their own minds that they have proceeded without any fixed purpose in view, have followed no course of cropping and consumption of food, or adopted any judicious system, with the object of improving the land and increasing its fertility, thus proving there must be a clear perception and certainty as to results, for the hand-to-mouth method won't do. An intelligent, prosperous farmer will look forward for years, seeing his way through succeeding seasons, and calculating correctly on cause and effect, &c.

How does the English tenant farmer pay annually a rent equal to the purchase of some good land in this country, and then live in an independent, jolly kind of way, taking wine with his dinner, having sold his grain by samples, to be delivered by his teams at a future day? For you never see an English "rack-renter" toiling with his produce to the place of sale; and his sheep and other live stock is driven to the fairs and great markets by his shepherd and other workmen, while he canters along, in company with neighbours, &c., on their saddle horses, on which probably they see as much sport in the winter, after the fox-hounds, as their landlords do. All the gates on the farms have latches, which are opened with a slight pull with the hook of their riding whip (or oftener, stick), as they ride on horseback continually among their labourers, using the teams, the men and boys to such advantage, that their oversight in this way is often of more consequence than the labour of several hands without it. By this it is not intended to insinuate that the English farmer is generally an educated, polished man; but those who retain the old John Bull in their manner have brains enough to set their sons up in business and portion their daughters, without drudging in any way.

Butter, wool, beef and mutton are the chief dependence of the midland county farmers, hence the breed of all animals is being constantly improved, and more particular attention to the raising of good live stock would be of infinite importance here, and doubtless if farmers who now complain of inadequate returns would spend more of their time in supervision, instead of laying such stress on the amount of manual labour they can perform, they would find it to their benefit, and by particularly watching their cattle and sheep that they continue thriving in one uniform growth in frame and flesh from their birth to the day of sale, they would be amply recompensed. The mismanagement in winter, and miserable preparation for it, have a great deal to do with the lack of success; for with hay made from grass cut young, and liberal supplies of good roots, the whole herd and flock will keep on growing into money; while with the dried-up old grass cut and carried into the barn, as also some cornstalks, moulded and spoiled in harvesting, young stock will stand still, or what is worse, go back. The mowing land gets so thin in the bottom, and the finer grasses die out so through late cutting and not being pastured with

sheep, that light crops of hay is another cause for there being no profits. Then with old withered-looking hay come old worn-out cows and ewes; for it is customary to see numbers of aged animals which will eat half as much more food as young ones, and though old age does not lessen the flow of milk, the quality is depreciated, and six quarts from a heifer will often raise as much cream as twelve from an ancient dame. Then there is a singular lack of preparation for forthcoming seasons; scarcely any forecast, for instance. Although there is leisure time in autumn, there is little ploughing and cultivating done ready for spring, and the dung from the stables, cow sheds, and pig pens is seldom hauled out to the fields where it has to be applied, and which might be done in winter when the ground is frozen and the cattle have need of exercise. It is generally showery and hindering at seed time, so that any one must acknowledge what a setforward it would be to have the land in readiness for the seed, and the manure on the spot. Then by getting all the grain and corn in early, there would be time to grow roots, which are the mainstay and sheet anchor of stock farming.

Stock raising, dairying, and sheep husbandry are going to be more remunerative than any corn or grain grown for sale, and horse breeding also. But it is of no use for men of small hearts and timid, shaking nerves, to enter on anything of the kind. It is likely prices for common animals will be lower; therefore whoever commences to farm with the object of breeding and selling off the increase must throw away all parsimony in purchasing the parent stock, for it will cost no more to feed and attend the stock selling at remunerative prices, than common, low-figured creatures.

The kind of horses, the breed of cows, and particular sort of sheep can be determined on, according to a man's judgment.

G. G. in *American "Country Gentleman."*

## AN INGENIOUS INVENTION FOR CORN AND

MALT-DRYING.—It was noticed in the report of the recent show at Hartlepool of the Castle Eden District Agricultural Society that among the "implements" exhibited was one that had the merits of being new in principle, exhibited for a first time, and the production both of a local inventor and a local artificer. The machine referred to was exhibited by Mr. John S. Williamson, farmer, of Long Hill, West Hartlepool, the inventor, who has obtained provisional protection for the patent, and had been constructed, to the drawings of the patentee, by Mr. Alexander Campbell, machinist, West Hartlepool. Whatever modifications time may introduce into the details of this design, to adapt it more perfectly to the accomplishment of its work, there can be no doubt whatever as to the necessity for such an invention, nor as to the boldness and originality with which that necessity has been met. Those who are acquainted with the present process of kiln-drying of grain need not to be informed of the enormous amount of labour, delay, and inconvenience with which it is attended. After loading, carting to the kiln, and unloading again, the wheat has to be thrown on a heated floor, while one or more attendants require to constantly turn over the grain until it has been sufficiently dried. If it escapes being scorched, it seldom escapes being affected by the gases escaping from the fires with which the kiln is heated; and the slowness of the process renders it unavoidably expensive. Mr. Williamson's attention appears to have been directed to this subject by the great losses consequent upon a wet season some ten years ago, when his substitute for the present dilatory method made some progress in his mind; but the extremely damp autumn of last year stimulated him to the completion of an undertaking which, step by step, he had, during the intervening years, gradually matured and improved. The kiln which he has invented is a machine so simple in structure that it may be easily supplied to every separate farm in the kingdom, and at a cost which a very short period of use will amply repay. All loss of time by carriage is thus at once secured; and kilning is made, as it ought to be, one of the ordinary expeditious processes of farm-labour. On a strong four-wheeled frame, in a form at once compact and neat in appearance, and as portable as any wheeled implement used on field or farm, the whole apparatus occupies but little space. To describe it in detail, without the help of a diagram, is not easy; but we may mention some principal features. On the

framework of the vehicle, which is of iron, lies an arched tube, having a plane bottom, two feet six inches in diameter inside, and some seven feet in length. The bottom is an inclined plane. Surrounding the whole of this tube is a hot-air chamber, communicated with from a small furnace which is fed below, and also with a funnel, which carries off the smoke, &c., above. The whole of the heat of this furnace thus passes through the chambered and partitioned enclosing walls of the tube without the slightest possibility of smoke or gas coming near its contents. Through this tube the grain is passed in an atmosphere the temperature of which can be regulated to the greatest nicety, and at a rate of speed that can also be regulated to suit the state of the grain as admitted: a self-acting apparatus receives it at the other end, and carries it back in the open air, cooled and ready for the bag, into which the self-acting belts on which it is carried finally deliver it. The process is not only quick, but efficient, and is thoroughly under the control of the operator; and, as tried on the Hartlepool show-ground, it appeared that, for an expenditure of one hundredweight of coals, from fifteen to twenty quarters of wheat, of the average humidity of wheat that requires to be kiln-dried, could thus be effectually dried in a period of twelve hours.

### CHEESE FACTORY IN AMERICA.

Mr. D. Kirkwood, of Rockside, sends the following account of a cheese factory recently established in that neighbourhood. The factory is situated on lot No. 6, 10th con., Township of Erin, county of Wellington. The proprietors are the Messrs. Townsend, who have had considerable experience in the trade in Canada, besides having in their employ a gentleman lately from England, who has been long in the business in some of the best dairies in Cheshire and Devonshire. The terms of manufacturing are those adopted by the factory men of the counties of Peel and Halton, viz., the manufacturer to be paid two cents per gallon, for manufacturing and furnishing hoops, bandages, colouring, &c., the patrons supplying one rennet, or 20 ets. instead, for each cow's milk manufactured. Parties living in the vicinity of the factory deliver their own milk. The proprietors have, as yet, but one team engaged in drawing milk, which is done for an additional cent per gallon. They are sold for one half-cent per gallon. The owners of the factory commenced operations on the 11th of June, making about 150lbs. per day at first, but have been daily increasing until they are now making 250lbs. or more; and in a few days they intend starting another team, when they will not make less than 400lbs. per day. At a meeting of the patrons, held previous to beginning manufacturing, a committee was appointed to act with the proprietors in the general management and disposal of cheese; each patron to be paid from the monthly average made.

**HALDIMAND UNION CHEESE MANUFACTURING COMPANY.**—A new cheese factory under this name has been started on the second concession of Haldimand, by the farmers in that neighbourhood, and is now in full operation. They have two vats capable of holding 600 gallons each, and can work up the milk of from 300 to 400 cows; their buildings are pleasantly situated on the side of a hill, where they have a plentiful supply of pure cold water, with descent enough to carry their slops to a distance for the purpose of feeding pigs.

**PRODUCTION OF CREAM.**—Experiment has proved that if we take two equal quantities of milk, and place one in pans to the depth of six inches, and the other to the depth of only two-and-a-half inches, the latter will yield from seven to eight per cent. more cream than the former. This is the case more particularly in cold and damp weather, and at this time the mistake is most commonly committed. The temperature of the surrounding air has also a great effect upon the time required for the rising of the cream; experiment has demonstrated that the process is more rapid in warm than in cold weather. With the thermometer at

80 degrees,	all the cream will rise in 10 hours
77 " "	" " 12 "
68 " "	" " 18 "
55 " "	" " 24 "
50 " "	" " 36 "
45 " "	" " 43 "

Sprengel found that if milk was kept at a temperature as low

as 37 degrees, but little cream would rise in three weeks. In order to avoid the trouble of keeping the cream at the proper temperature, it is customary in some dairies to churn the whole milk. The advantages claimed by those who follow this plan may be briefly stated thus: The proper temperature can be readily obtained both in summer and winter; five per cent. more butter can be obtained from the same milk; the butter is not only of the same quality while fresh, but if properly managed will keep much better.—*German Town Telegraph.*

### SLUG AND WIREWORM.

**STR.**—If an accurate sum total could be made of all the damage and loss occasioned by those two pests to British agriculture, it would be a frightful amount. The moist season of 1866 produced slugs in abundance, and now another showery season threatens still further to multiply their number. They swarm in our Tare ground and Clovers, therefore we should take steps for protecting our future Wheat crops. As soon as my Clovers are folded off, I shall night lime them—that is, sow 4 bushels of fresh-slaked lime at night, and if the first dose does not kill them shall repeat the operation—taking care to sow the lime against the wind to prevent them hearing you advance. I found this a certain remedy in the early spring. The lantern will show you that the lime falling on the slug at once turns him up and kills him. It is of no use liming by daylight, for then they are all safely enclosed under ground having feasted on your crops during the night. I presume, they have a sense of danger, for they either die or depart after the night-sowing of lime. As to wireworm, they are also easily got rid of. Sow 6 bushels of salt per acre broadcast on the surface, and they will either die or depart, I cannot say which. It is a certain cure. In some cases of very light land it may be necessary to repeat the dose; but I have always found that quantity sufficient—wireworms never infest heavy lands. As soon as you miss a few blades of Wheat or Barley, sow the salt at once, or you will be too late, for the plants only show that their stem has been destroyed after a day or two. The early spring is generally the time of danger and mischief. Some of our light Tiptree lands are especially subject to the wireworm pest, but I never fear them now. Salt is a certain cure; so is Rape-cake—or the two combined.

July, 1867.

J. J. MECH.

**P.S.** Slugs only come out of the ground in mild moist nights. On this subject I cannot do better than quote from Mr. John Large's valuable book, "Secrets of Farming." At page 40 he says, "When you are troubled with many slugs get some good fresh lime (it ought to be in damp weather if possible), and sow it the same night, at about 2 bushels per acre. If the wind is in the west, which very likely it will be if the weather is damp, begin sowing the east side. Sow up and down from north to south, and finish the west, or they will scent the lime before it reaches them strong enough to destroy them. If there are many slugs on your Clover ley intended for Wheat, you should sow the lime before you plough it, and sow again before you put in your Wheat if there are many left."

**A VALUABLE INVENTION.**—Slate rock is ground to a fine powder, and mixed with mastic or any bituminous substance to the consistency of a thick paint, in which condition it is applied to canvas, cloth, paper, felt, or any similar substance, for roofing and other purposes. This is doubtless the "elastic slate" of which we have heard from America. It soon hardens, and by the action of the elements, or by means of chemical action within itself, becomes, it is said, almost as impervious to the action of fire or water as slate itself, though considerably less brittle. It has been applied as cement for cisterns, tanks, cellar-floors, leaky hydrants, pipes, and pumps. Inkstands have been made of it while in a plastic state, which have become as hard as stone. It has also been applied as a cheap paint to out-buildings and fences.—*Builder.*

**TO DESTROY THE TURNIP FLY.**—Take road-dust, soot, and a small proportion of guano, mix them together, and sow them along the rows in the middle of the day; in a short time the flies will disappear. A little sulphur may be used instead of guano. Some persons prefer applying it in the night when the ground is wet with dew.

## FOREIGN AGRICULTURAL GOSSIP.

The cattle plague appears to be still lingering in Holland, although it had been fondly hoped that it had died out altogether. In the week ending July 27th, the last by which we had any return, seven cases were reported, six in Southern Holland and one in the Gueldre district. The Dutch appear to have been at last aroused to the necessity of a policy of slaughter, 30 beasts having been killed in consequence of the outbreak indicated. If this policy is still persevered in, it may be hoped that the disease will be kept down in Holland as it happily has been in England. According to correspondence from Frankfort, published by the *Handelsblad* of Amsterdam, the disease, which was supposed to have been extinguished in Germany, still lingers in the Duchy of Saxe-Coburg. No more cases have been noted in Belgium since those which were observed at Contich, and which it appears were indirectly associated with the last irruption of the disease at Leende, a commune in Northern Brabant.—The "laureate" of the prize of honour for the department of the Pas-de-Calais has just purchased one of Howard's steam-cultivating apparatus. The Emperor Napoleon has purchased three of McCormick's reaping machines, after seeing one at work at the Camp at Châlons. One of Samuelson's reapers, which has yielded excellent results on the estate of the Comte de Guinant, has been working very well on the farm of M. Deerombeque at Lens. In consequence of apprehensions of epizootic disease, the French Minister of Agriculture postponed for two months the date of the district show at Colmar. The meeting, however, commenced on Saturday, and will continue till Sunday, September 1. The entries comprise 398 head of cattle, 121 sheep, 49 pigs, 73 lots of poultry, 400 implements, and 107 lots of agricultural products. It is worthy of remark that as Napoleon I. dated a decree regulating the Paris opera from the smoking ruins of Moscow, so Napoleon III. found time amid the pre-occupations of his recent visit to the camp at Châlons to address to M. de la Valette, Minister of the Interior, a letter on the establishment of vicinal roads, which his Majesty appears disposed to press on by all practicable means.—The steam-ploughing trials which it is proposed to be held at Billancourt are postponed to Sept. 16.—The Imperial and Central Agricultural Society of France has returned some interesting answers to questions addressed to it in connexion with the official inquiry into the state of French agriculture. The first question put was: "What has been the influence of the changes which have taken place during the last thirty years in the division of property—that is, what has been the influence which those changes have exerted on the conditions of production?" To this the Society replied: "The division of property causing more personal work and inspection on a limited extent of land has given rise to a more considerable production." The next question was: "What are, for the different descriptions of property and for the different descriptions of workings, the sale prices of lands according to their quality, the variations which those prices have undergone during a certain time (going back thirty years at least), and the causes of those variations?" To this the answer was: "In a great part of France for the last twenty years the price of land has declined; we may estimate this declension at one-fourth. As to other points, the opening of new outlets has given rise to an advance in prices." Another question: "What is the amount of first installation capital in a working of a given importance, and what is the amount of the floating capital?" The answer: "Nothing is more variable than the amounts of first installation capital and floating capital, which it is rather difficult to distinguish, unless we occupy ourselves with operations of working properly so called, into which building expenses do not enter. According as culture is more or less intensive the amount of the capital utilized per acre varies

generally in rich and enlightened departements from £1 to £30 per acre; in many others the total of £1 per acre is far from being attained; great importance is, nevertheless, attached to the augmentation of this fruitful element of production in the greater part of France." Question: "Does the amount of capital employed meet the wants of cultivation, the perfecting of agricultural processes, and the improvement of lands?" Answer: "The previous response prejudices this question in the negative sense. The relative inferiority of French agriculture is attributable in great part to the insufficient resources which it has at its disposal. But, in order to arrive at a serious result, we must recognize the fact that French agriculture cannot expect to procure funds on more favourable conditions than those imposed on other industries. Efforts must be made to bring it on a level with the latter, and if we arrive at this result we may regard all possible reforms as virtually accomplished." Question: "If capital does not exist or is not found in sufficient amounts in the hands of those who possess and work rural properties, how can they procure it? What facilities or obstacles will they meet with in this respect?" Answer: "The mass of available capital increases in a rapid progression; but it is diverted, in great part, from the cultivation of land by investments in moveable values (shares, stocks, obligations, &c.) which—especially before acquired experience had dissipated great illusions—seemed to promise easy and rapidly, collected profits. This *mirage* appears to be passing away, and consequently the moment seems to have arrived for increasing the insufficient facilities offered to agricultural credit, and for overcoming the obstacles with which it has to deal. If local savings in each district ceased to be dissipated by speculation, or if they were employed in more considerable sums in improved cultivation on a less extended space, instead of being absorbed in the constant acquisition of new parcels of land, we should soon organize, through the medium of local institutions or branches of powerful establishments, the collection and distribution of a disposable capital really supplied by the thrift of neighbourhoods. The too prompt and too general transformation of acquired resources into capital devoted to a fixed investment is one of the special difficulties of France." Question: "At what rate is the money which agriculturists require habitually furnished to them?" Answer: "The rate of interest varies enormously according to the position, presumed solvability, and wants of the borrowers. Economical intelligent men find money at 5 per cent. under ordinary circumstances; but these rarely have recourse to credit, under the influence of the idea too generally spread that whoever borrows ruins himself. In this respect, we may regard appeals to the capital of others rather as a means of responding to a pre-existing charge than as an element of production. When we come to needy men not presenting a sufficient margin of security, there are no limits to the demands of lenders, which rise rapidly to fabulous rates. In order to modify this state of affairs we must create or strengthen agricultural security; the rate of interest will then regulate itself according to the advantages derived from the employment of capital, in the same manner as is observed in all other branches of human industry." We have referred already to the interest taken by the Emperor Napoleon in the question of vicinal roads in France. It appears from a report by the Marquis de la Valette, Minister of the Interior, that the outlay required—and to some extent in contemplation—for the next ten years for these works is £32,000,000. This total is made up as follows: Expenses of maintenance, £12,000,000; expenses of construction, £20,000,000—total, £32,000,000. This amount, which includes the expenses attending the *personnel* employed, is proposed to be provided as follows: Present dotation of the ordinary vicinal roads, £1,640,000 per annum, or for ten years £16,400,000; exceptional resources to be created by communes, and amounting for ten years to £8,000,000; sum to be furnished by departements, £4,000,000; and subvention, to be furnished by the state, at the rate of £400,000 per annum for ten years, £4,000,000—total, 32,400,000.

## CALENDAR OF AGRICULTURE.

The cutting and carrying of grain crops are generally concluded by the middle of this month, except in the most northern parts, where the harvest is protracted into the first part of October. Beans will be the latest crop, which is tied into sheaves with straw ropes, when cut by hand-sickle, or with tarred twine, which may be preserved for several years. Thatch and ropes must be ready to get the ricks covered from rains, especially the leguminous herbage of beans and peas, which imbibe and retain much moisture. These crops are well lodged over an open shed to have fresh air from beneath, or to form the upper part of ricks of oats, where no heavy pressure is incurred. These crops will be very readily secured under a covered rick-yard, as has been already mentioned, and must soon be adopted into practice.

Finish the dunging of wheat fallows, and at the end of the month begin to seed. Farrow the lands to be the first sown. Lay well-prepared earthy composts on inferior grass-lands eaten bare, to be bush-harrowed after exposure, in a very level spreading over the surface of the ground, and then rolled with a heavy pressure. Scarify the surface of lucerne, and spread very evenly over it a top-dressing of very fine compost, to be bush-harrowed after exposure, and then heavily rolled. This preparation raises the first spring crop.

Gather fruits, as pears and apples; sow winter vetches on good lands, with a mixture of beans and winter barley, to afford a variety of food, and the bean stems to support the clinging vetches.

Plough the stubble lands intended for next year's green crops. Fallow the grounds by working, if the season be favourable. The dung may be placed in the drills, and a fresh furrow of soil thrown over the ridglets, to receive the seeds of the root crop. This autumnal preparation very much facilitates and expedites the spring operations; but early climates only admit the application.

Scuffle with duck-foot scarifier, as Coleman's, the grattans of pea and bean lands; harrow, collect, burn, and remove all rubbish, and, if necessary, repeat the scarifying across the first operation, in order that the surface may be wholly cleaned. Apply an allowance, although small, of farm-yard dung, and sow wheat on one furrow of ploughing. The best quality of pea lands will produce wheat by this treatment. The weaker soils will be scarified for a spring crop of grain. The best bean lands are scarified or ploughed for wheat, as the surface may be clean or foul with weeds.

Plough grass leys for wheat in the end of the month, when rains have fallen to moisten the ground, of which the ploughed surface will derive benefit by an exposure before sowing. This use of wheat is not very prevalent, as wheat before and after the following process are too near in succession.

Pick hops, by cutting with scissors the flowers into sack-bins; the payment at a fixed rate per bushel; then carried to the oast, and dried by a fire of coke, and in some cases with a little sulphur,

to impart a yellowish tinge. The heat must be gentle and well regulated. The haulm is used for litter, and the poles are set upright into a conical stack, with a thatch on the top, to preserve for the next year.

Towards the end of the month sow rye for a seed crop, and also for being consumed on the land in the spring. The latter use makes a good preparation for a catch crop of wheat on stiff lands, and on light soils for a crop of turnips, sown with bones or guano. Scour road-sides, clean out open ditches, to be ready for the winter floods. Enlarge the courses of brooks, and mix the excavated materials with lime for an earthy compost, and the vegetable substances to be burnt into ashes. Omit no opportunity of collecting manures of all kinds.

The next year's potato-ground may be fallowed from a grain stubble in the end of the month, the dung laid in the drills, and the potatoes planted, or early in next month. The autumn planting produces an earlier and a larger crop than in the spring, and the sets of the tubers are safe from frosts by a heavy covering of earth, in drills 30 inches wide, and deeply cloven and reversed over the dung by a deep furrow of the plough. The drills remain over the winter, in the rough raised condition, and are harrowed in the first dry weather of the spring, when a rapid growth of shoots will take place. Cabbages will be best grown from the autumn planting, where game quadrupeds do not abound to destroy the plants during winter. Such cases require a most special regulation on the vexed question of game between landlord and tenant.

When the surface of the ground, after the removal of the ripened crop of peas, is seen to be foul, with an abundance of weeds, with a maturity of growth, the necessity is most apparent that the crop of peas should have been ploughed down in the early period of growth, and the land fallowed and sown with turnips, or the herbage consumed on the ground by sheep, and followed by turnips, with bones or guano. The thinness of the spring growth of the herbage will quickly show the eligibility of maturing the crop or of fallowing the ground; for unless the plants be thickly planted, to lock together by the tendrils and, with the leaves, completely cover the ground, the vacant places are quickly occupied by weeds, which grow into a maturity of growth and of seeds, being placed wholly beyond the reach of destruction by the hoe or scuffler. Thin crops of beans or peas are most pernicious to the land from this encouragement of weeds, and on poor lands these plants should not be sown. Peas require a loam that is deep, waxy, and warm, under an early climate; the use is needless under other circumstances. The crop is very valuable both in grain and straw, in smothering weeds and in mellowing the ground, when the success is fair; when indifferent or failing, no crop is more pernicious to the soil, in producing weeds and an arid surface of ground. Straggling crops must ever be changed into root fallows.

## CALENDAR OF GARDENING.

## KITCHEN GARDEN.

Mushroom beds are now prepared. This is the season for those produced naturally, especially if the month be showery. And we are led to ask, why are mushrooms always cultivated in the *dark*, when nature proves that they prosper in full daylight?

Sow corn-salads, mustard and cress, twice; radish and lettuce in frames; and transplant lettuce to stand on ridges all the winter. Or may be sown early for winter, and as soon as fit for transplantation ought to be pricked out into a roomy frame, where they will prosper and stand the winter. Some of the hardier brown varieties may, perhaps, endure the frost, but in general the other sorts perish.

Cabbage for spring: Plant the main stock in an open situation, the soil rich with manure, unless it be a new loam. All the *brassicæ* prosper amazingly in fresh earth, and, indeed, far better than in old garden soil.

Spinach: The plants raised from seed should be thinned out to regular distances of two or three inches; the plants will then become stocky, and may be thinned again, and the plants so removed used for the table.

Turnips: Thin out and hoe the spaces between the rows, the crop being always sown in drills.

Sow salads again if required.

Continual attention to weeding is required, for now the garden is liable to be quickly filled with groundsel and chickweed. Exterminate every weed, and bring each plot to that neatness and order which render a garden a quiet sober picture during winter—more beautiful, perhaps, than that of the rampant luxuriance of summer.

Trench, ridge, and dig spare ground. Manure and prepare plots for artichokes, asparagus, sea-kale, and rhubarb. Carry off and clear the garden of haulm, and take all to the rotting compost heap.

Dig potatoes carefully, picking out the worthless, but which are not to be wholly discarded, for it is uncertain if tainted tubers extend the disease; therefore if the eyes be full and starting, such may be reserved and be sprinkled with lime, and hereafter planted in fresh lands. Observed facts have shown that infected sets do not infallibly extend the disease, and that the land which has produced a perfectly tainted crop is not hurtful to the potato plants of a following year. These facts will be modified by the climate of the yearly changes, but they mark a general direction.

## FRUIT DEPARTMENT.

Prune back to within three or four eyes the projecting shoots of apple, pear, plum, and cherry trees, so far as to aid the swelling of fruitful buds. At the end of the month plant young fruit-trees in nicely-wrought fresh loam or turfy soil; nothing keeps trees in health so high as such ground. Mulch them freely over the site of their roots.

Protect grapes and other fruits by muslin or gauze covers.

Pot strawberries for forcing, and make fresh plantations in deeply-worked new land. Well-rooted young plants will rarely fail, but the best method is to be provided with young stock raised in pots, and now transplanted with entire bulbs.

Place nets in front of the wall fruit-trees to catch falling fruit. If wasps abound, suspend bottles half-filled with treacle water among the branches; thus thousands may be destroyed.

## FLOWER GARDEN.

Repot the choice greenhouse plants, and remove all to their winter quarters. Plant slips of herbaceous flowering plants. Finish the chipping of box edgings. Hawthorn and other fences may yet be clipped, box edgings planted or renewed, and lawns mown and rolled, with walks in damp weather.

Transplant some hardy herbaceous plants, and pinks raised from pipings. Then rough-dig or fork all the vacant parts of borders.

The autumn application of dung, composed of animal and vegetable matters, collected and prepared in a heap or pit, as has been directed, affords the best opportunity of enriching the soil by the gradual decomposition of the substances in the winter months. The vegetable matters of juicy leaves and succulent stems have been completely saturated with urinary liquids, soapy waters, and dirty washings, gathered in a cask at the manor house, and applied at different times for the proper purpose. The dung formed of plants cut green, fine earths, droppings of animals, with all refuse and organized matters, must be completely moistened without much dropping of water, and placed in thin layers on the breast of the trenches after digging of the ground, which lies in rough condition of surface during winter. The uneven surface is exposed in three of four parts to the vicissitudes of the weather, which induces a crumbling alluvium of earth that is far superior to any act of cultivation in the finely comminuted state. The underdigging of the ground is in contact with the dung, which decomposes into humus, or vegetable mould, of which a necessary quantity changes the two general descriptions of soils of clay and sand into a loam or an earthy mixture. These two kinds of soil in clayey and sandy loams comprehend all lands under an extensive designation. The slow decay underground will be turned up by the spring diggings in a humified condition, wanting air and caloric to form an active agent of fertility. This purpose will be very powerfully promoted by placing small cinders of lime in the soil with the early spring diggings, of which the dissolution into powder will evoke much heat into damp exhalations, raising the temperature of the ground, to the great advancement of fertility. These directions imply the deep diggings of all kinds of upper or under grounds, all wet grounds being previously drained of superfluous water. Any grounds can be fertilized into rich gardens by these processes,

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR AUGUST.

The weather, though somewhat broken, having been favourable, considerable progress has been made in the cutting and carrying of wheat in the whole of our forward districts. In the northern counties very little wheat has as yet been secured. In order to take advantage of the present state of the markets, farmers have thrashed out largely; hence some of the leading markets have been well supplied with new produce in full average condition. Our advices are conclusive on one important point, viz., that the yield of both red and white qualities is a fair average. Prices, therefore, have given way fully 2s. to 3s. per qr.; but we believe that there is no room for any serious decline in the quotations. Our old stocks of produce are nearly exhausted; consequently our chief reliance must be placed upon the new crop and the importations from abroad. The French and American growers appear prepared to supply us with vast quantities of food during the winter months, and there is still an immense quantity of grain on passage from ports eastward of Gibraltar; still we believe that the whole of our importations will be required for consumption.

New barley has made its appearance at Mark Lane, and been disposed of at 40s. per qr. The crop is well represented in most counties. In some quarters there is scarcely a bushel of old barley to be met with. The value of that description of produce has, therefore, tended upwards. Malt and flour have met a dull inquiry; but the value of oats, beans, and peas has been well supported.

The crops in France and America appear to have been secured in fair average condition, and it is stated that the surplus yield of wheat in the latter country is about 8,000,000 quarters. If this statement is correct, we may anticipate heavy importations from New York. Already new American wheats have arrived at Liverpool.

It is gratifying to observe that the potato crop is progressing well. Very few traces of disease are to be met with, and the general opinion is that the growth will be a very large one.

Turnips, swedes, and mangolds are highly promising; so that the supply of food for winter use will be extensive.

The fruit crop has turned out well, with the exception of apples, which in some counties have been a partial failure.

The public sales of colonial wool commenced in London have been fairly attended by home buyers, but the attendance from the continent has been limited. On the whole the bid-dings have ruled steady, at the decline in the quotations reported during the previous series. The quantity to be brought forward exceeds 150,000 bales. The enormous importations of wool from our colonies prove beyond a doubt that production has overtaken the powers of consumption in Europe. English wool has maintained its value tolerably well, although the supplies brought forward have been rather extensive. The un-usually low value of money in the discount market has tended to give confidence to the buyers of wool, notwithstanding that the exports of woollen goods to the United States have fallen off when compared with last year.

The crop of hay has turned out very large, and nearly the whole of it has been secured in prime condition. The supplies of hay and straw on sale in the Metropolitan Market have been moderately good, and fair quantities have changed hands as follows:—Old meadow hay £3 to £4 10s., new ditto £2 15s. to £3 15s., old clover £4 to £5 15s., new ditto £3 to £4 10s., and straw £1 16s. to £2 6s. per load.

In Ireland much progress has been made in securing the crops, and some of the markets have been fairly supplied with new produce. The yield of wheat is certainly larger than in 1866; whilst all other grain is nearly or quite a full average. Wheat, meal, and flour have changed hands slowly, at barely stationary prices; but spring corn has realized extreme rates.

The Scotch markets have been very scantily supplied with most kinds of grain; nevertheless sales have progressed slowly, at prices nearly equal to the previous month. Potatoes pro-vise a very large return.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

The imports of foreign stock into London having fallen off, when compared with the corresponding period in 1866, there has been an improved feeling in the demand for beasts, and prices have had an upward tendency. The arrivals from the northern districts, as well as from Scotland, have been in fair average condition, and some remarkably good Herefords, Devons, and North Devons have been on offer. The Irish and foreign beasts, but more especially the latter, have made their appearance in but middling condition. The best Scots, &c., have changed hands at 5s. 2d. per 8 lbs.

Only moderate supplies of sheep have come to hand; whilst there has been a falling off in the weight of most English breeds. The foreign sheep, however, have greatly improved in condition. A few superior Downs and half-breds have realized 5s. 4d. per 8 lbs.

For the time of year, lambs have come freely to hand. The lamb trade has therefore been in a most inactive state, at almost mutin prices.

Calves have sold slowly, and prices have not been supported. Foreign calves continue to "die" well.

We have to report a slow inquiry for pigs. On the whole, however, the quotations have been fairly supported.

Depastured stock, from the great abundance of grass, has fared remarkably well; and it is anticipated that London will be well supplied with meat during the winter months, as very few losses have been sustained by disease in any part of the United Kingdom.

The importations of foreign stock into the Metropolis during the month were as follows:—

	Head.
Beasts ... ..	8,741
Sheep and lambs ... ..	23,943
Calves ... ..	1,057
Pigs ... ..	5,726
<b>Total ... ..</b>	<b>39,467</b>

COMPARISON OF IMPORTS.

Ang.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
1866 .....	14,927	37,390	7,176	2,960	4,087
1865 .....	16,536	54,333	6,727	3,287	8,251
1864 .....	11,475	39,114	2,716	2,786	4,326
1863 .....	9,502	34,937	4,125	4,327	4,108
1862 .....	5,630	30,652	5,204	2,060	3,297
1861 .....	6,581	32,210	3,176	1,874	3,718
1860 .....	6,647	38,249	1,856	2,520	4,075
1859 .....	6,502	29,175	3,308	3,254	1,805
1858 .....	8,293	19,500	2,764	3,512	2,935
1857 .....	4,692	21,215	1,760	2,661	2,322
1856 .....	5,677	17,801	1,271	2,301	1,901
1855 .....	5,341	22,605	984	2,484	3,476

The total supplies of stock exhibited and disposed of in the Metropolitan markets were:—

	Head.
Beasts ... ..	20,030
Sheep and lambs ... ..	124,190
Calves ... ..	2,653
Pigs ... ..	2,205

COMPARISON OF SUPPLIES.

Ang.	Beasts.	Sheep & Lambs.	Calves.	Pigs
1866 .....	26,840	153,720	2,620	2,560
1865 .....	29,600	147,520	3,828	2,175
1864 .....	29,120	154,300	3,126	3,046
1863 .....	26,264	149,430	3,070	2,622
1862 .....	24,072	154,920	2,354	3,012
1861 .....	23,420	159,740	2,952	3,220
1860 .....	22,290	151,500	3,346	2,070
1859 .....	23,170	165,090	3,322	2,320
1858 .....	26,915	151,530	2,127	3,510
1857 .....	20,695	143,758	3,173	2,450
1856 .....	21,271	147,250	3,351	2,875
1855 .....	20,816	151,870	3,356	4,272



The supplies of home stock thus compared with the three previous years:—

From—	Aug. 1864.	Aug. 1865.	Aug. 1866.	Aug. 1867.
Lincolnshire, Leicestershire, and Northamptonshire .....	12,500	9,820	5,600	7,200
Other parts of England .....	3,700	3,000	2,000	2,500
Scotland .....	133	730	80	70
Ireland .....	297	520	162	310

Beasts have sold from 3s. 4d. to 5s. 2d.; sheep, 3s. 2d. to 5s. 4d.; lambs, 1s. 6d. to 5s. 6d.; calves, 4s. to 5s. 4d.; pigs, 3s. 4d. to 4s. 4d. per 8lbs. to sink the offal.

The COMPARISON OF PRICES is as follows:—

	Aug., 1861.		Aug., 1862.		Aug., 1863.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Beef from . . . . .	2 10 to 4 10	3 4 to 4 10	3 4 to 4 10	3 4 to 4 10	3 4 to 4 10	3 4 to 4 10
Mutton . . . . .	3 2 to 5 4	3 8 to 5 4	3 8 to 5 4	3 6 to 5 2	3 6 to 5 2	3 6 to 5 2
Lamb . . . . .	5 0 to 6 0	5 0 to 6 4	5 0 to 6 4	5 0 to 6 8	5 0 to 6 8	5 0 to 6 8
Veal . . . . .	3 4 to 4 6	4 0 to 5 0	4 0 to 5 0	3 4 to 4 8	3 4 to 4 8	3 4 to 4 8
Pork . . . . .	3 10 to 4 8	3 8 to 4 10	3 8 to 4 10	3 6 to 4 6	3 6 to 4 6	3 6 to 4 6

	Aug., 1864.		Aug., 1865.		Aug., 1866.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Beef from . . . . .	3 4 to 5 0	3 0 to 5 6	3 0 to 5 6	3 8 to 5 6	3 8 to 5 6	3 8 to 5 6
Mutton . . . . .	3 10 to 5 4	4 4 to 6 8	4 4 to 6 8	3 10 to 6 0	3 10 to 6 0	3 10 to 6 0
Lamb . . . . .	5 8 to 6 8	6 0 to 7 0	6 0 to 7 0	5 8 to 7 4	5 8 to 7 4	5 8 to 7 4
Veal . . . . .	4 0 to 5 0	4 2 to 5 4	4 2 to 5 4	4 0 to 5 4	4 0 to 5 4	4 0 to 5 4
Pork . . . . .	3 6 to 4 6	4 0 to 5 0	4 0 to 5 0	4 0 to 5 0	4 0 to 5 0	4 0 to 5 0

Very little foreign meat—under 500 tons—has reached Newgate and Leadenhall; but the supplies of English and Scotch have been tolerably good. A fair average business has been transacted, at about previous quotations. Beef, from 3s. 2d. to 4s. 8d.; mutton, 3s. 4d. to 4s. 8d.; lamb, 3s. 10d. to 5s.; veal, 3s. 8d. to 4s. 8d.; and pork, 3s. 6d. to 4s. 6d. per 8 lbs. by the carcase.

WEALD OF KENT.

Since my last report the weather has been of a character not only to alarm the growers of corn, but a large majority of the consumers to a great extent; and up to the 20th of the present month but little progress was made in the cutting of corn. Since that date harvest operations have been carried on uninterruptedly, and many pieces of wheat have been thrashed in the field; and, thus far, the crop does not come up to our expectations. Both the quantity and quality will vary considerably; one-third of the wheat crop will be very thin, not yielding more than 15 bushels per acre; one-third may be estimated at 25 bushels, of medium quality; and the remaining third will prove to be of first-rate quality, with a yield of about 36 bushels. Therefore, on the whole, the crop will fall considerably below an average. A great portion of the barley crop was planted late, and, until the recent rains, looked very unpromising; they have much improved, although the crop will not be an average one. Beans are much blighted; some farms will scarcely get their seed. Peas are very platty, and their quality not equal to last year. Oats promise a good average yield. The hay and clover crops on dry soils are better than for many years past. The hops are in a most pitiable plight, with but few exceptions: on some grounds they will not pay for their cultivation. The blight is very partial. Some parishes will not average 1 cwt. per acre: the best parishes will no doubt come out at from 5 to 6 cwt. The apple and pear crops are also very partial. The potatoes are very sadly diseased. The root crops, mangolds and swedes are promising, but white globes have taken very badly. The dull sale for wool has tended to lower prices for sheep, which are full 10s. per head, and in some cases more, under last year. A few samples of old wheat have been brought on the market. The crop of last year is nearly exhausted; we cannot expect prices to range much lower for some time to come.—Aug. 24.

SURREY.

The old adage of "After a storm comes a calm," has been fully exemplified by the weather of this week, for the heavy fall of rain on Monday night almost threatened destruction to harvest operations, but the subsequent fine weather restored

confidence to farmers, and brighter prospects loomed for the future. The storm frustrated work and progress in the corn-fields, and where the crops did stand up, which was rare, they were laid by the rain; but fortunately sun and wind set in, and the corn soon dried, and the serious apprehensions entertained that mildew and rust would follow were soon dispelled, and harvest operations vigorously resumed. On the hills and in the vales east, to the extremity of this county west, many thousand acres of corn have been cut. The barley and oats lie every way, and have to be hacked rather than mown with the scythe, and an irregular swathe is brought out. The straw is dark and full of young clover, where seeds were sown, and requires sun to dry and prevent the straw from being mow-burnt, but which amply repays farmers for patience, as if got up well it will make excellent winter fodder; and as regards the yield, oats and barley will come up to a fair average, Beans, both winter and spring, will bring out a heavy crop; but they are foul with weeds. The wheat has cut out better than was anticipated by many farmers, and on good land and well-drained farms the crop will average well; but on wet and heavy land much of the young crop was mowed by slugs, and the results are now quite manifest. Around Horley, Merstham, Selsdon, Godstone, and adjacent localities, many fields of wheat and other corn are already safely housed, and at Ewell, Malden, and on to Guildford, and surrounding districts, a large extent of corn land is reduced to stubbles. There is some difficulty in procuring sufficient harvest labourers, and the general price paid is 11s. to 14s. per acre for cutting of wheat. The straw is broken, and the ears of corn are straggled about, and much of it is tied into the butts of the sheaves; and divesting my mind of isolated instances, and adopting my own opinion from an impartial inspection of the corn crops, I am able to affirm that the harvest of this year (assuming a continuance of fine weather) will, for both quality and yield, be fully up to an average of the last seven years. The roots crops are making good progress. The hop plantations are in an uncertain, and far from very promising condition. There is a good demand for the right of shooting over land this season, and from 1s. to 1s. 6d. per acre is given; partridges are plentiful, but much of the corn will be in the fields on the opening day (next Monday), the 2nd of September.—August 24.

SHROPSHIRE.

As we anticipated in our last communication, the harvest in this county has been greatly accelerated by the use of the reaping machines. A great many of the farmers are this evening celebrating the harvest home; but only those who have furnished themselves with improved means of hastening the cutting. The wheat is of a fine quality, judging from the samples shown to-day at market; and we have only one complaint of yield; and that growl was that "it did not yield according to the straw." On inquiry we found that this farmer has this year grown thirty-five sheaves to the acre. Although, as above stated, some farmers have finished harvest, on casting a bird's-eye view over the county, the bulk still appears uncut—either through want of hands or reaping machines. The barley is a great crop, and Mr. Mathews of Montford exhibited a magnificent sample, such as would make the mouths of the lovers of bitter-beer water. Oats are not grown to any great extent in this part of the county, and peas are nearly a failure. Turnips that were sown early are doing well; but the later sown are suffering from drought. Mangolds are making rapid progress, and potatoes are at present free from disease.—Aug. 24.

WICKLOW.

The weather for the last week has been unsettled; a good deal of rain has fallen, but not sufficient to do much injury to the growing crops. Reaping of oats has partially commenced in this neighbourhood. On light soils oats will be only a middling crop, but on good soils it will be heavy. Barley also will be a fair average crop; but the wheat crop best of all—in this county it never looked better. Potatoes also are doing well and not much complaint of disease. This weather is very favourable for the mangolds and turnips. No new grain coming to market, nor do we expect any for another week or two.—Aug. 22.

## AGRICULTURAL INTELLIGENCE, FAIRS, &c.

**BOSTON SHEEP MARKET.**—Not a large supply of fat Sheep penned, and prices were a trifle in advance of last week. Store Sheep were plentiful, but trade was slow.

**BRIDGNORTH FAIR.**—There was a good attendance, but a very limited show of sheep. Mutton sold at from 6½d. to 7¼d. per lb. Fat lambs sold readily, at 7d. per lb. Pigs plentiful, and went cheap. The horse-fair was exceedingly dull, and few purchases were effected.

**DUNFERMLINE MARKET.**—The weather being unfavourable, there were few dealers present. The stock consisted principally of Irish cattle, a good number of which remained unsold. Two-year-olds brought £10 to £11 10s. each, and one-year-olds from £4 10s. to £9 each. Milch cows were in slow demand. At the sales there was a good deal of business. Best cattle sold from £10 to £21, and small beasts brought from £7 to £10, making from 10s. to 11s. per Dutch stone. Sheep from 23s. to 39s. each, and lambs from 8s. to 22s. each. There were a few good beasts shown, but no sales of importance effected.

**FOCHABERS AUGUST MARKET.**—The show of cattle was not nearly so large as at recent markets, on account of the superabundance of keep in possession of farmers, and consequent unwillingness to dispose of stock. The sales were, therefore, stiff; and a number of animals returned home unsold. Mr. Geddes, Smerick, sold a lot of four quays at £64; Mr. Campbell, Newfield, sold two one-year-olds at £24 10s.; Mr. Gordon, Station, Orton, sold a cow at £13 10s.; Mr. McDonell, Tulloch, sold a stot at £17 10s.

**HEREFORD FAIR** was very well attended, and a fair amount of business was transacted. The supply of sheep was large. Store ewes ranged from 35s. to 45s., and store lambs 36s. to 37s. each. Wethers sold at 7d. to 7½d. per lb., and ewes 7d. per lb. Beef sold at from 7½d. to 8d. The supply of cattle was not very large. Store pigs changed hands at the prices which have ruled of late. In the horse-fair a brisk trade was done in cart-horses. The Ram Sales: The number of rams in the pens was the largest we have seen for a long time in Hereford. The supply, indeed, exceeded the demand. Mr. Pye sold a fine lot of grey-faced rams, the property of Mr. Druce, of Eynsham, Oxfordshire, at an average of £5 12s. 6d. Nine grand shearing rams from Mr. Davies's, of Webton, were sold at an average of seven guineas. The highest bid was eight guineas. Mr. Pye also offered twenty-two choice yearling rams from the well-known Penalt flock, the property of Mr. Price. These sold at an average of £7. Messrs. Russell and Son disposed of a lot of twelve Ryeland lambs, the property of Mr. J. B. Downing, of Holm Lacy, at an average of £9 5s.; and a lot of seven yearling rams, from the same celebrated flock, at an average of £9 10s. The lot of twelve Ryeland rams, the property of Mr. J. T. Pinches, were sold at an average of £9 4s.; and a lot of Cotswold rams from the flock of Mr. John Barton, of Fairford, at an average of £9 7s. Mr. Nathaniel Taylor, of Worcester, had upwards of fifty first-class rams from the flocks of some of the celebrated dealers of the day. A lot of Oxfordshire Down rams, the property of Mr. Chas. Gillett, of Cote House, Bampton, Farington, were sold at an average of eight guineas; and a lot of grey-faced Cotswold rams, the property of Mr. John Gillett, of Oaklands, near Charlbury, averaged £7 13s. 6d. Several other lots were disposed of, at prices ranging from five guineas to seven guineas. Mr. Dowle, of Rosse, brought under the hammer a lot of twenty-two grey-faced Cotswold rams, from the widely-known flock of Mr. Smith, of Bibury, Gloucestershire, at an average of 8½ guineas. Mr. Dowle also disposed of four rams, the property of Mr. John Wigmore, at an average of ten guineas. Mr. Alfred Edwards sold a lot of twenty-two Cotswold rams, the property of Mr. Yeomans, of Stretton, at an average of £8 15s. 6d. One ram fetched fifteen guineas.

**HORNCASTLE HORSE FAIR**, which has extended over ten days, has concluded. The great demand for high-class horses and the remunerative prices obtained by colt-breeders were productive of a fresh supply of horses to the show on its resumption each day, and all horses of superior stamp in the various classes readily obtained purchasers. The London

dealers bought very largely of high-class riding and harness horses, and many of them had strings of valuable horses consisting of from 40 to 60 head consigned to their stables. Numerous studs of young Irish-bred horses were sold for foreign exportation, and horses for heavy draught purposes have realized from 10 to 15 per cent. above prices of last year's fair. There has been a fair show of Belgian cart-horses, but among which the business was inactive.

**IPSWICH FAIR.**—The day was fine, and there was a very large attendance of farmers and flockmasters. The fair is said to have been the largest for some years, there being upwards of 24,000 sheep and lambs penned. Trade was very dull and prices high. A few pens of lambs were sold at 23s. to 24s. a head, but the prices ranged from 21s. to 30s., and even 32s. A few good ewes made 52s. 6d., and the prices varied from 35s. to 50s. There were a few fat sheep, some of which fetched 47s. per head. The entire absence of cattle of course detracts very much from the interest in this fair.

**KINGUSSIE ANNUAL LAMB MARKET.**—The result was very discouraging to breeders. Prices ruled very low. The best lot of wedder lambs on the stance were bought for 10s. 6d. The second-best lot were bought for 9s., the same stock last year having been sold at 16s. The average price for wedder lambs was 5s. to 8s.; but as low as 3s. 6d. was accepted, and a number left the stance unsold. Of ewe lambs the best lots fetched from 10s. to 11s. 6d., the average price of the lots sold being from 6s. to 8s. On the whole, ewe lambs sold at from 5s. to 7s. below last year's prices.

**LANARK LAMB FAIR.**—The show of stock was far in excess of the demand, and at the close of the market it was calculated that about the half of it remained unsold. There was a very large display of blackfaced stock from Ayrshire, Wigtonshire, and the borders of Dumfriesshire. The best lots of top lambs came from these parts, and many of them contained no fewer than from 30 to 35 score. There was a numerous turn-out of the secondary descriptions; indeed, of every kind of stock there was a much greater number than has been seen for a long series of years. The best sale was for top blackfaced wether lambs; but still prices were back from 2s. 6d. to 3s. from those current at the fair held in Lanark a fortnight ago, or from 11s. to 12s. down from last year. Blackfaced ewe lambs were fully 10s. apiece back from last year, Cheviot wether lambs 10s. to 12s., and crosses 10s. to 12s. There was no sale for Cheviot ewe lambs. The following may be accepted as the general run of prices: Blackfaced wether lambs, tops, from 7s. 6d. to 8s. 6d.; secondary kinds, from 2s. 9d. to 5s. 6d.; ewe lambs from 12s. to 18s.; Cheviot wether lambs, from 5s. 6d. to 7s., with the exception of one or two lots, which fetched 9s. 6d.; and crosses from 11s. to 18s.

**LINCOLN FAT STOCK MARKET.**—The supply of sheep was small, but the quality was decidedly better than at the previous market, and realized from 3s. to 4s. a head more money. Wethers fetched 7d., and ewes 6½d. A clearance was effected.

**LUDLOW FAIR.**—Little business was done. The demand for store sheep was small, and the prices quite 10s. per head lower than this time last year. Mutton realised about 7d. per lb. Pigs were very low in price, and but few sales were effected. There was a fair supply of horses, the most useful of which fetched tolerably good prices.

**SETTLE FAIR.**—There was an extremely heavy show of lambs, but a dull market. Prices for half-bred lambs, 15s. to 16s. each, better bred 17s. to 21s. The sheep brought into the fair were very few, and principally aged ones, which were disposed of at prices much lower than last year.

**SHEFFIELD FAT STOCK.**—Beef from 8s. 6d. to 9s. 3d. per 14lbs., mutton 6d. to 7d., lamb 6½d. to 7½d. per lb. The market has been well sustained throughout, and all has been cleared off at previous rates. The pig trade was again dull. Stores sold at 10s. to 40s. each. Pork 6s. 6d. to 6s. 10d. per stone.

**WARMINSTER FAIR.**—Cheese found a very dull sale, at 3s. to 5s. per cwt. below late market prices, and as much as 16s. per cwt. lower than at the corresponding fair last year. With a few exceptions only, all the samples pitched were sold.

**IRISH FAIRS.**—**BALLYHEAN:** There was a good supply of horned cattle, but buyers were not numerous. Sheep and

lambs were also well represented. The tone of the fair was moderate. Three-year-old bullocks and heifers ranged from £9 to £15, two-year-old from £6 10s. to £9, and yearlings from £3 to £5. In the sheep department very few sales were made. Hoggets ranged—ewes from £1 to 30s. for breeding purposes, all others from 20s. to 25s. fat sheep from 35s. to 45s., lambs from 7s. 6d. to 15s. Mr. Wm. Gibbons sold a lot of 100 at 17s. Horses for farming and other works were looked after; a demand perceptible. Good strong horses ranged from £12 to £20, other class horses from £7 to £10. Springers and milchers were looked after at from £8 to £16.—**MOYVORE (Westmeath):** There was stock enough, and at a cheap rate, but very little buying. Sheep were in great quantities, and cheaper than they have been for many years. Wethers for victuallers stood about 6d. per lb., ewes about 5d.; some very fine lambs were worth 26s. top price, 20s. to 24s. mean rates; hoggets of a fair class 30s. to 34s., prime 35s. to 38s. A great many springer cows worth from £9 to £17 each; some two years old stores £9 to £11, yearlings £5 to £7, weanlings £2 2s. to £3 5s., dry cows £8 to £12 each; fat heifers (a few) and worth £15 10s. to £18 per head, say 50s. to 59s. per cwt.; pigs worth from 30s. to 45s. for stores, 16s. 6d. to 19s. 6d. per pair for bonhams.—**DUNDALK:** The fair, though pretty well supplied with stock, could not be considered above the average as regards business, which was languid. Prime beef, on the average, did not realise more than from 6d. to 6½d. per lb., or about 63s. per cwt., second quality 5d. to 6d. per lb. Mutton, on a certain calculation, did not bring more than from 5d. to 6d. per lb. in sink. Lambs are so forward at this season that there was no perceptible difference in price per lb. between them and sheep. Bacon pigs were entirely absent, but there were some hardy stores and a numerous supply of small pigs, which went off well, cheap feeding being now easily obtainable. There was a larger supply of horses than usual, but though there were many serviceable animals and smart ponies for sale, their mediocre character did not tempt buyers.—**ARDEE (Co. LOUTH):** The show of stock was fully equal to that of previous years, and the demand was pretty brisk, with the exception of that in sheep, in which there was a very noticeable decline. Prime beef may be quoted as realising 7d. to 7½d. per lb., or from 63s. to 65s. per cwt. Mutton may be said to have realised from 6d. to 7d. per lb., and lamb about the same price. There were no pigs, but a very good display of serviceable horses, but business in this department did not appear to be very active.—**NAVAN:** The supply of prime beef was not very extensive, and for good top lots still prices were received. Best beef rated from 63s. to 65s. per cwt., second class from 51s. to 58s., inferior not looked after. The department of store cattle was extensively supplied, more particularly with bullocks, while young stock was unusually abundant. Three-year-old heifers from £12 10s. to £15, two-year-olds from £9 to £12, yearlings from £4 to £7 each, two-year-old bullocks from £8 10s. to £11, yearlings from £1 to £6 each, dry cows from £8 to £12 10s., strippers from £9 to £15 per head. The springer fair was well supplied. The best springers from £15 to £18 10s., and inferior springers and milch cows from £10 to £14 each. There was a tolerably large show of sheep and lambs; the best lots of wethers rated from 53s. to 58s. each, or 6d. to 7d. per lb. Ewes from 45s. to 48s., or 5½d. to 6d. per lb. The highest figure given for lambs was 28s. each. Inferior lambs sold from 18s. upwards. The swine fair was characterised by the absence of heavy pigs. Store pigs experienced an advance in price, and also bonnives. Stores requiring a month's fattening went as high as 50s. each. Bonnives from 10s. to 15s. each. There was a considerable number of horses. Colts sold from £18 to £25, farmers' nags from £10 to £16 each. **CAMLOUGH:** There were some very valuable lots of beef, which fetched about 6d. to 7½d. per lb., top figure 7d. Store cattle and good strippers met a very fair buying; the latter rated from £8 10s. to £13 10s. per head. Three-year-old heifers advanced from £13 to £15 each, two-year-olds from £9 to £13 each, yearlings from £5 to £7 each. Calves from 30s. to 40s. a-piece. Bullocks, two-year-old and two-and-a-half, from £8 to £13 each; springers of superior quality £16 to £22 each, in a few instances £24 and £25 were given. Aged cattle, near their calving, ranged from £9 to £14 a-piece, and milch cows from £8 to £14, according to age and quality. Wethers varied from £2 15s. to 60s. for top lots, inferior ones from 48s. to 55s. each; hoggets from 34s. to 38s. per head,

lambs from 16s. to 25s. each. Best mutton 6d. to 7d., inferior and ewe from 5d. to 6d. per lb. Store pigs rather advanced, and small weanlings rated from 10s. to 16s. each. There was a considerable show of horses, the highest figure being £25. Farmers' nags sold slowly, from £10 to £16 each.—**TAGHMOYRE:** Buyers were numerous, and there was a brisk demand for good animals amongst foreign stock. There was but a small supply of general stock. Three-year-old bullocks 10 gs. to £14, two-year-olds £7 10s. to £10, three-year-old heifers £11 to £15, two-year-olds £9 to £11, yearlings from £3 10s. to £6, new milch cows £11 to £15, springers £10 to £12 10s., strippers £9 to £11. There was a good supply of sheep; demand dull. Mutton from 4½d. to 5½d. per lb., hoggets 28s. to 36s. per head, lambs from 16s. to 21s. 6d. Bacon 48s. to 50s. per cwt.

ENGLISH WOOL MARKET.

CITY, MONDAY, Aug. 26.—We have very little change to notice in the value of any kind of wool compared with Monday last. On the whole, however, the trade is steady. The quantity of wool on offer is moderately extensive. The export trade is heavy.

CURRENT PRICES OF ENGLISH WOOL.		s.	d.	s.	d.
<b>FLEECES</b> —Southdown hoggets.....	per lb.	1	4½	1	5
Half-bred ditto .....	..	1	6	1	7
Kent fleeces.....	..	1	5	1	6
Southdown ewes and wethers ..	..	1	3	1	4
Leicester ditto .....	..	1	6	1	7
<b>SORTS</b> —Combing .....	..	1	2	1	8½
Clothing .....	..	1	2	1	6½

**BRADFORD WOOL MARKET, (Thursday last.)**—The improved tone of last Thursday is about maintained to-day, and no more. The increasing firmness of growers, who just now care more for corn than wool, helps to keep up the price here. The amount of wool which has changed hands during the past week has not been so large as in the preceding one, but spinners buy what they require without hesitation, and with no expectation of lower prices. The large auction sale of wool announced for this afternoon may do something to indicate the tendency of prices, but the wool to be offered is of a class which cannot form any sure criterion.—*Bradford Observer.*

**YORK WOOL MARKET, (Thursday last.)**—At this market, which is now held fortnightly, there were 350 sheets offering, of which 150 were left over from the previous market. Good-bred wools, for which there appeared to be more buyers, maintained full prices, viz., from 20s. to 22s. per stone. First-class ewe wool 16s. 6d. to 17s. per stone, cross-bred 13s. to 15s., poorer wool (for which the market was heavy and lower) 7s. to 9s. 6d., and locks and cots 11s. to 12s. per stone.

**GLASGOW WOOL MARKET, (Friday last.)**—There is nothing of importance to note in this market. There is still a fair demand for most classes, and rates keep pretty stationary. In laid Highland especially some good clips have changed hands; but in white wools, although sales have been effected to some extent, still the demand is not on the increase.—*From F. H. McLeod's Report.*

**BRESLAU WOOL REPORT, August 22.**—Our trade continues exceedingly quiet, transactions being very limited and prices decidedly in favour of the buyers. The whole amount of sales during the last fortnight arises to only about 1500 cwts., whereas more than 5000 cwts. have arrived at the same period from Poland, Russia, and Hungary. Most business has been done in the middle-fine descriptions of clothing-wool at from 70 to 80 thalers, home manufacturers and Rhenish commissioners being the buyers. Some flocks of refuse, slipes and skin-wool in bundles realized at from 60 to 70 thalers per cwt. and list-wool unwashed 21 to 22 thalers. As to lambs-wool, there is nothing like the briskness to be remarked which characterised last year's trade in this article, and only best and finest qualities are picked out for English and French account at comparatively remunerative prices, the choicest of them being sold at from 105 to 125 thalers per cwt.—**GUNSBURG, BROTHERS.**

## REVIEW OF THE CORN TRADE DURING THE PAST MONTH.

The first of August was very unpromising as to temperature, being as cold as November; but on the whole we have had a glowing sultry month, which reached its height on the 14th, when the thermometer was 85 degrees in the shade, and at a tropical height in the sun. Such a high temperature was pretty sure to bring storms, and we have had them about once a week, with heavy rain, and electrical displays truly awful; but the fine intervals between have enabled farmers to secure a large portion of their wheat in the southern districts, and a fair quantity has already appeared at market. The quality is generally thin, and millers think little can be done with it, without a fair admixture of old; so a liberal resort must be had to foreign, for perhaps never was the country more bare of native stores. So it would seem our granaries will soon be cleared; and as the Continent, in respect of stocks, is like ourselves, we must get on as well as we can with less mellow-flour than our bakers have been accustomed to use. The yield has in very few cases given satisfaction. We have, indeed, seen some 63lbs. per bushel wheat, but much more not over 61lbs. What the Baltic will be able to do we have yet to learn, as their gatherings must dip deeply into September, even with fine weather, which, for our own sakes as well as theirs, let us hope they will enjoy. With no dependence anywhere for old wheat in quantity, our prospects for new as yet rest on Hungary, Russia, and America. The former country can do but little, from its limited area, and the latter will only ship in large quantities when winter is over. But there are other claimants for corn as well as ourselves: Algeria is a terrible failure; so is Portugal partly; so is Spain; and the yield of France this season is very deficient again. Therefore we find the vast population of the world quite in condition to require all this year's produce, with a doubt as to whether any stores will be left on hand as a provision against future calamities. Such being the case, it is not to be expected that the low prices of 1866 will again return, though the first gatherings may temporarily oppress the market, and occasion some further decline; already a reduction of 5s. has to be noted, and much will in future depend on the disposition of the monetary interest, as to whether speculation shall appear, and give an elasticity to business. Foul weather, either here or on the Continent, would even now soon change the face of things, and with the changes experienced throughout this remarkable year, who can reckon on the future? The following prices were recently quoted at the several places noted: White wheat at Paris was worth 69s., red 66s. The average quotations in Belgium were about 65s., Zealand white at Rotterdam 60s., Hambro' prices were 66s. 6d. for Marks and Saale red; at Stettin red wheat was quoted 62s.;

at Cologne the price was 61s.; at Pesth (in Hungary) Banat red was worth 38s. 6d., a large business being done with France and Germany by rail. The stock of fine wheat at Dantzic was well nigh exhausted, and 68s. quoted free on board; Frankfurt quoted 54s.; Ghirka wheat from Odessa afloat, to 61s. 6d., Polish 60s., Sandomirka 64s., new amber wheat at New York 61s. per 480lbs.

The first Monday in Mark-lane commenced on a small supply of English wheat; but the foreign arrival was heavy. The show of samples this morning from Kent and Essex was very limited; but the return of fine ripening weather made millers very cautious, and the few sales noted were at the previous rates. Much of the foreign supply being Russian, this description of wheat was 1s. per qr. lower, but the finer sorts of Baltic were held at unaltered rates. Floating cargoes were unchanged in value, but the demand was slack. The country markets this week had a firmer aspect than that of London, being more dependent on the English supplies. These being very short at Rochester they were 1s. to 2s. per qr. higher, and the same advance was realized at Boston, Bristol, and some other places, while other towns were dull as approaching the new harvest, and Sleaford reported 1s. per qr. decline. Liverpool was rather dearer on the Tuesday's market. Edinburgh and Glasgow noted no change in the value of wheat, and similar advices come from Dublin and other parts of Ireland.

On the second Monday there was only about half the former limited supply of home-grown wheat, but this was more than made up by a still larger arrival from abroad. There were scarcely any fresh samples of old on the Kentish or Essex stands; but a few of the new crop appeared, which, considering the splendid character of the weather, brought extreme prices, say 70s. to 76s. per qr., while the quality and weight were both complained of; these purchases, therefore, must have been made to test the character of the new flour. Scarcely anything was passing in foreign, which holders would have been glad to place at a reduction of fully 1s. to 2s. per qr. Buyers of floating cargoes were holding off in expectation of lower rates. The weather being tropically fine up to Wednesday night, and harvest work in many places very active, there was hardly enough show of samples in the country markets to reduce the rates of home-growth; but prices became unsettled, and any sign of anxiety to sell on the part of farmers lowered prices. After Wednesday night's storm there was rather more firmness in the country; but no increase of price. The greatest calm for wheat ruled, both at Edinburgh and Glasgow. The same reserve on the part of millers was evinced at Dublin and the other Irish markets, but without any positive decline, the fate of the crop, being yet in

the balance from the doubtful character of the weather.

On the third Monday there was another very short supply of home-growth, but a great falling-off as regarded foreign was noted. Expectation was greatly disappointed this morning as to the receipt of new samples, there being so few exhibited from Kent and Essex, and scarcely any old appeared. There was, however, no more disposition to take the new exhibited, at extravagant rates; and, indeed, the quality then offered was more inferior. Good runs of red were worth about 66s., of white 68s., Talavera and extra qualities bringing more. With less foreign arrived and so little English on sale, there was no disposition on the part of holders to force-off from on board ship, so extremely little was done, and that at about the decline of the previous Monday. Floating cargoes could only be sold on the acceptance of less money. Monday night opening with a tremendous storm, which lasted till daylight on Tuesday morning, with a deluge of rain, had the effect to somewhat check the downward tendency of prices in the country, more especially the early markets, there then being the appearance of unsettled weather; but as the week wore on, it again became splendidly fine, and Saturday's markets were mostly down 2s. per qr., Norwich advices noting a fall of 4s. to 5s. In Scotland there was calm, without any positive decline as reported at Edinburgh and Glasgow. Dublin found a fair consumptive demand, without quotable difference of value.

The fourth Monday opened with small English supplies, but there was a good arrival of foreign. There was only a moderate show of samples this morning on the Kentish and Essex stands, chiefly of new white, the weight and quality below that of last year, though the little red exhibited was better, and partly taken off by French orders for seed. Sales on the whole progressed but slowly, at a reduction of 2s. to 3s. per qr. on new, and fully 1s. on old. There was a French demand for some Polish-Odessa at full prices, in bond; but the trade for home-consumption was extremely limited at a reduction of quite 1s. per qr. Floating cargoes were also 1s. per qr. lower.

The imports into London for four weeks were 11,437 qrs. English and 136,536 qrs. foreign, against 21,417 qrs. English and 73,611 qrs. foreign in 1866. The general averages commenced at 65s. 8d. and closed at 68s. 4d.; those of London began at 70s. 5d. and closed at 69s. 5d. per qr. The imports into the kingdom for four weeks ending 17th Aug. were 2,896,397 cwts. wheat, 169,610 cwts. flour. The exports during the month from London were 1,170 qrs. wheat.

The flour trade, influenced by wheat, has been dull and declining, Norfolks having cheapened during the month about 2s. per sack, the best commencing at 48s. and closing at 46s. per sack. Foreign of all kinds has also given way about as much, the best French or Spanish not being worth over 51s.; and a recent importation of American barrels shows that some may now be expected from New York, though the last arrivals prove inferior, and were perhaps only sent on from their

unsaleableness at home. Town millers have not as yet lowered the top price, but this is soon expected, there being an outcry in the daily journals that the decline on wheat of 5s. per qr. has made no difference to bread consumers. The imports into London for the month were 57,960 sacks English, 10,697 sacks and 10,096 brls. foreign, against 57,197 sacks English, 4,569 sacks and 7,988 brls. foreign in 1866.

Old barley of home growth being exhausted, and the imports from abroad very light, the prices of this grain have been gradually hardening under a retail demand. A few samples of new malting have appeared, and the finest have brought 46s. to 47s. per qr.; but these prices can hardly be considered as indicative of the future, and we must wait for good supplies to settle them. Very probably, however, fine qualities will be in small compass and ruc high through the season. The imports into London for the four weeks were only 919 qrs. British; 8,515 qrs. foreign, against 869 qrs. British; 13,994 qrs. foreign last year.

The malt trade through the month has been in a state of suspense, with prices declining, just in proportion as the barley crop improved in appearance.

Our dependence for oats through the month has been almost exclusively on continental supplies, chiefly Russian. The wants of France and other neighbouring countries have produced a constant export demand, so that rates have, after some fluctuations, rather gained on the whole — say, about 6d. per qr.; fair 36lbs. per bushel Russian being worth nearly 24s. per qr. The crop in France this year is again said to be so short that, in the midst of harvest they have been rising, and unless our own produce, including Scotch and Irish supplies, should turn out better than now expected, this grain will likely rule comparatively dear through the season, and at all events there must be a great want of old corn this side Christmas. In Germany reports were more favourable, so we may have much new pressed upon us before the closing of the Baltic. The imports for four weeks into London were in English sorts 3,085 qrs., Scotch 110 qrs., Irish 83 qrs., foreign 228,855 qrs., against 936 qrs. English, 163 Scotch, 250 qrs. Irish, 467,657 qrs. foreign in 1866. The exports this month were 11,240 qrs.

The supply of beans has been fair for the time of year, foreign imports having steadily improved since the resumption of exports from Egypt. The trade has been in calm with a downward tendency, as prices were lately reported easier in Alexandria. The English imports in August were 2,056 qrs.; foreign, 6,777 qrs., against 616 qrs. English, 5,325 qrs. foreign in 1866.

Very few peas of English growth have appeared on the London market; but the Canadian arrivals have been liberal, with an upward tendency, in consequence of a good foreign demand, the crops of rye running short in Norway and Sweden and these being used as substitutes. The new, as yet exhibited on the market, have been of poor colour as regarded white qualities, and the grey in small quantities were held at 40s. to 41s. per qr. The



HOP MARKETS.

BOROUGH, MONDAY, August 26.—Our market is very quiet, and owing to the improving prospects of the coming crop, quotations are merely nominal. The weather during the past week has been extremely favourable to the growth of the bine, and all sound and healthy gardens in every district of the plantations have made satisfactory progress; the grounds in some parts have also improved slightly; but the change of weather has arrived too late to be of any material service to them, so far as the coming yield is concerned. Bavaria and Bohemian Accounts are hardly so favourable as last week. Most, however, is reported to be improving. New York advises to the 12th instant report the market as very strong, with scarcely any Hops on offer; blight is rapidly spreading throughout the sections, and has now extended to Wisconsin, which hitherto has been quite free.

Mid and East Kent	£11 0	£11 11	£13 0
Weald of Kent	10 10	11 0	12 0
Sussex	10 10	10 15	11 0
Farnham	11 0	11 11	13 0
Yearlings	6 10	7 0	8 0
Olds	3 0	4 10	5 12

PRICES of BUTTER, CHEESE, HAMS, &c.

BUTTER, p. cwt.—	s.	s.	CHEESE, per cwt.—	s.	s.
Friesland	92	96	Cheshire	78	83
Jersey	76	88	Dble. Gloucester	74	78
Dorset	110	114	Cheddar	80	90
Carlow	—	—	American new	56	62
Waterford	—	—	HAMS: York, new	80	86
Cork	—	—	Cumberland	80	86
Limerick	—	—	Irish	80	86
Sligo	—	—	BACON:		
Wiltshire	74	78	Wiltshire	41	47
Irish, green	41	47			

ENGLISH BUTTER MARKET.

LONDON, MONDAY, Aug. 26.—We note an improved demand for newly-made Butters of good quality, at rather more money; but stale and inferior parcels are left without inquiry. Dorset, fine 11s. to 11s. per cwt. Devon 9s. to 10s. Fresh 12s. to 14s. per doz.

GLASGOW CHEESE MARKET.—The arrivals of home cheese were very large; but the demand is gradually falling off, owing to the large shipments of American cheese, and to effect sales less money had to be taken. About 25 tons passed the weigh-house scales. New Dunlops 4s. to 50s., ditto Cheddars 46s. to 54s., fine old Cheddars 68s., ditto Dunlops 60s. to 66s., Skims 24s.

POULTRY MARKETS.—Surrey Chickens 3s. to 3s. 6d., Fowls 5s. 6d., Barndoor Fowls 2s. 6d. to 3s., Irish 2s., Ducks 2s. 6d. to 3s., Pigeons 7d. to 9d., Geese 5s. to 6s., tame Rabbits 1s. 6d., wild ditto 1s. to 1s. 2d., Grouse 2s. to 4s., Leverets 3s. to 4s. 6d.; Venison £4 10s. to £5 per buck.

BOROUGH AND SPITALFIELDS.

LONDON, MONDAY, Aug. 26.—These markets are fairly supplied with home-grown Potatoes, but scantily with foreign produce. The trade is moderately active, at our quotations. There were no imports last week.

English Shaws	60s. to 100s.	per ton
Regents	60s. to 120s.	„

COUNTRY POTATO MARKETS.—MANCHESTER (Saturday last): New potatoes 7s. to 12s. per 25lbs.—PONTEFRAC (Saturday last): Potatoes 10d. to 1s. per weigh.—YORK (Saturday last): There was an increased quantity of potatoes, and again a reduction of price took place. Round ones were from 6d. to 7d. per score of 21lbs., and from 7d. to 8d. per peck retail. Kidney potatoes, which are now very scarce, were the same as before.

BREAD.

LONDON, SATURDAY, Aug. 24.—The prices in the Metropolitan are for

WHEAT BREAD, per 4lbs. Loaf	9d. to 10d.
HOUSEHOLD BREAD, „	7d. to 9d.

TIMBER.

BALTIC FIR TIMBER.		Christiana & Sannepund deals, white and yellow		12 0	13 0
Per load 50 cubic feet.		Second do.		9 0	10 10
Riga	57 0 to 59 0	Dram & Frederikstad battens, do.		8 5	8 15
Dantzic and Memel	75 0 to 85 0	Dram 6½-inch do.		6 15	7 15
Crown	69 0 to 73 0	Gothenburg, red stocks		9 0	9 10
Best midding & Good midding & second	45 0 to 50 0	Common		8 0	8 10
Common midding	35 0 to 45 0	14-foot deals		9 0	10 0
Small, short, and Irregular	30 0 to 50 0	Swedish deals and battens, long mill-sawn		8 10	9 10
Stettin	35 0 to 50 0	Dantzic, or'w' deck		1 0	1 0
Swedish	36 0 to 42 0	per 40-feet 3-inch Brack		0 12	0 10
Small	33 0 to 34 0	LATHWOOD.			
Balks	29 0 to 32 0	Per cubic fathom.			
AMERICAN PITCH PINE.		Petersburg		7 10	8 0
United States	0 0 to 0 0	Riga, Dant., Memel, and Swedish		4 10	6 10
BALTIC OAK TIMBER.		FIREWOOD.			
Memel, crown	110 0 to 130 0	Per cubic fathom.			
Brack	90 0 to 90 0	Swedish, red deal ends		3 15	4 0
Dantzic and Stettin	75 0 to 105 0	Norway, red & white boards		3 0	3 10
Crown	75 0 to 105 0	Hounds and slabs		2 10	2 15
Brack & unsquared	40 0 to 53 0	OAK STAVES.			
WAINSCOT.		Per mille pipe.			
Per log 18 cubic feet.		Memel, crown		140 0	155 0
Riga, crown	90 0 to 95 0	First brack		120 0	130 0
Brack	57 6 to 62 6	Dantzic, Stettin, & Hambro' full-siz'd crown		100 0	130 0
Memel and Dantzic	75 0 to 95 0	Canada, stand pipe		75 0	0 0
Crown	55 0 to 65 0	Puncheon, § 1,200 pieces		22 10	24 0
Brack	55 0 to 65 0	Bosnia, single brl., § 1,200 pieces		21 0	22 0
DEALS AND BATTENS.		United States pipe		30 0	55 0
Per Petersburg standard hundred.		Hoghead, heavy and extra		25 0	30 0
	£ s. d.	Slight		19 0	22 0
Archangel	10 10 to 12 0				
Second	8 10 to 9 0				
Petersburg	9 10 to 11 0				
Wyburg	8 10 to 9 0				
Finland and hand-sawn Swedish	7 0 to 8 0				
Petersburg & Riga white deals	8 0 to 9 10				
Memel and Dantzic, Crown red deals	12 0 to 13 0				
Brack	8 0 to 9 0				

LEADENHALL LEATHER MARKET.

CROP HIDES.		HORSE HIDES.	
ENGLISH.		lbs. lbs. d. d.	
lbs.	bs.	English	13 18 ... 11 to 13
28 to 35	11½ to 13	without butts	9 14 ... 11 15
36 40	12 14	Spanish, salted,	
40 45	12½ 17	without butts,	
46 50	14 18	per hide	6 9 ... 9 6 15 0
50 55	16 19	Do. do.	9 12 ... 11 6 17 0
55 60	17 20	Do. do. inferior	7 0 10 0
		Do. dry	8 0 11 0
		Do. do.	9 11 ... 10 14 0
		Do. do. inferior	6 0 8 0
BUTTS.		CALF SKINS.	
ENGLISH.		lbs. lbs. d. d.	
14 16	12½ 17	Av. weight	20 to 30 ... 22 to 31
17 20	12½ 17	Do.	30 35 ... 22 31
21 24	13½ 18	Do.	35 40 ... 22 30
25 28	15 27	Do.	40 45 ... 22 30
29 32	18 30	Do.	45 50 ... 21 28
33 36	20 31	Do.	50 60 ... 20 28
		Do.	60 75 ... 18 26
		Do.	75 90 ... 17 23
		Do.	95 110 ... 15 21
		Welsch, unrounded.	
		Av. weight, p. doz.	25 35 ... 18 22
		Do.	35 50 ... 17 22
OFFAL.		KIPES.	
English Shoulders		lbs. lbs. d. d.	
Do. Cheeks and Faccs.	7½ 10	Petersburgh	4 7 ... 16 19
Do. Bellies	8½ 11	Do.	7 9 ... 16 19
Do. Middles do.	11 12½	Do.	9 10 ... 15 18
Foreign Shoulders	10 12	Do.	11 13 ... 14 16
Do. Necks	8 10	E. I. dry salted.	7 9 ... 18 20
Do. Bellies	7½ 9½	Do. seconds	16 18
Do. Middles do.	10 12	Do. thirds	12 15
Dressing Hide Shoulders	10 12	Do. inferior	7 13
Do. do. Bellies	7 9		
Kip Shoulders	5 8	SHEEP SKINS.	
Do. Bellies	5 7	Basilis, unstrained, per lb.	
		Do. strained, per lb.	
		Do. facing, per doz.	
		White Sheep & Lambs	
		Do. strained	
		Do. aprons	
		Tan Sheep and Lambs	
		Sumach skins	
		Do. skins	
		Bark skivers	
		SUNDRIES.	
		Hog Skins, best	
		Do. seconds	
		Seal Skins, split, per dozen	
		Do. for bindings	
		Calf Skins, Sumach-tanned	
		Do. white	
		Horse Hides, white, each	
		Hide Splits, per lb.	

DRESSING HIDES.		HORSE BUTTS, SHAVED.	
lbs. lbs. d. d.		d. d.	
Common	20 to 24 ... 11 to 13	English	10 12 ... 13 15
Do.	25 28 ... 11 13	Spanish	10 12 ... 12 14
Do.	30 34 ... 11 13		
Do.	35 40 ... 12 15		
Saddlers'	39 35 ... 13 15		
Do.	36 50 ... 14 16		
Bulls	10 12		
Shaved	14 16 ... 14 16		
Do.	17 19 ... 13½ 15½		
Do.	20 22 ... 12½ 14		
Do.	24 26 ... 12½ 14		
Scotch do.	16 24 ... 13½ 16		
Coach, per hide	23s. to 30s.		

WINES.

Port, very super. old, 7 pipe	£ 65	Clarets, 1st grth, '02's & '03's	£ 65	75
Good old	50	2nd do.	35	50
Fair light	30	Other qualities	12	25
Do. young	20	Charge	5	10
1862's	50		Per 115.	
1863's	45	Masdeo		
Red Wines, from Oporto	—		Per pipe.	
Do. do., Lisbon	—	French, red	12	16
White do., fine dry	28	White	11	12
Do. do., rich	32		Per ann.	
Bucellas	36	Hock, superior	45	60
Caracvellos	38	Other qualities	6	30
Figuera	38	Mosello, fine	20	30
	Per butt.	Other qualities	6	16
Sherry, fine	100		Per pipe.	
Good	60	Madeira, direct, good	75	105
Common and fair	20	Common	40	60
White wines from Caiz	—	Marsala	16	17
Bay	—	Common	0	0
	Per pipe.	Tenerife, London particular	24	40
Malaga, 1st quality	—	2nd quality	—	25
2nd quality	18	Hambro', red	12	16
Lower do.	—	White	10	13
Spanish, red, good and	—		Per hhd.	
fine	13	Hungarian, red	7	18
Common and fair	10	White	7	18
White	11			

MATTHEW CLARK AND SONS.

HIDE AND SKIN MARKETS.

LONDON, SATURDAY, August 24.

MARKET HIDES:		s. d.	s. d.	Horse hides, each		s. d.	s. d.
56 to 64lbs.	0 2 3/4	to 0 3	4	Calf skins, light	9 6	to 10 6	6
64 to 72lbs.	0 3	0 3 3/4	4	Full	7 0	0 0	0
72 to 80lbs.	0 3 3/4	0 3 3/4	3 1/2	Polled sheep	0 0	0 0	0
80 to 88lbs.	0 3 1/2	0 4	1 1/2	Half-breeds	0 0	0 0	0
88 to 96lbs.	0 4	0 4 1/2	1 1/2	Downs	0 0	0 0	0
96 to 104lbs.	0 4 1/2	0 4 3/4	1 1/2	Shearlings	2 0	3 3	3
104 to 112lbs.	0 0	0 0	0	Lambs	3 0	4 6	6

BARK, &c.

English, per load of		£ s. £ s.	Cork Tree, Barbary		£ s. £ s.
45 cwt. delivered in			Do.	6	0 to 10 10
London	16 0	10 7 1/2	Do. Sardinian	10	0 10 10
Coppice	0 0	0 0	Valonia, Smyrna	16	0 20 10
Dutch, per ton	5 0	0 0	Do. Canata	16	0 20 0
Hambro'	5 0	0 0	Do. Morea	15	0 19 0
Antwerp	6 0	0 10	Terra Japonica	17	15 18 10
Do. Coppice	6 10	7 0	Cambric in bales	25	0 26 0
French	0 0	0 0	Do. Ditto free cubes	15	0 26 0
Mimosa Chopped	8 0	9 0	Catch	38	0 42 0
Do. Ground	8 10	9 0	Divi Divi	11	0 13 0
Do. Long	6 0	8 0	Myrobolans	10	0 16 10
	0 0	8 0	Sicylium, Samach, p. cwt.	23	0 28 0

FLAX, HEMP, COIR, &c.

In hemp a fair average business has been concluded, at fall rates. In consequence of the large supply offering a decline, varying from 6s. to 20s. per ton, has taken place in the value of jute. Flax has been in moderate request.

Hemp, Petersburg		£ s.	£ s.	Coir yarn		£ s.	£ s.
Clean, per ton	39 0	to 39 10	0	Junk	21	0	23 0
Outshot	26 0	0 0	Fibre	25	0	37 0	0
Half-clean	23 0	0 0	Flax, Riga	57	0	64 0	0
Riga, Rhine	40 0	0 0	St. Petersburg, 12				
Manilla	48 0	0 0	head	48	0	56 0	0
East Indian, Sum	17 0	20 10	9 head	35	0	36 0	0
Jute	11 5	24 10	Egyptian	0	0	0 0	0

OIL MARKET.

OILS.		PITCH.			
Olive, Florence, 1/2	£ 4 0	to 0 0	British, per cwt.	£ 6 6	to 0 0
chests	1 4 0	to 0 0	Archangel	£ 10 0	to 0 0
Luca	1 0 0	to 0 0	Stockholm	£ 12 0	to 0 0
Gallipoli, per 252					
gallons	64 0	0 0			
Spanish	62 0	0 0			
Linseed, per cwt.	1 19 0	0 0	French	£ 11 6	0 0
Rape, pale	2 1 0	2 2 0	American	£ 12 0	0 0
Brown	1 19 0	2 0 0	Rough	£ 0 0	0 0
Cod, per tun	39 0	0 0			
Sea, pale	30 0	0 0			
Brown, yel., &c.	33 0	0 0			
Sperm	100 0	105 0 0			
Head Matter	163 0	0 0	American	£ 0 0	0 0
Southern	45 0	0 0	Archangel	£ 11 6	0 0
Cocoa Nut, per cwt.	2 1 0	2 6 0	Stockholm	£ 13 3	0 13 6
Palm	2 0 0	0 0			

RESIN.

French	£ 0 8 0	0 15 0	Greenland, full size	£ 430	£ 410
American	£ 0 7 0	0 21 0	South Sea	300	270

MANURES.

PRICE CURRENT OF GUANO, &c.

Peruvian Guano direct from the importers' stores	£ 12 5s.	to £ 12 10s.
Bones, £ 6 to £ 6 5s.	Ditto Crushed	£ 6 10s. per ton.
Animal Charcoal (70 per cent. Phosphate)	£ 5 per ton.	
Coprolite, Cambridge, whole £ 2 10s., ground £ 3 to £ 3 2s.	4s. 6d. per ton	
Suffolk, whole £ 2 to £ 2 10s., ground £ 2 10s.		
Nitrate of Soda, £ 12 5s. to £ 12 10s. per ton.		
Gypsum, £ 1 10s.	Snapro-phosphates of Lime, £ 5 5s. to £ 6 6s.	per ton.
Sulphuric Acid, concentrated 1845 1d. per lb., brown 1712 3/4d.		
Blood Manure, £ 6 5s. to £ 7 10s.	Dissolved Bones, £ 6 15s.	per ton.
Linseed Cakes, best American bri.	£ 12 to £ 13, bag £ 11 to £ 12 10s.	
Coast Seed Cake, £ 6 15s. to £ 7 10s.		

E. PULSER, London Manure Company, 116, Fenchurch Street, E.C.

Guano, Peruvian	£ 12 7 6	to £ 12 15 0	Linseed Cake, per ton—		
Do. Upper do.	6 0 0	6 10 0	Amer. thin, bgs.	£ 10 0	to £ 10 15 0
Bone Ash	4 5 0	4 7 6	English—	11 0 0	11 5 0
Nitr. of Soda, p. ct. 6 10 3	0 11 6	0 11 6	Catsd. Cake, decort.	0 0 0	0 0 0
Limst. Bonby, p. qr. 3 5 0	3 10 0	3 10 0	Niger	2 12 0	2 13 0
Rapessed, Guzerat 2 19 0	3 0 0	3 0 0	Tallow, 1st P.Y.C.	2 6 0	2 7 0
Cloverseed, N. Am.			„ super. Norths	2 5 0	0 0 0
red, new per cwt. (nominal)					

SAMUEL DOWNES AND CO., General Brokers, Exchange Court, Liverpool.

Agricultural Chemical Works, Stowmarket, Suffolk.

Prentice's Cereal Manure for Corn Crops	per ton	£ 8 0 0
Marshall's Manure	„	8 0 0
Prentice's Turp Manure	„	6 10 0
Prentice's Superphosphate of Lime	„	6 0 0

Printed by Rogerson and Tuxford, 246, Strand, London, W.C.

SPIRITS.

As regards values the market for rum has been very firm, but no extensive transactions have taken place. Brandy supports its former quotations, and British spirit is offered at 12s. 6d. per gallon.

E. India proof, per gal.	1 5 1/2	1 6	Jamaica, 26 to 29 O.P.	2 10	3 0
Leewards, do.	1 6	1 8	Do. 30 to 35 O.P.	3 1	3 10
Penang	1 5	0 0	Better quality, 32 to 36		
Maritius	1 5	0 0	Over proof	3	4 0
Demora, ord. 1st qd.	1 8	1 10	Superior Marks, 32 to 40		
Choice marks 1 10 0			38 over proof	4 3	5 0

Vintage.	Shipped by Martell.		Shipped by Hennessy.		Shipped by Otard.		Shipped by Vineyard Proprietors' Company.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1862	8 8	0 0	8 8	0 0	8 0	0 0	8 0	0 0
1863	7 6	0 0	7 6	0 0	7 0	0 0	6 0	0 0
1864	6 6	0 0	6 6	0 0	6 0	0 0	5 0	0 0
1865	5 6	0 0	5 6	0 0	5 0	0 0	4 0	5 6
HOLLANDS, Geneva, fine, for duty							2 9	to 3 0
BRITISH GIN, for exportation, proof							2 10	to 3 2

HAY MARKETS.

LONDON, SATURDAY, August 24.

SMITHFIELD.—Prices drooping. CUMBERLAND.—A good supply. WHITECHAPEL.—A fair trade.

	Smithfield.		Cumberland.		Whitechapel.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
MEADOW HAY	60	65	60	60	60	60
New	55	0 75	55	0 75	55	0 75
CLOVER	80	0 115	80	0 117	80	0 117
New	60	0 100	60	0 100	60	0 100
STRAW	36	0 42	37	0 42	36	0 42

BIRMINGHAM, MONDAY, August 19.—Hay, old, 80s. to 97s. 6d. per ton. Straw, 3s. to 3s. 6d. per cwt.

LEEDS, TUESDAY, August 20.—Hay, 8d. to 8 1/2d.; Clover, green, 14d. to 2d.; Straw, 5d. to 5d. per 14lb.

MANCHESTER, WEDNESDAY, Aug. 21.—Hay, new 6d. to 7 1/2d. per stone. Straw, wheat 5d. to 6d., oat 4d. to 5 1/2d. per stone.

SHEFFIELD, TUESDAY, August 20.—A very slack market. Hay, 11s. to 12s.; Straw, wheat 75s. to 80s., oat 70s. to 80s.; Clover, 18s. to 22s.; Lints, 18s. to 20s. per ton.

WORCESTER, WEDNESDAY, Aug. 21.—Hay, old, 80s. to 90s.; ditto new, 70s. to 76s. Straw, 45s. to 50s. per ton.

TALLOW.

LONDON, MONDAY, August 26.—The tallow market is inactive. P.Y.C. on the spot is quoted at 44s. 6d. for old, and 45s. 6d. per cwt. for new. Town lard 41s. net cash.

	1863.	1864.	1865.	1866.	1867.
	Cusks.	Casks.	Casks.	Casks.	Casks.
Stock this day	4162	43276	31419	27285	13134
Price of Y.C.	42s. 6d.	42s. 6d.	41s. 3d.	44s. 9d.	old 41s. 6d., new
Delivery last week	43s. 3d.	—s. 0d.	41s. 9d.	45s. 6d.	1570
Do. from June 1st	1314	1459	1971	1570	1253
Arrival last week	12210	13267	10812	17503	14065
Do. from June 1st	1132	1652	3838	2785	432
Price of Town	43s. 9d.	43s. 9d.	47s. 3d.	47s. 3d.	44s. 0d.



# THE FARMER'S MAGAZINE.

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OCTOBER, 1867.

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THE

# FARMER'S MAGAZINE,

AND

MONTHLY JOURNAL

OF

## THE AGRICULTURAL INTEREST.

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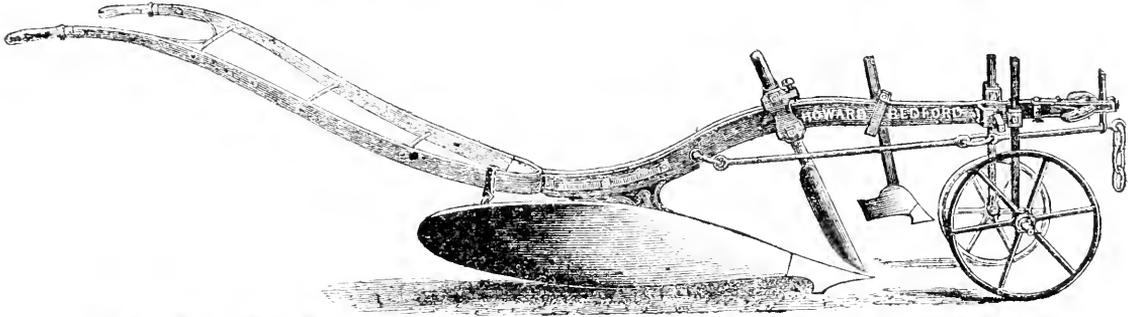
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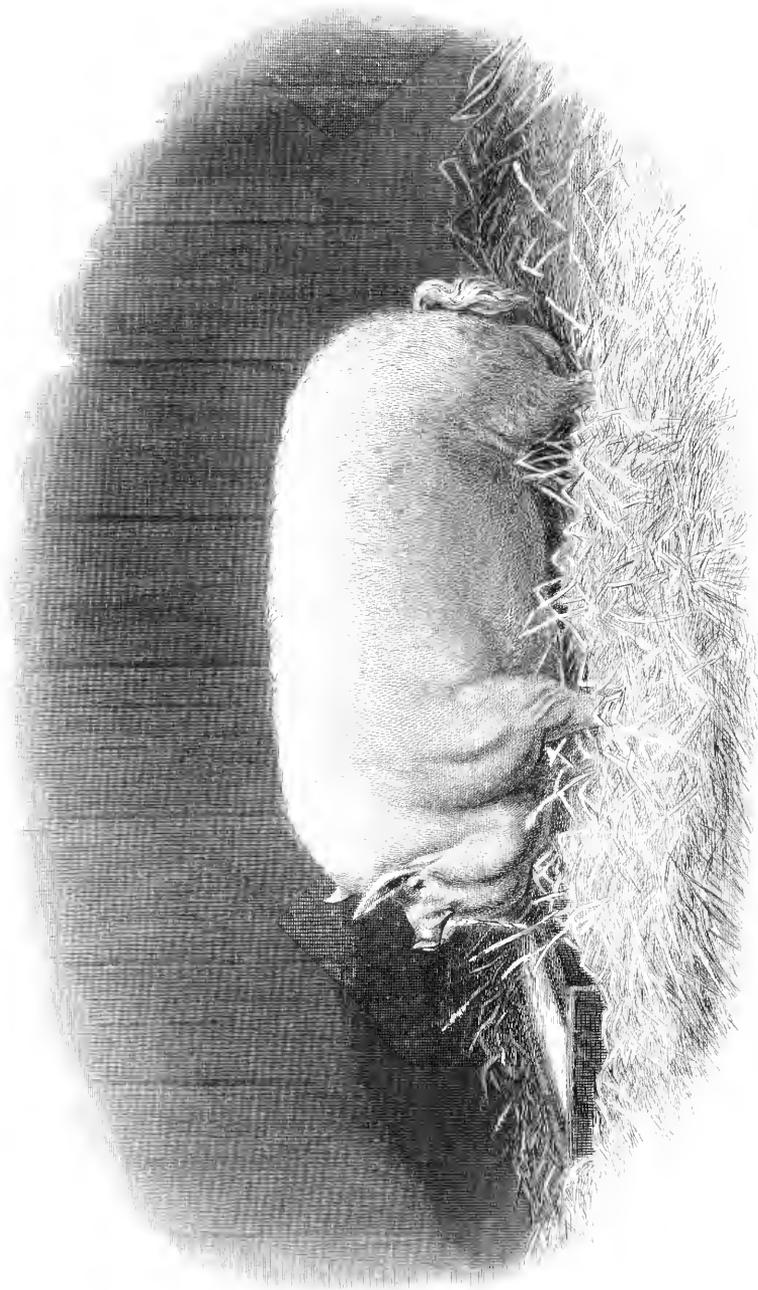
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*Mr. Hermit*





# THE FARMER'S MAGAZINE.

OCTOBER, 1867.

## PLATE I.

### KING LEAR; A PRIZE BOAR OF THE MIDDLE BREED.

THE PROPERTY OF MR. PETER EDEN, OF CROSSLANE, SALFORD, MANCHESTER.

King Lear, bred by Mr. Joseph Hindson, of Barton House, Everton, Liverpool, is by Welcome Guest out of Perfection 5th, by Volunteer; and Welcome Guest by Wetherby Hero.

King Lear took the first prize at the Bury St. Edmunds Meeting of the Royal Agricultural Society of England, the first prize at Burnley, the first at Worsley, and the first prize at the Manchester Meeting of the Manchester and Liverpool Society, the only occasions upon which he has been exhibited.

At the Bury Show we thus wrote of King Lear: "In the other pigs of a white breed, a new exhibitor, Mr. Peter Eden, of Salford, received some

well-earned distinction; and though his middle-size boar had nothing but one of Mr. Duckering's against him, Mr. Eden's was still about the best pig on the ground. He is compact, but broad and deep in his frame, with a good head, a famous collar and forehead, and plenty of nice curly hair. He was, in truth, the happy medium his entry implied, and his portrait was ordered forthwith for the *Farmer's Magazine*."

Mr. Hindson, the breeder of King Lear, has been himself a very successful breeder and exhibitor of pigs, but latterly he has been compelled to decline competing, being called upon so frequently to act as a judge.

## PLATE II.

### THE HERMIT; A THOROUGHBRED COLT.

THE PROPERTY OF MR. HENRY CHAPLIN, OF BLANKNEY, LINCOLN.

The Hermit, bred by Mr. Blenkiron in 1864, is by Newminster out of Seclusion, by Tadmor, her dam Miss Sellon, by Cowl—Belle Dame, by Belshazzar—Ellen, by Starch—Cuirass, by Oiseau.

Newminster, bred by the late Mr. Orde in 1848, is by Touchstone out of Beeswing, by Doctor Syntax, about the very best pedigree in the Stud Book. Newminster, a very handsome horse, was a good runner, and, like his father before him, a winner of the St. Leger; while at the stud he ranks as only second to Stockwell. Newminster's stock first came out in 1855 as two-year-olds, and this first batch included Actæon, Ariadne, Newcastle, Rosabel, and others. In the year following Musjid won the Derby in the first season that Newminster's three-year-olds were ever out, while that magnificent horse, Lord Clifden, credited him with the St. Leger in 1863. Newminster is also

the sire of Aurora, Contadina, Neophyte, Confusion, Joey Jones, Lovebird, York Minster, Blackcock, Imaus, Kildonan, Stanton, Cerintha, Limosina, Muezzin, Onesander, Pratique, Borealis, Adventurer, Beadle, Cambuscan, Midnight Mass, Newmarket, Oldminster, Oscar, Saragossa, Spencer, Bedminster, Doctor Syntax, Lady Egidia, Lady Florence, Lady Hylde, Oppressor, Peeress, Victorious, Archimedes, Balder, Cathedral, Crown Prince, Strathconan, Ulphus, Vespasian, Beeswing, Bertie, Cellina, Ines, Problem, Pericles, and Offering. Newminster is the sire of upwards of one hundred and sixty winners, while his subscription at Rawcliffe, where he still continues, is generally full long before the season commences.

Seclusion, bred by Mr. Simpson, in 1857, was a very good performer at two-year-olds, and as a consequence started a strong favourite for the

Oaks, but she gradually trained off, and "Mr. E. Hall," at the close of 1861, transferred the filly to Mr. Blenkiron. She was put to Marsyas in 1862, and the produce, The Novice, was knocked down, at the Middle Park sale of yearlings in 1864, to Mr. F. Fisher for 240 guineas, but she was never afterwards worth the money. The Hermit followed in 1864, but the mare slipped her foal to Weatherbit in 1865; had an own sister to Hermit in 1866, that was sold at Middle Park in July last for 1,050 guineas; while she has another filly by Newminster just weaned.

Hermit is a yellowish chesnut, a somewhat curious-coloured coat that, as we fancy, will never look so bright as some of the blood chesnuds show out in. He stands fifteen hands two inches and a-half high, has a long lean head, not quite elegantly set on to his straight clean neck, with nicely-laid shoulders, muscular and blood-like, and a good middle, if a trifle too long. He has fine loins, great haunches, and big but rather short thighs, with powerful arms, first-rate joints, and short wearing legs, his marked peculiarity being the point of the quarter coming down in a line with

the point of the hock. Being a capital-tempered horse he saunters along with a rather listless indifferent air, that at Epsom went at once to condemn him, although he was by no means so unfit as some people were ready to declare. Hermit is altogether a very stylish horse, as one of the handsomest yearlings we ever saw, when we hung to him at the Middle Park sale, and said, in print, "We shall wager Mr. Chaplin he will be worth more than the other grand chesnut by this time two years." That other grand chesnut was Pedagogue, a son of Stockwell and Governess, also booked to Mr. Chaplin for 1,500 guineas, Hermit making 1,000 guineas.

Hermit's two-year-old running proved him to be about the best colt of his year, and up to a very short time before starting he was a leading favourite for the Derby. He, however, broke a blood-vessel in a gallop a few days before running, and so went right out of the betting, winning with 100 to 1 against him. Hermit ran second to Achievement for the St. Leger and the Doncaster Cup, and the filly has beaten him on the three occasions of their meeting.

## THE NORTH SHORE OF CORNWALL.

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

In visiting the very interesting county of Cornwall, the tourist must be prepared for a system of cultivation differing widely from that of our eastern shores. Such a traveller must remember its peculiar soils, its mountainous character, and its climate, warmer in winter, and far more moist at all seasons than that of our eastern and southern counties. The south-westerly position, too, of the land, its narrow form, surrounded on three sides by the Atlantic, must also be taken into account.

If the tourist bears these facts in remembrance, he will be prepared to meet in Cornwall with a district in which there is far more grass than cereal crops. From the very hilly nature of the county, the mountains and valleys in many places having their slopes far too rapid and broken to admit of the formation of any but small enclosures, he will also anticipate small farms, and these, as frequently is the case with small holdings, often highly rented.

Amongst the farmers of Cornwall, however, both large and small, there appears to be an air of comfort and independence. Their cows, their bullocks, their white-faced sheep, their pigs, all appear in good condition, and like their owners quite inclined to be on the most friendly terms with strangers. The great majority of the farms are small, being of such an extent that all the labour required is performed by the tenant and his family. There is certainly more than three-fourths of the acreage of these farms in grass, the remainder being cereals and roots. Corn crops are sown after a two or three years' ley. Beans do not succeed in this district. Peas are little grown. The mode of letting their farms does not appear to be conducive to good farming; but although long since denounced, it still continues to be practised.

When a quarter of a century since the late Mr. W. F. Karkeek, of Truro, was so well and energetically addressing himself to the obstacles which exist to the improvement of Cornish agriculture, he had occasion to remark (*Trans. Roy. Ag. Soc.*, vol. vi., p. 436) "that farms are generally let for terms of 7, 14, and 21 years. The first is objec-

tionable in every respect, and is a very great defect in the Cornish system of husbandry, which, combined as it was formerly, and is now occasionally practised, with the system of letting estates by 'tender' to the highest bidder, forms the very acme of folly. The effect of this system is to introduce a class of tenantry on estates without either skill or capital, such persons being always ready to enter on a farm at an extravagant rental, and 'contriving to shuffle through their term,' by *racking* the estates in every possible way."

The system, however, still continues, for while I am writing this a Plymouth newspaper is lying before me, containing a list of several farms, "to be let by tender."

Two of the great formations of Cornwall are the slate, or grawwacke, and the granite, whose decomposed rocks form the surface soils. The soils of the grawwacke formation extend from the neighbourhood of Boscastle, down the north side of the county, to beyond St. Ives Bay, one of the great stations of the pilchard fishermen, and then commences the granite formation, of which the Land's End district is composed. On the granite the soils, as Mr. Karkeek observed, are exceedingly good, and the rent of the land, from the peculiar nature of the little farmers, very high. These small cultivators are a hardworking race of men, who keep many milch cows, breed a large number of pigs, and grow large quantities of potatoes. They live chiefly, it seems, on barley bread, fish, pork, and potatoes. The larger farmers keep numbers of the old black dairy cows, which are supposed to be the aboriginal breed of the county. And by these the Dorsetshire system is often followed, that of letting the cows to dairy-men, who pay £8 per annum to the owner for each cow. For this sum, however, they have a quarter of an acre of potato ground, 2 loads of turnips, 9 cwt. of straw, 72 fag-gots of furze, 100 turf, and 1½ acres of land for the keep of the cow. A renter of five cows has a dwelling-house, pig houses, and potato houses provided in addition. The calves belong to the dairyman,

But as poor Karkeek remarked, when speaking of the grauwacke group of soils, in his able and fearless paper on the farming of Cornwall (*Gleaner*, vol. vi., p. 108). "The country lying on the slate rocks is widely contrasted with that on the granite. The hills are smooth, as if by art, and are so irregularly disposed that they have not unaptly been compared to the waves of the sea, from their undulating character. Under the term 'slate' we include all kinds of rocks, commonly so called, that are composed of sedimentary deposits, varying from the roofing slate even to a loose brown rubble, or becoming hardened, and so forming pudding-stones of great size. The colours are various—light grey, bluish grey, brown, whitish yellow, red, and variegated, the red and variegated being generally considered the most productive. Within these argillaceous masses are discovered products of fire in various places. In districts adjoining the granite, felspar porphyritic rocks (provincially termed *Elvaas*) traverse the slates in the form of dykes, varying from a few to 400 feet in breadth. The land where these elvans prevail is frequently covered by a thin layer of quartz fragments (provincially called spar), which abundantly traverse the slates in these districts. In other parts of the area we have igneous products which may properly be termed sedimentary, since 'they appear to have been deposited in beds among the slates during their formation by the agency of water, after being ejected from fissures or craters in the shape of ashes or cinders, precisely as we might expect would happen at the present day with ashes or cinders discharged from volcanoes into the sea.' These accumulations are termed 'sedimentary ash' (provincially 'dun stone,' or, when blistered, 'honeycomb dun'). Their presence among the slates is a certain evidence of the fertility of the soil. In districts where these abound are discovered beds of greenstone and other solid trappean rocks, 'which seem to have formed sheets or streams of melted rock, amid the mud, silt, sand, or gravel then in the course of accumulation, and which now constitute associated beds of slate, sandstone, and conglomerates.' Wherever these products of fire are discovered, the soil proves exceedingly productive. Again, in other portions of the slates we have accumulations of calcareous matters, and although never in sufficient breadth to give a character to the soil, yet they also are certain evidences of fertility. It is also observed that the character of the soil on the slates is affected by their inclination or dip. Where the underlie is considerable and the subsoil shallow, the surface-soil is light and hungry, the soluble manures passing rapidly through the slaty fissures; and even where the slates lie horizontally, and are of an indurated character, with the soil of little depth, such land will scorch or burn readily in the summer. We have a great deal of cliff-land of this description."

But upon either the granite or the grauwacke formations, as I have before remarked, in even the very smallest farm-houses of Cornwall (and the same remark applies in general to the cottage of the labourer) there are marks of comfort and self-dependence. It is rarely that a beggar is seen, or any evidences of poverty, even in this trying time for Cornwall. Their mines, their fisheries, and their agriculture usually find them ample employment. Their fisheries are chiefly confined to the more westerly and southerly portions of the county. About Tintagel and Boscastle I have seen only lobster fishing. On this coast, however, in the deep caves of its cliffs, numbers of seals are occasionally secured. These repay the fishermen by their skins, and by their oil, a seal commonly yielding about three or four gallons. This year, however, the seals have been unusually scarce.

It was early in September of the present year that I located myself at the little port of Boscastle, one of those picturesque little Cornish coves that the wild waves

of the western ocean have worn out of the grauwacke cliffs at the mouth of a little mountain stream. Here the inhabitants have formed, by means of a very small breakwater, a snug little harbour where two or three little coasters can lay secure in all storms. They thus manage to carry on a considerable wholesale trade in coals, slates, and other heavy articles of merchandise. Here, too, the agriculturist will remark with some interest bevis of farmers' carts busily employed in carrying away the sea-weeds and the sea-sand, which are employed to an enormous extent in this county as manures. The reader must be reminded that the grauwacke, which so very extensively forms the soils of this county, is almost entirely devoid of carbonate of lime. Now, the best sea-sand, which has been for ages employed by the Cornish cultivators, is very largely composed of finely divided shells, and these are chiefly formed of carbonate of lime, with a very small portion of phosphate of lime. This sand, therefore, adds to the soils of the grauwacke the very salts of lime of which they are deficient. Grauwacke is composed of pieces of quartz, flinty slate, felspar, and clay-slate cemented together with a basis of clay-slate. 100 parts of clay-slate contain

Silica.....	48.6
Alumina .....	23.5
Magnesia .....	1.6
Per-oxide of iron .....	11.3
Potash .....	5.2
Carbon and sulphur .....	0.4
Water .....	7.6
Loss .....	1.8

But there is something else in these sands that fertilizes the soil, for they are often harsh-looking sands, evidently devoid of calcareous matter, and would seem unlikely to become available as food for plants. The farmers, too, prefer the sand, which, being daily covered by the tide, is quite saturated with sea-water. They will send to a considerable distance for this salt-water sand, although they might get the same sand, above the influence of the sea, with far less labour. The carting of these sands is indeed a much more laborious operation than our neighbours in lowland districts would believe. While I am writing this, a string of sand-loaded carts are passing up a steep road before my windows. This incline is certainly near a mile in length: it has been well and skilfully made by the Boscastleites, but it needs three horses to drag about a cubic yard and a-half of sea-sand up the hill. So highly valued is this sand that it is frequently drawn from the sea-shore up apparently impossible inclines, and over such rough roads that none but the active little Cornish cart-horses could surmount. And in places where the cliffs are so steep that only pathways exist, they carry the sand from the shore to the top of the cliffs in bags on the backs of donkeys, from whence it is carted on to the land.

About from five to ten loads of sand per acre are mixed with heaps of turf gathered from under the hedges, collections of weeds, and some farmyard manure, and this forms a good dressing for the soil. The sand it appears is more valued in the interior of the county than by the farmers in the immediate vicinity of the sea shore.

The long-continued use of this sea-sand was sometime since described by Sir Henry de la Beche (*Jour. Roy. Ag. Soc.*, vol. iii., p. 21) in a report which I need not attempt to do more than abridge. "The sands thus employed," he observes, "are partly thrown up by the sea, and partly an accumulation at various points when the relative levels of sea and land were different from those we now find—the land having been apparently raised. Sand was employed as now for agricultural purposes 265 years since, as appears by 'Carew's Survey of Cornwall' if 2

(A.D. 1602). In 1811 Mr. Worgan ("View of the Agriculture of Cornwall," p. 128) estimated the expense incurred for the whole county in land-carriage for this sand at upwards of £30,000 per annum. The late Dr. Paris informs us ("Trans. Geo. Soc. of Cornwall," vol. i. p. 193) that 4,000 horse-loads of it have been taken from Bude haven in one day. Not only is it carried from that place by the Bude and Lannecston Canal with its branch extending to Holsworthy (the chief commerce of which is the conveyance of this sand), but it is conveyed overland abundantly in carts; so that a considerable extent of the adjoining portions of Cornwall and Devon are supplied with it from Bude. A good road has been also constructed on the coast near Camelford, purposely for conveying the sea-sand into the interior."

Large quantities of sand are obtained from the Dunbar in Padstow harbour, employing constantly about 80 men in several barges. The amount of sand taken from this harbour was long since estimated at about 100,000 tons per annum—a large proportion of which is conveyed into the interior from Wade Bridge by the Bodmin Railway and its branch up the Camel Valley to Winford.

Sand, indeed, for agricultural purposes is obtained in numerous bays and creeks on the north coast of Cornwall, from Trevoze Head to the Land's End, and is valued in proportion to the shelly matter it contains. Of the few places whence sand is carried on the south of Cornwall, that from Falmouth harbour, composed of little else than corals, shells, and their fragments, is mostly esteemed. "If," adds Sir Henry de la Beche, "we consider that Padstow harbour furnishes one-fourth of the sand employed in Cornwall and Devon for agricultural purposes, and estimate the ton to contain about 14 cubic feet, we should have 5,600,000 cubic feet of sand, chiefly composed of comminuted sea-shells, annually conveyed from the coast and spread over the land in the interior as mineral manure. If we take the produce of Padstow harbour as only a fifth, then we should have 7,000,000 cubic feet thus distributed."

As may be conceived, numerous local causes tend to diminish or increase the value of the sand along the coast; generally speaking, the harder the coast and the less the detritus that can be worn from it, the greater the proportion of the comminuted shells in a given portion of sand. The easier also the streams flowing towards the shelly sands can deposit the sandy detritus they bring down in floods before they reach the shelly banks, the finer the sand. We have found the sands considered worth removal for agricultural purposes to vary from 40 to 70 per cent. in their calcareous contents. Dr. Paris found in the sands usually employed from 60 to 64 per cent. of carbonate of lime. This may probably be taken as a fair average proportion. As I have remarked, Dr. Paris also suggested that, though unquestionably the beneficial effects of this mineral manure depend on the presence of calcareous matter, yet the sea-salt with which it is impregnated contributes materially to its fertilizing powers; citing, as a fact bearing strongly in favour of this opinion, that the farmers send several miles to the harbour of Padstow for the sand, which is drifted, void of sea-water, close to their lands; and, as Borlase remarks ("Nat. Hist. Cornwall," p. 83), "Blown sand which has been long exposed to the air is good for little, its salts are so wasted by wind and rain." The farmers certainly appear to prefer the sand which the tide has just left, and which must therefore contain much saline matter. It then often contains fragments of seaweed, and occasionally fresh animal matter derived from dead marine creatures, amongst which are the tenants of microscopic shells still little decomposed."

But after every allowance is made for the fertilizing properties of the calcareous, organic, and saline matters

found in the sea-sand, I am inclined to believe that there is yet some, either mechanical or chemical action in these sands, with which at present we are not acquainted. The sand which the Cornish farmers collect from the beach is, as I have already remarked, in some instances devoid of calcareous matter; for instance, the sand largely carried from the beach at Crackington Cove is a clean mixture of fine fragments of quartz and slate, and yet this sand is carried in bags up the long, steep path, leading from this beautiful and romantic inlet, on the backs of donkeys, at an expense of nearly three-pence per donkey load. The value of certain varieties of sand, as manures, indeed, well needs a closer examination than it has hitherto received; the use of the silver sand by the gardener for mixing with the soil in which he strikes his plants, the good effects produced on the grass-lands of Surrey by dressing them with the sand collected from our flint-repaired roads, appear to indicate that we are not yet fully aware of the mode in which these sands operate so advantageously.

When the tourist is on these shores, he will be well repaid by a visit to Crackington. He will view from the hills around the Cove (some 800 feet above the sea) extensive scenery, deeply interesting. On the top of the hill he will note considerable barrows and other ancient earth-works, and after a long and steep descent down a winding path, he will find himself surrounded by magnificent dark-slate cliffs, and an open sea, whose brilliant water and glorious waves will not fail to excite his admiration.

The traveller will, indeed, find no lack of deeply-interesting objects, both natural and historical, on these shores. About two miles to the westward of Boscastle he will reach a "Rocky Valley," whose deep-black closely-approaching cliffs rival in grandeur, especially where the valley opens into the sea, anything of the kind I ever visited. It is down this beautiful little valley that a bright stream of water flows, and here, under an ivy-covered crag, a picturesque water-mill with an overshot wheel is so beautifully placed, that, as the miller's wife informed us, "hundreds come to paint it." She has lived, it seems, at that mill forty-seven years; and, indeed, the spot appears to make everybody adhere to it; for her maid, she told us, had lived with her ten years, and the journeyman miller fully as long.

Two miles beyond the Rocky Valley, partly on the verge of some dark slaty cliffs and partly on an island rock, once united by a drawbridge, are the remains of Tintagel Castle, a fortress of unknown antiquity. Here is indeed a wild coast, from whose cliffs the slates are shipped with great care and some risk, by inclined portable tramways which reach from the cliff to the ship's deck. Even the boats are lowered here from the rock into the sea (for there is no beach) by means of a crane; and it is into this little wild Cove of Tintagel that, when we were there, the bright blue waters of the Western Ocean were grandly rolling. In this castle, tradition has from a remote period placed the birth and seat of King Arthur, the renowned chief who so long and successfully withstood the in-roads into Wales and Cornwall of our Saxon forefathers. In his age the only military road into Cornwall was along its north shores, and hence the great importance of this then impregnable castle. It was at a short distance from Tintagel that at the battle-field of Camlan (the modern Camelford) Arthur is said to have received his mortal wound.

The tourist will easily get into this district by the Tavistock and Lannecston Railway, and if when at Tavistock he spares a day to visit Endsleigh, a seat of the Russell family, he will there find on the steep banks of the Tamar, some noble, wood-covered mountain sides, and extensive lovely gardens interspersed (all kept in the highest order by Mr. Cornelius, the able and courteous head-gardener) that he will not speedily forget.

## DERBYSHIRE AGRICULTURAL SOCIETY.

## MEETING AT DERBY.

Derbyshire, famed more for its manufactures and mines than for agriculture, has followed in the wake of other counties, and is not without its show, which has been held for the last seven or eight years in the cattle-market and Holmes-ground—a site admirably suited for the exhibition in every way, being almost in the town, with excellent shedding round three sides of the market, and on the other gates leading into some nice level meadow-land. With everything almost cut and dried for them, the Society is annually increasing, and now musters some five or six hundred strong; who, with the Duke of Devonshire at their head, ought to stride onwards in the right direction. With a little better management, and a few rules and regulations strictly carried out, this might easily be made into quite a little model of a show-ground. In the first instance, as it is none too spacious, carriages of all denominations—common things now-a-days—should be prohibited from entering the yard, for on Wednesday they crowded the approaches to the jumping, and the only side open to the general public, to the great annoyance, inconvenience, and even danger of many, besides depriving numbers of even a glimpse of what was going on, whilst others were in fear of being knocked over or trampled on. Then, instead of judging the horses in the road or between the standings, a ring—one of the greatest attractions in a show-ground—should have been formed where the leaping took place, as a fair-sized one could have been made by placing the reserved seats on the bank or high ground; drafting marquees containing sewing-machines, and snob-like, for they have little to do with agriculture; shifting the dining-booth nearer the implements and machinery, if it is absolutely necessary to have this on the ground at all; and putting up the hurdles for leaping after the judging, which might have been done in a quarter of an hour. The fact of the horses being without numbers was a great oversight, which, as we have often said, ought to be on each side of the head, in figures as large as those nailed on their stalls, so that a purchaser of the shilling catalogue would be able to ascertain to whom and what class they belong, without having to run down each one to his standing. Then, if the Society wish their show to continue popular, they must leave the ring all round to the public, and admit visitors directly the judges are ready to commence, as is now customary at all the shows, so many people caring little to see horses standing still, the cry of "Can he go?" having become almost universal. The cattle could be judged in the market.

There was an average show, the £300 odd offered in prizes for cattle, horses, sheep, and pigs bringing something like a hundred and thirty to forty of dairy-cows, heifers, storks, bulls, and calves; and over a hundred horses, including cart-horses, hunters, hacks, and ponies; a great many sheep, and a few pigs. Then there were other prizes for poultry, prizes for roots, cheese, butter, wheat, barley, wool, agricultural implements, shoeing-smiths, ploughing, hedge-cutting, growing crops, servants in husbandry, best-managed farms, and for canaries and other singing birds. Adding to this a very good horticultural display and a band playing all the favourite airs of the day, from the "highly respectable John Jones" down to that most popular of eads "Champagne Charley," there was plenty to keep one awake. The classes opened with the cattle, most of them being of the Shorthorn breed or of crosses from him. The dairy cows were very good, and formed one of the great features of the show, Derbyshire

being strong in the Milky Way. There were some grand matrons and comely dames amongst them, a few combining form, quality, and milk, and a cow with these requisites never looks much better than when in fair dairy trim. The silver cup for the four best Dairy Cows went to Mr. J. Hodgkinson, of Allstree, in a capital class; the second prize, to a nice lot of Mr. Tomlinson, of the same place; the third being Mr. J. Bryer, of Markeaton. If Mr. Hodgkinson's cows had been bred by himself he would have had an extra prize of £5; but as the breeders of all were unknown the "liver" is reserved for another day. The pairs of dairy cows, belonging to members not keeping more than twenty, were not so good as the previous class. Mr. Foster's first prize were fair, with good bags; Mr. Hancock's, of Dale Abbott, and Mr. C. Smith's, of Langley—second and third prizes—being rather common. In the Shorthorn cows, combining the most milking and grazing qualities and having had a calf between January and July 1867, Mr. Hodgkinson was again proclaimed the winner with a good milker; while the second and third, of Mrs. Packman's, of Tupton Hall, though nice things, especially the red, looked more like beef. The £5 for the best Dairy Cow, to be tested by the quality and quantity of one meal of milk, with any aptitude she may have to fatten also, to be taken into consideration, was awarded to a cow of Dr. Hitchman's—a deep-framed one of the Shorthorn sort, and about the best in the yard, the Doctor having five others, all very useful-looking, in the class. Mr. Brough, of Kirk Langley, sent a venerable dame that had produced eight calves, the last in January 1867. Mr. Menkin was first with a pair of heifers, one, a white, being good; and the other, light, for the £5, in those under three years old; Mr. Thacker, of Ambaston, being second with one good-looking and the other useful; while Mr. Smith's (Langley), third prize, were anything but a match. For a pair of Dairy Heifers, belonging to a dairying tenant-farmer, £3 was awarded to Mr. Smedley, of Hollington, for a couple all milk and very little quality; Mr. Byer, of Markeaton, coming in for £2, with a neat pair, and Mr. Hancock getting a £1 with two fair-looking ones. The pairs of Storks, under two years old, best adapted for dairy purposes and belonging to a tenant-farmer, were very fairly represented, £3 going to Mr. Tomlinson, of Allstree, one of his pair showing a deal of breed, the second being Mr. Foster, of Thurlston; Mr. Thacker, of Ambaston, third; and Mr. F. Rowley, Quornon, commended.

The cup for Shorthorn Bulls of two years old and upwards was taken by Mr. Radcliffe with a very good-looking roan, two years and ten months old, bred by Mr. Fletcher—a bull of quality and symmetry, and full at all points. The second was an ordinary uneven three-year-old of Mr. Mitchell's, of Newton Solney; the third prize, belonging to Mr. Hancock, of Dale Abbey, being harsh in quality, with coarse bad hair. Mrs. Packman had rather a neat two-year-old, and Lord Scarsdale a good lean bull that was not entered for competition. The £5 for the best pure Shorthorn Bull, not exceeding two years old, was taken by Messrs. Arnold and Wakefield, of Catton, with a red twenty-three months' old bull, by Duke of Geneva, dam by Duchess of Lancaster—a lengthy, rather well-grown beast, but too high on the leg. The second, a sixteen months old one, of Mr. Stevenson, of Aston, was very neat indeed. Mrs. Packman sent a very pretty one—in

fact, all from Tipton Hall were remarkable for beauty and breed. The £5 for the best four rearing calves (with a long proviso attached to it, winding up with "the calves must not have had any oilcake after weaning," &c.) brought together anything but a good lot, which we heard one man describe as "Derbyshire all over." Mr. Brough had three feeding Shorthorn heifers in the extra stock; and in the fat stock Mr. Wright had a very neat Shorthorn, and Mr. Cox, M.P., a couple of Longhorns. Then Mr. Cox, with a good-looking Longhorn, took £6 for the fat heifer or cow of any breed; Mrs. Packman being second with a good-looking Shorthorn, and Mr. Marbrow third with a cross-bred animal.

Thence we get on to the horses, which were not strong in any of the classes. There were only two stallions on the ground, the Society not offering anything for sires likely to get hunters, hacks, or roadsters. Beginning with the agricultural stallions, Mr. Hasard, of Melbourn was first with a light, active horse, with good shoulders, but high on the leg; the second prize-horse, and only competitor, being a small yellow chestnut, two years old, with a cross of the Suffolk in him. In the brood-mares and foals there was an entry of seven, Mr. Bryer being first with a lengthy, active, and powerful mare, and third with a useful-looking one with more hair; the second money going to a nice one of Mr. Hewitt's, of Burton, while Captain Levett, of the same place, had a very neat small cart-mare of a capital stamp. The £5 for the best two-year-old gelding or filly was awarded to Mr. Bull, of Eggington, for a fine-grown colt, but faulty in his shoulders; Mr. Hall, of Wilne, coming in for second and third prizes, the second being a very good-looking one. Mrs. Tatam was first in the yearlings with anything but a beauty; the third being powerful, while the second we could not discover, as perhaps like some of the cows and sheep he had a taste for pasteboard, and literally lived on his honours. The pairs of agricultural horses were well represented: the £5 going to a couple of greys of Mr. Porter's, a trifle long on the leg; the second of £3 to Mr. T. Wingfield, of Dale Abbey, while the third pair had been playing tricks with their card, if they ever had one; but Mr. Byers' neat pair appeared worthy of some notice. The mares for breeding hunters and hacks were poor, with the exception of the first and second prize, some being the light cart mares of the county. The first prize was a long powerful mare on short big limbs, and the only hunting-like mare in the class; the second being a chestnut hackney mare of some character, but short and upright in her shoulders. For hacks and roadsters, with half-a-dozen very fair ones out of an entry of eleven, Mr. Worthington was first with a neat, clever, little bay, with white heels; the second being a nice-sized mare, with character, on a short leg, with plenty of blood and hardy looks, and bred by the late Lord Chesterfield. Then the present Lord Chesterfield offers £5 for a half-bred gelding or filly, rising four, of the value of £50, and the property of a member of the Society, which went to a light lengthy animal by Mr. Sykes, with the Sir Tatton head, or even a worse one. Mr. Mitchell had a neat stout chestnut hack, of about fourteen two, by Gilbert de Gaunt, and Mr. Hawkesworth, of Barton, a fair-made chestnut, with his toes in. There were two or three other useful animals, that their owners, no doubt, would like to turn into fifty-pound notes. The five pounds for half-bred geldings or fillies, rising three, went to one of some form and breed of Mr. Audenwood's, of Weston, and the second to a strongish colt of Mr. Thacker's. There was only one entry for the Tradesmen's £5 for cobs, a useful animal, if he could go, but we did not see him out. A couple of fairly-made mare ponies, with foals, one of the foals by Stockbrook by Stockwell, and nearly as big as his dam at three months old, had not

been awarded anything when we left the yard. The next were the four-year-old hunters and upwards, following Mr. Musters', Lord Harrington's, or the High Peak Harriers, with three prizes—£10 from the gentlemen of the Hunt, with a silver cup of the value of £5 added by the Duke of Rutland for the first; a silver cup of the value of £5 given by Lord Harrington, and £2 by the Society as a third. There were twelve or thirteen on the ground, two being disqualified from not having been hunted with any of the packs named. Out of the thirteen there were half-a-dozen clever light-weight looking hunters, but nothing extraordinary. They were all walked and trotted in the yard, and then taken over some hurdles; the first prize going to Mr. Sale's bay, five year old, a clever good-shaped horse—if anything a little weak behind—who, with a quiet horseman, took the hurdles in his stride, and was away again as quietly as if they had not been there. The second was a lengthy, powerful, raw, lumbering horse, that we did not fancy as much as some of the others, though up to more weight, Mr. Thacker's third being of the right material, a black hardy-looking little horse, who could move and fence, and proved well when standing still; though when set going he doubled his head into his chest like a portable boot-jack, that much disfigured him, and made him look as if there was nothing before the rider. Mr. Nowell of Sheen and Mr. Hardy's were both good-shaped goers and fenceers; and Mr. Russell's bay, though not the best-mannered, looked like going a pace. The half-dozen we have named were pretty equally matched.

The sheep were anything but good; in fact, the long-wool classes, principally Leicesters, were as poor a lot, with few exceptions, as were ever seen on a show-ground. Mr. Bosworth of Dishling was first in pens of five long-wool breeding ewes, and in the five long-wool pens of theaves with some decent sheep a little too closely bred. The lambs were miserable. Mr. Foster had a fair Cotswold in the rams of any age above a shearling, which was also first at Lichfield the other day; and Mr. Johnson's first shearling ram was a tidy half-Lincoln. The short-wools were chiefly Shropshires, with some fair sheep among them, but nothing out of the common. In the pens of five breeding ewes Mr. Rose of Ash was first with some useful ones with plenty of wool; while the second of the Hon. E. W. Coke lacked alike wool and substance. Mr. Rose was again first in the pens of theaves, and Mr. Hall second with some plain thiugs. Mr. Smith had some fair ewe lambs, though not matching; Mr. Rose's, the second pen, being more even. In the rams of any age, Mr. Wood of Hollybank was first with two good sheep, and Mr. C. Smith first in the shearling rams with a small common one, while Mr. Ironmonger's second and third were big and coarse. The ram lambs were not worth noting; and of Mr. Hall's fat wethers one pen were butchers' sheep, and the other leggy.

The pigs were poor in numbers, and few of any quality. The boars of a large breed were not worthy of the name of a class. The first prize went to one of Mr. Tomlinson's; while the second, Mr. Hawkesworth's, though a nicer pig, was more of the middle breed. The sows were better, Mr. M. Walker of Stokeley Park being first with a couple of white ones, with farrows of 10 and 11 each. Dr. Hitchman showed some good-looking Berkshires in this class, but not for competition. Mr. M. Walker was first and second, without opposition, with some nice breeding pigs under seven months old, and first again in the small boars with a white pig bred by Mr. Sexton, Mr. Faulkner of Bretby being second. Then for sows of any age, Mr. Faulkner was first with a neat little pig, but without hair, Mr. George of Littlegrove being second. For a pig, *bona fide* the property of an agricultural la-



bourer who does not get more than fifteen shillings a-week, £2 went to George Marsh of Quornodon for a very neat little white one, quite a gentleman's pig.

There was a good show of cheese, Messrs. Walker, Hewitt, and Hawkeworth taking the prizes, and the Rev. W. Leake of Holbrooke Hall the £5 offered by a few friends of the Derbyshire Society for Promoting the Observance of the Lord's-day, to members of the Society who shall not have made any cheese on a Sunday after the 16th of June, 1867; Mrs. Laban—a name familiar to most of us, or that ought to be, as an owner of flocks and herds in the olden time—being the good dairymaid who

came in for a pound sterling. The weather was fine and the attendance numerous, the yard being crammed in every part during the afternoon.

The judges were, for cattle: Mr. Chas. Hellaby, Bramcote; Mr. A. Govan, Burton-on-Trent. Horses: Agricultural—Mr. Bland, Newark; Mr. Larkin, Lutterworth; Hunters and Hacks—Mr. Greaves, Bakewell; Mr. Wright, Wanlip. Sheep: Long-wools—Mr. Buckley, Normanton Hill; Mr. Johnson, Westbrow, Grantham; Short-wools—Mr. May, Elford Park; Mr. Byrd, Lees Farm, Stafford. Pigs: Mr. Whitworth, Measham; Mr. May.

### THE CARMARTHEN SHOWS.

Bound down by strong restrictive covenants not to grow more than four corn crops in succession, the Carmarthenshire farmers still employ themselves more upon the production of beef than of bread. In doing so they rely chiefly on the hill-side and such pasture as they have, for the cultivation of roots "does not pay;" and the black cattle and white-faced sheep thrive well enough on their accustomed fare. Lord Cawdor and other land-owners are certainly introducing the improved breeds; and here and there a goodly herd of shorthorns is to be seen on the banks of the Towy. The Ayrshires we believe have also been occasionally transplanted, while in the show-yard of the Carmarthenshire Agricultural Society on Tuesday, the Hereford made some stand against the more native breed of the district. With the tenants generally, however, we must repeat that these black beasts are the favourites, and really good animals they are, as many an English grazier and butcher knows to his profit. With thick coats, fine quality, active and hardy, they are born to the place, and the show, more particularly, as it is said, at some of the stock fairs, is often remarkable for its average excellence. Still the experiment of a cross with the Shorthorn is being tried, while the sheep of the country are getting more size from the Shropshires and other sorts now to be found about. But as this kind of thing goes on, there must necessarily be some proportionate improvement in the cultivation of the land. The prime bullock will sigh for his cake and mangel, and the half-bred doek look for something more than the sweet bite of the mountain top. As a rule, the Welsh pig is by no means so commendable, but a gaunt narrow leggy "varmint," more noticeable for his personal activity than any especial propensity to put on flesh. Many of the cart mares are light, quick, and clever; but the famous cob of these parts was altogether wanting, and the few ponies proper in no ways extraordinary for their merit.

It was thus that the show of the Agricultural Society was made up; but this, alas! was utterly eclipsed by the United Counties Hunter Show, held on the same day and on the opposite side of the way. There were seven or eight classes, with handsome premiums of £30, £20, and £15; with £10 and £5 for seconds, and equally good entries; for there were close upon a hundred and twenty well-bred riding-horses, ranged in the first instance in the Market Place, and then sent class for class into an adjoining field, where the awards were settled. And this United Hunter Show, embracing the counties of Carmarthen, Pembroke, and Cardigan, is a fast-growing institution, as it well deserves to be, for it is admirably grounded. Mr. Gwyn and his fellows know there is but one way to breed the modern hunter, and consequently the leading condition is that every animal exhibited as a hunting horse must be by a thorough-bred sire. The result is already sufficiently apparent, for there

were horses sent in on Tuesday that for pace and fashion were fit for Leicestershire, and many of them go off through the agency of Messrs. Barnes, Painter, and other dealers, at long prices for the swell countries. A horse was recently sold out of the neighbourhood for three hundred, and they were asking one and two hundred each for winners and losers on Tuesday. In fact, there was a deal of "character" about the entry, and although the jumping business was very properly dispensed with, many of the best horses were extended, and a good notion obtained of their capabilities. A finer goer, indeed, than Mr. Philips' The Admiral by Pontifex, the first prize in the five-year-old class, has seldom been seen, backed as his action was by a handsome blood-like frame and a pedigree on either side of his head. The winner amongst the welter weight again, Baron de Rutzen's Langton by Langton, is a long-reached, showy nag, with plenty of power, and fast enough for any "Shire;" while the best of the 12 st. division, and also "the best mare in the show," Mr. W. H. Lewis' Magic by Touchwood, was equally clever to stand alongside of, or to fairly set going. She improved upon you the more you looked at her; and we have no hesitation in saying that the three hunters we have just named would have earned some distinction in almost any company, with, moreover, all three, as we are given to understand, bred within the limits of the show. The four-year-old class was not so good, but the two three-year-olds, between which the two prizes were equally divided, had each his own merit, though they were essentially different in their appearance. Mr. W. R. H. Powell's The Professor, by the Confessor (a son of Cow), is a lathy, speedy, stylish nag; and Mr. Davis's Hermit, by Artful, a powerful, but coarse colt, like most of his sire's get. Mr. D. Thomas' best two-year-old, by Langton, is a very level, deep animal; but the hacks were only moderate, and Lord Cawdor's prize for the best five-year-old bred within the three counties was withheld for want of merit. No previous winner, however, could compete, and thus the best horses bred in the district were disqualified. But these united counties are manifestly going a-head in the breeding of hunters, and we have seen much worse shows in more favoured localities. This was the very general opinion of the judges, who were chiefly from a distance:—Sir Thomas Gresley, from Leicestershire, and Mr. H. Corbet, from London, as originally appointed, and coupled with them Mr. Chambers, from Hafod, and Mr. Meiklem, from Oxfordshire; the entries being so numerous that it had been intended to constitute two "sets," although this plan was not carried out. The hunter show has become so established a success, or, in other words, its attractions interfere so much with the Agricultural Society's own exhibition, that it is proposed next year to hold these meetings at different dates, with a month or so between the two fixtures.

E G G S .

We know of no article of consumption in the import accounts of the Board of Trade, upon which we can place our finger, that will show a greater or more continuous increase than the simple unit of the egg. Unimportant as it might have appeared some years ago, it has gone on from thousands to hundreds of thousands, and then to millions, until the quantity seems incredible, and could only be realised in extent by the measurement of tons' weight. All this represents so much food required by the necessities of one portion of the population or the luxuries of another—for the frugal and solitary breakfast of the man of letters, or to mix on the table with the more numerous viands of the social family party, or to be called into sudden requisition in aid of the housewife, when the casual visitor steps in. These are the ostensible signs of consumption; but the egg appears everywhere, and yields to every turn of the culinary art—in pastry of all kinds, in confectionery, in the making of ices, sometimes in medicine; and when in a state unfit for the table, it refines our sugar, or softens the leather that preserves whiteness to the delicate hands of the fair sex. All descriptions are eatable and nourishing; but it is only the egg of the domestic fowl that enters into general use. In some of the villages along the rocky portions of our coast, the season when the sea-gulls hover in swarms about the ledges of the rocks is for them a time of plenty; and there is danger and romance about the mode of their collection quite unknown to, or even dreamed of by, the farmyard peasant or the servant of the commercial incubating establishments. Our home producers, as a class, are probably not much given to the study of figures, or they might be struck with the vastness of the importations, of a demand that never relaxes, and a supply from abroad that continually increases—so much, indeed, that our egg-merchants look upon the home source as a mere trifle in the scale in satisfying the wants of their customers. We have no accounts of the numbers brought to the markets of Leadenhall and Newgate, and only the rough estimate of a French authority, who gives the value of the poultry of the United Kingdom at less than one year's supply of eggs from abroad. Thus the annual import of eggs from the Continent averaged 73,000,000 from 1843 to 1847; it averaged 103,000,000 during the next five years, 147,000,000 for the next five years, and 163,000,000 for the next five years. In 1861 we received from abroad 203,313,360; in 1864, 335,298,240; and in 1866 438,878,880; being in excess of one million a day, and valued at £1,097,197 sterling. These are facts that might well astonish the agricultural mind. The Royal Agricultural Society is evidently alive to their importance; for at the meeting for the Eastern Counties, held at Bury St. Edmunds in July of the present year, the farmyard poultry formed a prominent department. Prizes were offered for the best descriptions of fowls, varying from £5 downwards. No similar inducements had been given by the Society since their show at Chester in the year 1858.

At the present time, although there is much attention devoted to the subject, it is principally confined to the fanciers, and upon the best description of birds, so that poultry, and their product, the egg, have not gained any general popularity amongst persons engaged in agriculture. Whether this arises from a disbelief in the profitability of the occupation, or the difference between the tenure of the soil in England and that of France, from whence we derive our great supply, is a matter beyond our purpose here to attempt an elucidation. It is evident that more than one million sterling in value of eggs were landed on our shores that could have been raised with the greatest ease at home; and the question naturally arises, "How do foreigners thus take possession of our own markets, with all the disadvantages of having to convey a perishable cargo through the hands of shippers and commission agents, with all the risks and attendant expenses?" There has been no want of inducement in the matter of prices, as in the year 1854 the Custom-house computed the real value of eggs as low as 4s. 6d. per 10 dozen; but during the last six years 6s. per 120 has been reckoned, which is also the wholesale

price in France. Amongst the arrangements under the French treaty was the abolition of the duty charged on eggs. On August 8, 1854, there was a reduction of 4d. per 120, and from that time to March 6, 1860, they were entered by the cubic foot at the rate of 8d. This mode was found less convenient, and the previous system was adopted—that of number, called great hundreds, or 120, as a unit; and eggs were placed amongst free articles.

The countries from which we derive our principal supplies will be seen by the following table, with the exception of the year 1866, where the total alone has yet been ascertained:—

From	1862.	1863.	1864.	1865.	1866.
	gt. hds.	gt. hds.	gt. hds.	gt. hds.	gt. hds.
Hamburgh	6,864	3,066	3,813	5,670	—
Bremen	15,433	10,250	3,413	1,881	—
Holland	3,801	1,363	1,206	1,772	—
Belgium	169,462	158,526	217,067	171,855	—
France	1,501,402	1,872,753	2,393,521	2,795,899	—
Portugal	13,813	4,251	6,232	1,712	—
Spain	139,628	78,828	54,469	31,328	—
Channel Isl.	85,226	94,487	113,291	21,617	—
Elsewhere..	381	900	1,141	1,710	—
Total ...	1,936,010	2,224,444	2,794,152	3,033,444	3,657,324
Value ...	£593,813	£673,638	£835,028	£928,247	£1,097,197

In the Volume of Trade and Navigation published by the Board of Trade, the average prices given for the computed value in the year 1865 were—Belgian, 6s. 2d.; French, 5s. 11d.; the Channel Islands (their own produce), 5s. 10d.; and Spanish 6s. 3d. per great hundred. It would, however, be an erroneous impression to suppose that Belgian eggs were therefore worth more than French, the mode adopted by the authorities at the Custom-house being this: to take the average prices published in the *Economist* for that year as follows, per 120:—

	s.	d.		s.	d.
January	7	6	July	5	9
February	7	4½	August	5	7
March	5	9	September	5	6½
April	5	7½	October	6	9½
May	5	4½	November	7	8½
June	5	3	December	8	7

and apply the same price to the imports of each month from all parts. The average price so applied varies from month to month, will appear from the above quotations. Since the value attached to the importations for the entire year is the sum of the values of each month, it follows that the average value of the importations for the year varies for the several countries according to the month or months in which the bulk of those importations took place. The cargoes are shipped chiefly in steam vessels, and arrive at the ports of Southampton, London, Folkestone, Arundel, Newhaven, and Shoreham. Of the supplies from Ireland, in the absence of any positive data, it is generally supposed that they have diminished from that quarter.

The time for laying eggs takes place according to the temperature and the climate. They begin in France, and in most parts of Europe, from January to March, the forward hens laying in the earlier months, and the sluggish not until the latter. For purposes of preservation, the late eggs are considered the best. April, May, and June are the months when the production is most abundant; but in July the laying slackens, to resume a certain degree of fresh activity in August and September. In October and November, which is the season of the moult, it ceases almost wholly, and is null in the month of December. To obtain eggs in this season, artificial means are employed, by raising the temperature of the houses, and some poulterers assert that a supply can be had in the winter by feeding the birds on buckwheat, which is then given whole and upon meat. In parts of France, where breeding is carried on as a trade, there is a separate class of

persons called *coupeurs*, or hatchers. The hen is seldom allowed to lead the chickens after being hatched; the *coupeurs* entrust this office to capons or turkeys, the hen being more valuable for laying eggs than rearing the brood. If a similar attention to

details were given in this country, the stock of fowls which roam about the farmyard, and gather corn from the thrashing, instead of being a mere adjunct and perquisite of the servants, would return sufficient to discharge the rental of many a small occupation. Such, we have understood, has been the case where the experiment has been fairly tried; and once this becomes an established notion, our home supplies will increase in a greater ratio than they do at present. According to a competent authority, at this time, what with improved native and imported varieties, we possess the best stock of egg-layers, hatchers, and table-fowl in the world. In no country is the management of our best poultry-yards excelled. These should serve as a model for the rest; and, to bring up the wholesale results to their true national importance, all we require is an extension of the taste for bird-farming amongst those who earn their living on the land.

To show the seasons in which the laying is most active, and the variations that take place, we give the following figures from our import tables:

	1864.	1865.	1866.
	Number.	Number.	Number.
January ... ..	6,999,000	13,301,000	16,386,000
February ... ..	17,851,000	22,323,000	25,794,000
March ... ..	31,849,000	32,231,000	46,537,000
April ... ..	42,650,000	39,964,000	51,471,000
May ... ..	39,930,000	49,597,000	56,767,000
June ... ..	33,177,000	37,890,000	52,334,000
July ... ..	35,332,000	38,488,000	36,476,000
August ... ..	34,549,000	31,279,000	40,566,000
September ... ..	29,711,000	28,444,000	33,946,000
October ... ..	19,547,000	24,056,000	26,947,000
November ... ..	15,864,000	20,424,000	20,696,000
December ... ..	27,836,000	23,103,000	31,018,000

In connection with this subject, we paid a visit to the National Poultry Company's establishment, which is a short walk from the Bickley Station, on the South-Eastern Railway. This experiment in the production of poultry is the most important that has been made, and another is projected at Kattern Bourn, Shenley, Herts, about fourteen miles from London. The plans for the houses at Bromley were made by Mr. Geyelin, but were not carried out to their original extent. The house, now under the management of Mr. Massay, consists of a principal building, sheds, houses, yards, &c., and market-gardens occupying six acres of dry, gravelly soil. The main-building is a greenhouse-looking erection, of wood and glass, 349 feet long, 20 feet broad, and 12 feet high to the central ridge. The pens are arranged along each side of a long central passage, which has a floor of red tiling, with shafts admitting cold air in summer and warm air in chill weather, ventilation being provided from above. The pens are in two tiers—that is, a ground floor and a storey, each occupying 12 feet of frontage, with a breadth of 3 feet from the wired front to a wall of boards, and outside the boards is a similar range of pens of the same size, having for their outside wall a framework of wood and wire. Thus, a cock and six hens have the range of an inner pen of 12 feet by 3 feet, completely shut in from the weather, and also of an outer pen of equal size, roofed, but exposed to the open air through wire of about two-inch mesh. This was thought to be rather close confinement for all but the most inactive breed of fowls, and, therefore, there have been lately added to the building open runs, each of about 30 feet square, in which the different pens of birds are permitted to exercise and scratch in turn. When a hen wants to lay she creeps into a box placed outside her pen in the central passage, and her nest consists of a circular earthenware pan, 12 inches in diameter and 5 inches deep, containing some dry, sandy earth. Scrupulous attention, of course, is paid to lime-whiting and to every detail of cleanliness in the pens and the vessels.

At the end of this building, which accommodates the brood stock, are the departments for fattening and hatching, and the apparatus for artificial incubation; the department for rabbits, the duck-houses and tanks, the boiling-houses, pigsties, &c., occupy other portions of the premises. There were about a thousand head of poultry on the premises; all looked healthy,

and, being the season for laying, the attendants were collecting the eggs into baskets. These, we believe, are sold to some of the hotels in town, but a great many are disposed of for the purpose of hatching, and are marked in pencil according to the different breeds. At present the Bromley Home is chiefly devoted to the breeding of what may be called "fancy" birds, and since the stocks are excellent, the diffusion of the best class of birds throughout the country will produce national benefits superior to the sale of mere quantities of eggs. The French varieties of Houdan, Le Pêche, and Crève-cœur are said to bear confinement, are hardy, good layers, and non-sitters, and they vary in price from 15s. to 60s. each bird, and for eggs, per sitting of 13, from 15s. to 18s. If we might venture to offer a word of friendly advice to this and similar establishments, in which we take the liveliest interest, it would be to reduce the price of eggs. Those disposed of for domestic use are, we believe, rendered unfit for the purpose of sitting, and high prices act as a prohibition upon all such experiments. Although opinions amongst poulters differ respecting the use of natural means for hatching, yet for the bad sitters the invention of the incubator may prove useful. Mr. Crook, who is a fancier, has, by his firm in Carnaby-street, Regent-street, patented a very successful invention, to which we shall hereafter allude. In such undertakings as the Bromley Home we possess the source of supply. The arrangements for feeding, hatching, and fattening are open to visitors, and are interesting even to casual observers. For farmers and others commercially affected they should furnish examples for the proper and successful management of their own poultry-yards.

The increasing demand for eggs, although it has failed to elicit any corresponding or commensurate efforts in our own country, has not been lost upon our quick-witted and versatile neighbours across the Channel. The Metropolis is almost wholly supplied from foreign sources; and "new-laid eggs," as they are called, demand exorbitant prices, and only reach the tables of the well-to-do classes. Those who have the good fortune to accept the hospitalities of the farm-house, in addition to the never-failing appetite on such occasions, will discover the superiority of this portion of the fare, and will gladly return with a contribution from the hen-house. The provincial towns, with trifling exceptions, monopolise the eggs from the surrounding neighbourhoods. The small farmers who do not sit at the market sell their supply to the country shopkeepers, or give them in exchange for other articles. Many cottagers contrive to keep a few fowls; and where there is no pig, these act as scavengers, consuming the scraps of the family, the outside cabbage-leaves, peelings of boiled potatoes, &c., and, if supplied with a little corn, lay a great many eggs. There are no regular agents or dealers engaged in the trade; but the grocer or the butcher of the village takes the surplus at the usual market-price, deducting his commission. The consumption of an ordinary household in the country is as much as 2,000 eggs per annum; so that the residue has no great effect upon the metropolis or the large manufacturing towns. Indeed, it is but too probable that the care of poultry has retrograded; for, as the small holdings have been absorbed by large farms, many an active, frugal housewife has been withdrawn from rural life, who had the will and the means of supplying the market. Neither the cottager with his allotment (instead of his share in the village green or common) nor the artisan has range enough for producing eggs to advantage; therefore, in catering for the public, the wholesale merchant must occasionally pay a personal visit to the markets in France, and rely upon the foresight and activity of agents to meet the wants of his trade.

Many have entertained a belief in the existence of gigantic establishments, which, from assertions made in the public papers, and the largeness of the imports, found ready credence; but we believe that throughout France there are none more extensive than our own at Bromley. The egg business is almost exclusively confined to small farmers, by whom it is carried on in a vigorous and commercial manner, more especially in the provinces of Burgundy, Normandy, and Picardy. According to the latest agricultural returns furnished by the French Government, for 43 departments, the value of eggs and feathers produced each year was taken at 32,500,000 francs. This was considered to be much under the mark, as the consumption of Paris alone is equivalent to 12,000,000 francs; and, although per head it would be less

in the provinces than at Paris, it may be fairly set at rather more than half as great. The eggs, which at Paris are worth 60 francs per 1,000, average 40 francs per 1,000 in the country. We thus obtain a total of 100,000,000 francs, or, with the export, 142,000,000 francs (£5,680,000), as the annual value of French eggs. At this rate the consumption amounts to 2s. per head of the whole population. One of the French writers on this subject gives 7,000,000 eggs as the annual produce; and if we average 60 eggs as the number that each hen would lay, there would be at least 117,000,000 fowls, and these, at 3 francs apiece, would give £14,625,000 sterling as the value of the poultry stock of France. For the past year, on the same ratio of 60 per head, the eggs imported into this country represent the laying of no less than 7,300,000 eggs.

From a pamphlet published by M. de la Fosse, at Goussainville, near Houdan, we select a few statistics of the trade in that immediate neighbourhood, which will give a correct idea of its importance. At the markets of Houdan, Dreux, and Nogent le Roi there are sold annually upwards of 6,000,000 head of fat poultry, viz. :—

	Per Week.	Per Month.	Per Year.
Houdan .....	40,000	160,000	1,920,000
Dreux .....	50,000	200,000	2,400,000
Nogent le Roi.....	35,000	140,000	1,680,000
Total.....			6,000,000

This does not include the sale of chickens, poultry, and eggs, which forms a separate trade. Every village, says an eye-witness, has its weekly markets, where farmers and their wives bring their produce for sale, in preference to selling at the farmyard. The police regulations in the markets are strictly enforced. The various products are classified before the market begins. Each person is bound to keep his assignep place, and not allowed even to uncover his goods, much lest to sell, before the bell rings, under the fine of 5 francs. As the ringing of the bell, the bustle to uncover, the rush of buyers, and the chattering are worth while to witness. The dealers and merchants take up their stand outside the market, where they send all the products they purchase. The seller has a ticket given him, with the purchase price on it, and is paid on delivery of the goods at the dealers' stand. It seems almost incredible that even in some village markets, within two hours, such a vast amount of business can be transacted, with the greatest order and decorum. Some merchants will purchase from 2,000 to 3,000 lbs. of butter; others 20,000 to 30,000 eggs, or 1,000 heads of poultry, &c., all of which are taken to their warehouse to be sorted, packed, and perhaps forwarded the same day to London or Paris. The current price for every commodity is fixed and known immediately after the market opens, and depends entirely on the demand and supply. At the wholesale poultry market, La Vallée, in Paris, where the poultry, dead or alive, is forwarded from all parts of France, there are a number of licensed agents, who sell by auction to the highest bidder; this market is a curious scene from four till nine in the morning, when thousands of crates of all descriptions of poultry are cleared out and disposed of.

The eggs are sold in the markets of Paris in baskets, which ought to contain 1,040 good, valuable eggs. These are counted, at the wish of the buyer, by the official agent, who verifies the *déchet*, or loss; also the size, by passing them through a ring. For such there are charges from 25 cents. per *mit* for counting, 60 cents. for examination, and 15 cents. for passing the ring; besides these charges there are the duties collected by the Municipality of Paris. The production of eggs in France is, to a certain point, unlimited; and the attention of breeders has been drawn to the improvement of the breed by foreign additions, and modes of preservation also for long voyages. In consequence of the success which had attended the exhibition of the poultry of La Bresse (in Burgandy), a stir was created, and, on the representation made to him, the Minister of Agriculture instituted a special show for fat poultry at Paris. The fowls were distributed into five classes—La Bresse, Houdan, La Flèche, Normandy, and all other breeds. La Bresse kept the lead, gaining, after a struggle with La Flèche, the gold medal for the best fowls of any class. Much of this success was due to the strenuous exertions of the Count Le Hon, as no region had greater difficulties to surmount than La Bresse, which constitutes the arrondis-

sement of Bourg, in the department of Ain, and extends from the banks of the Saône eastward to the spurs of the Jura. The fowls have certain features to distinguish them, and the hen begins to lay in February, and for a month or six weeks lays daily, then three or four times a week, till she has laid about 160 eggs, besides rearing two or three broods. On every farm poultry is fattened to a certain extent, and until lately was little known or appreciated at Paris, though for 40 years it has been exported to St. Petersburg.

The price of eggs per 1,000 have been at different periods as follows in the Paris market :—

1804 ...	fr.48.00	1850 ...	fr.43.79
1826 ...	64.50	1852 ...	45.32
1845 ...	48.74	1853 ...	50.19
1846 ...	50.27	1866 ...	60.00

And the consumption had risen from 74,000,000 in 1807, to 174,000,000 in 1853. These are collected from 10 or 12 departments which encircle the city, but more than half is furnished by Le Calvados, L'Orne, and the Somme. From the latter and the Pas de Calais are derived the English supplies. Around Houdan are the villages of Goussainville, of St. Lubin, and La Haye. Near La Flèche au Mans are Villaine and Boee; also some hamlets near St. Pierre Dive, Lisieux, Calvados, and Beauvais in the Somme—all localities abounding in poultry. The ports at which the greatest amount of activity takes place are Calais, Cherbourg, and Honfleur; at Calais the eggs are packed in cases with straw, 1,100 to the case, and at Cherbourg and Honfleur in cases of 600 and 1,200.

The total value of exported eggs, of which England received the lion's share, has been as follows :—

1815 to 1835, an average of ...	2,786,000 fr.
For 1850 .....	7,512,000
1858 .....	10,418,000
1859 .....	11,340,000
1861 .....	17,815,000
1864 .....	27,974,000
1865 .....	37,650,000
1866 .....	42,334,000

How these exports have been distributed will appear by this table :

	1864.	1865.	1866.
	kilog.	kilog.	kilog.
Belgium ... ..	46,364	84,107	130,627
United Kingdom	22,095,262	29,765,561	33,458,539
Germany ... ..	15,767	35,713	
Spain ... ..	34,789	52,632	
Italy... ..	14,799	16,117	
Switzerland ...	143,200	133,753	278,659
United States ...	2,156	3,370	
Other countries .	27,120	29,719	
Total ... ..	22,979,457	30,120,772	33,867,825

As a general definition, the districts that grow buckwheat produce the greatest abundance of eggs; and if we would prosecute this matter successfully at home, it would be well to ascertain whether buckwheat cannot be imported to any considerable extent at a cheap rate. Upon the quality and description of food egg-laying much depends.

From a review of these facts it will be apparent how much our neighbours the French have accomplished; an export of one million sterling per annum in eggs is no insignificant item even in the balance-sheet of a nation. We have entered upon this subject of foreign supply as fully as the public returns and the sources of information, private and otherwise, would enable us, since we have felt its importance to our readers, especially of retailers, and also its indirect bearing upon producers. Many of the former must visit the capital city of France during the unusual attractions of this year, and they may be induced to diverge from the ordinary route. By a personal knowledge of the egg districts named, they will learn, better than by any descriptions we can give, how our admirable and talented rivals in commerce have acquired superiority in this department of business, and exemplified the saying of the great artist, and whilst imparting which maxim he probably gave to his pupils the secret to his own fame, "that by attention to trifles it is possible to arrive at perfection."—*The Grocer*.

## ABSORPTION IN PLANTS.

As a plant has no one organ similar to the mouth of an animal, it might seem to a superficial observer to be incapable of receiving nourishment, and was formerly regarded by even botanists as nourished by methods which were comprehensible only in theory, and could not be subjected to the test of observation. Yet leaves and flowers have always been observed to be refreshed by the access of air and moisture, and must, in consequence, be nourished by means of inhaling and absorbing: and entire plants have always been known to grow and accumulate substance when rooted in the soil, and, in consequence, must be nourished by some process of feeding through the roots. The total want of any individual organ of the nature of a mouth simply evinces that all vegetable nourishment must be obtained in the form of gas or liquid, and received or drunk up through numerous minute stomata or pores.

The epidermis or outer bark of plants was described by some of the earlier vegetable physiologists as of so compact a texture that no eye, even when aided by the best microscopes, could discover in it any pore or aperture; yet it was clearly discovered by the celebrated naturalists, Hedwig and De Candoile, to abound in pores; and it discloses its profusely porous character to the most common observer who uses a microscope of sufficient power. If a plant of any species of moss, so far dried as to have shrunk or shrivelled, be immersed in water, it will immediately begin to imbibe the moisture, and will speedily reacquire its original plumpness and verdure; and it obviously receives the aliment which reaches it only through the medium of the pores of its epidermis.

If the bulb of a hyacinth be placed in such a manner upon a glass vessel nearly filled with water that only the lower parts of the radical fibres shall be immersed, it sends up the elements of a stem, or very evidently begins to grow, and, at the same time, occasions a perceptible diminution in the volume of the water; so that it obviously absorbs liquid through minute tubes of the radical fibres, and elaborates this into the increase of substance which constitute its growth. All roots terminate in a greater or less number, most of them in a great multitude, and many of them in literal myriads of minute, absorbing, drinking spongioles, or spongelets, situated at the ends of fine, filiform, terminal, radical fibres. These countless and microscopically small organs are pulpy and bibulous, and bear the name of spongioles, or spongelets, in consequence of their drinking up moisture from the soil as if they were little sponges. They consist severally of one or more central ducts or vessels, enveloped by a cellular tissue, but without any epidermis; and they constitute the grand apparatus by which plants obtain from the soil, and from its aerial, saline, and aqueous accompaniments, the chief materials of their growth and substance. A knowledge of their existence, and of the nature and importance of their functions, explains the reason of the scientific gardener's care to preserve the extremities and minutest fibres of the roots of an choice plants which he is transplanting; it explains also the advantageousness of lifting, with as full a ball of adhering soil as possible, all such garden plants as are designed to be potted, transported to a distance, or otherwise kept alive; it shows also why damage is inflicted upon a transplanted shrub or tree by cutting away a considerable portion of its roots, or by not assigning it in its new position a soft, wide bed for easy, rapid, and extensive formation of new radicles and spongioles; and to every gardener and farmer of ordinary reflection, it will suggest a crowd of valuable hints as to the most beneficial method of conducting hoeing, transplanting, and all other operations which affect the roots of plants.

The spongioles, it must be understood, are not distributed over the whole of a plant's roots, but are situated only at the extremities of the small hairy radicles or fibres. All such portions of a root as possess an epidermis, or have acquired a certain degree of consistency, are destitute of spongioles; yet all the roots and rootlets fairly beneath the soil are continually lengthening and ramifying, and in the whole of their growth they provide and almost loathe themselves with new series of the filiform radicles, which terminate in spongioles. Va-

rious experiments were instituted by Hales, to show the absorbing power of roots, and the force with which it acts; but as they were made chiefly on the sections of roots laid bare and immersed in water, they afforded no direct illustration of the natural action of spongioles, collecting nourishment at ten thousand different points, appropriating it with a nicety resembling instinct, and drinking it up in a manner, and with a power, akin to animal vitality. The power which the spongioles possess and exercise, in drawing liquid from the soil and pumping it into the interior of trees or of other plants, cannot be very accurately calculated; yet it has been ascertained with sufficient approximation to be distinctly understood, and to be made the subject of comparison; and when the minuteness of the spongioles is taken into account, this power must be pronounced perfectly stupendous, and is seen to resolve itself, not into any mechanical principle, no matter how magnificent, but into the mysterious and undefinable principle of *life*.

The action of the spongioles, however, is far from being uniform in different descriptions of impregnated soil or liquid, but is materially modified by the mechanical character of the ingredients which it holds in solution. If a plant be placed in water, mixed with gum, sugar, or any other similarly viscous substance, it will absorb a larger proportion of the water itself than of the accompanying ingredient; if placed in water, mixed with any substance which does not sensibly thicken it, but which exerts a noxious influence on vegetable growth, it will absorb a full proportion of the accompanying ingredient; and if placed in water mixed with a substance which very sensibly thickens it, yet which exerts a nutritive and benign influence on the vegetable economy, it will refuse to take up a fair proportion of the accompanying ingredient. Plants, for example, which are placed in water holding in solution some sulphate of copper—a substance of very noxious character—will absorb the liquid almost as freely as if it were pure water; plants which are placed in solutions of gum, of various proportions of thickness or viscosity, will absorb some proportion, though not a due one, of the least viscous solution, and will absorb a less proportion of the more viscous solution, and will absolutely perish in such solutions as are highly viscous; and plants which are placed in the drainings of dunghills, or in such waters as hold in solution or suspension the liquefied or minutely divided product of the decomposition of organic substances, absorb smaller quantities of these liquids than they would of pure water, and, at the same time, derive from them a larger proportion of the elements of nutrition and growth. The spongioles thus appear to be controlled, to a great degree, by the mechanical condition of the liquids mixed with the soil; and are probably obstructed by various substances, especially by such as are viscous, in the pores, cells, or passages of their exceedingly minute tubes. One experimenter, however—M. Pollini—found that plants which he used absorbed different kinds of solutions without much seeming regard to their respective degrees of viscosity, and that they absorbed more of sugar than of gum, and more of potash or of common salt than of the acetate or the nitrate of lime. This experimenter found also that, when the extremities of the roots were cut away, so as to divest a plant of its spongioles, and when the mere stumps of the roots or horizontal sections of the absorbing tubes were plunged in various solutions, absorption ceased to be modified by the same mechanical conditions as before, and took up indifferently all the kinds of salts which the several solutions contained. The spongioles of one set of plants would, in consequence, seem to be very differently organized from the spongioles of other sets of plants—those of some more readily admitting certain substances than those of others; those of the smaller proportion of plants affected only in a small degree by the mechanical condition of liquids; and those of the larger proportion affected, for the most part, in a very great degree; and the spongioles, in all cases—though far more markedly in the latter cases than in the former—would seem to afford a far more qualified, hesitating, and elective admission of many substances

in solution than is temporarily afforded by the horizontal sections of the absorbing tubes. A plant can live only two or three days in a solution of sulphate of copper, but will live eight or ten days in a solution of gum; yet, as has been already stated, it absorbs comparatively much of the sulphate and comparatively little of the gum.

The absorbing power of the leaves of plants was long a more obscure topic than the absorbing power of the roots; but it was investigated with considerable success by the naturalists Duhamel and Marriotte, and very distinctly ascertained by the experiments of M. Bonnet, of Geneva. The main object of M. Bonnet's experiments assumed that a leaf possesses an absorbing power, and sought to determine whether it exerts this power alike on both of its surfaces. "With this view," says Keith, "he placed a number of leaves over water, so as that they floated on it, but were not immersed, some with the upper surface and others with the under surface applied to the water. If the leaf retained its verdure longest with the upper surface on the water, the absorbing power of the upper surface was to be regarded as the greatest; but if it retained its verdure longest with the under surface on the water, then the absorbing power of the under surface was to be regarded as the greatest. Some leaves were found to retain their verdure the longest when moistened by the upper surface, and some when moistened by the under surface; and some were altogether indifferent to the mode in which they were applied to the water. But the inference deducible from the whole, and deduced accordingly by Bonnet, was that the leaves of herbs absorb moisture chiefly by the upper surface, and the leaves of trees chiefly by the under surface. What is the cause of this singular disparity between the absorbing surfaces of the leaf of the herb and of the tree? The physical cause might be the existence of a greater or of a smaller number of pores found in the leaves of the herb and tree respectively. The chemical cause would be the peculiar degree of affinity existing between the absorbing organs and the fluid absorbed. Duhamel seems to have been content to look to the physical cause merely, regarding the lower surface of the leaf of the tree as being endowed with the greater capacity of absorbing moisture, chiefly for the purpose of catching the ascending exhalations, which must necessarily come in contact with it as they rise, but which might possibly have escaped it, if absorbable only by the upper surface, owing to the increased rapidity of their ascent at an increased elevation, and regarding the upper surface of the leaf of the herb as being endowed with greater absorbing power, owing to its low stature, and to the slow ascent of exhalations near the earth. This did not throw much light upon the subject; and the experiments were still deemed insufficient, as not representing to us the actual phenomena of vegetation, though the fact of the absorption of moisture by the surface of the leaf is fully confirmed by such phenomena." The absorbing power of the leaf, however, does not require to be proved or illustrated by experiment and argument, but is clearly evinced by three classes of facts which occur under almost every person's observation, and are perfectly intelligible to the humblest understanding—the fall of thick vapours, the fall of rain, and the artificial watering of plants. When a fog or a heavy dew occurs after a long drought, and previous to the fall of rain, drooping and sickly plants begin to revive and to resume their verdure, in the total absence of any penetration of moisture to the soil around their roots; and when gently rain descends, or a light artificial watering is given, they in the same way exhibit obvious appearances of freshening and invigoration, before the moisture has time to affect them otherwise than through the leaves, or, at the utmost, through the epidermis of the branches and the stem. The sudden arresting of exudation or transpiration of the juices within the plant by the stopping up of the pores or stomata of the leaves might probably be assigned by some persons as an explanation of the refreshing or revival; yet, though both this and some degree of absorption through the pores of the epidermis may be admitted to operate, they clearly cannot possess sufficient force to produce the whole breadth of the phenomena; and the main cause must be sought, where even a careless onlooker may almost imagine himself to see it, in the absorption of the leaves.

The moisture, then, which a plant requires for its nourishment is received partly through the pores of the epidermis of the stem, the branches, the fruit, and the hard parts of the

root, partly through the spongioles at the extremities of the radicles, and partly through the stomata or little mouths of the leaves and the flowers. The quantity of liquid taken up from the soil, or drunk in from the atmosphere, very widely varies in different conditions of the weather, at different seasons of the year, and at different stages in the life of the plant; but its varying amount seems much less closely connected with the process of absorption than with that called the ascent of the sap. The quantity of liquid absorbed is much greater during the play of light and heat than during the period of darkness; much greater during the succulence of both soil and plant than during the prevalence of aridity; much greater in spring than in autumn; incalculably greater in spring than in winter; much greater during the evolution and vigour of the leaves than during their ripeness and mellowing; and much greater during the period of the whole plant's most rapid growth than during the period of its old age and incipient decay. The vast preponderance of a very few ingredients in constituting the body or bulk of all vegetables proves that absorption, as to the substances which it takes in, is nearly uniform throughout the vegetable kingdom; and yet the diversified action of manures, the widely-different respects in which different plants exhaust the soil, and the capabilities which all land possesses of bearing different plants in succession after being sickened with each preceding one in the series, evince a degree of differences in absorption of the highest importance to the purposes of cultivation.

A phenomenon, closely resembling absorption, yet so far differing from it as to be more properly termed imbibition, is exhibited by cut plants, whether soft or hard, fleshy or fibrous, but particularly the woody. When the cut extremity of the cut branch of a tree is placed in water, it drinks up, through the tissues or tubes of the wood, a sufficient quantity of water to preserve, for a considerable time, the life and freshness of the whole plant; and though it will not renew itself or maintain its own health like a root, but will alter and rot under the action of the water, yet it can again and again be artificially renewed by the simple slicing away of as much of it as alters and rots, and, at each artificial renovation, it will present an active surface to the water, and will begin to imbibe the water with nearly as refreshing an effect to the whole branch as at the beginning of the experiment. If a small shrubby plant be lifted out of the ground, and cut into three parts, respectively roots, stem, and head, each of these parts, when its lower extremities are placed in water, will drink up a certain quantity of the liquid, and the head, or branched and leafy section, will drink up the most. If the cut extremities of two cut branches of raspberry, the one free or open over its section and the other covered with wax, be placed in water and exposed to the sun's rays, the former will imbibe one hundred and fifty grains of the liquid, while the latter will imbibe only eight; and if the one whose section is covered with wax first have only its extremity placed in the water, and next be totally plunged or immersed, it will imbibe no more by immersion than by mere contact, thus rendering it probable that, in some cases, absorption through the pores of the epidermis is very inconsiderable. A branch of a tree, first severed from the stem and then deprived of its own top, will imbibe water at either end—either when placed invertedly in the water, or when placed in its upright or natural position; yet it imbibes rather more freely, and lifts the water a little higher, in the latter position than in the former.

The phenomena of imbibition are obviously those of the rooting or propagating of the woody sorts of plants by cuttings or slips. A proper cutting requires to have a clean section, that the tubes or tissue may be fully in contact with the liquid nourishment in the soil; it requires also to have one or more eyes or joints for the development of roots below the surface of the soil, and one or more for the development of leaves and branches above it; and if it be a prime cutting, it will be a twig of new wood upon a knee of older wood, so as to have the portion for development as soft as possible, and the section for imbibition in as hard wood as possible; and its success or failure in being converted into a living and distinct plant—provided the requisite conditions as to soil, season, and situation are attended to—will entirely depend on its power of maintaining imbibition till new organs are formed. If the extremity rot before rootlets are formed, the whole cutting will perish. In 4 if the extremity drink up nourishment till rootlets

have been sufficiently evolved to succeed them in drinking it up, the cutting necessarily becomes a living plant. Imbibition, though not a strictly natural process, and though confined within limits and subject to a comparatively speedy termination, thus accomplishes, for a time, all the purposes of absorption, and even carries them out to the results of propagation.

The power of imbibition by the reversed end of a doubly cut twig is familiar to many a youth, who amuses himself with sticking pieces of willows and poplars in all sorts of ways in the ground, and observing how they will grow; and the inferiority of the power in the reversed end to that in the true end is familiar to gardeners, who know that a cutting set in its natural position will usually develop the higher buds, while a cutting set in the reversed position will frequently develop only the lower buds. An experimenter, who doubted whether the superior imbibition by the right end of a cutting, in all the instances in which vegetable physiologists had recorded it, might not have been occasioned by intrinsic though unobserved superiority in the cutting itself, provided himself with two branches of willow as nearly equal to each other in every property as he could determine; and, having placed them in water, the one with its right end and the other with its inverted end in the water, he found that the inverted branch pushed its roots a little more slowly than the direct one. But wood imbibes water, not only through its tissues when transversely cut, but also through its side pores or tissues when denuded of the bark. A cut branch of willow, for example, which has all its transverse section closed up with gum mastic or with a thick coat of wax, and which is anywhere stripped of a ring of its bark about an inch in length, will, when immersed lengthwise in the water, imbibe nourishment through the side tissues of its denuded portion, and will gradually form rootlets and buds, in exactly the same manner as a branch inserted in water by its free cut end.

Akin to the last of these phenomena, though essentially different from it in principle, is the hygrometric capacity of timber, or its powers to take up and retain certain quantities of moisture. So great and constant is this hygrometric capacity, that every specimen of wood, when exposed to the air, will keep itself moist, and, when kept in the shade, will maintain its moisture throughout an indefinite period. A piece of wood was taken by Count Rumford from the inner part of a beam which had been about 150 years in a building, and, on being dried by him in an oven, was found to lose about 10 per cent. of its weight; and that specimen was thought by the Count to have attained the greatest degree of dryness which any piece of timber is ever capable of acquiring in the climate of France. An oaken faggot, after being exposed eighteen months to the air, and becoming as thoroughly dry as the most suitable billets of any kind for fuel, was found, on subjection to high oven heat, to lose 24 per cent. of its weight. Even chips of wood which have been dried in a stove to a state of complete exciccation, will afterwards very freely imbibe water. A thoroughly dried chip of Lombardy poplar 5 inches long and 6 lines broad, will, if placed twenty-four hours in a room, imbibe upwards of three-fourths of a grain of moisture; a chip of thoroughly dried oak, of the same size, and in the same conditions and situation, will imbibe one grain and two-fifths; and these chips, if afterwards exposed during eight days to the open air, will not increase in weight under a continuance of the same temperature, but, on the other hand, will lose a portion of their weight if the temperature should rise. The imbibing power of wood is thus proved to be at once pervading, rapid, and retentive; and both this power in timber, and the analogous but higher power of absorption in living or standing plants, appear to co-exist with the duration of the vegetable tissues, or to be modified or destroyed only as these tissues suffer decay, distemper, or dissolution.

Another power of living plants, closely resembling that of absorption, yet so far differing from it as to be more properly termed inhalation, is the power by which they take in gaseous fluids. The atmosphere has quite as much to do as soil and water with the nourishing of plants; and in particular, it furnishes matter for the formation of a very large proportion of the bulk or substance of them all, in the form of carbonic acid gas, and matter for the formation of a considerable and very valuable proportion of the substance of many in the form of nitrogenous or ammoniacal gases. Since water and other non-elastic fluids have been proved to penetrate leaves, roots, and epidermis, no difficulty can exist in understanding that

gases may penetrate them, with equal or even superior facility. "It might be asked, however," observes Keith, "whether the water and the gases enter by the same pores, where pores are found to exist. But though there appears to be nothing absurd in the assertion of the affirmative, yet it seems probable that each has its own peculiar pores or stomata. At least, it is known that some surfaces which repel moisture exhibit no evidence leading us to suppose that they repel the common air. This is well exemplified in the case of cabbage-leaves, in the time of rains and dews, when the drops roll along the upper surface of the leaf without wetting it, or lodge in its folds, like globules of quicksilver. So also in the case of fruits covered with bloom. It is probable, therefore, that all such leaves and vegetable surfaces as repel moisture are fitted rather for the inhalation of air, which they have long been regarded as capable of effecting; and in times in which it was fashionable to look for analogies between the plant and animal in everything whatever, leaves were even regarded as being the lungs of plants. Grew thought he had discovered in the leaves a number of little bags, or bladders, filled with air. The air was supposed to have entered by inhalation; and the bags, or bladders, were supposed to be analogous in their function to the cells of the lungs of animals. M. Papin introduced into the receiver of an air-pump an entire plant—root, stem, and leaf; but the consequence was, that it very soon died. He then introduced a plant by the root and stem only, the leaves being still exposed to the influence of the air. The plant lived for a considerable length of time; and hence he concluded that leaves are lungs. But these facts are far from being sufficient to settle the point in question; and we introduce them, not so much with a view to show their inadequacy, as to show that the doctrine, even if founded in truth, could not have been satisfactorily demonstrated by any experiments that were practicable at that time. It is to the modern improvements in pneumatic chemistry, and to them alone, that we are indebted for our knowledge of the real functions of the leaves of plants, and of their analogical resemblance to the lungs of animals, it being now proved indisputably that the leaves of plants not only contain air, but do both inhale and respire it. It was the opinion of Priestley that they inhale it chiefly by the upper surface; and it has been shown by Saussure that their inhaling power depends entirely upon the integrity of their organization. A bough of *Cactus opuntia*, detached from the plant and placed in an atmosphere of common air, inhaled in the course of a night four cubic inches of oxygen; but when placed in a similar atmosphere, after being cut to pieces and pounded in a mortar, no inhalation took place."

M. Adolphe Brongniart, in a memoir upon the structure of leaves, and on their relation with the respiration of vegetables in air and water, read before the Academy of Science in Paris, in 1830, states that the leaves of plants that live in the air have a totally different structure from those that are completely submerged, and that this difference in the structure of organs is in direct relation to the two particular functions of leaves—respiration and transpiration. In leaves exposed to air, the surface of the leaf is covered by an epidermis of uncertain thickness, formed of one or more layers of colourless cellulose, closely packed together. This membrane is pierced with the pores usually known by the name of stomata. The doubts that have been entertained upon the existence of perforations in these stomata, M. Brongniart thinks he has removed, and that it is certain that in the centre of each stoma is an opening by which the outer air communicates with the parenchyma. This parenchyma is evidently the seat of respiration; for it is the part that changes colour in exercising this function, which becomes green by the absorption of the carbon of the carbonic acid of the atmosphere, and which is discoloured again in darkness by the combination of the carbon of its juices with the oxygen of the air. This parenchyma differs entirely from that of other organs by the numerous irregular cavities that it contains, which communicate with each other and the outer air by means of openings of the stomata. It is into these cavities in cavernous parenchyma of aerial leaves that the atmospheric air penetrates when it is absorbed by the surface of the utricles of the parenchyma that are distended with the fluids which seem to nourish the plant. According to M. Brongniart, aquatic leaves, if submerged, differ, in being completely destitute of epidermis. It is not alone stomata that they want, as has long been known, but the epidermis also, having no need of protection from rapid

evaporation. There are none of the cavities that abound in the parenchyma of aerial leaves, but, on the contrary, the cellulose of the tissue are compactly fastened together without any interstice, and the air dissolved in the water can only act on their outer surface. For this reason the proportion borne by this surface to the whole mass of the leaf is unusually great; the leaves, from want of epidermis, dry up quickly when exposed to the air, and can only exist in water or a very humid atmosphere. Hence the author concludes that the epidermis is destined to protect aerial leaves against too rapid evaporation, and the stomata or pores of this epidermis become necessary to maintain a communication between the atmosphere and the parenchyma.

The existence of pores, even in the minute orifices called

stomata, is questioned by some very distinguished botanists; and the existence of stomata themselves is seldom detected in the epidermis of roots, bulbs, flowers, and fleshy fruits which require free exposure to the air, or at least a free infiltration of it, in order to their continuing healthy or arriving at maturity. Some recent experimenters and physiologists, however, have attempted to prove that gases may be inhaled and moisture imbibed, through either the vegetable or the animal membrane, without the intervention of any visible pores, or that gases may be inhaled and moisture imbibed by either an exceedingly powerful organic infiltration of the molecules or incomprehensibly small ultimate atoms of matter, or by the inward rush of a less dense to a more dense fluid, excited by electricity.  
—*Rural Cyclopaedia.*

## THE CHANCELLOR OF THE EXCHEQUER AT HOME.

The harvest-home of the parish and manor of Hughenden was celebrated on Sept. 19th by a thanksgiving service in the parish church, and by a dinner and dance in Hughenden Park in the afternoon. An additional attraction was the presence of the Right Hon. B. Disraeli, the Chancellor of the Exchequer, who had announced his intention of presiding at the dinner.

After the cloth was removed, and the usual toasts given, the Rev. C. Lloyd proposed the health of the Chancellor of the Exchequer—"The Squire of Hughenden."

THE CHANCELLOR OF THE EXCHEQUER said: I am extremely sensible for your kindness in drinking my health to-day and for the manner in which you have received it. I am not quite up to politics in the month of September, and therefore you will excuse my not dilating on the theme which my excellent friend the rector of Chalfont has so delicately alluded to. I have no doubt that his opinions are perfectly sound, but on the present occasion I will merely say that nothing gratifies me more than presiding at the harvest home of Hughenden. On the present occasion I am the more gratified because I think I can congratulate all around me upon the results of this harvest. At the present, as there always is, there is a very great controversy going on as to the character and result of the general harvest of the world, not merely of England, not merely of Europe, not merely of America, but we hear contrary accounts and conflicting calculation on that all-important subject. On the present occasion I am satisfied with the limited horizon in which we live, and I think I can say this without exaggeration, that when we met in church this morning to return thanks to the Giver of all Goodness, we might sincerely return thanks for a most satisfactory and plentiful harvest in the parish of Hughenden. Whatever may be the accounts that may reach us from other quarters—whatever may be the criticisms which others may have arrived at, I think there is no doubt that in the parish of Hughenden we ought to be content with the ingathering we have just accomplished. With regard to our wheat harvest, I think that the experiments which have been made even in our wheat harvests, of which in other places we have heard such contrary accounts, we have realized an average. As regards our barley, it has that brightness which brewers love; and as for our oats, rarely have I seen such a prolific and golden ingathering. Well, then, these are very great results under all circumstances, and alone would constitute a good harvest; but when I look around me I remember and observe that these results have been obtained in these varieties of grain in a district where the root crops are equally distinguished. Nor ought we to forget, my friends, at this moment, that this satisfactory and prolific harvest has followed one of the finest hay harvests that can be remembered on the Chiltern Hills—so great and plentiful that even the aftermath will exhibit almost as fertile a condition as our pastures, have in less favoured years in the month of June. Well, then, my friends, I think we have a right to be satisfied, and we ought to be grateful for the harvest that we have just ingathered in this district and parish. At this moment I am speaking only of this parish, with whose interests I am so intimately connected, and with whose feelings I so deeply sympathize. But I think, as far as I can take an

impartial survey of our rural world, there are other things in this parish of not less importance upon which I think we may equally congratulate ourselves. In the first place I think it is a matter of great satisfaction that, at this moment, in the parish of Hughenden there is no able-bodied labourer who is not employed at good wages. We are indebted, no doubt, for this result to the happy circumstance in some degree of that rural manufacture, and the prosperity of that rural manufacture, which converts the raw material of our beechen woods into the convenient form of chairs for the accommodation not only of England, but even of the colonies and foreign parts. But I am glad to say that we are indebted for that satisfactory result to another and not less efficient cause, and that is, the highly-improved husbandry of this district and this parish. It is on account of the skilful rotation of crops—it is on account of the various and often costly manures in which our lands are now dressed, and the great head of stock that is now maintained on the farms of this parish, that that result of the population being well employed, and employed at high and satisfactory wages, is equally at least to be ascribed. And these are very satisfactory results. Well, then, there is another circumstance in our rural life in this parish in which I think we may find congratulation, and it refers to a subject which I have more than once brought under your consideration, and that is the dwellings of those to whom we are peculiarly indebted for the labour which cultivates our fields and gathers in our crops. There has been for some time a continuous improvement, I am glad to say, in the residences of the peasantry—of the labourers on the soil of this parish. Some time ago I mentioned this subject, and, indeed, more than once I have dwelt upon it in your presence. These are legitimate and proper occasions on which we ought to touch upon these subjects. I am myself very much in favour of building new cottages for the labouring population, but at the same time I know that that is a process which can only be very gradually carried out. I won't enter into any controversy upon that subject, because this is not a moment for controversy, further than to repeat what I have often said—that those take a very limited and too contracted view of the ease who, in building cottages for the labouring population, look only to the immediate return in the shape of rent. There is an immediate return far more valuable than rent, which is to be acquired by giving the labouring population dwellings which conduce to their health, their strength, and to their happiness. But I would make this remark, because it is one essentially practical, and applicable to this parish—that you may do a great deal to improve the dwellings and increase the comforts of the labouring class without absolutely building new cottages. You may improve those that exist. Now I believe there are three things which a labourer in the Chiltern Hills most desires—the first is a porch, the second an oven, and the third is a tank. I have for some time been extremely anxious that every labouring man on my estate should have these three sources of comfort and happiness—a porch, an oven, and a tank; and I am very glad to see that the example I have set is spreading, and I hope when we hold our next harvest-home that we shall find that it is a custom of very general adoption. But whether I look to our harvest, or



whether I look to the general condition of those who are mainly associated in its ingathering, I think I can congratulate the proprietors, the cultivators, the farmers, the occupiers, and the labourers of this parish on its general prosperity; and I am sure, from what I have seen this morning, that I am addressing a society who, in the possession of these great advantages, are deeply grateful to the Giver of all goodness to whom we are indebted for these blessings. I trust that the prosperity of Hnghenden may long continue. It is founded on sound principles, and, under the blessing of Providence, ought not to be subject, or at least to be superior, to most of the vicissitudes that interfere with human occupation. I am obliged to you very sincerely for drinking my health on an occasion like the present. Your kind feelings I greatly appreciate, and your good opinion will always be my best reward. I thank you heartily. The right hon. gentleman resumed his seat amid great cheering.

At this stage of the proceedings a figure representing the goddess Ceres was brought into the tent by some of the farm children and presented to Mr. Disraeli, by whom it was exhibited to the company. The goddess wore a blue robe, and her head was composed of ears of oats, while barley and wheat did duty for her arms and feet.

The CHANCELLOR of the EXCHEQUER, in giving the next toast, said: I was for a moment a little dashed and daunted, for I feared that one of the most ancient customs of England had been forgotten on this occasion. I believe that I hold in my hand a representation of the goddess Ceres. For centuries this figure, thus dressed up or in robes of similar manufacture, has been brought forward. She is represented on this occasion mainly by that golden harvest of oats for which, in this parish, we are particularly grateful. I need not say that this reminds me—for my mind is full of the subject—of those who perhaps are more interested in the success of the harvest than even other classes intimately connected with it. We are in this parish favoured, I believe, with the presence of a body of farmers who, take them altogether, may equal—I believe, perhaps, more than equal—those of any parish in the county of Buckingham. It is not merely that they are skilful farmers, and bring to the cultivation of the soil a knowledge of the country and of all those artificial adjuncts which develop its qualities, but they are men who are sensible of their social duties as farmers and as the great tillers of the soil. They look upon their occupation not merely as one of a commercial character, but they remember and they fulfil their duties to those who are dependent on them. Indeed, I have generally found that the skilful farmer is a man who most appreciates the good qualities of the labouring man under him. He knows the value of such a character, and he is the person who is always found the best master. I must congratulate the farmers of Hnghenden on their great success and prosperity this year, and I now propose that you drink their healths, and I trust that they may have many and happy returns of seasons like the present.

After Mr. COATES, a tenant-farmer, had briefly responded,

The CHANCELLOR of the EXCHEQUER said: I now propose to you the health of another order in the agricultural hierarchy, inferior in importance and utility to none of those whose healths have already been drunk. It is the health of those to whom we are peculiarly indebted for the ingathering of the crop, and for the proceeding process of agriculture which has brought about that result. So far as I can form an opinion of my neighbours—and I am happy to say I live, when I am here, much among them—the labouring class in this parish is one of which we may be proud. They are skilful husbandmen, and they are influenced, generally speaking, by a great sense of duty. In proposing the health of the labourers, I should like to connect with the toast the name of one who has been long working on my own estate, and in the occupation of a tenant of mine, who, I think, represents in his own person many of the best qualities of the English husbandman, and that is Hatt, who, I believe, is now working with Mr. James Leigh. In drinking the health of the labourers of Hnghenden parish I shall connect with the toast the name of Hatt, who has long worked on the soil, and who has always been a model of what a skilful, independent, and excellent husbandman ought to be.

Mr. HATT, a venerable farm labourer, briefly responded. He said he was much obliged to Mr. Disraeli and to all the gentlemen present for drinking his health, but in replying he

scarcely knew where to begin. He thought it was best, however, to begin nearest home, and that was with his masters, under whom he had served for many years, and by whom he had always been kindly treated. He thanked them for the manner in which they had used him, and he thanked Mr. Disraeli and the gentry and farmers present for the privilege which had been accorded to himself and fellow-labourers on that occasion of associating with them. As for Mr. Disraeli, their squire, he could not be too grateful for the testimony he had borne to the conduct and character of the farm labourers. He hoped the labourers themselves would not forget the advice which the minister gave them that morning, but before they entered on their duty every day would consider in whose hands they were going to fall. He hoped the Lord would bless them all, and that they would all meet hereafter to enjoy the full glories of the heavens above.

#### THE GRASS.

The grass, the grass, the beautiful grass,

That brightens this land of ours,

Oh, why do we rudely let it pass,

And only praise the flowers?

The blossom of spring small joys would bring,

And the summer-bloom look sad,

Were the earth not green, and the distant scene

In its emerald robe not clad.

Then sing the grass, the beautiful grass,

That brightens this land of ours;

For there is not a blade by nature made

Less perfect than the flowers.

The grass, the grass, the featherly grass,

That waves in the summer wind,

That stays when the flowers all fade and pass,

Like a dear old friend, behind;

That clothes the hills, and the valley fills,

When the trees are stripped and bare;

Oh, the land would be like a wintry sea

Did the grass not linger there.

Then sing the grass, the bonny green grass,

That to all such a charm can lend;

For 'tis staunch and true the whole year through,

And to all a faithful friend.

The grass, the grass, the bountiful grass,

Oh, well may the gift endure,

That never was meant for creed or class,

But grows for both rich and poor.

Long may the land be great and grand

Where the emerald turf is spread;

May the bright green grass, when from earth we pass,

Lie lightly o'er each head.

Then sing the grass, the bountiful grass,

That stays like a dear old friend;

For whatever our fates, it kindly waits,

And it serves us to the end.

CREAM IN COLD WEATHER.—A mistake very often made is that of putting too much milk in the pans. Experiment has proved that if we take two equal quantities of milk, and place one in pans to the depth of six inches, and the other to the depth of only two-and-a-half inches, the latter will yield from seven to eight per cent. more cream than the former. This is the case more particularly in cold and damp weather, and at this time the mistake is most commonly committed. The temperature of the surrounding air has also a great effect upon the time required for the rising of the cream; experiment has demonstrated that the process is more rapid in warm than in cold weather. With the thermometer at

80 degrees, all the cream will rise in 10 hours.	
77	12
68	18
55	24
50	36
45	43

Sprengel found that if milk was kept at a temperature as low as 37 degrees, but little cream would rise in three weeks. In order to avoid the trouble of keeping the cream at the proper temperature, it is customary in some dairies to churn the

whole milk. The advantages claimed by those who follow this plan may be briefly stated thus: the proper temperature can be readily obtained both in summer and in winter; five per cent. more butter can be obtained from the same milk; the butter is not only of the same quality while fresh, but if properly managed will keep much better. This plan would not work so well in the neighbourhood of a good market for skim-milk; but when cheese is an object, there would be little or no difference, for the butter-milk will make as good

cheese as skim-milk. In summer it is difficult to reduce the state of the temperature of the cream as low as fifty-five degrees; but the whole milk need only be reduced to sixty-five degrees, to which most cellars, without any difficulty, reduce it. In Brittany the milk of the previous evening is mixed with the morning's milk, and, after standing a few hours, the whole is churned, and is said to produce a large amount of butter, of a better quality, and will keep longer.—*German Town Telegraph.*

## CHEESE-MAKING IN CHESHIRE.

At the dinner of the Cheshire Agricultural Society, Mr. BARBOUR, the president, said he was very much pleased with the splendid show of cheese they had had. He had never seen such a display before, and he was still more gratified to learn from the judges that the quality of the cheese was much superior to that which had been shown on previous occasions. That was a matter for congratulation. A good deal had been said of late with regard to the products of this district, and he hoped that it would lead to a desire to improve it in the future and if possible to produce a better article than Cheshire had ever done before (Hear, hear). He had no fear himself for the Cheshire farmer or the Cheshire cheese. The past year, it must be borne in mind, was an exceptional year. The market was then flooded with heavy importations from other parts, but he had no doubt that the energy of the people of this county would maintain its position; and he hoped they should always hold their position in the great commerce of the country, especially in the manufacture of cheese. It had been suggested that they might establish a cheese factory. Well, if gentlemen were favourable to establishing such a factory, by all means let them try it. He should be delighted to see it, but he must say he was rather sceptical as to its success. Still it might be tried, and he hoped the farming interest of Cheshire would go on making progress in cheese-making.

Mr. DAVIES, of Mere Old Hall, said they had witnessed that day a very successful show, and a most extraordinary exhibition of cheese. He was delighted to see that Cheshire was getting up again.

Mr. BARTON proposed "the healths of the Judges," and in doing so highly complimented them upon the manner in which they had discharged their duties. The greatest difficulty the judges must have experienced was, he thought, in deciding between the collections of cheese. He had never seen such an exhibition of cheese before, and he was sure the judges must have experienced a difficulty in arriving at a decision.

Mr. WARBURTON responded on behalf of the judges. He said they were very much pleased with the articles shown for competition, but more especially the cheese. But farmers of Cheshire must, he thought, be careful how they went to work. The farmers in this county were of a different class of people, and more mixed than in those large American dairies, where nothing else was done but cheese-making. If they thought of establishing a factory it would be much better to go to work gradually, and on a small scale. He was glad to find that Cheshire had secured the Champion Prize of the day.

Mr. J. BOOTE suggested that Mr. Harding might give them some valuable information respecting cheese, inasmuch as he had a great deal to do with the introduction of the Cheddar system.

Mr. HARDING said the Cheddar system was a very good one, but he dare say it would produce no better cheese than the Cheshire system. He was satisfied from his own experience that they were very much behind what they should be in cheese-making. They managed their arable lands with science, energy, and application, using all the mechanical power within their grasp. He wished he could say the same about the cheese-making districts. Go wherever he would he found very great disparagement in the productions of the cheese-maker. They had had a very good show of cheese—perhaps some of the finest that could be obtained anywhere in England. But, on the other hand, some of the cheese produced must have been manufactured by some one who knew nothing at all about cheese-making. So that whilst some of the cheeses were an honour to any country or county, others were an equal disgrace. He disputed the assertion that cheese could only be made in certain counties, and said no man had had more experience in the matter than he had, and he had come to the

conclusion that good cheese could be made anywhere—in fact it did not matter where ("Hear, hear," and "No, no.") He repeated that no man had had greater experience than he, and, therefore, he was prepared to show what he had stated was correct. He had made cheese in Scotland, and in various parts of England. In Scotland they adopted the Cheddar system which he had the honour of introducing there, and they made just as good cheese as in Cheshire and Somersetshire. He complained that the farmers in England had not proper accommodation afforded them by their landlords for cheese-making. The landlords had not done what they ought to have done. If they visited farm-houses, and old farm-houses especially, they would find dairies that had been constructed without the slightest attention or regard to science. If they had not proper accommodation for cheese-making they should not do it, for the best cheese-makers were sometimes baffled because they had not got a good place in which to make the cheese.

Mr. ASTON (Brassey Green) said when he entered as a competitor of cheese in the society he was not sanguine about taking any prize, and would have returned home quite satisfied if he had not been awarded one. They must not think, however, that because he had been successful he entertained the notion that his cheese was superior to some which had been classed among the unsuccessful of that day. Cases had been known where unsuccessful competitors had sold their dairies for a higher price than those who were successful. In order to be a successful competitor a great deal depended upon the cheese selected being ripe for market at the time of exhibition, and not what they would be in weeks or months to come. This appeared, however, to be a matter with which the judges had not to do. They should bow to their decision, although at times it might be adverse to their own private opinions. He had felt great interest in that part of the show with which he stood so closely identified—namely, the dairy department. Considering the heavy losses they sustained about a year-and-a-half ago in horned cattle, he considered they had had a most excellent show of cheese, and that if Cheshire had not entirely recovered, she bade fair to regain her former renown as a cheese-making county. He was glad to see that there were exhibitors of cheese from other counties, so that Chester had been fairly and thoroughly tested (cheers). He had no doubt the gentleman who had been a competitor was celebrated for making prime Cheddar, or he would not have shown up on that occasion. If the first prize had been awarded him they would have freely given him the honour; but the fact of Cheshire, under existing circumstances, carrying away the champion prize, ought in the estimation of all impartial judges to enhance it. He had no desire to boast, but he had no hesitation in saying that they could compete with any cheese-making county in England. It might be that there was equally as good cheese made in other counties, but they ought to give "honour to whom honour is due." All they wished for was a fair field, justice awarded, and they would then be satisfied. He did not exactly agree with one or two of the remarks made by Mr. Harding. He scarcely thought that one uniform system of cheese-making would do for all counties alike. He was disposed to think that the mode of manufacture of this article of diet should vary according to the description of the soil and the quality of the herbage. He had for some years entertained a high opinion of Cheddar cheese. They appeared to have a most excellent way of manufacturing it in some parts of Somerset; but from what had transpired that day it did not appear to be superior to that of Cheshire. He thought it possible for a skilful person to make a good cheese upon every description of soil; but prime dairies appeared to be manufactured with greater ease and facility upon some farms as compared with others.

## AGRICULTURAL STATISTICS IN IRELAND.

It is a very noticeable fact that now for some years past Ireland has held a long lead in the way of collecting any reliable returns of agricultural products. Scotland soon tired of the experiment, and England hitherto has never taken kindly to the business. The example, as so set by the sister-kingdom, is the more remarkable when we come to consider the agency through which these statistics are obtained. If there be a people proverbially jealous of interference, or of any direct inquiry into their lives and habits, one would imagine such a nation to be the Irish. Or, again, if such a power as the Police should be anywhere held at arm's-length, it would surely be in Ireland. The mere presence of the Constabulary has often enough, before now, occasioned an outbreak; but it is nevertheless by such a means that the information is annually gathered in, with, as it is said, a perfection of detail and a general acquiescence to the movement that leave little to be desired. It may be that the Irish force is composed of a superior class of men to our own officers, and that they can consequently work with more tact and judgment; although still, at the first blush, it does seem extraordinary that the Irish farmer should fall in so readily with a scheme so introduced; whereas the Englishman, when a similar proposal was made some three or four years since, would not hear of so unwarrantable an intrusion, nor for a moment entertain the notion of having a policeman hanging about his premises.

In Ireland, however, the attempt has been so successful, that the collection of these statistics may be regarded as an established feature in the proceedings of the Government. So surely, indeed, as the Show of the Royal Agricultural Society of Ireland comes round, so certainly does his Excellency the Lord-Lieutenant turn these figures to account. The late Lord Carlisle, with all his abilities as an orator and all his natural tendency to poetical illustration and rhetorical display, was too good a judge to throw aside such valuable matter; and year after year he made his chief points from the returns sent in by the farmers. His successors have not been slow to see how appropriate the topics thus engendered must be to the time and place; and accordingly, at the banquet of the Royal Agricultural Society, held in Dublin on Wednesday, Lord Abercorn with commendable industry drew deductions and arguments from the agricultural statistics of the country. The extent of Poor-law relief, the amount of stock in the Bank of Ireland, or the deposits in the Post-office Savings Banks, all lead on naturally enough to subjects more immediately connected with the business of the occasion. At a dinner in England the chairman, after speaking to the merits of the exhibition, would quickly find himself on very delicate ground were he to attempt to go much further; whereas in Ireland it would appear to be the more peculiar mission, if not of the president, certainly of the chief guest, to speak to the general condition of agriculture, and allow every one present to judge of the show for himself. Thus his Excellency stated: "The returns for the present year show no material difference as regards the breeding of stock and cultivation, except in the item of sheep. We find a small decrease of about 60,000 acres in the amount of land under rotation of crops, making altogether a decrease of 500,000 acres of land under rotation of crops, including about 200,000 of green crops, since 1860; while we find an increase of cattle to the amount of 500,000, and of sheep

to no less an amount than 1,500,000, of which 500,000 are in the present year. I find this decrease since 1863." And again: "Connected with this increase of cattle there is one point which is undoubtedly highly satisfactory, namely, the large increase of exported cattle during the present year as compared with former years. We find the number of cattle exported during the last year to be 579,000 as compared with 345,000 in 1863, and, to go further back—to 1850—as compared with 195,000. If the average of the exported cattle be taken at somewhat less than £15 per head, which, I am informed by competent judges, is not much over the mark, we shall find the difference in the exported value between this year and 1865 to come really to three millions of money."

In fact, as a cattle-breeding country Ireland is clearly making much progress. Our graziers are getting more and more inclined to buy their beasts in, just as our dealers have their young horses, from over the Channel, while the introduction of the Shorthorn has done much to improve the character of the native breeds. Not only are there now many highly-bred herds established in the Sister-Kingdom, but the pedigree bulls as usual cross well with anything else; and if the trade in this way be only properly cultivated, it promises to become only more and more remunerative. The comparative exemption, moreover, of Irish cattle from disease proves how well the soil and climate are suitable for such purpose. Still, strangely enough, a really-established business like that of breeding hunters and riding horses, has for some years been gradually neglected, until the supply was anything but equal to the demand. One or two breeding studs have, however, been very recently organized, and the entry of horses was said to be the best the national Society has ever yet got together. But with more cattle and more horses, and less land in cultivation, the Lord-Lieutenant thinks that "this large increase, with a decrease of the winter means of feeding them, is a subject which appears to be worthy of the serious consideration of the practical and skilled members of your society." This is very neatly put, as the suggestion may furnish the theme for some profitable discussion hereafter amongst the farmers themselves; nor is his Lordship less happy in the very practical turn of his remarks on the growth of flax: "In flax we have a decrease in the whole of Ireland of 10,000 acres; but if we look into the returns we shall find the decrease to be wholly confined to Ulster, while in the rest of Ireland there is a slight increase of about 500 acres. Now, I question much whether this decrease in Ulster may not be a very beneficial one, for it is possible that the cotton famine years may have over-stimulated the growth of flax in that province, and that the present decrease is merely a return to a more healthy amount of production; and I think that a comparison of the number of acres grown in Ulster last year—namely, 263,000 acres—as compared with the number of acres grown in 1861, before the cotton famine—namely, 147,000—very much bears on that view of the case." The cultivation of this crop is still mainly confined to Ireland, although we heard last week, when down in the West, that growing flax paid well in parts of Somersetshire and Dorsetshire, with a ready market available, although this was not always the case. In Northamptonshire, some years back, it was the fashion to exchange flax for straw, as there was nothing else to be done with so unsaleable a product.

During the autumn the collection of Agricultural Sta-

tistics will, most probably, come occasionally to the surface as a matter for consideration; while there is no denying that with such returns at his command the Lord-Lieutenant was enabled to speak far more encouragingly to the prospects of Ireland than he otherwise might have ventured to do. Despite the disturbed state of the country for some time past, industry has scarcely ever been thrown out of gear; a fact that would of itself go to show up "one of the most insane and unmeaning attempts at insurrection ever recorded in history." In Ireland, then, Agricultural Statistics have been manifestly turned to a very good purpose; but it must be remembered that from

the first their collection has been worked easily enough. In England the experiment has, on the contrary, never been very well received, nor does it ever promise to be until this is launched with more knowledge of the class upon whose support success must depend. The police, as recognized amongst us, would never "go down" with the farmers; nor do we think that the returns will ever be made with much confidence until it be understood into whose hands they will pass. In so many words, as we have often said before, the constitution of another Board of Agriculture would seem to be a very necessary part of the project.

## THE MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY.

### MEETING AT MANCHESTER.

Following the example of the Royal Agricultural Society of England, instead of one of the more wide-awake maxims of our great-grandfathers, which teaches us that when we cannot get one thing to make the best use of the other, the meeting appointed to be held at Stourport last year was abandoned; although, as the proof is in the pudding, as seen at this and other gatherings, there was ample material even without cattle, to make a capital show. The "grand centenary celebration" of this old-established firm was held on August the 27th and two following days at Old Trafford, just outside the town of Manchester, the Society admitting the ladies at a shilling and the gentlemen at half-a-crown each, a most artful way this of saddling poor Mr. Lancashire with his better-half, with or without the incumbrances, and Master Joony with the object of his affections, and of getting together a numerous and respectable attendance with more grist to the mill, as the ground was crowded. So far so good. But management, after all, is something; and never was a greater jumble than this Old Hundredth anniversary. In fact, we really thought we had mistaken the day, for they were at least that time behind with their arrangements; as on Tuesday hammers, saws, and mallets were in such full swing, with timber so scattered in every direction, that it reminded one more of some place threatened with a siege than a show-ground. The paltry, flapping, canvas-topped open-sided shedding was half-finished, as the horses stood with their coats staring, and owners regretting they had ever brought them, longing for four of the clock on Thursday to get away again; whilst at another part the great dealer of the North was bustling about half-frantic, as he looked on his shivering string of valuable nags, exclaiming, "Dear, dear! what a place to bring horses to!" and shouting to his helpers, "Put their *huds* on! Put their *huds* on!" Never were horses more miserably housed; and lucky for them, poor things, that the weather continued fine; for as it was, they would have been more comfortable in the open, as a chilling draught, more especially in the early part of the day, was continually at play under the shedding. To counteract this, on the second day we found they had gone to the other extreme, as some two dozen horses were hoarded up under lock and key, and their grooms away, with as much chance of the public seeing them as if they had been in bandboxes. Then, the ring was not completed till the Wednesday, and at one time on the first day began to resemble the run-in of a badly-kept race-course, where, during the canter up, the unmannerly keep crowding one before the other, until they get so close to the horses that they cannot themselves possibly see the gallop, besides leaving every body else in the same predicament. The judging was

unavoidably postponed until twelve on the first day; but this need not have been the case on the second day, as there were but few classes to finish, and, if taken in hand at nine or ten, these might have been disposed of in time for a parade of all the horses—one of the most interesting sights of a show. Then, the horses were allowed to come in out of their class, with sometimes entries from two or three in at the same time, and these only having numbers on one side the head; while the insignia, as is always the case when being judged, were away from the public, who were left with their catalogues in hand, in a delightful quandary as to which was which, though a whole host of officials crowded round the judges. In fact, there were too many officers and not enough men—plenty to order, but few to act. Then there was the grand-stand so much talked about—some rough wooden seats, with no protection against the weather, the committee leaving this, as apparently everything else, to Providence. That was all very well, but then they had railed off a fourth part of the ring with it, so that anyone interested in the different classes could not get round to the other set of judges even with a pass, but at one outlet, and so back again, with an altercation and explanation every time with an untutored policeman—a Manchester boor or bore of the largest breed. Grand-stands could have been erected all round without encroaching on the outside of the ring, which has always been open to the public, and always ought to be in all show-yards. Not only the horses were badly cared for, but the pigs, who only had a rough open rail between them, through which they could get their heads, and, as might be expected, a row ensued. A quarrel broke out between two boars of the large breed as big as donkeys, on Tuesday night, which soon set the whole lot by the ears. The war-cries, we were told, was something awful, forty thousand hurdy-gurdies all going at once being nothing to it during the fight, which raged fierce and hot, as the gashes on the pigs showed plainly enough. Never was there such a shindy; and the battle of Old Trafford, amongst pig men at least, will outlive any of the fights of York and Lancaster.

The Society does not want for money, and in such a populous district this ought to be the show of the world. They offered £2,000 in prizes, a fair portion of this going to tempt the Shorthorn and his brethren from his lair, who, with suspicion of the plague-spot yet upon him, is still an absentee for his country's good and that of the London butcher, who, with his high prices, continues to cry, "Who'll buy? Buy! buy!" as the poor gather round with wolf-like eye. Then the prize list needs remodeling throughout; for instance, in the first-class for thoroughbred stallions, open to the United Kingdom,

they offer three prizes, amounting to £50, and for cheese £60; whilst the Yorkshire Society offers £80 for thoroughbred stallions and £7 for cheese—a catalogue the Manchester and Liverpool would do well to study, if only for its brevity. Really, anyone would think that the Lancastrians loved cheese better than horses or anything else; but we are sure they do not, by the way they crowded round the ring, so that we are half-inclined to think that some one in the line, with an overwhelming influence, must have had a hand in arranging the prizes, and stuck out as manfully for that useful article as ever the illustrious John Jorrocks, the sporting "Cit" and grocer, did for brown sugar, when he insisted on supplying so many hogsheds to be mixed up with clay and other condiments when Director of "The Patent Drain-Tile Company." Then for ram-lambs, open to the United Kingdom, they give £5, a pen of ewes £10, and a game cock and hen £10; and all this sort of thing over and over again.

There was a capital show of horses, a good one of sheep and pigs, and a fair one of poultry; but we will take them as they come in the catalogue, beginning with the thoroughbred stud-horses, which, though not a large class, there being only four, was good, Mr. Naylor sending first and third—the Hadji by Faugh-a-Ballagh, out of Athol Brose by Orlando, turning up the winner. He is 12 years old, a rich brown, fifteen hands three inches high—a stylish, showy-looking horse, with good ends, fair middle and understandings, but a trifle on the leg. He was a racehorse in his time, but not a lucky one; having started eight times, his principal performances being winning of the Union Cup at Manchester, running third to Beadman for the Derby, and second to Sunbeam for the St. Leger, which he lost by half a length. He won the first prize at the All-Yorkshire show one year, and was shown at Islington, but not placed, when Citadel took the £100. The second was Motley, who travels like a band-box. The third, Carnival, a bay eight years old, by Sweetmeat, out of Volatile by Buckthorn, is a compact shortish horse, with power and good limbs, but a trifle light in his back ribs, and with shoulders perhaps not adapted for getting hunters; but as the condition was simply for the best thorough-bred, this has nothing to do with it. He was a great favourite at one time on the turf, but, like many, thought to be better than he proved; his chief victory having been winning the Fitzwilliam Stakes at Doneaster. The other was Young Theon by Theon, dam by Gleam, great granddam by Orion, a cobby thick-necked roadster-looking likeness of the old horse, with bad dragging hind-leg action, and not to be found in the Stud-book.

There was a capital all-aged class of hunters, including such show-horses as Mountain Dew, Master of Arts, Buffon, Sprig of Nobility, and Voyageur. There were thirteen others, and out of them seven more as good-looking horses as one would see for some time in a yard. The judges went to work all through the classes like workmen, losing no time, Messrs. Hobson and Nicholson hanging together a bit; but not like we recollect once seeing two old cronies in the North, who quite ignored the third, a judge from the South; one of them declaring to us, when he met the Southerner the other day, that he had never seen him before in his life, although we assured him that they were nearly two whole days "joodging" together, or so supposed to be. Mountain Dew improves more every time we see him, and reminds us much of Tom both in form and movement, being a capital galloper; and when he was placed third, at Bury, to the wooden Master of Arts, not believing in the decision a bit, we thus wrote of them: "The more we see of the Master of Arts the more are we satisfied that he is another Beechwood, a glutton for prizes, and nothing but a show-horse after all. He is very well strutting round the circus, but his

gallop is nothing like the strong, bold stride of a hunter; but short and scratchy, as if his knees were tied together. He wants a lesson from Mountain Dew, the third here, and second to Voyageur at Salisbury, or from one or two of the Irish horses, Mr. Pretty's Baron," and so on, while the only thing we regret is that the Manchester trio were not at Bury, so that the right horse might have had the £75, as here he only gets a paltry £20, with "open to the United Kingdom" stuck at the top of it. Then the Baron, by Camnobie, not a big one, or striking for handsome looks, is stout and well made, without lumber, looking like work, and going well enough for the country around Rugby, which is saying as much as any one can for a horse. We quite agree with his being second; but with the Master of Arts third we do not; for if he is good enough for third he is good enough for first, as in his frame he is grander than any of them; but he cannot go, and this Capt. Skipworth must have found out, as he did not appear over-fond of his mount; and then Mr. Nicholson only showed him off in his best pace, a flourishing trot, so that if he had been his own, and wanted to part with him, he could not have done better. But we want hunters to gallop, like such horses as Mr. Murray's Kilkenny, an oily-going varmint-sort of horse, that looked like sailing away over a country, and that it would be a pleasure to ride: the winner of the first jumping prize, or his second jumper Ross; or Mr. Wilson's Redwing, Mr. D. R. Davies' Minister, or Sprig of Nobility, who, with a man up that could ride, went better than we ever saw him, and took the hurdles well, as he did with Captain Skipworth and Mr. Nicholson, both good horsemen. So did Mountain Dew and the Baron, for the Judges rode them and another or two; but neither of them offered to take the Master over, and seemed only too glad to go off him. Then, whilst the old grey mare Forest Queen, the second jumper, or even Sir Harry, a competitor at Bury, and a grand topped horse, who if he had limbs to match would be hard to beat, or, in fact, while anything that could move was in the ring, the mealy chesnut never ought to have had a prize, as, although but a fiver, we look upon it as third honours. We were glad to see such nice horses as the takers of prizes for jumping rewarded, but look upon the money given in this way as so much thrown away; for it was simply over a hurdle—a game at which Tom Sayers's mule Barney might have beaten the famous Lottery. Still the ladies seem fond of it; and, as it draws—for they all look out for the jumping—we shall have more of it; while third-prize hunters, open to the United Kingdom, in one of the best classes of the year, are encouraged with what they give a bantam cock, by a management that must think a fiver goes as long a way with owners of horses as a taste of Bob Sawyer's strong cheese. The twelve-stone hunters were an excellent class; and no one could find fault with the decision in placing Tom and The General first and second, although the third-prize, Scottish Clan, was one of the neatest blood-like light-weights, that could catch any hounds. Mr. Murray had a very hunting-like, nice-going horse in Highlander; and Prince also belongs to him, a nag that was awarded the second prize for jumping. The latter did not go for the first prizes, being entire, and, we heard, he was disqualified after the jumping, as this was only for mares and geldings. He is a grey, beautifully dappled, said to be by Daniel O'Rourke, and bred by the late Sir Tatton Sykes, but he reminds one more of Recovery. He is as handsome as paint, and, with a smartly-got-up youth upon his back, who rode him exceedingly well, being awarded a medal as the best rider, they were quite the dandies of the yard, the "observed of all observers," and very popular, especially with the ladies, who applauded with their dainty palms. Mr.

Murray, it was said, had refused nine hundred for the grey! He was perfect as a fence, and did the in-and-out cleverly, for they had a double in this class. He gave us a better idea of the hack and hunter combined than anything we have seen. Rufus showed great character; and Master Jackey, another of Mr. Wilson's, is a compact-looking hunter; while Mr. Smith's (Rugby) Comet is a very stylish hunter, with fired hocks, and who went for the jumping-money, but made a slight mistake, and so got put out. Several others were remarkable for good looks. The hunting brood mares were poor, with the exception of the first and second, and a roan — Cara — of Mr. Smith's, of Cockermonth. We think the second, Becky Sharpe, was a long way the best, and do not fancy the judges were quite unanimous. The four years old for road and field were but a poor show. The first of the three-year-olds is a useful, hardy-looking colt, with short big limbs, likely to make a hunter, some preferring Bird of Passage, whilst others took to the third, a colt by Rapparee, a very gentlemanly looking one, with well laid shoulders—in fact, a good topped one, but, if anything, a little weak in his thighs and hocks. Still he will come again another day. British Queen, first at Thirsk for fillies, was first again here for geldings and fillies, the second being a lengthy good-looking one, and the third very hunting-like and good-looking, showing breed and character, with a fine forehead, but crooked in his forelegs. The yearlings were nothing particular, the first being a neat chesnut, and the second plain.

Among the extra stock, Roxburgh was a deep-ribbed, short-legged hunter, of great power; and Lord George, a very handsome powerful cob, up to a good weight, of about fifteen hands and an inch, with capital action; as Sultan is a very stylish-going grey park hack, of great fashion and good form, which begins to show signs of antiquity. In fact, for real handsome looks, there were four greys on the ground that it would be difficult to match—Sultan, Prince in the twelve-stone hunter class, a grey draught horse of Mr. Munn's, and the prize-pony Taffy. The roadster stallions were weak in numbers, mustering only five; the second prize at Thirsk, Young Pretender, being first here, and a short vulgar cob, with bad hind action, second; whilst Mr. Naylor's Morgan Rattler, though slightly loaded at the point of his shoulder, was more to our mind, and we should say nearly thorough-bred. The roadster mares were not grand, numbering nine; the first being a bay coaching mare, the second Brown Bess, a varmint wiry old cobby hack with a foal, a good goer, that, although having a little of the gipsy look, ought to have been first for character. There were some fair hacks among the ten who came up for judgment, Polly being a neat bay, and a prize-taker at Rochdale and other places; while the second Duchess was a very showy, light, narrow mare, with the best action of the two. Mr. Sexton, of Whersted Hall, Ipswich, showed a short-legged useful mare with action; and Mr. Graham of Kirkbride's (Wigton) Jim was a good-shaped cobby hack. Mr. Barton, of Caldly Manor, entered a couple of nice four-year-olds by Morgan Rattler, the bay taking after his sire. For the cobs not exceeding fourteen three there was a capital entry, twenty-four coming to the scratch. The first prize, after considerable consultation, went to a good-shaped cob, with true action, but he was not improved by a bad head and a mean-looking tail; the second being old Barnaid, a mare we gave a description of when she was first at Birmingham. By far the nicest to our mind was Mr. Pritchard's (Eccles) Prince, a very varmint cob, of great character without lumber; but, if anything, with a little more flourish in his action than we like, while Mr. Green's (Leeds) Action had more of the character of the cob than anything, with

selling action, fussy without much pace. Mr. Smith, of Dunchurch, showed a dun mare, Princess, a very neat hack indeed, that we have seen before somewhere; and Mr. Holmes, of Beverley, had a very good-looking nag, Harkaway, with action and breed, but rather inclined to be cow-hocked. Another set of judges might pick out two other prize horses, and be quite as near the mark, as it was a near thing with four of them. There was an excellent class of ponies, Taffy being one of the very handsomest we ever clapped eyes on, and that we should say neither love nor money would buy. He is said to be Welsh, but shows a strong cross of the Arab. The second, after some hesitation, was Maude, a high-stepping one from Thurgarton Priory, who ran up at Thirsk to Steward and Jet; Lisette, a chesnut mare with a racehorse's head, capital symmetry, and good legs, being third—a pony not often to be met with, and, as a rarity, not dear at the price asked (£60) for we have seen many with not half her pretensions with twenty more put to the end of it. The four-year-olds for road and field were poor, with an exception or two, while Blue Bonnet, in the *half-bred* four-year-olds, a very open heading, was a nice chesnut hunting-looking mare. The agricultural and draught classes were but very middling, but with some few of extraordinary merit. Prince of London was one of them, a grey seven-year-old, first at Battersea, second at Worcester, and first at Derby, and the first stallion here; the second being Young Sampson, a dark-brown, weighty, long, low, big-limbed horse, and a taker of several prizes about the country. There were no others to oppose them. There were five draught brood mares—Dinah, an old grey, a very good sort, of fair size, with a chesnut foal, is a great local prize taker; the second being a very useful Clydesdale mare. Mr. Hargreave's old black Sally, another local prize taker, was on the ground, but it was not a class of any great excellence. Mr. Munn's grey and roan, in the draught pairs, were of extraordinary merit, more especially the grey, who is as handsome and powerful a horse as one would wish to see, standing eighteen hands high on short good limbs. He is very deep and wide, with a grand back, forehead, and quarters, and a capital lively head for a drayman. He pulls down eighteen hundred-weight and a-half, and was first at Oldham the year before last. Indeed, he has often appeared in the prize ring, but never was beaten; and as he is nameless we will christen him Champion of the Heavy Weights. The second were a very handsome couple, as happy pairs with wedding favours are often described, and a better match than the first, but they must always succumb to the Heavy-weight Champion and his baker.

The Clydesdales in the agricultural pairs were more useful than ornamental; not a bad fault on the farm, as we have often seen a very good-looking one with his collar slack, while his less fortunate companion with a sour head comes in for an extra dose of whipcord as well as doing all the work. But it is the way of the world, the sour-headed ones being more often kept up to their collar even among ourselves. Prince, the first draught gelding, is another of the fortunate ones, standing seventeen and a-half hands high, and a winner of 36 first and 4 second local prizes. The second here, Captain, was also second at Rochdale. The first in the three-year-old draught geldings or fillies, Farmer, is a red roan three-year-old, with an elegant head and neck, a deep middle, and very active-looking, without lumber, and as he furnishes it will take a good one to beat him. The second, if there was one, was gone to the dinner, as we could not find him when making up our prize-list. The first of two-year-old fillies, with no other to say her nay, was a moderate one; and the yearlings but poor. The three-year-olds, Kitty and Prince, were useful; and Clydesdale and Flora, in the two-year-olds, divided the honours without opposition.

There was a good show of Leicesters and Shropshire Downs, while the Lincolns were very poorly represented, and the Southdowns would have shared a worse fate, if it had not been for the neat blood-like samples from the Elnham Hall flock, with which Lord Sondes took a prize for everything sent, though with nothing to oppose them; for in the rams Lord Derby's entry and the two from Mr. Marris's flock were declared to be without merit by the Bench, although two gentlemen who have acted as judges of Southdowns told us that they had often seen worse sheep than one of those from The Chase with a prize, and that they thought it was rather hard to pass such a verdict. In Leicester shearling rams Mr. Riley was first and second with the two he exhibited, while Mr. Borton got highly commended for one out of three; but there were some very good-looking sheep, the class being generally commended, the others coming from Capt. B. G. D. Cooke, Mr. Marris, Lord Penrhyn, and Messrs. Simpson and Ulycott's flocks. The rams of any age were also very good, Mr. Simpson being first with one out of two, Mr. Borton getting second place, with another highly commended, whilst a third shared the general commendation with Lord Penrhyn, Messrs. Marris, Phillips, Marsh, and Miller. The verdict went in favour of Mr. Tindall's Royal shearling ewes, in a small class, there only being four other pens. For ewes of any age an exceedingly good-looking pen of four-shear ewes from the Penrhyn flock stood first, a pen of various ages of the Spoforth Park being second, The Chase pen from Ulecby getting highly commended; with Capt. Cooke and Mr. Phillips as the other exhibitors. The Penrhyns were again successful in the ram lambs with two very good-looking ones, the Spoforth being highly commended, and beating the Penrhyn in the Ewe Lambs, a small class, and walking over with a good sheep—a Lincoln-Leicester shearling ram, there being nothing to oppose him. Mr. Simpson was also successful with a ram bred by Mr. Pullion, of Spoforth Park, in the class of any age, the four other competitors being poor indeed. Then in shearling ewes Mr. Allen had merit enough to be first and second without opposition, and Mr. Holmes first in the ewes of any age, with us one to go in for second honours. For the Shropshire shearling ram prizes, Lord Penrhyn, Messrs. Jones, Mansell, Johnson, Sampson Byrd, and D. R. Davies contended, the first going to one of the Mere old Hall flock by Young Duke, a three-shear ram, first at Thirsk and again here, one from the Penrhyn being second. Mr. Sampson Byrd was second to Young Duke in the all-age with William the Conqueror; a three-shear ram, Mr. Jewett's Victor, a two-shear, and Mr. Mansell's Lord Carlisle being also nice sheep. Mr. Coxon's were a very neat pen of shearling ewes; with as second a pen from the Mere Hall flock, who had another nice pen—both by their three-shear, Young Duke. Some Preeford three-shear ewes came again to the front in those of any age, Mr. Borton running them second with a fair pen, the next best being Mr. Johnson's and a pen of the Mere Hall. Mr. Sampson Byrd was victorious in a tidy class of ram lambs with Young Prince, by Prince; one from Aldeott Hall, by their Earl of Plymouth, being second, and their ewe lambs having it all their own way in a very good class. Lord Derby sent two grand horned Lonk sheep with fine fleeces.

There was a very good show of pigs—the large, middle, and small white breeds being well represented, many of them being prize takers; but this is not extraordinary, as the meeting is almost in the heart of the pig country, where such shows are as common as market-days: one sow on the ground having taken five silver cups in a fortnight, and where the owners bet on the coming events. In the large breed, the Thirsk pig, Hero, was first; the second, Perfect Cure, being of fair quality; while the third was

leggy, coarse, and minus his hair. Mr. Duckering's Sir Thomas pleased us most, but he was considered to show more of the middle breed, especially in the head. The first middle boar is a good-shaped pig and well covered; while the second is also well coated and of good form, but rather hollow between the head and shoulder; and the third, though a pig of nice quality, is slack in the back and short of hair. In the small boars, the first and second at Bury took the same positions here, but some thought the third ought to have changed places with the second. The third at Thirsk, The Hermit, a favourite name for a pig, was here. Of Berkshire or Essex, there were scarcely half-a-dozen on the ground, if that; the first prize boar being Hermit, the first at Bury, and one of Mr. Sexton's breed; the second was a Berkshire of quality, with the usual white markings, but a trifle light before. The first prize in sows, of the large white breed, went to Mr. Lukeland's Lady Havelock, her owner being dreadfully cut up at her being placed before her mother, Miss Lucy, the first at Thirsk, as the old lady was never beaten before and had always beaten the other, but now was passed unnoticed. The third was a plain-headed sow, with some quality. Mr. Duckering's Princess Royal could not get up—a very nice sow that has always had a place, so that we are not likely to hear of her again. The first of the middle breed was a very nice one; the second had capital ends, the pig that took the five silver cups in a fortnight; whilst the third was Lady Byron, the first at Bury. The sow of the small breed was of fine quality; the second with the usual characteristics—short saucy head, pricked ears, broad long back, as well as being good fore and aft; and the third a very nice one; whilst a beautiful-haired one of Mr. Atherton's, that was at Thirsk, could not get on its legs. The first and second in the Berkshire and Essex are beautiful pigs, that gave one more the idea of Mr. Sexton's breed, who we heard had found their way into this part of the country at long prices, and, after winning several prizes, have been again parted with at still higher figures.

As already mentioned, there were handsome prizes for poultry and cheese, as well as for roots and grain; while some of the implements were put to work early in the week. This section of the show, however, excited no great interest, although many of our leading firms were represented at the meeting.

## PRIZE LIST.

### HORSES.

THOROUGH-BRED HORSES, HUNTERS, HACKS, ROADSTERS, PONIES, &c.

JUDGES.—W. E. Hobson, Kettleby Thorpe, Brigg.  
B. Nicholson, Stourton, Leeds.  
Captain Skipworth, Howsham, Brigg.

Thorough-bred stud horses.—First prize of £25, R. C. Naylor, Hooton Hall, Chester (The Hadji). Second of £15, J. Casson, Carlisle (Motley). Third of £10, R. C. Naylor (Carnival).

Hunters, mares or geldings up to 14 stone.—First prize of £20, Captain Heygate, Buckland, Leominster (Mountain Dew). Second of £10, C. Smith, Dunchureh (The Baron). Third of £5 T. Gee, Wadhurst (Master of Arts).

The best jumper.—First prize of £15, W. Murray, Manchester (Kilkenny). Second of £10, G. B. Worthington, Northenden (Forest Queen). Third of £5, W. Murray (Mag-net.)

Mares or geldings up to 12 stone.—First prize of £20, T. Gee (Tom). Second of £10, T. Gee (The General). Third of £5, J. A. Bouck, Manchester (Scottish Clan).

The best jumper.—First prize of £15, C. Wilson, Manchester (Sir Rufus). Second of £10, W. Murray (Prince). Third of £5, J. A. Bouck (Scottish Clan).

Brood mares.—First prize of £10, R. Barton, Birkenhead (Inheritress). Second of £5, J. B. Booth, Killerby Hall, Catterick (Becky Sharpe).

Road or field, four-year-old mares or geldings.—First prize of £10, T. Barcroft, Manchester (Bess). Second of £6, W. Thompson, Manchester (Buck). Third of £3, E. Brammall, Newton-le-Willows (Newton-le-Willows).

Three-year-old mares or geldings.—First prize of £8, N. Ellison, Sutton St. Helens (Brecksides). Second of £4, J. Fielden, Todmorden (Bird of Passage). Third of £2, S. Pearson, Macclesfield (brown gelding).

Two-year-old mares or geldings.—First prize of £8, J. B. Booth (British Queen). Second of £4, G. McKnight, Oakengates, Salop (Maggie). Third of £2, W. Bass, Dukinfield, Ashton-under-Lyne (brother to Grand Duke).

Yearling entire colt, mare or gelding.—First prize of £6, J. Peel, Clitheroe (chesnut colt). Second of £3, C. Suthers, Ashton-under-Lyne (Brilliant).

Roadsters, stallions.—First prize of £12, T. A. Jackson, Leeds (Young Pretender). Second of £6, J. Firth and J. Crowthier, Mirfield (The Buck).

Brood mares for roadsters or coaching.—First prize of £10, R. C. Naylor (bay mare). Second of £5, P. Nightingale, Worsley, Manchester (Brown Bess).

Hacks, mares or geldings.—First prize of £10, J. Clegg, Rainhill (Polly). Second of £5, J. A. Bouek (Duchess).

Cobs, mares or geldings not exceeding 14 hands 3 inches high.—First prize of £10, W. Wright, Nottingham (The Sultan). Second of £5, J. Howarth Ashton, Prestwich (Barmaid).

Ponies, mares or geldings not exceeding 13 hands 2 inches high.—First prize of £6, Emile Levita, Newstead House, Manchester (Tally). Second of £3, R. Willward, Southwell, (Maude). Third of £2, J. Wilson, Morpeth (Lisette).

Extra stock, with power to the Judges to award prizes to the extent of £20.—Prize of £5, H. Platt, Bangor (Wonderful Lass). Prize of £5, H. Samuels, Cheadale, Hulme (Sultan). Prize of £5, J. Brogden, Raglan House, Cheshire (grey pony). Prize of £5, W. Murray (Roxburgh). Prize of £5, W. Murray (Samson). Prize of £3, T. Statter, Whitfield, Manchester (Royal Standard). Prize of £2, Rev. W. A. Barker, Altrincham (Paddy Kingsdown). Prize of £1, G. Crompton, Salford (Lucy).

#### DRAUGHT, AGRICULTURAL, AND HALF-BREDS.

JUDGES—J. Brewer, Portfield, Whalley;

T. Ellerby, Whitwell, York;

T. Gibbons, Longtown, Cumberland.

Draught stallions.—First prize of £15, W. H. Neale, Mansfield (Prince of London). Second of £15, J. Edmondson, Houghton, Burnley (Young Saupson).

Brood mares.—First prize of £10, W. Liptrot, Wigan (Dinah). Second of £5, G. C. Dewhurst, Warrington (bay mare).

Pairs of draught horses (Society's district horsedealers excepted).—J. Munn, Manchester (grey and roan). Second of £5, C. W. Brierly, Middleton (two greys).

Pairs of agricultural horses.—First prize of £10, J. Baxter, Longtown, Cumberland. Second of £5, G. C. Dewhurst, Warrington.

Draught mares or geldings (Society's district horsedealers excepted).—First prize of £6, J. and T. Barcroft, Waterfoot, Manchester (Prince). Second of £3, Hargreaves and Craven, Manchester (Captain).

Draught three-year-old mares or geldings (Society's district).—First prize of £6, J. Noden, Altrincham (Farmer).

Draught two-year-old mares or geldings (Society's district).—First prize of £5, J. Brogden, Raglan House, Cheshire (bay filly).

Draught yearling mares or geldings (Society's district).—First prize of £4, W. Whitlow, Lyamu, Warrington (Bonny).

Draught three-year-old mare or gelding.—First prize of £6, H. Neild, Manchester (Kitty). Second of £3, J. Greenblagh, Middleton (Prince).

Draught two-year-old mare or geldings.—First prize of £6, J. Fawkes, Longtown, Cumberland. Second of £3, L. W. Halsted, Burnley (Flora).

Draught yearling entire colt, mare or gelding.—First prize of £6, W. Liptrot, Wigan (grey gelding).

Half-bred four-year-old mare or gelding.—First prize of £6, J. Kay, Warrington (Blue Bonnet).

Half-bred three-year-old mare or gelding.—First prize of £6, C. Thornhill, Sandbach (Larry). Second of £3, J. Beckett, Ashton (Commotion).

#### S H E E P.

JUDGES.—W. Dester, Tamworth.

F. Spencer, Lutterworth.

T. Horton, Shrewsbury.

#### LEICESTERS.

Shearling Rams.—First prize of £10, E. Riley, Beverley. Second of £5, E. Riley. Highly commended: J. Borton, Malton.

Rams of any Age.—First prize of £8, J. Simpson, Spofforth, Wetherby. Second of £4, J. Burton; and highly commended and commended for two others.

Pens of Three Shearling Ewes.—First prize of £10, E. Tindall, Knapton Hall, Killington. Second of £5, E. Tindall. Commended: T. Horrocks Miller, Kirkham.

Pen of Three Ewes of any Age.—First prize of £6, Lord Penrhyn, Penrhyn Castle, Bangor. Second of £4, J. Simpson. Highly commended: T. Marris, The Chase, Uteby.

Ram Lambs.—First prize of £3, Lord Penrhyn. Second of £2, Lord Penrhyn. Highly commended: J. Simpson.

Pen of Ewe Lambs.—First prize of £3, J. Simpson. Second of £2, T. Horrocks Miller; and highly commended for another.

#### LINCOLN AND OTHER LONGWOOLS.

(Not qualified to compete as Leicesters).

Shearling Rams.—First prize of £10, J. Simpson.

Ram of any other age.—First prize of £8, J. Simpson.

Pen of Three Shearling Ewes.—First prize of £10, S. Allen, Waverham. Second of £5, S. Allen.

Pen of Three Ewes of any Age.—First prize of £6, S. Holmes, Keighley, Yorkshire.

#### SHROPSHIRE DOWNS.

Shearling Rams.—First prize of £10, D. R. Davies, Mere Old Hall, Knutsford. Second of £5, Lord Penrhyn. Highly commended: T. Jones, Whitechurch, Salop.

Rams of any other Age.—First prize of £8, D. R. Davies (Young Duke). Second of £4, S. Byrd, Lees Farm, Stafford. Highly commended: J. Jowett, Keighley, York (Victor).

Pens of Three Shearling Ewes.—First prize of £10, J. Coxon, Freeford Farm, Lichfield. Second of £5, D. R. Davies; and highly commended.

Pens of Three Ewes, having reared Lambs in 1867.—First prize of £6, J. Coxon. Second of £4, R. Barton, Caldly Manor, Birkenhead. Highly commended: T. Johnson, Frodsham, Cheshire. Commended: R. Barton and D. R. Davies.

Ram Lambs.—First prize of £3, S. Byrd, Lees Farm, Stafford. Second of £1, T. Mansell, Aldcott Hall, Shrewsbury. Highly commended: T. Jones, Whitechurch, Salop. Commended: Lord Penrhyn and S. Byrd.

Pens of Three Ewe Lambs.—First prize of £3, T. Mansell. Second of £2, T. Mansell. Highly commended: T. Jones, Whitechurch.

#### SOUTH-DOWNS,

Or any other Classes not before named.

Shearling Rams.—£10, £5. No merit.

Rams of any Age.—£8, £4. No merit.

Pen of Three Ewes of any Age.—First prize of £6, Lord Sondes, Elmham Hall, Thetford. Second of £4, Lord Sondes.

#### EXTRA STOCK

(Judges with power to award prizes to the amount of £10).

Prize of £2, Lord Penrhyn (Shropshire ram). Prize of £2, Lord Sondes (pen of Southdown ewes). Prize of £2, Lord Sondes (Southdown ram). Prize of £2, Lord Derby. Prize of £1, Lord Derby. Prize of £1, Lord Sondes (Southdown ram).

#### WOOL.

Five Fleeces of Long Wool.—First prize of £5, T. Marris, The Chase, Uteby. Second of £5, F. Lythall, Banbury.

Five Fleeces of Short Wool.—First prize of £5, T. Mansell, Aldcott Hall, Shrewsbury. Second of £2, T. Marris, The Chase, Uteby.

#### P I G S.

JUDGES.—W. Gamon, Dee Mills, Chester.

G. M. Sexton, Wherstead Hall, Ipswich.

R. H. Watson, Bolton Park, Wigton.

Boars of Large Breed.—First prize of £8, J. Dyson, Leeds (Hero). Second of £4, H. Neild, Worsley, Manchester (Perfect Cure). Third of £2, T. Jones, Whitechurch, Salop.



Boar of Middle Breed.—First prize of £8, Peter Eden, Salford, Manchester. Third of £2, W. Hatton, Addingham, Leeds.

Boar of Small Breed.—First prize of £8, W. Hatton, Addingham, Leeds (King of the West). Second of £1, Peter Eden, Salford. Third of £2, T. Atherton, Speke, near Liverpool.

Boar of the Berkshire or Essex Breed.—First prize of £8, T. Atherton, Speke, Liverpool. Second of £4, H. Humfrey, Shrivensham, Berks.

Sow of the Large Breed.—First prize of £8, J. Lutkeland, Moorgate, Retford (Lady Havelock). Second of £1, Peter Eden, Salford. Third of £2, J. Dyson, Leeds.

Sow of Middle Breed.—First of £8, Peter Eden, Salford, Manchester. Second of £4, W. Parker, Bradford. Third of £2, R. E. Duckering, Kirtou Lindsay (Lady Byron).

Sow of Small Breed.—First prize of £8, G. Mangles, Ripon. Second of £4, T. Atherton, Speke, Liverpool. Third of £2, Peter Eden, Salford.

Sow of Berkshire or Essex Breed.—First prize of £8, T. Atherton, Speke, Liverpool. Second of £4, T. Atherton. Reserved number, M. Walton, Halifax.

### CHEESE.

Four cheeses of not less than 30lb. each, made on the exhibitor's farm.—First prize of £20, G. Gibbons, Tauley, Bath, Somerset; and prize of £4 to the dairy-maid or maker. Second of £15, S. Hornby, Ashton Park, Northwich; and £3 to the dairy-maid or maker. Third of £10, J. Robinson, Church Minshull, Cheshire; and £2 to dairy-maid or maker. Fourth of £5, W. Jones, Hope, Mold; and £1 to dairy-maid or maker.

### BUTTER.

Not less than 5lbs. made-up in half-pound pats, made on the exhibitor's farm.—First prize of £4, H. Neild, Worsley, Manchester. Second of £3 and third of £2, E. Turner, Hopwood.

### GRAIN.

White wheat, two bushels of exhibitor's, growing in 1867.—First prize of £3, J. K. Fowler, Aylesbury. Second of £2, R. Atherton, Speke, Liverpool. Third of £1, F. Lythall, Spittal Farm, Banbury; and highly-commended for another sample.

Yellow or red wheat.—First prize of £3, F. Lythall. Second of £2, J. Cornes, Harleston, Nantwich. Third of £1, G. D. Badham, Bulmer, Sudbury, Suffolk.

White oats of 1867.—First prize of £3, T. Lowe, Handley, Chester. Second of £2 and third of £1, F. Lythall.

Black oats of 1867.—First prize of £3, H. Neild, Worsley, Manchester. Second of £2, G. D. Badham. Third of £1, Sir H. de Trafford, Bart., Manchester.

Barley of 1867.—First prize of £3, G. D. Badham (anti-malt-tax). Second of £2, J. K. Fowler (anti-malt-tax). Third of £1, R. Atherton, Speke, Liverpool.

Beans of 1867.—First prize of £3, T. Lowe, Handley, Chester. Second of £2, F. Lythall, Banbury. Third of £1, J. K. Fowler.

### ROOTS.

Swedish turnips of 1867, six roots of any kind.—First prize of £3, E. Kinnerley, Altrincham. Second of £2, J. Cornes. Third of £1, T. Brocklehurst, Altrincham.

Turnips of 1867, any kind.—First prize of £3, E. Hall, Kingsley, Frodsham. Second of £2, H. Neild, Worsley, Manchester. Third of £1, R. Watson, Altrincham.

Mangel-wurzel, long red of 1867.—First prize of £3, R. Atherton, Speke, Liverpool. Second of £2, E. Kinnerley, Altrincham. Third of £1, J. Parry, Davenham, Northwich.

Mangel-wurzel, yellow of 1867.—First prize of £3 and third of £1, J. K. Fowler, Aylesbury. Second of £2, E. Kinnerley.

Globe mangel-wurzel of 1867.—First prize of £3 and second of £2, F. Lythall, Banbury. Third of £1, E. Kinnerley.

Scotch cabbage of 1867.—Prize of £2, T. Brocklehurst, Altrincham.

Potatoes, round, of 1867, not less than 20lbs.—First prize of £3, T. Statter, Whitfield, Manchester. Second of £2, W. Whitlow, Lymn, Warrington. Third of £1, J. Cornes, Harleston, Nantwich.

Potatoes, any variety of 1867.—First prize of £3, T. Statter.

Second of £2, H. Neild. Third of £1, T. Jainsou, Lymn, Altrincham.

### VEGETABLES.

Peas, half-a-peck.—First prize of £2, J. Burgess, Timberley, Altrincham. Second of £1, R. Watson, Timberley, Altrincham.

Beans, half-a-peck.—First prize of £2, T. Painter, Smallwood, Lawton.

Carrots, not less than six.—First prize of £2, J. Southern, Culcheth, Warrington. Second of £1, R. Watson, Altrincham.

Onions, not less than six.—First prize of £2, R. Watson. Second of £1, T. Jainsou.

Red, no competitors.

Cabbage, white, no competitors.

Red, a pair.—First prize of £2 and second of £1, W. Wilde, Stretford.

Celery, three sticks.—First prize of £3, S. Barlow, Chadderton, Manchester. Second of £2, J. Burgess, Timberley, Altrincham. Third of £1, T. Statter.

Cucumbers, two.—First prize of £2, W. Summers, Stretford. Second of £1, W. Renshaw, High Leigh, Knutsford.

### POULTRY.

JUDGES.—F. Esquilant, Brixton, London.

E. Hewitt, Birmingham.

J. Hindson, Everton, Liverpool.

W. Smith, Halifax.

R. Teeby, Fulwood, Preston.

### DORKINGS.

Coloured cock and two hens.—First prize of £5, and second of £3, The Hon. H. W. Fitzwilliam, Wentworth, Rotherham. Third of £2, F. Schofield, Wilmstow, Cheshire.

Silver-grey cock and two hens.—First prize of £3, T. Statter, Whitfield, Manchester. Second of £2, J. Robinson, Garstang. Third of £1, no competitor.

### SPANISH.

Cock and two hens.—First prize of £5, F. James, Dalton, Huddersfield. Second of £3, M. Farrand, Dalton, Huddersfield. Third of £2, H. Beldon, Bingley. Commended: E. Brown, Shellfield.

Cock.—First prize of £2, M. Farrand, Dalton. Second of £1, F. James, Peckham, Surrey. Highly commended: H. Beldon, Bingley.

### COCHIN CHINA.

Buff and cinnamon cock and two hens.—First prize of £5, P. Taylor, Manchester. Second of £3, G. Fell, Springfield, Warrington. Third of £2, H. Mapplebeck, Moseley, Birmingham.

Cock.—First prize of £2, P. Taylor, Manchester. Second of £1, Alfred Banford, Middleton.

Brown and partridge-feathered cock and two hens.—First prize of £4, E. Tudman, Whitechurch, Salop. Second of £2, E. Tudman, Whitechurch, Salop. Third of £1, J. Kersley Fowler, Aylesbury.

Cock.—First prize of £2, G. H. Wheeler, Manchester. Second of £1, J. R. Robbards, Wrington, Bristol.

### BRAHMA FOOTRA.

Cock and two hens.—First prize of £4, R. W. Boyle, Wicklow, Ireland. Second of £2, H. Laey, Hebben-bridge. Third of £1, J. K. Fowler, Aylesbury.

Cock.—First prize of £2, R. W. Boyle, Wicklow, Ireland. Second of £1, G. H. Wheeler, Manchester.

### GAME FOWL.

Black-breasted reds.—First prize of £5, C. Chaloner, Whitwell, Chesterfield. Second of £3, Rev. W. J. Mellor, Colwick, Nottingham. Third of £2, J. Halsall, Wigan.

Cock.—Second prize of £1. No competition.

Brown and other reds, cock and hen.—First prize of £5, T. Statter, Whitfield, Manchester. Second of £3, J. Wood, Wigan. Third of £2, W. Bourne, Stockport.

Cock.—First prize of £2, J. Wood. Second of £1, T. Statter.

Cock and hen of any variety except black-breasted and other reds.—First prize of £5, J. Halsall, Wigan. Second of £3, J. Halsall. Third of £2, W. Bourne, Stockport.

Cock.—First prize of £2, J. Halsall, Wigan.

### GOLDEN-PENCILLED HAMBURG.

Cock and two hens.—First prize of £3, W. Parr, Patricroft,

Manchester. Second of £2, S. Smith, Halifax. Third of £1, W. Parr, Manchester. Highly commended: J. Robinson, Garstang. Commended: H. Beldon, Bingley.

Cock.—First prize of £2, T. Wrigley, Tonge, Middleton. Second of £1, G. H. Wheeler, Middleton, Manchester.

SILVER-PENCILLED HAMBURG.

Cock and two hens.—First prize of £3, H. Beldon, Bingley. Second of £2, J. Fielding, Newchurch, Manchester. Third of £1, H. Pickles, Earby, Skipton.

Cock.—First prize of £2, H. Beldon, Bingley. Second of £1, H. Pickles, Earby, Skipton.

GOLDEN-SPANGLED HAMBURG.

Cock and two hens.—First prize of £3, N. Marlor, Denton, Manchester. Second of £2, J. Chadderton, Hothwood. Third of £1, T. Scholes, Chadderton, Hothwood. Highly commended: J. Robinson, Garstang.

Cock.—First prize of £2, E. Brierly, Heywood. Second of £1, J. Roe, Hadfield.

SILVER-SPANGLED HAMBURG.

Cock and two hens.—First prize of £3, H. Pickles, Earby, Skipton. Second of £2, J. Fielding, Manchester. Third of £1, H. Beldon. Highly commended: J. Turner, Radcliffe.

Cock.—First prize of £2, J. Fielding, Manchester. Second of £1, J. Turner, Radcliffe.

BLACK HAMBURG.

Cock and two hens.—First prize of £3, C. Sedgwick, Rydlesham-hall, Keighley. Second of £2, J. Clegg, Shaw. Third of £1, J. Robinson, Garstang.

Cock.—First prize of £2, J. Clegg, Shaw.

POLISH.

Cock and two hens.—First prize of £3, H. Beldon, Bingley.

Cock.—First prize of £2, H. Beldon.

ANY VARIETY, NOT INCLUDED IN THE ABOVE CLASSES.

Cock and two hens.—First prize of £3, Col. Stuart Wortley, London, for black Creveceur fowls. Second of £2, J. Robinson, Garstang, for white Dorking. Third of £1, Col. Stuart Wortley, for black and white Houdan.

GAME BANTAMS.

Black-breasted reds, cock and two hens.—First prize of £4, J. W. Morris, Drake-street, Rochdale. Second of £2, J. W. Morris. Third of £1, G. R. Davies, Mere-hall, Knutsford. Highly commended: J. Halsall, Wigan. Commended: R. Gerard, Chobent.

Cock.—First prize of £2, J. Holland, Manchester. Second of £1, J. W. Morris, Rochdale. Highly commended: Peter Taylor, Manchester.

Cock and two hens, of any variety except game.—First prize of £3, S. and R. Ashton, Mottram, Manchester. Second of £1, T. Cummins Harrison, Hull.

D U C K S .

ROUEN.

Drake and two ducks.—First prize of £3, C. P. Ackers, Wigan. Second of £2, E. Leech, Rochdale. Third of £1, E. Leech. Highly commended: E. Leech.

WHITE AYLESBURY.

Drake and two ducks.—First prize of £3, E. Leech. Second of £2, T. Leech, Rochdale. Third of £1, J. K. Fowler, Aylesbury. Highly commended: Mary Seamons, Hartwell, Aylesbury, for two pens; and M. Farrand, Dalton, Huddersfield.

Drake and two ducklings, of any variety except Rouen and Aylesbury.—Prize of £2, J. Dixon, Bradford, for grey Call.

G E E S E .

Gander and two goslings.—First prize of £4, J. K. Fowler, Aylesbury; and second of £2, for grey Foulouse. Third of £1, D. R. Davies, Knutsford. Commended: Sarah Burgess, Tabley, Knutsford.

T U R K E Y S .

Cock and two hens.—First prize of £4, and second of £2, E. Leech, Rochdale.

P I G E O N S .

FOUTERS.

Pair of any colour.—First prize of £2, J. Thackary, York (blue). Second of £1, R. Foulton, Deptford (white).

CARRIERS (BLACK).

Cock.—First prize of £2, E. Royds, Rochdale. Second of £1, R. Foulton, Deptford.

Hen.—First prize of £2, and second of £1, R. Foulton.

CARRIERS (OF ANY COLOUR).

Cock.—First prize of £2, and second of £1, R. Foulton. Hen.—First prize of £2, E. Royds. Second of £1, R. Foulton.

Pairs.—First prize of £2, R. Foulton. Second of £1, E. Royds.

DRAGOONS.

Pairs.—First prize of £2, and second of £1, A. Lowe, Over Hulton, Bolton.

ANTWERPS.

Pairs.—First prize of £2, H. Yardley, Birmingham. Second of £2, W. Wilding, Montford, Burley.

JACOBS.

Pairs.—First prize of £2, E. Royds. Second of £1, J. Thackary.

NUNS.

Pairs.—Prize of £1, H. Yardley, Birmingham.

BARBS.

Pairs.—First prize of £2, and second of £1, J. Thackary.

TURBITS.

Pairs.—First prize of £2, W. Goton, Driffield. Second of £1, J. Thackary.

OWLS.

Pairs.—First prize of £2, J. Fielding, Rochdale. Second of £1, R. Foulton.

TRUMPETERS.

Pairs.—First prize of £2, H. B. Whittaker, Middleton. Second of £1, J. Thackary.

FANTAILS.

Pairs.—First prize of £2, H. Yardley, Birmingham. Second of £1, J. Thackary.

ALMOND TUMBLERS.

Pairs.—First prize of £2, and second of £1, R. Foulton.

BEARDS.

Pairs.—First prize of £2, H. Yardley. Second of £1, H. Mapplebeck, Birmingham.

BALD TUMBLERS.

Pairs.—First prize of £2, E. Royds. Second of £1, J. Fielding.

Pairs of any other variety.—First prize of £2, and second of £1, R. Foulton.

ANY VARIETY OF PIGEON EXCEPT THE ABOVE.

Pairs.—First prize of £2, and second of £1, H. Yardley.

ROYAL AGRICULTURAL SOCIETY OF IRELAND.

MEETING IN DUBLIN.

It is usual for the Royal Agricultural Society of Ireland to hold the Show in each of the four provinces successively. There was no Meeting last year, in consequence of the threatened outbreak of the cattle plague; while with Leinster as the district, the metropolis was chosen as the most suitable site, both on account of the accommodation it affords, as also from the fact that

sixteen years have passed by since the Society last held its exhibition in Dublin. The Show-ground was St. Stephen's Green, the largest square in the city, containing about twenty acres.

On Tuesday, September 27th, there was a trial of Howard's steam-cultivating apparatus, and various reaping machines held at Abotstown, the seat of Mr. Ion

T. Hamilton, M.P. Amongst the reaping machines entered for the trial were Mr. W. A. Wood's American; a combined reaper and mower, a back-delivery reaper, and a self-acting side-delivery reaper, by Messrs. Brigham and Bickerton; a self-acting side-delivery reaper, by Messrs. Samuelson and Co.; and McCormick's American reaper. There were no prizes awarded, the manufacturers merely working their implements for the purpose of letting the public see them in operation; while the general feeling amongst those present on the ground was decidedly in favour of the self-delivery machines. The great centre of attraction, however, was the steam-plough of the Messrs. Howard. The field in which it was tried was a badly-managed and ill-tilled soil, in which there had been clover. The surface was, to use a common expression, as hard as a road; but the steam plough and grubber made short work of it, and many sceptics who were present had to yield, and declare that it was "wonderful." These trials were continued on Friday, when the first operation was the exhibition of the three-tine cultivator, with stirrers attached. His Excellency rode on the cultivator up and down the ground, and expressed himself highly pleased with the astonishing results. The ploughs, three-share, were next put to work, which certainly laid the furrows evenly and well. Next, the mould-boards were removed from the plough-frame, and the digging-breasts were put on, and the results of this operation astonished every one. The ground looked as if it had been tossed up by an earthquake.

The show proper opened on Wednesday. The number of entries in the Shorthorn sections was rather small. Why this should be it is not easy to say; though it may be a result of holding the show so late in the season. The first prize in the section for Shorthorn bulls, over two and under six years old, went to Mr. Edward J. Smith, Islandmore, for his roan bull, Backwoodsman. He is a nice bull, with good crops, and fine deep chest. Backwoodsman also carried off the Purdon Challenge Cup, as best bull under six years old. He also stood first at the Cork Society's Show this year, where he was awarded the medal as the best animal of any age or sex. The second prize in this section was awarded to Mr. Robert G. Cosby, for Ravenswood, a bull with good hips and well-arched ribs, but a little deficient behind the shoulder. He carried off the first prize as a yearling at the Royal Dublin Society's Show in '64, and also the Ganly Cup. In this section the Marquis of Drogheda was highly commended for his bull Champion, a nice animal from the Grace Dieu sort.

The first prize for the best two-year-old bull was given to Mr. Edward J. Smith for Liector, a neat roan bull with good crops and back. Liector also won the first prize in his class and the Railway Challenge Cup at the Royal Dublin Society's show last April. The second prize was awarded to Mr. Nathaniel Barton, for Earl of Kildare, a roan with good hind quarters. Western Star, belonging to Mr. Ambrose Ball, was highly commended in this section. The first prize for the best yearling bull was carried off by Mr. Thomas Barnes, for his red bull, Royal Duke, by Royal Sovereign; a nice even bull, with good back and deep chest. The second prize went to Mr. James Anderson, Grace Dieu, for Doctor Collins.

The first prize for Shorthorn bull calves was awarded to Colonel Robert R. Fisher, for Master M' Hale; and the second to Mr. Richard Welsted, for Professor, a calf with a good shoulder and even back. Mr. Wm. Dobbyn was commended for his bull calf, Orphanon.

In the section for the best Shorthorn cow, more than three years old, the first prize went to Mr. J. H. Jones, for Lady Spencer, a well-ribbed, roomy cow, with very fine hind-quarters. The second prize was awarded to Mr.

William Dobbyn, for his roan cow, Luxury. The Maid of Rocklands, belonging to Mr. Jaffray, Barerott, was highly commended. There was a very fine cow, Fair Lady, shown by Major Hamilton in this section, which was altogether passed over by the judges. The first prize for the best Shorthorn heifer in calf or in milk, calved in 1864, was awarded to Mr. Richard Welsted, for Rosette, by Elin King, a grand, roomy animal, with splendid shoulder and hind-quarters. Rosette stood second as a yearling in 1865 at the Cloumel meeting, and was first in her class at the Royal Dublin Society's show last April. Mr. J. H. Jones won the second prize, with his heifer Lunette, a fine animal with good back, chest, and fore-quarters. In the section for the best Shorthorn heifer, giving milk or in calf, the first prize was given to Mr. W. Hutchinson Massy, for Jaunc; she is good before, with well-sprung ribs, and altogether a nice animal. The second prize fell to Mr. Joseph Meadows for his red-and-white heifer, Fanny 16th; and Wood Queen, the property of Mr. W. Hutchinson Massy, was highly commended.

In the yearling Shorthorn heifer section, the first prize was awarded to Mr. Richard Welsted, for his roan heifer, Bridesmaid. He also was awarded the Purdon Cup for his two heifers, one of which was Bridesmaid. She is a beautiful animal in every way; and stood third at the Royal Dublin Society's Show last April, when in our report of that meeting it was stated that she should have been first. Mr. James Anderson's Gamehen holds the second place, as she did last April; while Mr. Joseph Meadow's heifer Chansonette, that was first last April, has been highly commended. The first prize for the best short-horned heifer-calf went to Colonel Robert R. Fisher, for Dewdrop, a nice roan, by Roseberry. The second was awarded to Mr. W. Hutchinson Massy, for Wood Rose.

In the Hereford section the prize for the best bull under six years old fell to Mr. P. J. Kearney, for his bull Sir Cupis Ball. The prize for the best Hereford cow also was given to Mr. Kearney. A cow belonging to Mr. Richard S. Fetherstonhaugh, was highly commended, and one the property of Mr. Samuel Gilliland commended. The prize for the best Hereford heifer was awarded to Mr. Richard W. Reynell, and another animal belonging to him was commended; but this breed was only moderately represented.

The prize for the best Devon bull under six years old was awarded to Mr. Charles Boyce, for his bull Duke of Downes. The prize for the best Ayrshire bull went to Lord Clermont, and that for the best West Highland bull was given to Mr. Arthur K. Ussher. In the section for Kerry bulls the prize was awarded to Mr. James Brady, for his Knight of Kerry.

For the best Polled Angus or Galloway heifer the prize was awarded to Mr. Nathaniel Barton. The prize for the best Devon cow was awarded to Mr. Charles Boyle, and that for the best Devon heifer to Sir A. E. Bellingham. The prize for the best Devon heifer calved in '65 or '66 was given to Mr. Charles Boyle, for his heifer Blue Bell. The prize for the best Ayrshire cow was awarded to Mr. David Patton, and that for the best heifer to Mr. J. W. Ellison Macartney. The prize for the best two-year-old Ayrshire heifer fell to Lord Clermont. The prize for the best West Highland cow was awarded to Arthur K. Ussher, and that for the best West Highland heifer to Lord Clermont. The prize for the best Kerry cow went to Mr. Arthur K. Ussher, and that for Kerry heifers to Mr. Thomas Butler; a heifer belonging to Mr. James Smith, and another, the property of Mr. J. Clementi, being commended. The prize for the best Kerry heifer calved in 1865 or 1866 was given to Mr. James Smith, a heifer belonging to Mr. Arthur K. Ussher being highly commended. The prize for the best Channel Island bull was given to Mr. George Dingwall, for an Alderney

bull. In the section for the best Channel Island cow or heifer, in-calf or milk, the prize was awarded to Mr. John Barrington; a cow belonging to Mr. James Smith being commended. In the class for the best two cows in-calf or in-milk, the property of *bona fide* tenant-farmers of Ireland, the prize was awarded to Mr. James Smith, for his Shorthorned cows Lady Bell and Rose of May. Mr. James Smith also won the first and second prizes for the best heifer calved in 1864, with his Shorthorned heifers Letitia 3rd and Princess Maude. He also was awarded first and second prizes for the best heifer calved in 1865 or 1866.

The show of sheep was both large and good. In the class for the best shearling Leicester ram Mr. Wm. R. Meade obtained the first prize, with a very fine ram, which was also awarded the Cork challenge cup as the best long-woolled ram in the show. Mr. Meade also carried off the second and third prizes; he had also a ram highly commended. A ram in this section, the property of Mr. Owen, was commended. For the best Leicester ram of any other age, the first and third prizes and a commendation went to Mr. Wm. Owen, the second and a commendation going to Mr. Wm. R. Meade. The first prize for the best pen of five shearling Leicester ewes went to the trustees of the Smith Barry estate, the second to Mr. Seymour Mowbray, and the third to Sir Allen Walsh, Bart. Mr. Seymour Mowbray obtained the prize for the best pen of five Leicester ewe-lambs, a pen of Mr. David Hewetson's being commended.

In the section for the best shearling Border-Leicester ram, the entries were numerous. The first and third prizes were awarded to Mr. William Fennell, and the second prize went to the Trustees of the Smith-Barry Estate; while another ram belonging to Mr. Fennell was commended. The first prize for the best Border-Leicester ram, of any other age, was won by Mr. William Fennell, the second by Mr. Thomas Robertson, the third going to Colonel Charles P. Leslie, M.P. In the section for the best pen of five shearling Border-Leicester ewes, the first prize was given to Mr. William Fennell, the second to Mr. Robert F. Franks, and the third to Messrs. McLachlan and McCulloch. For the best pen of five ewe Border-Leicester lambs, the first prize was awarded to a very good pen belonging to Mr. A. Bole; a pen of Messrs. McLachlan and McCulloch being commended. The first prize for the best shearling long-woolled ram, not qualified to compete in the foregoing sections, was awarded to Mr. Richard Flynn, the second to Mr. William Hutchinson Carrol; the third prize was also awarded to a very good ram of Mr. Hutchinson Carrol's. For the best ram of any other age, the first, second, and third prizes went to Mr. Richard Flynn. The prize for the best pen of five ewe lambs was awarded to Mr. Richard Walsh.

In the Shropshire Down sections there were some beautiful sheep shown. The first prize for the best shearling ram was awarded to the Trustees of the Smith-Barry Estate, for a very fine animal, which also obtained the Cork Challenge Cup, value fifty sovereigns, as the best shortwoolled shearling ram in the show. The second prize went to Mr. Charles W. Hamilton, and the third to Mr. J. L. Naper. Another ram shown by the Trustees of the Smith-Barry Estate was commended. The first prize for the best ram of any other age was won by the Trustees of the Smith-Barry Estate, the second and third prizes going to Mr. Charles W. Hamilton. The prize for the best pen of five shearling ewes went to a nice pen shown by the Trustees of the Smith Barry Estate, and that for the best pen of five ewe lambs was awarded to Lieut.-Colonel Tottenham.

In the other short-woolled breeds the first and second prizes for the best shearling ram were carried off by Lord Clermont. The prize for the best ram of any other age

also went to Lord Clermont, as did the first prizes for the best pen of five shearling ewes, and for the best pen of five lambs.

In the sections open for competition to *bona fide* tenant-farmers, the first prize for the best pen of five ewes which have reared lambs in 1867 was awarded to Mr. David Hewetson, and the second to Mr. James Smith. The first prize for the best pen of five hogget ewes was won by Mr. David Hewetson, and the second by Mr. Samuel Pantou, a pen of Mr. James Smith's being commended.

In the class for tenant-farmers, whose poor-law valuation is under £100, the first prize for the best pen of five ewes which have reared lambs in 1867, was awarded to Mr. Carberry Healy, and the second to Mr. William Breen. The first prize for the best pen of five hogget ewes was given to Mr. Carberry Healy.

The show of pigs was very small. In the coloured breeds the first prize for the best boar under eighteen months old went to Lord Clermont, as did also the second prize. For the best boar over eighteen and under thirty-six months old the first prize was awarded to Mr. Robert C. Bowen. For the best breeding-sow under eighteen months old the first prize went to Mr. W. Hutchinson Massey, and the second to Lord Clermont. For the best breeding-sow over eighteen months old the first prize was awarded to Mr. W. Hutchinson Massey. For the best lot of three breeding pigs of the same litter, above four and under eight months old, the first prize was given to Lord Clermont. The first prize for the best Berkshire sow and litter of six pigs was awarded to Mr. William Jameson. In the white breeds, the prize for the best boar under eighteen months was won by Mr. J. L. Naper, as was also the second prize. For the best breeding-sow under eighteen months old the prize was awarded to Mr. J. L. Naper. For the best breeding-sow over eighteen months the first and second prizes went to Mr. J. L. Naper. For the best sow of the white breed and litter of six pigs the prize went to the Right Hon. the Lord Mayor.

The entry of horses was good, both in numbers and in the quality of the animals exhibited. In the sections for weight-carrying hunters there were some exhibited horses; in fact, almost all the animals shown in these sections were good ones. In the section for the best thorough-bred stallion, the first prize went to Robin (late Robin Hood), bred by Baron M. de Rothschild, and shown by Mr. Francis H. Power. Robin is an animal of great power, of a good bay colour; and in addition to carrying off the first prize of his class, he was awarded the Croker Challenge Cup as the best weight-carrying thorough-bred stallion. The second prize was given to Kinnaird, the property of Mr. W. Pallin. Kinnaird was bred by Mr. Ward, in Yorkshire, and is by Wild Dayrell; while Roman Bee, shown by Mr. James Cockin, Halifax, Yorkshire, was highly commended. The first prize for the best stallion calculated to get carriage horses went to Mr. David Keys for Munster Blazer, and the second to Mr. Thomas Russell for Prime Minister, bred by W. Swain, Sherbourne, near York. The first prize for the best thorough-bred brood mare was awarded to Mr. Mark Leonard for his well known Lady Langford. The second prize went to Mr. Peter Blackburne's Aleyone, and Mr. William McGrane's Hebe was commended.

The first prize for the best brood mare, not thorough-bred, was won by Blanche, a nice brown mare with a foal at foot, belonging to Major Stephen H. Smith. The second prize went to Alderman Lambert's brown mare; a nice chesnut of Major Wilkins being commended. For the best hunter, equal to 14 stone and upwards, and not less than five years old, the first prize went to Mr. Thomas Butler's Valentine, a very fine bay. The second prize was given to Mr. Richard Gradwell's Reckless; a very good brown mare, belonging to Mr. Thos. Seymour,

being highly commended, and The Carpenter, the property of Captain Wm. Puthill, commended. The first prize for the best hunter, up to from 12 to 14 stone, and not less than five years old, went to Mr. Pierce Joyce, and the second to Mr. Edward Bond; a horse of Col. Leicester Smyth's being highly commended. The first prize for the best colt or filly snited for hunting purposes, and up to at least 14 stone, was won by Mr. B. W. Fale, and the second by Mr. Richard Walsh; Mr. Edward Purdon's Ruby being highly commended. For the best two-year-old colt or filly the first prize was awarded to Mr. Patrick Bradley, and the second to Mr. William Meredith. For the best yearling colt or filly the first, second, and third prizes were awarded to Captain Daniel Bayley.

The first prize for the best stallion of any breed, for agricultural purposes, was awarded to Mrs. Mary Mooney for her Clydesdale stallion Sir Patrick Wallace, which also took the challenge cup as the best animal for agricultural purposes in the show. The second prize was won by Mr. John Mill with his Clydesdale horse Lofty.

The show of implements was very large and varied. Nearly all the principal manufacturers were present. Amongst those who had stands were Messrs. Samuelson and Co., who exhibited reaping machines. Messrs. Carson and Sons exhibited samples and patterns of their celebrated anti-corrosion paint. Messrs. Garrett and Sons had a very fine collection containing steam-engines, their thrashing and dressing machines, and their celebrated drills and horse-hoes. Mr. A. B. Childs showed his patent Aspirator, for dressing all kinds of corn and seeds by aspiration only. Mr. James Eastwood sent his compound-action churns; Mr. E. H. Bentall exhibited his well-known root pulpers and chaff and turnip cutters. Mr. W. N. Nicholson showed hay-makers, hay rakes, and mowing machines. Bradford and Co. had a large collection of washing and other machinery. Mr. Josiah Le Butt, Bury St. Edmunds, showed a new double-action haymaking machine. The Patent Earth-Closet Company exhibited a collection of Moule's earth closets: Mr. Pierce exhibited a large collection of galvanized sheep-troughs, wheelbarrows, and garden-engines. Messrs. Hornsby showed their steam-engines, and thrashing machines, also Paragon mowers, ploughs, and rotary corn-screens, and their "Governor" self-raking reaper. Pickersley, Sims and Co. had a large collection of chaff-cutters, turnip-cutters, and grinding mills. Messrs. Richmond and Norton had a large collection of their celebrated chaff-cutters; they also showed corn-crushers, and steaming apparatus. Ruston, Proctor, and Co. exhibited combined thrashing and finishing machine and steam engine, also an improved circular-saving bench. Messrs. Howard had a large collection of ploughs, harrows, haymakers, and their steam cultivating apparatus, as already spoken of. Messrs. Brigham and Bickerton showed reaping machines, land-rollers, and horse-rakes. Messrs. Gray, of Belfast, sent a large and very beautifully finished collection of ploughs and grubbers; also their prize turnwrest plough, very much improved by the coulter self-acting from side to side at the same time as board.

There was a very large show of poultry; the entries in the Dorking and Spanish sections being most numerous. There were also some very fine turkeys and geese. There were Cereopsis geese from New Holland and Sandwich Islands geese exhibited by Mr. Richard Palmer Williams.

The Judges were—Shorthorns: Edward Bowley, Thomas Parkinson, John Unthank. Herefords: T. Duckham, H. Haywood. Other breeds of cattle: H. M. Richardson, Edward Rae, Robert Murray. Thoroughbred horses and hunters: Henry Thurnell, G. A. Boyd,

Thomas Clayton. Half-bred horses, cobs, and ponies: John Wade, Richard W. Bernard, Henry Briscoe. Agricultural horses: Thomas Hunt, Major Borrowes, William Fetherstonhaugh. Leicester sheep: Thomas Booth, R. Cresswell, George Leighton. Border Leicesters: Adam Mitchell, P. Read, James Bogue. Short-wooled sheep: George Curton, Henry Pickstock, James S. Turner. Swine: R. S. McClintock, J. S. Richardson. Poultry: Thomas Marris, James S. Turner, Henry Thurnell. Dairy-produce: William Fetherstonhaugh, James McDonald, J. M. Green. Flax: Rev. Joseph Bradshaw, John Borthwick. Implements: John G. Coddington, Robert C. Wade, Dawson A. Milward.

#### MARLBOROUGH DISTRICT AGRICULTURAL ASSOCIATION.

The prizes offered for stock by the Marlborough District Association were competed for as usual in connection with the fair, and the entries of sheep were good. The horses and pigs were shown in a meadow adjoining the fair ground, but here the competition was not so strong. In the pigs shown Lord Ailesbury and the Rev. H. G. Baily again distanced all competition, with some very fine animals. A Berkshire sow, the "Forest Queen," which obtained the second prize at Salisbury with a litter of seven a week old, were shown by Mr. Fall as extra stock, and highly commended. The following is the list of prizes:—

##### SHEEP.

For the best pen of 100 sale ewes, good in tooth, from a flock exceeding 300, or of 60 such ewes, from a flock not exceeding 300.—First prize, a silver cup, the gift of Lord H. Thynne, M.P., George Brown; to the shepherd, 20s. Second 80s. R. Lynn; to the shepherd, 19s. Third, 50s., Mrs. Price, Wolfehall; to the shepherd, 10s.

For the best pen of 100 wether lambs, from a flock of ewes exceeding 300, or of 60 wether lambs, from a flock not exceeding 300.—first prize, a silver cup, the gift of Lord C. Bruce, M.P., T. Shier; to the shepherd, 20s. Second 80s., A. Neate; to the shepherd 15s. Third, 50s., Mrs. Price; to the shepherd, 10s.

For the best pen of five ram lambs.—First prize, 100s., W. King, New Hayward. Second, 40s., J. Sharp, Lambourne.

For the best two-tooth ram. No competitors.

##### HORSES.

For the best cart stallion (open class).—First prize, 80s., A. M. May; second competitor disqualified.

For the best cart stallion (open class), a silver cup, the gift of the Right Hon. T. H. S. Sotheron-Estcourt, W. H. Gale.

For the best cart mare and foal.—First prize, 80s., W. Archer, Lower Greenhill. Second, 60s., Henry Reeves, Liddington Wick.

For the best two-year-old cart filly.—First prize, 60s., Rev. H. G. Baily, Swindon. Second, 40s., Stephen Butler.

##### PIGS.

For the best Berkshire boar, 40s., Rev. H. G. Baily.

For the best Berkshire sow, 40s., Rev. H. G. Baily.

For the best Berkshire sow and offspring (not less than seven in number, and under three months old), 40s., the Marquis of Ailesbury (Mr. Fall).

## THE CATTLE-PLAGUE.

(FROM A SUPPLEMENT TO THE *London Gazette*.)

At the Council-chamber, Whitehall, the 20th day of August, 1867. By the Lords of her Majesty's Most Honourable Privy Council. Present—Lord President, Earl of Devon, Lord John Manners, Mr. Secretary Hardy, Mr. Cave, Mr. Wilson Patten:

Whereas it is expedient to consolidate and amend those provisions of orders of the Privy Council now in force under the Contagious Diseases (Animals) Acts, which are to remain in force, and to add other provisions, and to revoke such of those orders as are not to remain in force, or as have already ceased to be in force by expiration or otherwise:

Now, therefore, the Lords and others of her Majesty's Most Honourable Privy Council, by virtue and in exercise of the powers in them vested under the Contagious Diseases (Animals) Acts, and of every other power enabling them in this behalf, do order, and it is hereby ordered as follows:

## PRELIMINARY.

1. This order may be cited as "The Consolidated Cattle-Plague Order of August, 1867."

2. Except as in this order expressly otherwise provided, this order shall take effect from and immediately after the 15th day of September, 1867 (which time is in this order referred to as the commencement of this order).

3. The Orders of Council or provisions thereof described in the first schedule to this order, Part I., are hereby revoked; but this revocation shall not affect the past operation of any of those orders, or the validity or invalidity of anything done or suffered, or any appointment made, or any licence granted, or any right, title, obligation, or liability which may have accrued thereunder before the commencement of this order; nor shall this order interfere with the institution or prosecution of any proceeding in respect of any offence committed against, or any penalty or forfeiture incurred under, any order hereby revoked.

4. Nothing in this order shall affect the Orders of Council or provisions thereof described in the first schedule to this order, Part II., and the same shall be in force and continue to operate as if this order had not been made.

5. Any licence for the movement of cattle or for any other purpose granted before the commencement of this order by a local authority or any of their officers on their behalf, or by any other person authorized to grant the same, and in force at the commencement of this order, shall continue in force thereafter as if this order had not been made, and shall be available in like manner to all intents, for the purpose for which it was granted, as if it had been granted under this order.

6. Every place which before the commencement of this order has been declared to be an infected place, under the Order of Council of the 24th day of March, 1866, and has not been declared to be free from cattle-plague, shall continue to be an infected place after the commencement of this order, as if this order had not been made, subject to the power of the local authority to declare such place free from cattle-plague and thereby to cause the same to cease to be an infected place; and the rules of "The Contagious Diseases (Animals) Act, 1867," with respect to infected places shall, from and after the commencement of this order, apply to every such infected place, in lieu of the rules in that behalf of the Order in Council of the 24th day of March, 1866.

7. Every licence granted by the Privy Council for the holding of a market, exhibition, or sale before the commencement of this order, and in force at the commencement thereof, shall continue in force thereafter as if this order had not been made, subject to revocation by the Privy Council, and as if the conditions, provisions, and regulations applicable under this order to such market, exhibition, or sale, had been referred to in such licence, instead of the conditions, provisions, and regulations of any former Order of Council therein referred to.

8. This order extends to England and Wales (save as far as the metropolis is expressly excepted), and to Berwick-upon-

Tweed, and also to Scotland or Ireland where the same is expressly mentioned, or where any order revoked by this order extended to or affected Scotland or Ireland.

9. In this order words have the same meaning as in "The Cattle Diseases Prevention Act, 1866;" the term "foreign cattle" means cattle brought by sea from any place out of the United Kingdom; the term "sale" includes auction; the term "infected place" means a place declared such under the Order of Council of the 24th day of March, 1866, or under "The Contagious Diseases (Animals) Act, 1867."

## OFFICERS, &amp;c., OF LOCAL AUTHORITIES.

10. Each local authority may from time to time appoint such officers as they think necessary for executing this order, and may assign to them such duties and award to them such salaries and allowances as the local authority think fit, and may revoke any such appointment. Officers appointed by local authorities under orders relative to cattle plague, and holding office at the date of this order, shall continue in office with the same duties, salaries, and allowances, and on the same terms as if this order had not been made; nothing herein shall affect the power of the local authority to revoke the appointment of any such officer.

11. A local authority may provide and supply, without charge, printed copies of documents or forms requisite under this order.

12. Every regulation made by a local authority under this order shall (where no other provision is made for the publication thereof) be published by advertisement in a newspaper circulating in the district of the local authority.

13. Expenses incurred by the Court of the Lord Mayor and Alderman of the City of London (as the local authority for the city of London and the liberties thereof) in executing this order shall be defrayed by them out of the consolidated sewers rate.

## LEGAL PROCEEDINGS.

14. A local authority may appear before justices, or in any legal proceedings under this order, by their clerk, or by any agent authorized by them in writing under the hands of two of their members. A railway company or other body corporate may appear before the justices, or in any legal proceeding under this order, by their Secretary, or by any member of their board of directors or management, or by any agent authorized by them in writing under the hands of any two members of such board.

## PRIVY COUNCIL INSPECTORS.

15. A person for the time being appointed by the Privy Council an inspector for the purposes of this order shall have, wherever the operation of this order extends, all powers which an inspector appointed by a local authority has within his district; and a direction of the Privy Council shall, in case of an inspector appointed by them, be deemed equivalent to a direction of local authority in case of an inspector appointed by them.

## ANIMALS AFFECTED BY CATTLE PLAGUE.

16. Every person having in his possession or under his charge any animal affected by cattle plague shall observe the following rules: 1. He shall as far as practicable keep such animal separate from animals not so affected. 2. He shall with all practicable speed give notice to a police constable of the fact of the animal being so affected. Such police constable shall give notice thereof to the inspector appointed by the local authority. If any person required by this article to give notice fails to do so, he shall be deemed guilty of an offence against this order.

17. The following rules shall have effect with respect to animals affected with cattle plague and to animals that have been within 28 days in a shed or stable or in the same herd or flock or in contact with an animal so affected, that is to say: 1. No such animal shall be placed or kept on any common or unenclosed land, or in any field or other place insufficiently

fenced. 2. No such animal shall be sent or brought to a market, exhibition, or sale, or be exposed for public sale. 3. No such animal shall be driven along or allowed to stray on any highway or the sides thereof. 4. No such animal shall be sent or carried by a railway, or by a canal, river, or other inland navigation, or by a coasting or sea-going vessel. 5. No such animal shall be removed alive from the field, stable, cowshed, or other place where it is; provided that where such animal is not actually affected with cattle plague, it may, subject and according to the foregoing provisions of this article, and with a licence from the local authority, be removed thence to some place within the district of the same local authority, where it can be conveniently slaughtered, or where it can be kept apart from all other animals until the local authority are satisfied that there is no reasonable probability of its propagating cattle plague. If any animal is dealt with or removed in contravention to this article, the person so dealing with or removing the animal, and also the person causing or permitting such dealing therewith or removal thereof, shall each be deemed guilty of an offence against this order.

18. Where an offence is committed with respect to an animal under articles 16 and 17 of this order, or either of them, the local authority may by themselves or their officers cause such animal to be slaughtered and buried, and may recover from the owner in a summary manner all expenses so incurred.

19. All animals affected with cattle-plague, whether they have been slaughtered or have died of cattle-plague, shall be buried by the owner as soon as practicable in some proper place, with their skins slashed in such a manner as to prevent their being made of any use, and with a sufficient quantity of quicklime or other disinfectant, and shall be covered with a least six feet of earth, or shall be otherwise disposed of in such manner as may be directed by any regulations made by the local authority and approved by the Privy Council. If any animal is not buried or otherwise disposed of in pursuance of this article, the owner of such animal shall be deemed guilty of an offence against this order; and the local authority may bury or otherwise dispose of such animal, and may use any convenient place on the premises of the owner for that purpose. The local authority may recover from the owner in a summary manner any expenses incurred by them under this article.

20. It shall not be lawful for any person, except with the licence of the Privy Council, to dig up, or cause to be dug up, an animal that was affected with cattle-plague, or part of such an animal. If any person acts in contravention of this article, he shall be deemed guilty of an offence against this order.

21. Where the local authority exercise the power of causing premises to be cleansed and disinfected, conferred on them by Section 14 of "The Cattle Diseases Prevention Act, 1866," the occupier of such premises shall give all facilities for that purpose; and if he fails to do so, he shall be deemed guilty of an offence against this order.

22. No fresh animal shall be admitted into any yard, shed, stable, field, or other premises in which an animal affected with cattle-plague has been kept while so affected, or has died, or been slaughtered, until the expiration of thirty days after the cleansing and disinfecting of such premises. If any fresh animal is admitted into any yard, shed, stable, field, or other premises, in contravention of this article, the occupier of such yard, shed, stable, field, or other premises shall be deemed guilty of an offence against this order.

23. The dung of an animal affected with cattle-plague, and all hay, straw, or litter, or other article that has been in contact with or used about such an animal, shall be destroyed, or, with the sanction of the local authority, shall be disinfected and dealt with to the satisfaction of the inspector in either case, by and at the expense of the occupier of the premises on which the same is found. If the same is not so destroyed or disinfected and dealt with, the local authority may cause the same to be destroyed or disinfected, and may recover in a summary manner all expenses incurred by them from the occupier of the premises on which the same is found; and, in addition thereto, such occupier shall be deemed guilty of an offence against this order.

24. No such dung or other article shall be removed from the premises where an animal affected with cattle-plague has been, except for the purpose of being so destroyed or disinfected and dealt with, and with a licence of an inspector, specifying the place at which it is destroyed or disinfected and

dealt with; nor shall any such dung or other article be removed beyond the limits of the district of the local authority in which such premises are situate, without the consent in writing of the local authority into whose district it is moved. If the same is removed in contravention of this article, the occupier of the premises from which it is removed, and also the person removing the same, shall each be deemed guilty of an offence against this order; and the local authority may cause the same to be destroyed or disinfected, and may recover from the occupier in a summary manner all expenses incurred by them.

#### MARKETS, EXHIBITIONS, AND SALES.

25. No market, fair, exhibition, or sale of cattle shall be held, except as follows: 1. Cattle belonging to the owner or occupier of premises not in an infected place may be sold on those premises, if the cattle are not affected with cattle-plague, and have been on those premises, in possession of the owner or occupier thereof, not less than twenty-eight days immediately before the sale. 2. Markets, exhibitions, and sales may be held under licence of the Privy Council. If any cattle are sold, or exposed or put up for sale, or exhibited, in contravention of this article, the seller and the purchaser thereof, and the auctioneer putting the same up for sale, or the person exposing the same for sale or exhibiting the same, shall each be deemed guilty of an offence against this order; and if any person holds a market, exhibition, or sale, in contravention of this article, or fails to comply with any of the conditions, provisions, or regulations of any licence for the holding of a market, exhibition, or sale, he shall be deemed guilty of an offence against this order.

26. Cattle exposed for sale in a market or at a sale, the holding whereof for the sale of cattle for immediate slaughter is licensed by the Privy Council, may be kept alive for a period of six days after such exposure, and no longer. If any person keeps any cattle alive in contravention of this article he shall be deemed guilty of an offence against this order.

#### MOVEMENT OF ANIMALS.

27. Cattle may be moved in accordance with the provisions of this order, but not otherwise.

28. No cattle shall be moved on a highway between sunset and sunrise in the months of March to September, inclusive, or between the hours of 6 p.m. and 6 a.m. in the other months; but nothing in this article shall restrict the movement of cattle within the limits of any city or town.

29. Licences for movement of cattle shall be of three kinds—1. A licence for movement generally, to be called a movement licence. 2. A licence for removal to a licensed market, exhibition, or sale, to be called a market licence. 3. A licence for removal from a licensed market, exhibition, or sale, to be called a market pass.

30. The forms in the second schedule to this order, or forms to the like effect, signed as in that schedule directed, shall be used in the cases to which they refer, with such variations only as circumstances require, and when used shall be deemed sufficient.

31. No cattle shall be moved out of the district of a local authority in which they are, except with a licence of the local authority; and, if that licence is not signed by a justice of the peace, then there shall also be requisite a licence of the local authority of the district into which they are to be moved, indorsed on or referring to such first-mentioned licence; but such secondly-mentioned licence shall not be necessary in the case of movement from lands to other lands in the same occupation, situate in the district into which the cattle are moved, within 500 yards of the boundary of the district out of which they are moved.

32. No cattle shall be moved within the district of a local authority without such licence as the local authority prescribe in that behalf; provided, as follows:—1. The conditions of any such licence shall not be more stringent than the conditions of the licences, forms whereof are given in the second schedule to this order. 2. No regulation of a local authority shall authorise the owner or purchaser of any cattle, or his bailiff or agent, to consent by his signature or other act to the movement of such cattle. 3. No licence shall be necessary for movement within the district for a distance not exceeding 500 yards from lands to other lands in the same occupation.

33. Each local authority shall, as soon as may be after the commencement of this order, send to the Privy Council a list

of all persons appointed by such local authority to grant licences for the movement of cattle, with the addresses of such persons, and shall afterwards from time to time send to the Privy Council notice of any addition to that list within seven days after such addition is made; and the Privy Council may, if they think fit, at any time, direct the removal from such list of the name of any person, and thereupon that person shall cease to be authorised to grant any licence for the movement of cattle under this order.

34. Cattle may be moved to a market, exhibition, or sale, licensed by the Privy Council, with a market licence or a market pass, but not otherwise; and the person bringing any cattle thereto shall deliver the licence or pass to an officer of the market, exhibition, or sale, or to some other person appointed in that behalf by the holders of the market, exhibition, or sale, and the same when so delivered shall be retained, numbered (for identification), and carefully preserved by such officer or person, and shall be produced on demand to an inspector of the Privy Council, or an inspector or other officer of the local authority, or to any police officer; and any person refusing so to produce the same shall be deemed guilty of an offence against this order. Provided that in case of an exhibition or sale such a licence or pass shall not be given except for movement from places or parts allowed in the licence of the Privy Council for the holding of the exhibition or sale.

35. Cattle which have been sold or exposed for sale, or exhibited in or at a licensed market, exhibition, or sale, shall not be moved therefrom, except with a market pass, to be given by an officer of the market, exhibition, or sale, or other person appointed in that behalf by the holders of the market, exhibition, or sale, to the owner or purchaser desirous of moving the same.

36. Where a licence for the movement of cattle has been granted, and an error is afterwards discovered therein, any two justices may, by writing under their hands subscribed to or indorsed on the licence, correct the error, and thereupon the licence shall be and be deemed to have been as valid and effectual as if the error had not been made.

37. If any cattle are moved in contravention of any provision of this order, the owner thereof, and the person directing or permitting their removal, and the company or person removing or conveying them, shall each be deemed guilty of an offence against this order.

38. Nothing in articles 27 to 37 inclusive extends to the metropolis.

39. Cattle may be moved from Scotland into England with a movement or market licence, but not otherwise.

40. A local authority may, from time to time, with the view of preventing the spread of cattle plague, make regulations prohibiting or regulating the movement of animals on, to, from, and through, and the keeping thereof on, commons and wastes whereon there exists a right of common, and may revoke any such regulation. If any person acts in contravention of any such regulation he shall be deemed guilty of an offence against this order.

41. No person shall drive cattle under his charge, or allow them to be driven, or to stray, into an enclosed field, without the consent of the owner or occupier thereof. If any person acts in contravention of this article he shall be deemed guilty of an offence against this order.

#### FOREIGN ANIMALS.

42. From and after the 13th day of September, 1867, foreign cattle shall not be landed elsewhere than at parts of ports defined by special orders of the Privy Council (made or to be made) for the several ports as places where foreign cattle may be landed, and, notwithstanding anything in this order, all regulations relative to the landing of foreign cattle at any port in force at the commencement of this order shall remain in force until the 1st day of October, 1867.

43. The owner, consignee, or other person landing foreign cattle shall, before or within 12 hours after landing them, at his own expense mark them by clipping the hair off the end of the tail, and in such other manner as the Privy Council may from time to time direct. If any foreign cattle landed are not so marked, the person landing the same, and the owner or consignee thereof, shall each be deemed guilty of an offence against this order.

44. Notwithstanding anything in this order respecting movement of cattle by licence or otherwise, foreign cattle shall not be moved alive out of the limits of the defined part of the

port at which they are landed, except as allowed by and in accordance with the provisions of an order of the Privy Council relating specifically to that port.

45. The following cattle are hereby excepted from the operation of articles 42, 43, and 44 of this order, namely, cows brought from Channel Islands or any of them, or from the Isle of Man, in vessels plying or sailing between those islands respectively, or one of them, and England, and not having touched since last leaving England, or one of those islands (as the case requires) at any port or place elsewhere than in one of those islands or in England, and not having on board any cattle except cows born in one of those islands and not previously removed from those islands; and the following provisions shall apply to such cows: 1. In order to entitle any person to the benefit of this article in respect of any cows, the master of the vessel in or on board of which the same are so brought, shall, on his arrival in such port or place, deliver to the person appointed by the local authority of such port or place for the purpose, or, in default of such appointment, to the officers of her Majesty's customs there, a clearance docket under the hands or hand of the principal officer and controller of her Majesty's customs at the port or place in one of those islands from which such cows are exported, describing the same as being *bona fide* the produce of, and as having never previously been removed or exported out of, the Channel Islands or one of them, or the Isle of Man (as the case may be); together with a certificate in writing under the hand of the governor or lieutenant-governor of such island, certifying that the shipper of such cows has made proof before a magistrate within such island in the manner required by the laws relating to the customs, that such cows are actually the produce of and were born within the Channel Islands or the Isle of Man (as the case may be), and have never previously been removed or exported therefrom; and also a certificate under the hand of some veterinary surgeon practising within such island, and countersigned by a magistrate having authority within the same, to the effect that to the best of his knowledge and belief such cows are free from cattle plague, and from every symptom commonly supposed to indicate the presence or approach thereof, and from contagious disease of any kind, and that to the best of his knowledge and belief cattle plague never has existed and does not at the time of granting such certificate exist in such island. 2. No such cows shall be removed from such port or place alive without a certificate from the local authority that they have been examined by some officer appointed by the local authority for that purpose, and that they are free from cattle plague. 3. Such certificate shall not exempt such cows from any other regulation of this order with respect to the movement of cattle or otherwise; save that the same may be accepted in the case of a movement licence by the person authorised to grant the same, as sufficient for the purpose of the granting thereof, and in the case of a market licence, by the justice, or other person authorised to grant the same, as equivalent to the declaration of the owner or his agent. Provided that the exception made by this article shall not extend to any such cows landed at a part of a port defined, as in Art. 42 provided.

46. Sheep, goats, and swine brought in the same vessel with foreign cattle shall be subject to the provisions of this order respecting foreign cattle.

#### REMOVAL OF HIDES, WOOL, HORNS, &c.

47. No hide, skin, hair, wool, horn, or hoof of animals shall be carried by or on a highway, railway, canal, or river, or by other mode of conveyance, unless effectually covered. If any such thing is carried in contravention of this article, the person sending the same and the person conveying the same shall each be deemed guilty of an offence against this order.

48. The last preceding article shall not apply to the following things: 1. Hides, skins, hair, wool, horns, or hoofs imported into the United Kingdom from India, Australia, South Africa, or America. 2. Hides, skins, hair, wool, horns, hoofs, or glue-pieces that have been effectually lined for manufacturing purposes. But proof that any hide, skin, hair, wool, horn, hoof, or glue-piece is such as to come within any exception made by this article shall lie on the accused.

#### POWERS AND DUTIES OF OFFICERS RESPECTING MOVEMENT OF ANIMALS, HIDES, &c.

49. Any officer authorised in this behalf by a local authority, or any constable or police-officer, may stop and detain any



animal which is being moved, or which he has reasonable grounds for suspecting is being moved, in contravention of this order, and may apprehend, without warrant, the person in charge thereof, and bring him before a justice, who shall inquire into the case in a summary manner, and may, if satisfied that there are good grounds for suspecting that such animal was being moved in contravention of this order, by writing under his hand direct the animal to be detained, and the person in charge thereof to be brought before two justices as soon as practicable, and the same may be done accordingly. On such person being brought before two justices they shall adjudicate on the case in a summary manner, and, if satisfied that the animal was being moved in contravention of this order, may direct it to be slaughtered and buried, or to be otherwise disposed of as they think most expedient for preventing the spread of cattle plague.

50. Any officer authorised in this behalf by a local authority, or any constable or police officer, may inspect any railway truck, cart, boat, or other vehicle used by land or by water, in which animals, hay, manure, litter, straw, and other articles used for or about animals are usually or at the time of such inspection carried, and may examine the person in charge thereof, with a view to ascertain whether any animals or articles are being moved or carried in contravention of this order; and such officer may, if he has reasonable grounds for suspecting that such animals or articles are being moved or carried in contravention of this order, apprehend, without warrant, the person in charge thereof, and bring him before a justice, who shall inquire into the case in a summary manner; and such justice, if satisfied that there are good grounds for suspecting that such animals or articles were being moved or carried in contravention of this order, may, by writing under his hand, direct the same to be detained, and the person in charge thereof to be brought before two justices as soon as practicable, and the same may be done accordingly. On such person being brought before two justices, they shall adjudicate on the case in a summary manner, and if satisfied that the animals or articles were being moved or carried in contravention of the order, may direct the same to be destroyed or otherwise disposed of, as they think most expedient for preventing the spread of cattle plague.

51. If any person having charge of any animal or thing that is being moved or carried on a highway, railway, canal, navigation, or river, for the moving whereof a licence is requisite, is required by an officer of a local authority authorised in this behalf, or by a constable or police officer, to produce the licence

(if any) for the moving or carrying of that animal or thing, and fails to do so, he shall be deemed guilty of an offence against this order.

52. Any constable or police or other officer detaining any animal under this order shall cause it to be supplied with requisite food and water during its detention; and any expenses incurred by him in respect thereof may be recovered in a summary manner from the person in charge of the animal, or from its owner.

53. Any inspector or other officer empowered to carry this order into effect may, if authorised in this behalf by general or special order in writing of the local authority, enter any field, stable, cowshed, or other premises within his district, where he has reasonable grounds for supposing that cattle affected with cattle-plague have been, or have been buried, or otherwise disposed of, for the purpose of carrying into effect the provisions of this order. If any person refuses admission to, or obstructs or impedes, or aids in obstructing or impeding, such inspector or other officer, he shall be deemed guilty of an offence against this order.

#### CLEANSING AND DISINFECTING OF PENS, TRUCKS, &c.

54. Every pen, carriage, truck, horse-box, vehicle, or boat required to be cleansed and disinfected shall be cleansed and disinfected once in every 24 hours during the time when it is used for any animal in manner following: By sweeping out and effectually removing all dung, sawdust, or other matter from the pen, carriage, truck, horse-box, vehicle, or boat, and then by thoroughly washing the same with water, and then by applying to the floor and to all parts above the floor of the pen, carriage, or truck, and to the sides, floor, and ceiling of the hold of the boat, and to every other part of the boat with which animals or their droppings come in contact, a coating of limewash, made up by mixing good freshly-burnt lime with water, and containing in each gallon of limewash either one-fifth of a pint of carbolic acid, or one-fifth of a pint of cresylic acid, or four ounces of fresh dry chloride of lime, such limewash to be prepared immediately before use. The sweepings shall be well mixed with quicklime, and effectually removed from contact with animals.

#### Dogs.

55. A local authority may make such orders as they think expedient for preventing the propagation of disease by means of dogs, and may order stray dogs to be destroyed or otherwise disposed of.

## THE CATTLE PLAGUE IN THE METROPOLIS.

(From a Supplement to the *London Gazette*.)

At the Council Chamber, Whitehall, the 20th day of August, 1867, by the Lords of her Majesty's Most Honourable Privy Council.

Whereas it is expedient to amend the regulations now in force under Orders of the Privy Council for preventing the spread of cattle plague in the metropolis:

Now, therefore, the Lords and others of her Majesty's Most Honourable Privy Council, by virtue and in exercise of the powers in them vested under the Contagious Diseases (Animals) Acts, and of every other power enabling them in this behalf, do order, and it is hereby ordered as follows:

1. This order may be cited as the Metropolitan Cattle Plague Order of August, 1867.

2. Except as in this order expressly otherwise provided, this order shall take effect from and immediately after the 15th day of September, 1867 (which time is in this order referred to as the commencement of this order).

3. In this order words have the same meaning as in the Consolidated Cattle Plague order of August, 1867.

4. No cattle shall be moved out of or within the metropolis except in accordance with the provisions of this order.

5. No licence granted (under any other Order of Council)

for the movement of cattle from a place beyond the limits of the metropolis shall authorise the movement of such cattle through any part of the metropolis.

6. No cattle shall be moved alive out of the metropolis; provided that where any person occupies a farm situate partly within and partly without the metropolis, or any other contiguous premises so situate, he may, with a licence from the Commissioner of Police of the metropolis or of the City of London (which licence such commissioner is hereby empowered from time to time to grant, and, if he thinks fit, to revoke) move from one part of such premises to another cattle not affected with cattle plague, which have been in his own possession for 28 days or upwards immediately previous to the date of such licence, and have been marked in such manner as the said commissioner of police directs.

7. No cattle shall be moved along any highway, thoroughfare, or public place within the metropolis, except for a distance not exceeding 500 yards from part to part of the same farm, or to water, without a licence as aforesaid, stating the number and description of the cattle licensed to be moved, and the place of their destination.

8. Cattle may be brought to the Metropolitan Cattle Market with a licence of the Commissioner of Police as aforesaid, but not otherwise; and the person bringing any cattle

shall deliver the licence to the officer of the market appointed to receive it, and the same shall be retained, numbered, and carefully preserved by such officer.

9. No cattle sold or exposed for sale in the said market shall be moved from it except with a market pass (in the form set forth in the schedule to this order or to the like effect) to be given to the purchaser or owner desiring to move the same by an officer of the market appointed for the purpose.

10. The proprietor of a slaughterhouse in the metropolis shall not receive for slaughter any cattle which have been sold or exposed for sale in the said market without the proper market pass.

11. The proprietor of a slaughterhouse in the metropolis shall not receive for slaughter any cattle which have been brought to the metropolis under a licence granted otherwise than by virtue of Art. 7 of this order, without receiving from the person delivering such cattle to him, or from the owner thereof, the licence under which they have been moved.

12. On the Saturday of every week the proprietor of each slaughterhouse in the metropolis shall deliver to the chief officer in charge of the police station of the district in which the slaughterhouse is situate all the market passes and licences received by him during the week.

13. With respect to foreign cattle (except cattle within the exception in Art. 45 of the Consolidated Cattle Plague Order of August, 1867) brought by sea to the port of London, the following regulations shall have effect: (1.) All such cattle shall be landed in such manner, within such times, and subject to such supervision and control, as the Commissioners of Customs from time to time direct. (2.) If the place of landing is not within the metropolis, and such cattle are not slaughtered at the place of landing, they shall be removed thence by railway to the metropolis, and not otherwise or elsewhere; and they shall be brought along the railway in trucks or carriages exclusively set apart or used for the purpose of conveying foreign cattle, and coloured with a special colour, or otherwise distinguished by a mark approved of by the Privy Council, to designate them as so appropriated, and such trucks or carriages shall, after they have been used for the purpose of conveying any cattle to the metropolis, be cleansed and disinfected in manner provided by Art. 5k of the said consolidated order. If any truck or carriage is at any time used in contravention of any of the provisions of this article, the company or person by whom it is used shall for each time that it is so used be liable to a penalty not exceeding £5.

14. Foreign cattle within the metropolis shall be slaughtered within four days after the landing thereof, exclusive of the day of landing, unless they are taken to the said market within such four days, and in any case they shall until taken to be slaughtered be kept in lairs licensed for their reception by the Privy Council.

15. Any dung of animals, and any hay, straw, litter, or other thing, commonly used for food of animals or otherwise for or about animals, may be moved out of an infected place within the metropolis (but not out of the metropolis) with a licence signed by an officer of the local authority appointed in that behalf certifying that the thing moved has been disinfected, but not otherwise.

16. If any cattle or thing are or is moved in contravention of any provision of this order, the owner thereof and the person directing or permitting the removal thereof, and the person or company in charge of or removing or conveying the same, shall each be deemed guilty of an offence against this order; and if any proprietor of a slaughterhouse fails to comply with any provision of this order he shall be deemed guilty of an offence against this order.

17. Nothing in this order shall affect any licence granted, or any right, title, obligation, or liability which may have accrued before the commencement of this order.

18. Every licence for the movement of cattle, or for any other purpose, granted before the commencement of this order by a commissioner of police, or by the local authority, or any of their officers on their behalf, or by any other person authorised to grant the same, and in force at the commencement of this order, shall continue in force thereafter as if this order had not been made, and shall be available in like manner, to all intents, for the purpose for which it was granted, as if it had been granted under this order.

19. Expenses incurred by the Court of Lord Mayor and Aldermen of the City of London (as the local authority for the City of London and the liberties thereof), in executing this order shall be defrayed by them out of the consolidated sewers rate.

20. The Metropolitan Board of Works shall cause this order to be published in a newspaper circulating in the metropolis; and the Court of Lord Mayor and Aldermen of the City of London shall cause a copy thereof to be affixed in a conspicuous place in the said market; and the Commissioners of Police for the metropolis and the City of London respectively shall cause a copy thereof to be affixed in a conspicuous place at each police station.

## RENEWAL OF CATTLE TRAFFIC THROUGH THE STREETS OF LONDON.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Some doubt arose as to the construction to be placed upon the New Orders in Council; but the correspondence I send you herewith shows it to be too true that foreign cattle may now be lauded in London, and driven through the streets, thereby returning to a state of matters which sooner or later must reproduce all the evils we have been striving to get rid of, both as regards cattle plague and the obstruction of the streets.

I am, sir, your obedient servant,

109, Fenchurch-street, Sept. 2.

JAMES ODAMS.

[COPY OF CORRESPONDENCE.]

109, Fenchurch-street, Aug. 29, 1867.

Dr. Alexr. Williams, Privy Council Office, Whitehall.

CATTLE PLAGUE.

SIR,—With reference to the last Order in Council some difference appears to exist as to its interpretation. Will you have the kindness to inform me whether after the 15th September cattle can be lauded at the London wharves and driven

through the streets as formerly, or must they be forwarded by rail to Metropolitan Market?

I am, sir, yours obediently,  
(Signed) JAMES ODAMS.

Privy Council Office, Veterinary Department,  
Princes-street, Whitehall, Aug. 30th, 1867.

SIR,—I have the honour to acknowledge the receipt of your letter of yesterday's date, relative to the construction of the new "Consolidated Cattle Plague Order of August, 1867," and the removal to the Metropolitan Cattle Market, landed in London, and, in reply, I have to inform you that there is nothing in the New Order to prevent cattle being landed in London and driven through the streets to the Metropolitan Market.

I have the honour to be, sir,  
Your obedient servant,

(Signed) C. EARDLEY WILMOT,  
James Odams, Esq., For Secretary,  
109, Fenchurch-street, E.C.

## FARM LEASES.

At a recent meeting of the Glasgow Chamber of Agriculture, the members proceeded to consider the topic set down as the subject of special discussion—namely, leases and covenants of estates, in reference to modern scientific farming.

The PRESIDENT said: We now come to the subject on our paper, and none could be more important to the owners and occupiers of land; in every way, to my apprehension, as important to the one as to the other. Practically we all know something of what a lease of land is, for most of us have worked out, or are at this moment engaged in working out one; and it is fortunate for us that we do know what it is practically, for it is very doubtful if many of us would rise from the perusal of a modern lease prepared to say what it is all about. It is just possible that we might get occasional gleams of light through successive clouds of professional verbosity, but only to be lost in the midst of the next clause, as ponderous and verbose as its predecessor, making a straight through-read of the document as confusing and incomprehensible a study to an ordinary mind as it is possible to conceive. But I am not going to detain you by going into a detail of my objections to the modern lease, because these will be fully stated by those who are to follow, and who have given more time to the subject than I have been able to give. There are, however, a few manifest objections I would state in a general way, just as indicating my own opinion on the subject. There should be no reservations in leases of game, fish, minerals, or anything else. The law gives the landlord the ownership of all these things usually reserved, and right to brueik them on reasonable and fair terms, and nothing more should be given in a lease. The thing let, that is, the land, should be given for the purpose for which it is hired—that is, agricultural purposes. If the landlord chooses to rear game or work minerals, the law gives him the right of doing so, but it compels him to compensate the tenant for any loss the subject let may sustain, for the purpose of the lease, through the landlord's acts. That is quite fair between man and man, but anything more is not fair. For instance, the usual clause that the tenant is not to be compensated for loss through the landlord's game consuming the fruits of the subject hired, is just giving with the one hand and robbing with the other. Then the clause excluding assignees and sub-tenants is no better. A decent, industrious man takes a farm and makes many improvements on it. You all know the first five years of a new tack is incessant labour and outlay. But he is cut down, say in the fifth year of his lease. His all is in the farm—energy, enterprise, and capital. He leaves a widow and a young family. To deprive them of the surplus rent the farm will bring on a re-let for the remainder of the lease, from the husband's exertions and capital laid out in improvements, is simply robbing the widow and fatherless. The clause providing for the lease falling if a tenant is bankrupt, is also a very unfair one to the creditors. I have known farms let at a surplus rent of £100, £150, and £200, the laird pocketing the whole, and the creditors, with their capital sunk in the improved condition of the farm, not receiving a farthing. Then the shifts and rotations fixed in leases are in many cases a gratuitous hindrance to the proper cultivation of the soil, resulting in loss to the land, and of course to landlord and tenant; for I take it to be undoubted that what is lost to the one is lost to the other. In my opinion, all rotations are drags on the wheels of modern scientific agriculture, and ought to be abolished, unless it may be for the last five or six years of a tack. My lease would just be this; I (the proprietor) let to you (the tenant), your heirs and assignees, the lands with the houses, fences thereon, and roads thereto, for 19 years, at a given rent, payable out of the fruits at the first term after these are gathered. The condition of the lands and erections to be reported on by men mutually chosen on entry, and again at issue. The lands and erections to be left in as good a condition as got, and, if better or worse, to be paid for by the landlord or tenant, as the case may be, according to the valuation of men mutually chosen. I would give right to sub-let, the original tenant always remaining liable in tenant's obligations under the lease; and I would

take ordinary tear and wear into account in estimating the value of houses, fences, and roads at issue. Nothing more is needed, nothing more is required by the circumstances. My case would encourage every man to do his best for the subject let, and it would give him the honest reward of his labour, and it asks no one to pay a penny save for value received. With these views, hurriedly and imperfectly expressed, I leave the subject to be treated by my friends who are to follow me; and I call on my predecessor in this chair—my friend Mr. Goodlet—to read the paper he has prepared on this subject at the request of the committee.

Mr. GOODLET (Bolshan) read the following paper:—Mr. Chairman and Gentlemen, before proceeding to consider the usual terms of the modern lease, it may be well to glance for a little at the nature of the contract itself, as looked at from the respective points of view of the two contracting parties. A landlord, in entering into a lease with a tenant, will naturally seek, by certain clauses and provisions, to protect the subject let from being injured or deteriorated by the tenant, or from being used by him in a manner different from that intended at entering on the contract. He will also seek to provide against certain contingencies which, in the course of a nineteen years' lease, are not unlikely to arise, affecting the stability of his tenant, through death or bankruptcy; and he will also wish to see the lands properly farmed and the buildings and fences kept in proper repair; and should improvements be intended, he will desire the insertion of a clause to limit and define the extent of his own obligations, and to secure the proper performance of those undertaken by the tenant; and doubtless, as is customary, he will desire to reserve the game, which he rarely admits to himself does harm to the tenant's crops; and lastly, he will be very chary about omitting any of the merely formal clauses of the deed, which, however useless in themselves, have come to be regarded by landlords as essential to the validity of the lease, but which in their wordiness rather tend, in my opinion, to cumber and perplex it. The tenant, on the other hand, will desire to have the lease so framed as to allow of his enjoying the free and peaceable possession of the subjects let—that he shall not be unnecessarily hampered in the management and cropping of the lands, and that he shall have the free use and disposal of the produce of the farm at his command, limited only by such conditions as may be absolutely necessary to prevent the deterioration of the soil—that the buildings and fences be handed over to him in proper order, with such new additions as may be requisite for the profitable occupation of the farm. He will also desire to secure to himself and his family the benefit of any improvements he may effect by draining and liming, or otherwise increasing the fertility of the soil; and in order that he may not, in the event of certain contingencies arising during the lease, be deprived of this benefit, he ought to have the power to assign and sublet, under provision, of course, that the rights of the landlord under the lease are not thereby impaired; and the tenant will expect, if, as is always the case, the game be reserved, that at least no greater damage will accrue from game than that which exists at his entry to the farm; but that if at any future time damage from an increase of game should arise, compensation will not be withheld under cover of a stringent game clause, but that the same shall be at once ascertained and readily allowed for by the landlord when found to have been incurred. Such being the understood views of the contracting parties, one would think that no great difficulty need arise in framing a deed of moderate length distinctly to express and define the rights and obligations of both under it. From various causes, however, the modern lease, as usually drawn, is found to be not only a verbose document, but, what is worse, it is for the most part a very one-sided one. This, I believe, arises chiefly from the circumstances that the landlord is very much in the habit of laying down the conditions under which the farm is to be held, and the tenant must either take it on these conditions, or have his offer declined. The landlord—himself seldom a practical agriculturist—insists on the most stringent, and often unsuitable clauses, under the mistaken notion that such are necessary for

his own protection and the proper binding of the tenant; while, in reality, they fail to effect either purpose, and only tend to hamper the tenant in the free use of the subject let, and also retard improvements by not infrequently confining him to systems of cropping and management of the land alike detrimental to the interests of both. This, although a serious evil in itself, becomes still worse when the agent who frames the lease is not more conversant with practical agriculture than his constituent, and who has to depend upon the various forms of lease to be found in the style-books for direction and guidance in his preparation of it. The management of landed property is now largely confided to gentlemen of the legal profession, who rarely are possessed of that practical knowledge of agriculture which is essential to the agent who would intelligently frame the deed in accordance with the just and equitable requirements of the case. It would be easy to give instances of the most absurd blunders committed by agents in framing leases. I have myself seen a lease, prepared by a lawyer, with a Martinmas entry, containing clauses suited only for one with a Whitsunday entry, and *vice versa*; and even the better informed of them, who would not be guilty of such gross blundering as this, will always be inclined so to frame the clauses as to make the landlord safe, as they suppose, whatever may become of the tenant. Some agents, indeed, will tell you that the clauses are only framed to please the laird, and that they are not meant to be rigidly enforced. Others, again, will say that they are the usual conditions applicable to the estate, and however unsuitable they may be to the present farm, they cannot be departed from; and tenants are to be found who will sign such leases provided the rent suit; and some even are not very particular about the rent, trusting that, if once in possession, neither the rent nor conditions will be strictly exacted or enforced against them. And I could instance cases of this kind where such tenants have not been disappointed. Estates managed on such principles, however, are seldom occupied by a trustworthy tenantry, and are about the worst farmed, under leases the most wordy, stringent, and arbitrary, of any to be found in the country. At one time, indeed, it was customary for almost all farmers to be indifferent as to the nature of the written conditions of the lease—trusting to the good faith and honour of their landlords that no unfair advantage would be taken of them; but the practice has been gradually changing, and tenants are now more than ever strictly kept to the terms of the written contract. Many cases of hardship have occurred from tenants having signed leases containing stringent clauses, which they little expected at the time would be enforced to the letter against them; and since the written contract is being more and more looked on as embodying the exact agreement of parties, it becomes all the more necessary, as well in the interest of the landlord as in that of the tenant, to see that the lease be a deed expressing in plain, simple, and clear language the true nature of the transaction between the contracting parties, in which the rights and obligations respectively undertaken by, and conferred on each of them are plainly defined and set forth. All the wordy and unmeaning jargon which disfigures most of our leases should be unsparingly eliminated and cast aside; and here I cannot do better than quote to you the remarks of a worthy Edinburgh lawyer of a former generation, called forth by a long and wordy minute of lease, interlined, altered, scored, and crammed with marginal additions, which had been sent to him to be framed into a lease by one of his constituents—a Forfarshire laird—to whom these remarks were addressed and sent. For sound sense, clearness of thought, and terseness of expression, I venture to say they are not to be surpassed; and I would strongly recommend them to the careful consideration of our landlords and their factors, especially such of them as are of the legal profession. They are as follow:

*"Observes on the proposals and conditions of a new lease of F——— & W———, 1819.*

"April, 1819.

"1. These conditions are, in many particulars, too general, notwithstanding the appearance of being very particular.

"2. In a great many particulars they are indefinite: in others they provide for what the law provides.

"3. It will be impossible to engross them all in a tack and make the tack effectual, without running out to a great length; and the multiplicity of them will afford a tenant a good and

legal apology for neglecting some of them, and a handle for disobeying others.

"4. A man would need to read the tack every morning to be sure of knowing them, and a tenant has other work than to read and to comprehend intricate clauses and conditions. A court of law would be disinclined to enforce such a contract.

"5. Reference to other tacks is inconsistent with the nature of a tack, and it seems impossible to make the proposed tack explicit and binding.

"6. If W———r requires all these fetters to keep him right, Mr. M——— had better have nothing to do with him.

"7. All gentlemen find it their interest to have tacks short, clear, and explicit; the fewer conditions the better. Tenants always find escape-holes in long tacks.

"8. The proposed tack is laying the foundation for a multiplicity of law processes, which is just the game of a bad tenant.

"9. The signing such a minute, scored and deleted, and signing scorings, and some not signed, appears quite inconsistent."

Such are the words of the able lawyer. It is not a great many years ago when protection was the recognised policy of the nation, and when bad times for the manufacturing and commercial classes were hailed by the farmers as the sure indication of high prices and prosperous times for themselves. In those days the farmer was accustomed to look up to his landlord as his natural leader and protector, and in the letting of land less of the mercantile spirit pervaded their dealings with each other than has latterly come to be the case under the *regime* of Free-trade. Landlords were then content with moderate rents—not only professing, but many of them really acting on, the principle of "live and let live" in dealing with their tenants, who were not then so hard driven as they are now. If they did not possess so many of the amenities of life as the modern farmer can command, they had at least less anxiety, and lived in an easy sort of way. They were to a man zealous partisans of the laird, whose health at their social entertainments never failed to be drunk with all the honours; Tories for the most part in politics, they were keen supporters of Church and State and the powers that be; and always the humble servants of the laird, who, to do him justice, usually ruled with gentle force his willing slaves. In our day, however, all this is changed. Under the iron sway of Free-trade which now animates the spirit of the age, the relation between landlord and tenant has come to be regulated mainly on commercial principles. The rent exacted is, on the one hand, what can be got in the market; and on the other hand, when that is paid and the other obligations of the lease performed, the tenant considers he has exhausted the sum of his obligations, and that he should be free to mould his opinions and exercise his political rights as may seem to him best, uncontrolled by landlord interference, or even the fear of subjecting himself to his displeasure. Some landlords, indeed, have still a lingering desire to retain the influence their predecessors claimed and generally exercised over the opinions and sentiments of their tenants, while they have no objections at the same time to take the benefit of the commercial principle in the matter of rent and other prestations of the lease; but the two are wholly incompatible, and can be no more mixed up together than can oil and water. There is no halting between the two systems; the one or the other must prevail, and landlords must either make up their minds to go back to low rents with a poor and subservient tenantry, or forward to high rents and a more advanced agriculture, which the commercial principle, fairly carried out, cannot fail ultimately to secure. To give, however, that principle fair play, it must have free scope, and in order to that, certain obstacles in our laws affecting agriculture, which now impede its progress, must be removed, but to these your time will only permit me to give a passing glance. The law of hypothec, the game laws, and in some degree, also, the law of entail, are all more or less opposed to the full development of agriculture, chiefly by rendering the investment of capital by tenants, in the improvement and cultivation of the soil, unsafe, and by encouraging a "hand-to-mouth" system of management, alike injurious to the true interests of landlord and tenant. The law, as it affects the rights of the tenant, in reference to any permanent improvements made by him in the course of his occupancy, is also in a very unsatisfactory state; and it would, moreover,

tend greatly to promote the advancement of agriculture, if an equitable plan could be devised by which a tenant would be able to maintain the farm to the close of the lease in good condition, without incurring the risk of losing the increased outlay necessary for that purpose, by having to leave the benefit of it to be reaped by his successor. It is hardly necessary for me to tell a meeting of practical farmers what a serious evil it is both to the landlord and tenant, but especially to the tenant, to have a farm run out, or even partially so, at every renewal of a lease, again to be restored at great expense by the new tenant. Some landlords may fancy that deterioration of the soil can be prevented by those stringent clauses in the lease to which we have before alluded; but if such clauses would have done it, the evil should have been remedied long ago, for we all know how stringent the clauses are in many leases, and yet run-out farms at the end of a lease are no uncommon thing in the country—indeed, so far as my own observation goes, the most run-out farms are those that have been held under the most rigid conditions. But I cannot dwell longer on these topics, and must hasten to offer a few remarks on the lease itself, which I shall endeavour to do as briefly as possible under the following heads:—

I. *Destination.*—In the clause of destination it is usual to exclude “assignees and sub-tenants legal and voluntary.” Such exclusion may, under certain circumstances, inflict heavy loss on an improving tenant, who might not be able to continue the occupancy of the farm to the close of the lease; and it deprives creditors, in the event of the tenants’ bankruptcy, of the power to reap the benefit of the expenditure, which may have been made by him in ameliorating the condition of the soil, or in executing other improvements on the farm, and therefore a power to assign and subset should not be withheld if it can be granted without unduly impairing the landlord’s rights under the lease. The exclusion is not only unfair to the tenant, but is calculated to lay an arrest on all improvements by him not yielding an immediate return. It is unfair, inasmuch as it may have the effect of depriving him of the benefit of his expenditure in raising the fertility of the soil, or in the erection of buildings which he is not even allowed to remove, because of his inability personally to carry on the farm; and to declare, by a clause of irritancy, the lease to be null and void in the event of the tenant’s bankruptcy, without in any way providing for his creditors getting the benefit of his outlays so made, is simply dishonest. If, in the interest of the landlord, it is necessary to exclude assignees and sub-tenants, provision ought at least to be made in the lease to obviate such gross cases of hardship as those to which I have referred, and which I believe are of no infrequent occurrence under the clause of destination as now usually framed.

II. *Endurance.*—The great advantage of having the lease of reasonable endurance is, that it enables the tenant to execute improvements, and bring up the condition of the farm at the beginning of his occupancy, with the hope of being remunerated before the lease expires. To do this usually requires a few years of extra outlay—generally speaking, I should say, two rounds of a short rotation, or one round of a long one—and for a purely agricultural lease the common period of nineteen years seems not unsuitable. A shorter lease than this would not justify a tenant in laying out largely in making permanent improvements at his own cost. And even such outlays as are necessary to bring the soil into a high manurial condition, would not be warranted unless under a lease of sufficient duration to realise returns. Yearly holdings are altogether opposed to outlays of any kind beyond the mere current expense of seed and labour, with manure enough to produce a crop. Under such holdings the advancement of agriculture is not to be expected; and it is well known that in England, where yearly holdings are common, agriculture, unless fostered by other causes, is in a very backward condition. A lease of some endurance therefore seems essential to the successful cultivation of the soil by a tenant, and must be for his interest to have, as well as for that of his landlord to grant.

III. *Reservations.*—It is customary in the lease to reserve coal, lime, minerals, wood, &c., to which at common law the tenant has no right, and to reserve them, therefore, seems unnecessary—at all events these reservation clauses are often stated very wordily, and might with much propriety be shortened and more concisely expressed. The game clause, I need not remark, is distasteful to most farmers, even in its mildest

form; but in many leases that have come under our notice of late, this clause is so outrageously unjust and exacting that the wouder is not so much that such clauses are there as that tenants are so readily found willing to agree to them. But I believe that this is one of the many evil effects of the law of hypothec, which, by inducing a gambling spirit into the letting of land, encourages a set of men to take farms who have nothing to recommend them but a readiness to offer high rents, and to incur risks which a prudent man would not, if he could help it, venture to undertake, but which, however, he must do if he is to compete successfully with them. The fact, however, is undoubted, that the most stringent clauses that the ingenuity of game-preserving landlords can devise, are admitted by tenants into leases, and so long as game clauses, such as we have seen, are allowed, and game is unduly preserved, it is impossible agriculture can be in a healthy or thriving condition. To such of our members as are enamoured with the English game laws, and would support the Bill of Lord Elcho, as originally brought in by that noble lord, to render ours more in accordance with them, I would commend to their serious perusal a book, published in 1846, by Mr. Welford, on the “Influences of the Game Laws,” containing classified extracts from evidence taken before a select committee of the House of Commons that year, in which facts are disclosed that should at least cure farmers of that silly craving for an assimilation of the Scotch game-law, bad as it is, to that of the English, which is infinitely worse. Lord Elcho’s Bill has been characterised in the House of Commons by an honourable member as an “imposture and a sham.” The “imposture” very properly has been knocked out of it by the select committee which lately sat on the game bills, and to that extent the Bill has been amended and improved, as well as shortened; but the “sham,” I am sorry to say, still remains, and now comes recommended by the committee as a proper measure to be passed by Parliament. This Bill, so far as I can perceive, concedes nothing that the law does not allow. Damages can be recovered at present when game is increased on a farm, and if the landlord does not reserve the hares there is nothing to prevent the farmer now acquiring the qualification and killing them, and these are the rights which this Bill professes to confer on the farmer—a *sham bill truly!* If landlords will insist on reserving the game for the special sport of themselves and friends, they should at least be prepared to limit their power in the lease, and, if at any time the game on a farm should increase, frankly to grant the tenant compensation equivalent to the damage done, and cease to shelter themselves under a stringent game clause. High farming—or, for that matter, even low farming—and a head of game such as is now thought necessary by our modern sportsmen, who delight in batine shooting, cannot co-exist; and I hesitate not to say that any landlord, who in virtue of a stringent game clause, and in defiance of the reasonable claims of his tenant, shall persist in maintaining a large head of game on land let for agricultural purposes, *and at the same time refuse to allow compensation*, is neither more nor less than a legalized plunderer, whose proceedings cannot fail to bring deserved odium on the class to which he belongs—countenancing him in them.

IV. *Kain and Services.*—These on many estates have now ceased to be exacted or stipulated for in the lease. They are a remnant of feudalism, and the performance of them is often very inconvenient to the tenant, and of no equivalent advantage to the landlord. They are also imposed as an extra burden over and above the rent, and constitute a badge of bondage which should have no place in a contract between independent parties.

V. *Buildings and Fences.*—It is customary to take the tenant bound to accept of these as in “good and sufficient repair,” and to keep and leave them so at his removal, the landlord assigning over to him the obligation on the outgoing tenant to leave them in that state. This is a custom which has in it nothing to commend it, but, on the contrary, much that is objectionable. It may relieve the landlord, or rather his factor, of a disagreeable duty, but it is the fruitful source of much strife and quarrelling between outgoing and incoming tenants. It is seldom that anything like an adequate sum is awarded against the outgoing tenant for repair, and the incoming one is often put to serious inconvenience and loss by having buildings and fences handed over to him in a worn-out and dilapidated state, while the sum got from the outgoing tenant is altogether inadequate to put them into the “good and sufficient” condi-

tion in which, by his lease, it has been assumed they have been received by him. It would be better for all parties were the landlord himself to enforce the fulfilment of the outgoing tenant's obligations in respect of the buildings and fences, and to see to it that the incoming tenant really gets them in the good and sufficient condition in which, by his lease, he accepts of them and binds himself so to keep and leave them. The present practice is unfair to the tenant, and cannot fail in the long run to recoil injuriously on the landlord himself. So long as this objectionable custom prevails, buildings and fences will never be properly cared for, or kept in that good order and repair which it would be for the interest of both landlord and tenant they should at all times be in, whether during the currency or at the expiry of the lease.

VI. *Cropping Clauses and Management.*—Many absurd and pernicious conditions are inserted in leases in reference to cropping the lands. It is customary, in most cases, to bind the tenant to regular rotation of crops, from which he cannot deviate unless under heavy penalties; so that, should a failure occur in a particular crop, the tenant has no power to remedy it by deviating for a time from the prescribed rotation, although the doing so would be of advantage to him and not injurious to the landlord. Rotations, moreover, are often ill chosen, and inserted in the lease by agents ignorant of practical agriculture, where a different course of cropping would have suited better. In fact, it is doubtful if a tenant should be bound to a particular rotation under any circumstances. In my opinion it is better for both parties that as much latitude as possible should be allowed the tenant in the management and cropping consistent with the due preservation of the subject let, and this could as well be secured by negative clauses, which would, at the same time, permit more than one rotation to be followed, and prevent deterioration of the soil by injudicious cropping. Of course the obligations at entry and waygoing must be provided for by suitable conditions; but all unfair advantages should be avoided—such as compelling a tenant to leave dung and straw paid for at his entry to the landlord or incoming tenant for nothing at his removal; or to leave more in grain or less in corn crop than there was at his entry, unless specially bargained and paid for. I might take up and discuss the other clauses of the lease, but those commented on are the most important. The formal clauses are generally prolix, and some of them ought to be dispensed with altogether. The bankruptcy clause is one of these; and the insurance clause is often too favourably framed for the landlord to be quite just to the tenant; but I shall not detain you longer. In conclusion allow me, in the words of the worthy old lawyer already quoted, to reiterate his wise "observe": "All gentlemen"—not all landlords, be it observed, but all gentlemen—"find it their interest to have tacks short, clear, and explicit; the fewer conditions the better"—a remark which cannot too often be dummed into the ears of all landlords and their agents with whom is entrusted the preparation of the deed which we are this day met to discuss. I have to thank you, gentlemen, for the patient hearing you have given me.

Mr. CUNNINGHAME (Chapelton, Ardrossan), then spoke as follows: The subject of leases is one of the greatest interest both to landlords and tenant farmers, and has hitherto not received anything like the ventilation its importance ought to have commanded; and, with the view of directing the attention of both the parties most immediately interested in such contracts, let us shortly consider what ought to be the principal clauses in an agricultural farm. 1. As a general rule, leases should not be for a period shorter than 19 years. 2. If the lease is for a farm in need of great improvement, and the tenant be prepared to expend the requisite capital, he should not be too strictly bound by cropping clauses until the four last years of the lease, for it often happens that neither landlord nor tenant have properly appreciated the capabilities, or the reverse, of many portions of the farm, and the result of the tenant being tied down by cropping clauses, as has often happened, is serious loss to both parties. 3. When an on-going lease has lapsed by death, bankruptcy, or any other cause, it ought to be in the power of those who are immediately interested to have power to sub-let the farm, so that a fair portion of the improvements might be made available to either creditors or heirs, or those otherwise beneficially interested; but in such cases of sub-letting, the landlord ought to have the power to enforce the clauses inserted for the land for the last four years from the day of entry of any such sub-tenant.

4. Landlords in general insert clauses in their leases as to the preservation of game that are altogether antagonistic to good farming. The majority of tenants are not opposed to their landlords retaining on their lands sufficient game to afford a fair day's sport; but when hares and rabbits are allowed to multiply, it must be quite apparent that both the landlord and tenant cannot each have a stock on the farm with profit. 5. There are so many different modes of entry upon leases in the various districts of Scotland that it is apparent that if one instead of the many systems now pursued, as to the date of entry of the lands and houses, and the term for the payment of the first half-year's rent were made for cropping farms in the various districts, that it would afford greater facilities to tenants to remove from one district to another; and without stating the rule which obtains very generally in the west of Scotland, viz., entry to the ploughable land at Martinmas, with accommodation for horses and ploughmen and full possession of houses and pasture at Whit-Sunday, and to pay the first half-year's rent at Martinmas thereafter, is the best, it appears to be as reasonable and convenient as any other system that exists, and is so satisfactory to the landlord that it must convince him that his tenant is possessed of some means; while in some of the other modes of entry and payment of the first half-year's rent, a term of eighteen months is often allowed. There may be some need for the hypothec of the landlord, but if the system previously indicated were generally adopted there would be none. 6. When a tenant enters in possession of a farm, the landlord ought in fairness to see that the houses and fences are in a proper state of repair, and not cause him to treat with the out-going tenant as is the custom upon many estates. 7. Where a tenant is about to enter on a farm that has been improved, and has been lastly in the hands of a judicious farmer, it is quite reasonable that he should be bound by clauses enforcing a rotation of crops suitable to the soil.

Mr. WILSON (Crosshouse, Edinburgh), said: Mr. Chairman and gentlemen, any one who has had experience of farming must regret the restrictive clauses which leases generally contain, many of which are calculated to fetter the farmer in his progress, while at the same time they tend to mar the good feeling that should subsist between landlord and tenant. It is surprising that in these times, when skill and capital are brought to bear upon the cultivation of the soil, we should find so many clauses retained in leases, binding the tenant down to set rules, and in many cases subjecting him to heavy penalties should he deviate from the prescribed course. Instead of being allowed the free exercise of his judgment in the management of the land, he is directed in a manner which seems to take it for granted that he is either devoid of honesty or of agricultural skill. It may be said that proprietors may make what conditions they please, and that tenants have no right to dictate to them, in the matter; but seeing that many of the present leases are not suited to modern scientific farming, it is necessary that the question be discussed by the cultivators of the soil, till proprietors and those who have the management of letting farms are constrained to look at the matter more in the light of the present day, and with due regard to the relation now existing between them and the holders of the land. In bygone days, when a tenant received from his landlord seeds and implements and cattle, it was all very well to direct and instruct him. But times have changed. Proprietors and farmers are now on a different footing, and the covenants entered into between them should be suitable to the present date. I may state that my remarks are not prompted by any personal grievance. I have few restrictions binding me to a prescribed course of rotation, and I am glad to acknowledge this here, as I can more freely and with better grace speak of evils which do not bear heavily on my own individual case; but, taking an interest in the agricultural prosperity of the country, I think the subject is well worthy the consideration of this Chamber. I doubt very much if receiving offers by tender is the wisest way of letting farms, at least it is liable to many objections. A farm is advertised, and offers are to be taken in up to a certain day; the competition may be keen, and parties from other counties become candidates, likely possessing skill and experience, but coming from a distance they must labour under a disadvantage in estimating the true value of the land. Others destitute both of skill and experience, equally anxious to obtain possession, frequently offer a rent quite beyond the capabilities of the

farm; and the proprietor, being tempted by the high offer, accepts of an adventurer, especially if he be a man of capital, and rejects the wiser offer of the practical agriculturist, who by his skill and experience could farm the land to much greater advantage. In some cases that have come under my observation, proprietors in letting their farms have adopted a course which, I think, is worthy of being more generally followed. When a tenant is quitting a farm, the proprietor has it valued by some competent party, and, after having a fair rent put upon it, he offers it to the public, and from amongst the candidates selects one who possesses not only capital, but also skill and respectability. Were this method more generally adopted, unskilled adventurers, the great bane of farmers, would be kept out, and the land let at its true value to practical men. The practice of agriculture has undergone such a change during the last thirty years that the stipulations then common in leases are not now applicable. On some estates the tenants are very much hampered by being bound to adhere to old stereotyped conditions and prescribed rules, whereby they are to be guided during the whole currency of their lease. During the greater part of a lease, it is as much the interest of the tenant as of the proprietor that the land should be kept in good condition; as, should he allow it to get out of heart, it will soon deprive him of the means of success. I do not go the length of saying that there should be no restrictions in leases at all, but a sufficient guarantee to the proprietor, I think, would be, to preclude the tenant from having two white crops in succession, and have a fixed rotation for the last five years of the lease. This would simplify the whole matter, and while securing to the proprietor the farm at the end of the lease in a regular rotation, the enterprising tenant would be untrammelled during its currency by clauses too often ambiguous and liable to misconstruction. To show how little room is sometimes left for the skill and experience of a tenant, I may quote one or two stipulations from a Mid-Lothian lease. After stringent conditions in regard to the cropping, the lease runs thus: "And the said A.B. binds and obliges himself and his foresaids to pay five pounds sterling of additional rent for each acre managed contrary to the above regulations, and that over and above, and along with the rent above stipulated, and over and above such damages as may be fixed by two persons mutually chosen for that purpose." Where in regard to rotation such regulations as these have to be adhered to, there is no room left for the skill and experience of a tenant in the matter at all. Take another example—"One quarter of the land being always in grass, sown down with the first crop after bare fallow, turnips, or potatoes, with at least seven pounds of red clover, seven pounds white clover, and one bushel of good perennial rye-grass per acre, at the sight of the landlord or a person employed by him." Now, to say the least of this clause, the quantities or kinds of seed for every field on this farm, considering the state the land may be in at the time, may not be in the proportion or of the variety that an experienced farmer would fix upon; and he who is not allowed to exercise his own judgment must work at a disadvantage. No good farmer will object to stipulations restraining him from deteriorating a farm by mislabouring and overcropping the same, contrary to the usual practice of the country; but stipulations binding him to certain kinds of manure, seeds, ploughing, harrowing, and so forth, should belong to a bygone age. In regard to game, the regulations in many leases are simply ridiculous. There is something quite incongruous in the stipulation requiring a tenant to have his lands at all times fully stocked, and at the same time being bound to preserve all the game that the proprietor may choose to rear upon it. This often-discussed and vexing question of game is one of the most irritating that can arise between landlord and tenant. The enterprising farmer who has brought his fields up to the highest pitch of cultivation, is in many districts perpetually annoyed by having them overrun with game, over whose ravages he has no more control than he has over wind and weather. In some leases proprietors have even gone so far as to have a clause inserted, that whatever enactment might be passed modifying the game laws, the tenant shall be strictly bound to preserve all that now goes under the head of game. Where tenants have agreed to such conditions, the result may be most disastrous. A few cases have lately come under my observation, where at the entry of the tenants the game was very inconsiderable, but in a short time the estate came under different management,

and the game is now strictly preserved; the result being that it has increased to an extent wholly unforeseen by the tenants when they entered to their farms. They have thus sustained serious injury. With high rents they can ill afford to bear the loss which they incur from the ravages of a stock upon their crops and pastures which do not belong to them, and from which they have no power to protect themselves. I may mention a clause connected with game, which is embodied in many leases of hill farms, and which I think is a damaging one to both landlord and tenant—I refer to the restrictions against burning bent and heather. It is well known to sheep farmers that when heather is old, sheep can get little benefit from it, but when burned in rotation at intervals of a few years it is most valuable. Cases have come under my notice where the stock has annually to be reduced in numbers, and, besides, have become much smaller in bone, because of such a prohibition being enforced. Now, while the want of new heather is hurtful to the sheep, I know it is also hurtful to the game. I believe proofs are not wanting this season of the mortality in game being greater where the prohibition of burning has been strictly enforced than where the heather has been regularly burned in rotation, thereby affording a breadth of fresh young heather, which seems to be as necessary for the game as for the sheep. A friend of mine who entered to a large sheep holding a number of years ago, and having a great proportion of heather, was bound not to burn except at the dictation and under the eye of the gamekeeper; but it turns out that the gamekeeper does not approve of burning, only five acres out of a thousand having been burned during seven years; so the heather is running wild, and the farmer has to suffer. It is, indeed, not easy to estimate the damage entailed by such a prohibition; and I think it is one of the most unreasonable restrictions that a lease can contain. I admired the exemplary generosity which some proprietors have lately shown, in giving to their tenantry perfect freedom to share alike with them the privilege of shooting. This must be productive of the best feeling between landlord and tenant, and in few cases, were it adopted, would it damage to any great extent the landlord's sport. I will now only say, before closing, that in regard to permanent improvements, I think that suitable farm buildings and fences should be erected at the proprietor's expense; and in regard to draining, the money should be laid out by the proprietor, on condition that the tenant pay interest on the outlay at a fixed rate. A tenant laying out money on any of these improvements has not time to reap the full benefit of the capital expended during the currency of a 19 years' lease. I do not think that valuation of farms at entry, and again at issue of lease, and having the difference in value paid to the landlord or tenant, as the case might be, would be likely to work well; such an arrangement would be attended with a great deal of trouble, and, considering the time that elapses from the entry to the expiration of a lease, it might not be an easy matter to give satisfaction to either party. In the few remarks I have made I have given my opinion candidly, although I know I have said little that can throw light upon the matter; I now only urge simplicity of form in leases, with well-selected tenants, and no one need fear the result. Very closely connected are the interests of landlord and tenant, and what affects the one must ultimately affect the other; and I hope this discussion, which has for its aim the reformation of existing evils, may only be the means of strengthening the bonds between them.

Mr. BETHUNE (Blebo): I think the papers of Mr. Goodlet and Mr. Wilson are singularly able and singularly temperate. I presume we have come to the conclusion that there are evils in our system of leases in Scotland, and that we require that these matters should be more largely discussed throughout the country. I am not aware that the subject of leases has come up very prominently before any public meeting in this country, and this shows the great benefit of our Chamber of Agriculture. If we in this Chamber speak words of truth and wisdom about the lease system, they will be of effect in ways we cannot tell; if, on the other hand, we go to extremes on any side on such a question as this, our movement will fall to the ground and be of no avail. I think the papers that have now been read will go far to narrow a question which might be extended on almost every phase, but at the same time can in reality be brought into a very small compass. I myself believe that we in Scotland are in the best position of any

country in the world for the cultivation of the land; but at the same time I think our system of nineteen years' leases ought to be reconsidered in relation to the carrying out of the agricultural improvement of the country. It often occurs to me that the nineteen years' lease as at present worked seems to many men not much better than a prolonged yearly tenancy. I am not certain but there are a number of farmers in Scotland who would far rather sit under yearly tenancies than under many of our nineteen years' leases; it seems to be but a prolonged one-year. A farmer goes in for nineteen years; and, having laid out a deal of money, he has a certain number of years to repay himself, and then comes the crash towards the end. He does not know whether he is going to get the farm again; he exhausts his pocket and the soil, and the landlord has to follow suit, by outlays of various kinds, too frequent at the expiry of leases, before he can put the land into a proper state, in order to get a tenant who will give full value for the farm. I thoroughly agree with Mr. Goodlet, that it is impossible, in discussing the subject of leases, not to touch upon other matters—that the law of hypothec has a great deal to do with the exhaustion of the soil, and the changes that take place among landlords and tenants. In some of the midland counties of England the farming is as good as anything we have in Scotland, if not better; and there seems to be at work some subtle cause which always will and always ought to rule the world—a judicious self-interest, producing effects as regular as the winds and the waves. Now, I imagine that a tenant-right upon nineteen years' leases in this country might be introduced with the greatest advantage to both landlords and tenants. There is one great subject that I think must be more strongly brought before the landlords of Scotland—that while they have the monopoly of the land, the practical agriculturist has the monopoly of the skill, of the power to work the land; and in that sense the landlords and tenants can by no means do without each other. I do not think that is brought out under the present system. Suppose that at the end of a nineteen years' lease the landlord wishes to get rid of his tenant, can a method not be adopted and regularly worked whereby the farmer may receive payment for whatever improvements he may have carried on, or whereby he may receive nothing if his farming has been bad—leaving it to a neutral individual to

Judge between the two parties. Then, at the expiry of a lease, a regular system might go on, and the old tenant, if he had done well by the farm, might leave the lease to his family. I believe such a system could be worked out, if it were brought before the minds of the landlords and tenants of the country, with the simple clauses that have been recommended by Mr. Goodlet and Mr. Wilson. I will not take up your time by introducing the subject of game. I hope to see the time when, as Mr. Hope said long ago, the farms that are over-eaten by game will not be looked at by tenants, but that will never happen till we have the law of hypothec taken out of our way. The tenantry in every part of Scotland are very reasonable about the game. They are willing to have a fair amount of sport, but they cannot afford to have a shilling of their money eaten up by the game. I hope the wise bill, which the law of trespass altered, approved of by the Chamber, and introduced into Parliament by Mr. McLagan, may yet be carried. Parliament have as yet passed nothing, I believe, on this subject, and when they have had time to consider its merits, perhaps the bill may be carried. I have already committed myself to this point, that agriculturists should act on the commercial principle that a man should have the value of the improvements he puts out on his farm, and should not leave them to the proprietor. I believe Scotland is not half-farmed. We have not enough of capital applied to the land. It is of the greatest importance that agriculturists should become alive to their business, and keep thoroughly up to the times, or our agriculture will go to the wall. In fact, we require an enlightened race. I cannot go with any man who takes a violent view of leases, because we are all fallible men, and we must put things down in a reasonable way, in case of accidents happening. In one sense the interests of the landlord and the tenant are very much identical. I am perfectly certain the tenantry of Scotland look upon their landlords as most reasonable men, and I am also quite sure the landlords have the highest opinion of the tenantry of Scotland.

Mr. LESLIE (Blairgowrie) said he thought it would be a good plan if the landlord re-let the farm to the tenant five years before the end of the nineteen years' lease.

The subject then dropped.

## THE TURNIP AND ITS CULTIVATION.

At the monthly meeting of the Athy Farmers' Club, Mr. GEORGE ROSS, of the Model Farm, Athy, said: The subject on which I have been asked to read a paper—"The Turnip and its Cultivation"—is one now so generally understood that anything I can say must add little to your present information. The turnip (*Brassica rapa*) belongs to the cruciferous family of plants, each flower having four distinct petals, placed cross-wise, and contains six stamens; it was introduced from Holland into England in the reign of Queen Elizabeth. The Swedish variety, which is far superior to all others, is not, botanically considered, a turnip, but a variety of the rape (*Brassica campestris*), to which the name *Ruta-baga* has been given. Its growth and cultivation may be regarded as the foundation of a proper system of farming; and, after all that has been said from time to time of its degeneracy and its proposed substitutes, I hold that, as a general crop to bear out the farmer in feeding his live stock during the winter and spring months, it has no equal. Mangels, cabbages, and kohl-rabi form the nearest approach as rivals; still the former has many advantages over the latter. I am not at all opposed to the raising of a proportionable share of those crops in suitable soils. A portion of mangels, well manured with farmyard manure, a little guano and superphosphate, in a low-lying, deep-soiled situation, is what no farmer should be without, to come in as a substitute to the swede in the end of April or beginning of May. Cabbages are also an excellent crop for any kind of live stock; but it requires a good soil and heavy manuring to ensure success, being a very gross feeding plant. Now, the turnip can be raised over a greater diversity of soil, not excepting reclaimed bog or light sandy; but that in which it delights most is a loam, with a good mixture of

gravel, yet capable of retaining a sufficient amount of moisture during the summer. The climate of Ireland is particularly suited to its growth, in consequence of its moist atmosphere and mild summer. The portion of land intended for the turnip crop, if not already sufficiently dry, should be made so by drainage, as the air cannot penetrate land charged with an excess of water, nor can the chemical action necessary to prepare plant-food proceed; and whilst naturally dry or drained land enjoys a genial warmth, wet land is chilled by cold, produced by evaporation. The place for the turnip in the rotation is after a grain crop; the land should get a deep autumnal ploughing, and that as early as possible, both to prevent waste of stubble and to allow the otherwise powerful agencies, such as the atmosphere, rains, and frosts, to thoroughly disintegrate the soil in preparation for the crop of the ensuing spring. When the season approaches that the land should be prepared for the reception of the seed, it is harrowed down and brought to as fine a mould as possible, by cross-ploughing, grubbing, harrowing, and rolling. In light lands the cross-ploughing is seldom necessary; the grubber is quite sufficient and more expeditious, and in dry weather the less exposure light lands are subjected to the better, one of the defects of such soils being parting with moisture too freely. The land being reduced to the required tith, and being perfectly free of weeds, the drills are opened with the double plough about twenty-seven inches wide; the manure, which should be well prepared, then carted out and evenly spread. As so much depends on the quantity and quality of the manure at our disposal, together with good cultivation, for the successful growth of our green crops, I wish to offer a few suggestions as to its proper management. The preparation of manure for



use during the season of green-crop growth is a most important business during the winter months. The manufacture of heaps of fertilizing matter—whether farm-yard dung exclusively or of various vegetable and mineral substances with which our farms supply us—should occupy the greatest possible attention. Farm-yard manure consists specially of what has already grown out of the soil, together with matters drawn from the air. In order to check the waste of the valuable constituents of manure, it is right that the farmer should know something about what gives the value to it. It is because ammonia contains nitrogen in a form in which plants can use it that it is a most important element of the dung heap, and therefore, the importance of heaping our farm-yard manure, either when carted to the field or otherwise, having it trodden down, or well pressed together, and covered with earth or mould of some kind, so as to prevent in the first place the escape of its volatile constituents in the air, and, secondly, its soluble substances being washed out by the rains. Better by far to plough the manure into the land as it comes from the steeading, than to allow this wholesale waste of its most valuable parts—the very substances that would have added so much to the growth of the crops to be raised by it lost by mismanagement. Then, again, we see many substances at our command oftentimes on a farm, that might be turned to profitable account, and form valuable adjuncts to the manure heap, in the shape of a compost. We have earth, scouring of ditches, peat mould, lime, and refuse of various kinds, which if collected and properly managed, as by placing them in alternate layers, and conveying the liquid manure over them, which is too often allowed to run waste at many farmsteadings, the collection of such a heap would well repay the labour expended on it. Artificial manures are valuable auxiliaries when judiciously applied; but the farmer who uses them, and otherwise neglects to collect what should be the staple manure of his farm, will find in the end that he has been acting unwisely. I believe they are very good as a stimulant in the case of our green crops, to drive the young plants forward in the early stages of their growth, and for this purpose I find a mixture of Peruvian guano and superphosphate an excellent mixture for the turnip crop, increasing the proportion of guano as the soil partakes of the nature of clay, and increasing the superphosphate as it approaches that of sand or gravel. To return, the manure being carted out, and evenly spread, the artificial manure (if any) is spread over the dung along the drills, or otherwise applied at the back of the sod as the drills are being closed. The seed is then sown by machine, either one or two drills at a time. The selection of the seed to be sown is of the greatest importance, and I look upon it as one of the most marked signs of bad farming—indifference to the quality of seed. It is in the vegetable as in the animal kingdom. If so much depends on attention to health and good food, care in the proper selection of seed is no less necessary; for when damaged seed is sown, or if it be mixed with foreign substances, or if it be imperfectly matured and degenerate, a deficient return must naturally be expected. But when, on the contrary, superior kinds of carefully-selected, clean, healthy, and vigorous seed are used, the benefit is a hundred-fold; and the farmer who buys his seed from one seedsman in preference to another because he gets them a trifle cheaper is acting on the penny-wise and pound-foolish system. I do not mean by this to encourage high-priced seeds; but I would urge the necessity of getting the best seeds, and obtaining them at the lowest possible price. We have heard much, of late years, of mixed and sporting crops and ill-formed bulbs. I am not much surprised that such should take place. A young man with whom I was most intimately acquainted fully satisfied me that a house with which he was connected some years since, in order that the supply of turnip-seed should be able to meet the demand, got some rape-seed, and destroyed its vitality by an excess of heat, so as to prevent its germinating, and then mixed it with the turnip-seed. Now suppose some of it to escape being destroyed, what would be the result? Sporting, of course. Again, oily seeds retain their vitality for an indefinite period; or life will remain dormant, and then change its form into that of active vitality when that seed is placed under the action of moisture, heat, and air. The utmost period of time to which seeds may be kept and be enabled to retain their life, and consequently their power of growth, has not been accurately determined; but we have proofs enough

to show that the duration may be very long. We need not, therefore, be surprised to see rape-plants growing in a field with turnips, in which the former crop had been raised many years previously. When a crop of turnips are not worth lifting for their bulbs, they are often allowed to run to seed. Now, as I have before remarked, it is impossible to expect a fair return from such seed. If the whole crop be intended to be left for seed, they should be gone through, and any ill-formed roots that might be in them taken out. Farmers should, therefore, obtain their seeds from men of undoubted respectability, and who have something to lose in those transactions, and not from a class of men who have little to lose, and who have even less experience in the proper selection of seeds. The sowing of the Swedish variety may commence the first or second week in May, and be continued until the first or second week in June. Should the weather be warm and showery, the young plants will make their appearance in a few days; but if the ground be dry and the weather very warm, it may be for a much longer time, or until we have rain. In moist weather, it makes little matter whether the drills be rolled or not, after sowing the seed; but when the weather is dry, I always run a light roller over them, and have invariably seen them strike sooner when treated so. The plants when young are liable to be attacked by a small beetle, known as the turnip-fly; and in dry seasons the ravages committed by this tormentor are enormous, insomuch that the crop is sometimes wholly destroyed, and other varieties sown in their stead. The Aberdeens and hybrids may be sown till the middle of July, and the white or globe varieties throughout the whole of the month. There are various means adopted to prevent the ravages of the fly, sometimes with good effect, and other times little or none, as by sprinkling ashes and soot, lime, and even sulphur, in the evening or morning, along the tops of the drills, when the young plants are wet with dew. Our principal aim should be to get the plants into rough leaf as soon as possible; for when arrived at that state, they are then out of its power. For this reason I would recommend thick seeding, as they then get forward more rapidly. The time for thinning and hoeing having arrived, which is generally about a month or five weeks after sowing, it is performed by women and boys by means of hoes. It is sometimes difficult to get the hands employed to perform this operation satisfactorily, particularly when there is not a fixed staff of hands kept; and, indeed, it is very provoking to see the very plant you would wish to see left standing knocked out by the careless hoer. To prevent this, turnips are sometimes thinned by hand. It is somewhat more expensive than the hoe, but you are more likely to get them done to your satisfaction. The distance apart to which the plants should be singled will depend in a great measure on the appearance of the crop; but twelve inches is about the general distance. The free use of the hoe should not be neglected in carefully removing the earth from the young plant; for on it depends in a great measure the perfect development of the bulb. Should any weeds be showing themselves, they are scuffled before being thinned, and after the plants have recovered from the thinning and hoeing operation, the grubber should be kept going through them continually until closed, and that not a mere scratching of the surface, if I might so call it, but to a right good depth. For, when we recollect the very great depth which the roots of our green crops are found to go, in search of food, sometimes to the depth of two or three feet, we see the advantage of having the soil sufficiently open and pulverized to enable the roots to descend more freely; for by maintaining the earth in a fine and loose condition we aid beneficially the full effective action of the natural agencies—air, heat, and moisture—by which the work of vegetable nutrition is carried on in the soil. The grubber is sometimes only passed once through the crop, and never minded more till the time of lifting. Weeds are sometimes allowed to spring up, and perhaps strive for the mastery. Nothing can be more hurtful; for not only do they deprive the plant of a certain amount of food from the soil, but also prevent the free access of air and light, so necessary to their healthy growth. The double-plough is sometimes run between the drills before the plants close; it is an excellent plan on clay soils where there might be an excess of surface-water. The advantages derivable from the raising of root crops in general are too well known to need any comment, when we

compare the present times with that in which many farmers were obliged to—

“Let their cattle range in vain  
For food along the barren plain,  
Meagre and lank with fasting grown,  
And nothing left but skin and bone;  
Exposed to want and wind and weather,  
They just keep life and limb together.”

But since the cultivation of those valuable crops has become so general, the poor man, farming his few acres by judicious management, can bring his live-stock through the winter, and turn them out in fine condition in the spring. When the crop has arrived at maturity, and fine weather offering, it should be lifted, and carefully stored, by making them into triangular heaps, about five feet wide at bottom, and rising to a height of four feet, and bringing them to a point at top. Coarse sedge makes an excellent covering, where obtainable, in consequence of lying so close; it keeps out a very heavy frost by drawing it as thatch, and putting it on to the depth of six inches. When this cannot be obtained, a very small portion of straw may be put over them, covering with earth to the depth of a few inches, and within one foot of the top, and placing straw from thence upwards, which can be confined in its place by putting a little earth on top. I have frequently stored them in this way, and always found it successful; and, seeing the loss that was sustained the past season in this most valuable crop, it behoves the farmer to pay more particular attention in future to the storing of it. I have been often told that turnips stored in the way I have above described have suffered much through fermentation. I find it is in a great measure from not taking due precaution: the pits would be either made too large, or there would be too much earth put on. A great deal depends on the keeping quality of turnips. This is found to differ much, even in the same variety. The soil and manure exercise a very great effect. Where much artificial manure is used in the raising of the crop, I find they are more liable to ferment than those raised on less. From the loss sustained the past season by the frost, in not having the crop stored, there may be danger the coming season of going into the extreme, by making them into large pits, and heaping too much earth upon them. This will be a great mistake, and will certainly entail disappointment. It is more difficult to keep Aberdeen turnips from heating than swedes; but as they are used first, their time of storage is much shorter. Besides preserving the roots from frost, storing exercises a very beneficial change on their composition; for when first removed from the soil, the turnips, and all other esculent roots, contain a very high per-centage of water, which goes off during storage in the form of vapour, and renders them more valuable as food. Lifting in dry weather has also many advantages: very little earth adheres to them, and the turnips will be found clean throughout the season; for whenever roots are dirty, they ought to be washed before given to the cattle; and the laud is also poached, when lifted in wet, by carting on it. The kinds of turnips raised on a farm are either swedes, Aberdeens, or globes; and when feeding cattle, it is necessary to observe that the least nutritious should be given first, and gradually proceed to those of higher value; and on this account the Globe variety should be first used, being least valuable, as it contains more water and less nitrogenised or flesh-producing substances, and also less non-nitrogenised matters, the elements of respiration and fat, than any of the others. The Aberdeens should be used next, and finally the swedes. In the feeding of milch cows they impart an unpleasant flavour to the milk and butter. By cooking the roots, this is in a great measure prevented; or by arranging the hours of feeding, and not giving the turnips morning or evening until after the cows are milked. The food then undergoes such a complete change, that the substance imparting the unpleasant flavour passes through the system before milking time. Now, as it has been so often shown that Ireland is a country whose climate and soil are particularly suited to the growth of root crops, it is a pity that its natural capabilities in this way are not more generally taken advantage of. If root crops were more extensively grown and treated in the manner I have endeavoured to describe, they would not only prove more remunerative to the

farmer, but also, in a great measure, prevent that continuous drain on our labourers and farm-servants which is now going on. The great disadvantages which the emigration of farm labourers from Ireland has produced are so well known, that I am sure it is only necessary to refer to them in order that they may be fully realised. But how are those disadvantages and inconveniences to be done away with? How are we to keep our labourers at home? How, in a word, is the emigration of the bone and sinew of our country to be stopped? How but by giving them employment at home, and giving better wages than they, for the most part, have hitherto received; and when we recollect the thousands of acres of land in our island that, by skill and capital, might be turned to profitable account both to employer and employed, let those broad acres be brought under cultivation, instead of growing heath, furze, and plants of an inferior order—let us have our valuable cultivated crops take their place. I would look on a work of this kind as the forerunner of peace, happiness, and prosperity, and then we would have a happy and contented people.

Mr. O'NEILL said that it was very important that an investigation should be made as to how the turnip fly was generated—whether the ova could be sown with the seed, and, if so, whether there could be devised any method of destroying them before the seed was sown. He thought that if any member of the club would investigate the whole subject, and read a paper on it, it would be of great use.

Mr. DOUGLAS said he conceived that the large earth-works seen in the country, and commonly called “double ditches,” and also the wild-mustard plant, were the great generators of the turnip fly. He advocated thick sowing, and then, after the turnip was about three inches up, heavy rolling. He used the heaviest roller he had, and found that though apparently he had crushed and obliterated both turnip and fly, the plant sustained no injury, but the fly was completely destroyed—not killed by crushing, but by being buried in the soil.

Mr. ROBERT ANDERSON said his experience was, that the fly does not migrate from field to field, but locates even in certain parts of the one field; he also found that the fly prefers to feed on the wild mustard to the turnip.

Mr. DOUGLAS: He agreed with Mr. Anderson that the fly produced in the field locates there; but he must enter his protest against the theory that the fly would prefer the wild mustard to the turnip. He would sow, at least, 10 or 12 lbs. of seed to the Irish acre, and give the fly plenty of turnips to feed on. He would like to ask Mr. Ross one question—What depth he would sow the seed?

Mr. BULWER said he had tried top-dressings of sulphur, lime, soot, &c., and all without any result, and agreed with Mr. Douglas that there was nothing like using a heavy roller—the heavier the better—and also sowing plenty of seed.

Mr. ROSS said, in reply to Mr. Douglas's question, in moist weather he would sow quarter of an inch deep, but in dry weather 1 to 1½ inch. He hoped the Agricultural Society would soon be able to do as good service in the cause of the adulteration of seeds as they had in manures. A great deal of rapeseed, in which the vitality was just killed by heat, was mixed with turnip seed, and then, of course, if one of those seeds grew, the seedsmen said it was a “spotted seed.” It was time for the farmers to be up and doing something to protect themselves from indifferent and adulterated seed.

The thanks of the Club were given to Mr. Ross for his able paper.

**DARKNESS FAVOURABLE TO FATTENING.**—It is a fact that all animals fatten faster in dimly-lighted places than the full light of day. This is well known in respect to fowls. From experiments made with sheep, conclusions have been reached that in a dark shed, well ventilated and properly warm, they will make the most mutton from a given amount of food. But dark stables are not good for horses, or breeding stock of any kind. Fat is not with such the most important object in view.

## THE MERINO FLOCKS OF SPAIN.

BY A TRAVELLER.

No more venerable relic has been left to Spain of nomadic life, than the periodical migration of the Merino flocks\* of sheep. The Highland shepherd conducting these is one of the most original characters still to be seen on the picturesque and romantic soil of Spain. His habitual withdrawal from towns and villages, his occupation so uniform and simple, the laborious exertions he has at times to undergo—extreme cold in winter, excessive heat in summer, makes him a peculiar being. He is endowed with that good faith and kindness of feeling, which from time immemorial has been attributed to rural life, and at the same time to that force of action and energy when required, characteristic of wandering tribes.

The robust and vigorous migratory shepherd of Spain is a native of the rather arid mountains of Leon, Segovia, or Soria, whence he goes to the bland and fertile plains of Estremadura with his docile flocks.

Among the finer wools of Spain is the *babiana*, so called from the district of Babia, situated in the mountains of Leon, celebrated for its rich pastures: there are no other productions; thus the inhabitants of these districts become shepherds.

At present, the former great droves of sheep have much diminished with the improvement in foreign wools, so the times are not so favourable as formerly to the graziers of merinoes; thus some remain at home, whilst others seek employment elsewhere. There are persons, and of no great age, who recollect that when the migration of the flocks took place, only the very old men, the women, and young children remained behind; even those who were not employed in tending the flocks accompanied them, under the name of *escoter*os, or disengaged, to find in the more southern provinces a subsistence so difficult to obtain in the long and rigorous winters of their sterile mountains; these found employment on the banks of the Guadiana and the lovely plains of Caeres.

The temporary hut of the shepherd erected, his bed of sheep skins spread, and the arrangements for his frugal meal, his occupation is reduced to leisurely pasturing his sheep by day, pen them at eve within a netting, supported by poles stuck in the ground, patrolling now and then during the night, to guard against the attacks of wolves, sheltering himself in a smaller hut at night, and retiring at daybreak to his larger hut. This night-watch he takes by turns; whilst his companions in cold weather pass the night round the fire, over their supper, generally of stale bread, with now and then, as a treat, some mutton broth or a fry. Should the mayoral or head shepherd be old and devout, he would call those under him to tell their beads; then to sleep, and snore like pigs, until the jingling of the bells of the *moisos* (wethers), the barking of the dogs, and the light of day wake them.

However, in the months of December and January the previous period of calm is changed to most harassing work—namely, that of the lambing season†. The lambs are brought forth generally during the cold and tem-

pestuous nights of winter; thus the shepherd, drenched with rain and blown about by the wind, has to most vigilantly look after his flock. In bad years the ewes abandon their young, having no sustenance for them; then it is that the shepherd has to use great skill, and even to force the mothers to cherish the little ones. Sometimes only one lamb is left for two ewes, and that the one which is not the mother should take to it, it has to be covered with the skin of her own that has died. These details have to be gone into often on a bitter winter's night, when a gale from the south-west is blowing great guns, tearing up and scattering the huts to the blast. It is said the shepherd knows the face of each ewe, and can tell to which the newly-dropped lamb belongs, and can distinguish very far off the ewe that has dropped and left her dead lamb, in which case he takes her another wrapped in the skin of the dead one. All this is not done without volleys of loud oaths and maledictions, which in the darkness of the night, added to the bleatings of the sheep and whistling of the wind, gives rise to a marvellous species of chorus.

It is not difficult to understand that, independently of great pastoral science, all the operations require watchful and judicious direction. And here is the place to advert to the distribution of the flocks, for soon will arrive the important occasion of seeing the shepherds in their annual peregrination.

Each large flock or *carava* of say 50,000 sheep has a mayoral, or conductor, to whom is confided the renting of pastures, fixing the period for migration, and deciding on all necessary matters. He is in direct communication with the owner, who was formerly tyrannously protected by the Mesta laws. Then comes the under-mayoral, which two are the chiefs of the flock, divided into say fifty or more smaller ones, each having its *rabadan*, or shepherd, with his dog; the shepherd has his *compañero*, or companion; then follow the *ayudante*, adjutant or aide, *persona*, or person, and the *zagal*—this last being a young fellow, a sort of apprentice, who has very much to do and is ill paid.

There is a department called the *roperia*, or store, which is the bakery for the bread of the shepherds and the dogs. He who has charge is the *ropero mayor*; he purchases the flour and distributes the bread; the *roperos à secas* make the bread.

The owner of the flock gives the mayoral a saddle mule and from £22 to £30 per annum; the under-mayoral from £6 to £10; the *rabadan*, £2 10s. to £3; the others receive about £1.

These wages will appear very low, considering the severe weather the shepherds have oftentimes to pass during the two migrations, each of some 230 miles; still, what the employer does not give, the shepherd helps himself to; for, independent of the money he receives, the shepherd has the benefit of the *escusa*, which consists in each shepherd having the privilege of having a certain number of his own sheep or goats added to the flock, he paying but very little for their pasturage. The mayoral is allowed some 200 head, ten or twelve mares, and some goats; the *rabadan*, 50 to 60 head, two or three mares, and a few goats; the *zagal*, only six to eight sheep and a few goats, and, as a favour, a mare or so. Thus, if we take into account the perquisites and the sum in cash

\* The term *Merino* is said to be derived from *Marino*, because the original breed of sheep was imported from England under our Henry II. In the sixteenth century there were some 16,000,000 migratory sheep, independently of stationary flocks.

† Six rams are allowed to a hundred ewes.

received, we may come to the conclusion that the gains of the migratory shepherd are more than that of the ordinary labourer in Spain.

The renting term for pastures ends the 25th of April, a day the shepherds await the dawn of with the greatest anxiety and joy, for it is the happy moment for them to commence the return to their mountain home, to those whom they love, and where they are awaited with true affection and received with open arms. If the pirate Lambro, at the sight of his island, and the smoke rising from his hearth, felt emotions not to be described, is it to be wondered that our highland shepherd, whose piratical acts are reduced occasionally to sell sheep, and say it had strayed away, to cut a little more wood than bargained for, and so manage matters that his own sheep do not suffer from any epidemic, although those of his master did, and that his own should always be ewe-lambs, as more beneficial to him. Under such circumstances, he rubbed his hands with glee, whistled, and shouted more kindly to his sheep and dogs, came with a smiling face to receive his *caudido*, or portion of lard, salt, and pepper, given to season his food. Then he passed in review the coin in his leather pouch, and with a pride worthy the excellent character of the people of his country, he jauntily commenced his return, with his crook under his arm, his mantle gracefully thrown over his shoulder, his head covered knowingly with his slouched hat, and his feet enased in shoes of hide.

The greater number of flocks cross the river Tagus at Almaraz and Alconetar; but as at neither of these points is there a serviceable bridge, and the boats are too small to ferry over such multitudes of sheep, there is arranged a bridge of boats, called in Estremadura a *luria*. Still, the operation of passing the river is always one of dillculty; for if one sheep manages to fall into the water, although great diligence is resorted to, a great number of the flock will always go after the first. Sometimes a ewe—always the property of the owner, or the mayoral—is drowned, and said to be at the bottom of the stream, when in time it appears at the bottom of the cooking pot. However, this is only looked upon as an official manœuvre: moreover, it is asserted that the drowning was the punishment for the ewe's unmaternal solicitude, and she was justly drowned!

There are various *caudales* or *cordales* (sheep walks) assigned to the migratory flocks, which are neither more nor less than so many paths destined for this object. Any of these in the month of April offers to the spectator a most animated and continually-moving scene. Clouds of dust and jingling of bells announce the arrival of the *merinos*; then the *rabadan* of the *morreos*, or rams; these march at the head of the flock; he is surrounded by tame ones, who guard the others, and receive from his hand pieces of bread, and will scarcely leave him; then defiles the whole lot, the shepherds being in the rear with the dogs; lastly, the mares, laden with the baggage and cooking gear, their colts running and curvetting about; at times a shepherd's boy, too young for the continued fatigue of the journey, astride the load, or a sheep that has been lamed on the march. These men, with all their worldly goods tramping from province to province, brings to mind patriarchal life of old, or that of the wanderers in the deserts, who go from oasis to oasis in search of fresh pastures and more temperate lands.

The halt on the road is the time for rest and cooking; great is the celerity with which the rustic meal is prepared, consisting in the morning of broth, and broth with bread at night. At these meals they may take a drink of wine, which, under all circumstances, comforts the inward man and calms his fatigue.

Although not a few flocks shear in Estremadura, many perform the operation on the road, when the shepherd

only separates the sheep, handing them over, tied, to the shearer; they, however, join in the excitement and merriment of the scene.

With such stimulants and the ruling idea of soon seeing his beloved mountains, the shepherd traverses the dusty, arid plains of La Mancha, where he is reminded that he has to buy ribands for his wife, daughter, sister, or sweetheart, under pain, if he omits to do so, of being considered a shabby fellow. Then he has to pass through the wild heather region of Campos, when his purse has again to bleed in the purchase of handkerchiefs, needles, and laces for boddices, in the town of Rio Seco de Medina, as well as for pretty garters in La Mancha. In Rueda he provides himself with a large *bota*, or leather wine-bag, to be filled at another station.

Pity it is that sheep will stray away from the flock now and then, when the Guardas de Campo (land overlookers) are uncommonly active in advising the shepherds as to where the truants are, which causes the strings of the purse to be loosened again. Were it not for these little difficulties, the shepherd would have no cares to disturb his equanimity during his return.

So then, after some forty-five days passed in travelling and shearing, the flocks traverse the refreshing country of Leon, and the shepherd soon espies the belfry of his village church in the Babia country.

La Babia is a dull-looking country, and most inclement in winter; it is situated on high table-land, where tempests are frequent and storms of long continuance. But at the period of the shepherd's return the appearance of the country has changed, and, although the mountains are barren, the green plains and meadows with abundance of water, the almost symmetrical lines of ash-coloured hillocks of limestone, and the light mists that arise from the humid soil, caused by the summer's sun, give to the country at times a gloomy character; still it is the native land of these shepherds, and to them it has all the attractions of beauty.

The *mayoral* goes a-head of the flocks, to assign to each its *puerto* or rented pasturage on the heights and skirts of the hills, and having distributed the flocks and erected huts, each of the shepherds in their turn is allowed to pass a couple of days at his home. After the huggings, shaking of hands, a multitude of questions and answers, the husband pays the customary visit to the Cura, whilst the wife sallies forth to invite kindred and neighbours to help in emptying the *bota del pastor*—the shepherd's skin of wine—which but lately had been filled at Rueda with fine old liquor: this with eggs and bacon, juicy pork-sausages from Estremadura, are the main elements of the festive supper, in which the repeated welcomes and pulls at the *bota* for the safe return of the host, at times, causes the guests to leave very late at night, seeing more stars than there are in the heavens.

With regard to the unmarried shepherds, to use one of their own expressions, "Ya es harina de otra costal;" literally, "That is flour out of another sack;" and if these have not such feasts of suppers, they have *Romerias*, or pilgrimages to various shrines; then it is that the mare belonging to the father, or the *rabadane*, does not get fat upon its pasture. For it must be confessed that every young shepherd is in love; they are not of the lamenting complaining sort of swains, but their object is to have a wife as soon as possible, to live happily, and have children according to nature's law. In a word, for the married and single, this period of enjoyment is during the beautiful summer of these regions, when the wolves are not so voracious, and the shepherd is not required to guard his flock so carefully. Then in regard to the different pasturages, they are not over-particular one with the other, and should there be a difficulty on the score of enoachment it is easy to settle, for they are united in one great occu-

pation; moreover, they are all related *compadres* or gossips, and sworn friends.

But these days of happiness at last come to an end; and, as one of their poets says,

“Los tristes y los al egres al mismo paso camina”—

(“The unhappy and the joyous go onwards at the same pace”); and on the appearance of the first clouds of autumn the shepherds begin to put themselves in motion to return to the southern winter quarters. The collecting of the flocks and preparations for the march are made with activity and proper arrangement, but with very much less pleasure than when coming home from the pastures of the Guadiana.

The night before the march it is requisite to treat the departing ones with the *queso* or the cheese. This feast consists in the owner of the flocks inviting the young men, and women in particular, to his house to a farewell dance; and it is now that the lasses receive from the young shepherds the needles they purchased at Rio Seco, a ceremony most religiously observed.

The following day the shepherd's provisions for the journey are ready, consisting of a large quantity of bacon and ham, which the wives have been most solicitous in preparing during the past winter, having but little for themselves, so that their husbands shall be bountifully supplied.

At last the mournful morn arrives, when the migratory shepherds commence their long journey, accompanied by their wives for about a league, and almost in silence, to take the last farewell; while on their arrival they scarcely go outside their villages to greet them. At last come the huggings and final separation, telling them to take care of themselves. “Adios hijo de mi alma; adios, adios!”—“Farewell, child of my soul; good bye, good bye!”—ending in choking floods of tears. The women return sorrowfully to their villages like so many weeping Mag-

dalens; and the men, though not of so melting a nature, after having journeyed for some time in silent mood, began to talk, and in the end enter into that state of mind that wears not the body away, and they become reconciled.

This period, however, is the most fatiguing; it is that of the rains, and the weather is bad; the rivers have swollen, and some run over the banks; the flocks are timorous and most difficult to manage; still, in Castilla the owners of the rented pasture-lands give them at times a good supper. Once in Estramadura, they have made the circle of their migration, and can attend to their duties more tranquilly; they augment their store of knowledge, as to the maladies of cattle—here about 1 cwt. of salt is given to every 100 sheep—the quality of various pastures and herbs, and the prosperity of the branch of industry they manage, in all of which they are skillful and experienced. They speak of the features of any particular sheep, to their eyes no less distinct than those of human beings; of the influence of the atmosphere upon the lambs, and on the quality of the wool, and other numberless points.

These shepherds are no less notable under a moral aspect: the good fellowship for each other, as the cheerful obedience and regularity of their conduct to their employers, excepting now and then, as before stated, a few little tricks of their calling.

Finally, the migratory shepherd in his appearance, his customs, and manners, is one of the oldest types of the Peninsula, or perhaps in Europe, inasmuch as his life and occupations connect him with the first ages of the world.

It is not improbable that in a few years we may see an end of this relic of past ages; for if the indefinite system of the division of landed property goes on as it is at present doing in Spain, little by little, the flocks must diminish, for there will not be pastures for them.

## AGRICULTURAL GANGS.

The Agricultural Gang system has received a sound check in the Act introduced by the Lord Chancellor to the Upper House of Parliament, the provisions of which we will place before our readers, with such remarks as are suggested to us. The principal clauses are as follows:—

The first forbids the employment of any boy or girl under the age of eight years in field or farm work *as a member of a gang*. Secondly, no female shall be employed in the same Gang with males, or under a male gangmaster. Third, every master or mistress of a gang must hold a licence as an essential qualification, to be granted on the presentment of respectable parties that the applicant is a proper person to undertake it. Fourthly, no keeper of a beer-shop, or seller of spirituous liquors of any kind, shall be a gangmaster. Fifth, licences are required to be renewed annually, and granted under the same conditions as in the first instance. Offences against the Act to be punished with a fine not exceeding 20s., with forfeiture or suspension of licence, as the case may be. The Act to come into operation on the 1st of January.

After the thorough ventilation which the gang-system has been subjected to by the committee appointed by Parliament, it is useless for its advocates to deny the evils necessarily arising from this as hitherto been conducted; for the pictures drawn by clergymen and others, and even by the parents of the children employed in them, are really frightful. The Act, as it appears to us, while applying a

remedy for some of the most glaring offences—we use the word advisedly—of the system, is defective in one important particular. The first clause, we have named it, prevents or forbids the employment of children under eight years of age *in gangs*; but it does not forbid this *individually* in farm-work; so that any man is still at liberty to employ children at any age *under eight* at which he thinks he can get work out of them.

The second clause, which forbids the mixture of sexes in the gangs, and requiring them to be conducted, the boys by a male and the girls by a female ganger, is no doubt a condition much required. Then a limit is to be placed by the magistrate upon the distance to which the gangmaster is allowed to drive his gang, or, as one of the advocates of the system calls it, his *company*. We read of children being compelled to rise at four or five o'clock, and walk from five to seven miles to their scene of labour. Now it must be evident to any one that for a boy or girl of eight years to be compelled to walk that distance, and then for eight or ten hours to be kept at work under the task of the gangmaster, and lastly to have to walk the same distance to his home again, is inhuman in the extreme, and a clause has therefore been inserted in the Bill to limit the distance to something within the capacity of such children to perform it without injury to their physical powers. Assuredly, upon the present principle it is impossible that the constitutions of those who are subjected to such an amount of labour should not be in-

jured, or even destroyed by it. We therefore are glad to find this evil will be provided against.

The clause requiring a licence is an absolute necessity, and great care should be exercised by the magistrates that the persons giving the recommendation have no interest of a personal kind in it. The exclusion of publicans is an admirable arrangement; and it would be well also to prohibit the gangmaster from paying the employed children at a beer-shop or other public-house. The annual renewal of the licence is also a good arrangement, and will act as a check upon the conduct of the gangmaster. The fines and penalties for offences against the Act are the proper and necessary consequences of delinquency.

With respect to the opposition the change in the system meets with, the hard words uttered against the clergy for the part some of them have taken to bring its glaring evils to the surface were surely uncalled for. It is the bounden duty of a clergyman, if he sees that a certain sys-

tem counteracts the efforts made by him to instil proper principles, to denounce that system, and endeavour, without respect of persons, to get it rectified or abolished. It is, we confess, a doubt with us whether the Act of Parliament will remedy the evils, unless some clauses are added. At any rate, the evidence collected by the committee has stirred the public mind to the quick; and if the Bill of the Lord Chancellor should be found insufficient to remedy the evils, a more stringent one will be called for, possibly abolishing the gang system altogether. We are not aware of any evil that could arise from this course. The system extends only over a few of the English counties, and the rest feel no inconvenience from the want of it. As, however, we stated some months since, the more satisfactory way would be to hold the farmer himself responsible for every person employed on his land, and thus abolish altogether the office of gang-master, the very foundation of the abuse.

## ACT FOR THE REGULATION OF AGRICULTURAL GANGS.

This Act shall come into operation on the first of January, one thousand eight hundred and sixty-eight.

The following words and expressions shall in this Act have the meanings hereby assigned to them, unless there is something in the context inconsistent with such meanings; that is to say,

"Child" shall mean a child under the age of thirteen years;

"Young person" shall mean a person of the age of thirteen years and under the age of eighteen years;

"Woman" shall mean a female of the age of eighteen years or upwards;

"Gangmaster" shall mean any person, whether male or female, who hires children, young persons, or women with a view to their being employed in agricultural labour on lands not in his own occupation; and, until the contrary is proved, any children, young persons, or women employed in agricultural labour on lands not in the occupation of the person who hired them shall be deemed to have been hired with the aforesaid view;

"Agricultural gang" shall mean a body of children, young persons, and women, or any of them, under the control of a gangmaster.

The following regulations shall be observed by every gangmaster with respect to the employment of children, young persons, and women:

- (1.) No child under the age of eight years shall be employed in any agricultural gang;
- (2.) No females shall be employed in the same agricultural gang with males;
- (3.) No female shall be employed in any gang under any male gangmaster unless a female licensed to act as gangmaster is also present with that gang;

and any gangmaster employing any child, young person, or woman in contravention of this section, and any occupier of land on which such employment takes place, unless he proves that it took place without his knowledge, shall respectively be liable to a penalty not exceeding twenty shillings for each child, young person, or woman so employed.

No person shall act as a gangmaster unless he has obtained a licence to act as such under this Act.

Any person acting as a gangmaster without a licence under

this Act shall incur a penalty not exceeding twenty shillings for every day during which he so acts.

No licence shall be granted to any person who is licensed to sell beer, spirits, or any other exciseable liquor.

Licences to gangmasters shall be granted by two or more Justices in Divisional Petty Sessions, on due proof to the satisfaction of such Justices that the applicant for a licence is of good character, and a fit person to be entrusted with the management of an agricultural gang.

The Justices shall annex to their licence a condition limiting, in such manner as they think expedient, the distances within which the children employed by such gangmaster are to be allowed to travel on foot to their work, and any gangmaster violating the condition so annexed to his licence shall for each offence be liable to a penalty not exceeding ten shillings.

Any person aggrieved by the refusal of the Justices to grant him a licence to act as gangmaster may appeal to the next practicable Court of General or Quarter Sessions; and it shall be lawful for such Court, if they see cause, to grant a licence to the applicant, which shall be of the same validity as if it had been granted by the Justices in Petty Sessions.

Licences under this Act shall be in force for six months only, and may be renewed on similar proof to that on which an original licence is granted.

There shall be charged in respect of each grant or renewal of licence a fee of one shilling, and such fee shall be accounted for and applied in manner in which the fees ordinarily received by the authority granting the licence are applicable.

On any conviction of a gangmaster of any offence against this Act, the Justices who convict him shall endorse on his licence the fact of such conviction; and on any conviction of such gangmaster of a second offence against this Act, the Justices may, in addition to any other penalty, withhold his licence for a period not exceeding three months; and on any conviction of any gangmaster of a third offence against this Act, the Justices may, in addition to any other penalty, withhold his licence for a period not exceeding two years.

And after a fourth conviction for an offence against this Act the gangmaster shall be disqualified from holding or receiving a licence under this Act.

All penalties under this Act may be recovered summarily before two or more Justices.

This Act shall not apply to *Scotland or Ireland*.

## THE FARMERS OF ENGLAND.

BY A PRACTICAL FARMER.

In my last paper I enumerated some of the peculiar burdens and grievances under which the Farmers, politically speaking, are loaded, and do groan—inconveniences which no other class of the body politic would submit to, but would use every effort and prolonged angry agitation to rid themselves of, or to cause them to be more equitably distributed over the general mass of the community. The Farmers of England are a worthy, industrious, and intelligent class of men. They have proved themselves to be not a whit behind their fellow-countrymen; in fact they excel every branch of their countrymen, in their own department of business, by their energy and skill. There is no other department of our nation's industry and skill, but what is equalled, and even excelled, elsewhere. But our agriculture, both practical and mechanical, is a long way ahead of all the countries upon earth; whereas our manufactures are by no means so prominent. Our manufactures are often beaten in design and workmanship, and not unfrequently in the price; so that importations to no small extent of the very articles they pride themselves upon manufacturing often take place. They have most unquestionably wonderfully benefited this country by the increase of their manufactured productions. So have the agriculturists. The annual agricultural products of this country have increased upwards of seventy per cent. within a limited period, or in about the past half-century. Is that a trifle towards feeding a dense population? Then look at the actual property of the Farmers; take into account their wealth, their agricultural property—purely agricultural. I will take the last statistics of the agriculture of the United Kingdom, and show their enormous wealth in live farm stock and arable produce, of which the Farmers themselves possess about two-thirds the amount. I went carefully over these statistics some months ago; I therefore extract the particulars from a paper I then wrote. I took the items of particulars from the public statistical returns, and valued them myself; so they are open to criticism. I think, however, enormous as the result of the estimate is, they will not be found to be far from the truth, but real or absolute fact. It runs thus: Number of cattle 8,316,960, at £10 each, equal to £83,169,600; of sheep, 25,795,708; at 40s. each, equal to £51,591,416; of pigs, 3,802,399, at 40s. each, equal to £7,604,798; being a total of £112,365,814 for stock raised for animal food and its reproduction; add for horses, estimated according to the latest returns, at 2,030,015, which I value at £15 each, equal to £30,450,750; of poultry of all kinds, estimated at 15,000,000, at 3s. each, equal to £2,250,000, making a grand total of £175,066,564 for live stock alone. Again, take the arable lands cultivated by farmers, and estimate the value of their produce in accordance with the

latest statistics with which we are favoured, and which, for convenience, I put in tabular form as follows:—

Crops.	Acres.	At per acre.	Equal to
Wheat .....	4,331,472	£10	£43,314,720
Barley .....	3,006,701	10	30,067,010
Oats .....	3,939,043	8	31,512,344
Beans and peas.....	755,842	8	6,046,736
Bere and rye .....	111,319	8	890,552
Flax .....	257,122	12	3,085,464
Hops .....	18,976	30	569,280
Tallow .....	920,962	3	2,762,886
Turnips .....	3,055,012	5	15,275,060
Mangolds .....	200,284	10	2,002,840
Carrots .....	40,830	15	612,450
Potatoes .....	1,382,525	15	19,737,875
Cabbage.....	107,990	10	1,070,900
Vetehes, lucerne, &c.	268,065	4	1,072,260
Clover and seeds ...	4,363,870	3	13,991,610
Pastures .....	14,000,000	3	42,000,000
Cattle, sheep, pigs, horses, and poultry (brought down) .....			175,066,564
			£389,078,551

Add to this enormous sum an estimate for sundries, *i. e.*, agricultural implements, machinery, artificial foods on hand, artificial manures, value of tenant-right, and the many things not enumerated connected with agriculture, to the amount—say of only £10,921,449—and we have the astonishing large sum of £400,000,000 as the personal property of the farmers of the United Kingdom, to say nothing of the value of the fee-simple of the land itself held by very many of them as their own property. These farmers also pay (according to reliable estimates) upwards of £75,000,000 annually for labour done by farm-labourers or workmen upon their farms, exclusive of yearly farm-servants; and, be it also remembered, that the business of the farm is for the most part annual. The crops and farm live-stock are, for the most part, annually raised. It has become the general order of farm business to breed and bring all animals intended for human food to a very early state of maturity. Immense numbers of sheep are fatted off at from 12 to 18 months old. Lamb is in very great demand, and the consumption is in untold numbers. Calves, again, are slaughtered by thousands, and enter largely into general consumption; and very many thousands of cattle are slaughtered under two years old. Pigs are proverbially fatted young; nearly all are fatted from four to 18 months old. So that, taking calves, lamb, and young pigs, as against older cattle, sheep, and pigs, it will be found, as I have said, that a farmer's products arising in his routine of business are pretty nearly those annually raised. It is true that stock animals of every kind must be kept for breeding purposes, others for labour and use, and others, again, for fattening when above a year old; but against this I put the immense quantity of lamb, veal, and pork fed for consumption, and fed when much under a year old, and the old stock animals sold off to be replaced by younger ones. So that, putting one against the other, the difference is not so wondrously great as to set aside my assertion that a farmer's business is pretty nearly an annual one—*i. e.*, that the average total produce of the farmers of the United Kingdom is annually brought into the market for consumption as food, or sold for other uses,

*i.e.*, as in horses, flax, wool, &c. Again, if we take the arable produce, there is the stock of grain and seeds retained as seed-stock for seeding the land—and it is a very considerable stock that is required for seeding all the arable lands of the kingdom; but against this item of the account may be placed the productions of market-gardeners, seed-growers, farmers, and others, who may be able to take two crops annually, or three crops in two years; and this class of farmers and improvers are greatly on the increase. I mean somewhat in this way, or after this rotation—say early peas, rape, wheat, all sown within eight months; or early potatoes, turnips, wheat; or seed crops, followed by turnips, &c. Market-gardening goes far beyond this. They will obtain frequently at least two, and often three, crops annually—*i.e.*, radishes, lettuces, and the like early produce; then potatoes, then cabbage for early spring; or cucumber, celery, or late turnips, &c.; or, again, early peas, cabbage between the rows, then potatoes where the peas grew; and many like devices in order to secure more than one annual crop. This double-cropping, or taking more than one annual crop, is very much on the increase, and may very properly be set against the item of grain and seed retained for the seeding stock. This, again, tends to prove my affirmation that “the business of the farm is, for the most part, an annual one.” Now, if I have fairly shown that this is the case, or that it at all approaches near the truth—namely, that nearly the whole of the products of the soil of the United Kingdom are brought into the market, or into consumption, annually, what a marvellous—what an astounding—fact it truly is! It is almost incredible—almost beyond belief—that the farmers and other cultivators of the soil of these realms can and do raise, and do produce and bring into the market annually, for the especial use and consumption of the population—products from their grazing and cultivated lands—a total stock amounting in value to the enormous sum of £400,000,000 per annum! It is truly incredible that the occupiers of the soil of these realms are able by their skill, energy, and industry to benefit their country to such an enormous extent annually, or year by year. Why, all the other departments of the nation’s industry and skill in manufactures, commerce, and trade, cannot bring in to their country’s wealth much above half the amount—*i.e.*, from £200,000,000 to £250,000,000. It speaks wonders for the agriculture of these kingdoms, for the tenant-farmers of the United Kingdom. It is, I repeat, to their industry, their skill and energy, their perseverance, that the country owes so much. I have already said that of this wondrous amount the farmers of England (with whom I have now more especially to do) contribute about two-thirds of this annual produce; and therefore are, thus far, more entitled to the high consideration and power which should be placed in their hands. The agricultural position of both Ireland and Scotland with respect to representatives in Parliament is more upon a par with other parts of the community of those countries than in England. The Irish members number 105—*i.e.*, counties 64, cities and boroughs 39, universities 2—105. Scotland numbers 53 members—*i.e.*, counties 30, cities and boroughs 23—53; but in England and Wales (for we take the Principality always into our account) the number, although extending to 500 members, is more unequally divided. The counties only return 162, universities 4, cities and boroughs 334—500. The new Reform Bill makes a great improvement in the country representation of England, by giving to them 25 new members, and in this way giving to property-holders some little legitimate influence.

I shall not waste much time in comparing the farmers of England of the present century with their forefathers of the last. The honest, homely, unsophisticated yeoman was the pride of his class; and the lumber

tenant-farmer, partaking of the homely fare of his house, and troubling himself with little beside the care of his family, his stock, and his crops, was the respectable parishioner of his day. They farmed without expense, and were content with little gains. I am afraid I shall not libel the class by further stating that their chief public spirit lay in the conduct of parochial affairs. Religion was left to the clergyman, politics to his Lordship or his Honour, and of which they knew but little except to be called upon for their vote at the county election. But what is the case now? Need I refer to agricultural societies, farmers’ clubs, chambers of agriculture, and the like, for answer? Look at our teaming press. What vast numbers of purely agricultural newspapers, journals, reports, magazines, and the like are read by the farming public! and these do not comprise a moiety of their readings. Scarcely a respectable farmer can be found who does not see his daily paper, or who is not a member of some public library or reading society. It is not possible for a farmer to be the ignorant man of the past. At every public meeting, at every market ordinary, nay, at every rent dinner, subjects for intelligent converse are brought forward and are ably discussed.

There is a very marked improvement for good amongst the farmers of England in every district; a growing intelligence pervades the whole body. Every suggestion or improvement in culture, in breeding farm live-stock, in agricultural mechanics, undergoes a thorough searching investigation. Every question relative to agricultural politics is thoroughly known and well examined into, and the general politics of the kingdom are as much thought over and discussed by them as by any other portion of the community. Amongst them are able speakers, good writers, and most intelligent men. In my last paper I have shown their wealth, their enormous contribution to the general weal, their advancement as a class in providing food for the public. I now claim for them—*i.e.*, the farmers of England—a higher position in “the body politic.” I want to see an influential member of them in the Commons House of Parliament. It is a serious reflection upon them as a class, that with all their influence, all their numbers, all their wealth, they have but one real and true tenant-farmer of their own body to represent them. Only one tenant-farmer in the House of Commons! I say that it is monstrously absurd that a body consisting of about 800,000 farmers should have only one representative. Who can so well enter into their views and requirements as members of their own order? Who will be so likely to aid effectually in promoting their interests as fellow-farmers? Who can feel so intensely the hardship, injustice, and many wrongs of the farming-class as the farmer who has long suffered from them? The aristocracy may sympathise, the landed-gentry may condole and preach forbearance, public necessity, and Government impossibilities. Fudge! We don’t believe in such things. Let us try for ourselves. It is a mistake to suppose that the House of Commons should be composed of a mass of orators. We have far too much talk now. Nor need it be composed of the “upper classes.” We require thoroughly intelligent men of practical business talent and independence of character; and we have a host of them among the tenant farmers of the present day. The idea of tenant farmers being in the House of Commons has been and is ridiculed. What of that? “What are they to do amongst so many gentlemen?” Why hold their own against the world, which the gentlemen have failed to do. What is there so intricate in legislation that a man of good common-sense cannot fathom? It is not your great orators but your men of business who look closely into the country’s expenditure and progress. We want more straightforward, fair-dealing, honest men, who, regardless of party, will aid in removing every unjust



burden, readjust taxation, watch expenditure, and deal fairly with every class of the people. We want fair dealing, which, as a class, we have not got. We must aim to get it, and my suggestion is that we send men of our own body into the House of Commons to obtain it.

In carrying this movement out, there is much for consideration. We have a great many country gentlemen who are an honour to their class, and who represent our interests faithfully; and although they cannot fully enter into our views and feelings, and in some cases their interests and ours may clash, yet no one would desire to deprive such men of their seats. There are others of whom much cannot be said or expected—scions of nobility, juniors of our country esquires, who go in for honour and position. These it would be right to displace for more efficient men. But that is not the main question just now. The counties have to send twenty-five new members—an opening for a new element. These twenty-five new members should be all tenant farmers, the best of their class. If they possess property and leisure, all the better; but that is not absolutely requisite. They must represent the tenant farmers' interests, and the tenant farmers must see them harmless. *They* won't find it imperative to take "the London season." Happily railways can deliver them at their post in the shortest of time. The thing is practicable, the expense not great; combination and complete organization must take place, must be adopted and effected everywhere. Every county should have its electoral society. Subscriptions should be sought, funds must be raised. I see no impropriety in making our many Chambers of Agriculture the means or vehicles of such a movement. They are professedly political societies to watch over farming interests in Parliament.

There must not be, there need be no antagonism between the nobility, country gentlemen, and the tenant farmers. In the main their interests are identical. It is more a question of class and degree, to secure more earnest workers. Our nobility and gentry can no more enter into our precise views, wants, and feelings than we into theirs. I have already shown what we tenant farmers require in fairness, and we earnestly desire to aid and stimulate our higher classes to make every effort to obtain such immunities and such just rights. The House of Commons, under the new Reform Bill, will not be that especial place of honour for the high and the ambitious. Many men of inferior grade, as our conventionalities would have it, but of sterling worth and talent, will be found there: men whose study, whose business, whose sole aim, is to promote their country's progress in every legitimate way, regardless of party or class interests. Wealth will, no doubt, have considerable influence in returning a new Parliament, but it is wonderfully shorn of its power. There will be precious few seats to be purchased, and the freedom of electors and facilities afforded for voting will much more than counterbalance long purses. I deem the voting by ballot to be "un-English;" but in many respects it might be advantageous amongst a tenantry. It has been far too general for tenants to vote in the interests of their landlords. In many counties and districts it has been taken as a matter of course. It should be so no longer. A tenant-farmer has as much right to adopt and entertain political and religious views as his landlord; and, thanks to the amazing facilities for the acquisition of knowledge, he is as well qualified to judge for himself—in fact, in some respects more so. Farmers are men of business; and it is the plain, business-like view they would take of every question. The inquiry, with them, would be, How will it work? What is the balance of advantages? Will it really do good in the end? In questions of finance, of our country's internal affairs, of colonial government, of upholding the honour of our country, they are not a whit behind any class of their countrymen.

Well, tenant-farmers in the House of Commons—how will that work? They are returned by their fellow-tenant-farmers, and must and will be supported by them. I have said, "*Save them harmless.*" But the farmer may have been returned in opposition, or in conjunction with his landlord. Will he vote contrary to him; and, if so, is it to be expected that his landlord will keep him as his tenant? I have not many fears on this head. The days of persecution are well-nigh extinct. In the first place, a tenant selected to become a member of Parliament will be no ordinary man. A landlord would be loath to part with such a tenant—in fact, with a man of sterling worth—besides incurring the public odium of a course so oppressive and malicious as a discharge: "property has its duties as well as its rights." In the second place, suppose a landlord can be found so base and tyrannical, it would only arouse the whole country. The tenant would be looked upon as a martyr to a noble and righteous cause; and public honours and ample subscriptions to cover any losses would be his. Landlords must bend to the public voice, the nation's requirements. Moreover, such a course would be the very worst a landlord could adopt. Why, these are the very men that will now have to stand first and foremost to promote the best interests of every class connected with agriculture. They are the very class of men sent especially to uphold agricultural *prestige and status*, to uphold the lauded interest, to retain what little is left of agricultural power and privilege, and to redeem from its many unjust burdens the fee-simple of the kingdoms, and place them equitably on other portions of the community as well as upon the owners and occupiers of the soil. Are landlords to oppose this course? Why, it is, of all things, the most likely to secure to them the enjoyment of estates relieved from unjust charges, and to put them upon a footing of equality with all classes.

The intelligent middle-classes have long ruled the country by their indomitable perseverance and advocacy of correct views and principles, which no Government could gainsay or withstand. The tenant-farmers of England are a portion of this class, and if they do not take their proper place in the Commons House of Parliament the lauded interest will ere long rue it woefully. The town and borough influence now is, and will be all powerful, and the lauded interest will remain powerless, and still have to bear all its unjust and oppressive burdens, unless something further is done. But it may be asked why our country gentlemen cannot efficiently represent the lauded interest as heretofore? The correct reply to that is that they have altogether failed to do so, and that chiefly from their own independent bearing, minus their tenantry; nearly all the burdens, local, fiscal, and otherwise, remain; all the exclusive privileges which used to be enjoyed are gone. Besides, great numbers of the nobility and country gentlemen are large holders of town and borough property; hence their interests are divided. Depend upon it, if aught important is to be done to uphold and benefit the lauded interest, it must be by the infusion of a new and popular element in Parliament, and that infusion must consist of a body of free and intelligent tenant-farmers, bonded together to protect farming interests as the one great object, all others being subordinate. How landlords can object to this movement I cannot conceive. It appears to me the very turning point in their ultimate prosperity. The lauded interest must either regain its power, obtain exclusive privileges to enable it to discharge imposed and especial obligations, or be freed from them by legislative enactments; if not, British agriculture will succumb to the rivalry of countries having far greater facilities for production, and few, if any, burdensome taxation to bear. Landlords of all others must look to this, and render their cheerful and

able assistance to return men of sterling powers and correct views of their position and requirements. The tenant-farmers have been solely to blame in not urging, stimulating, and aiding the country gentlemen to more decisive courses. Both have been wrong in not seeking more countenance and support from each other. Let all now be merged in one grand and continuous effort to relieve, uphold, and protect the lauded interest. I appeal to the nobility and country gentlemen of the United Kingdom. If from any cause, no matter what or when, your estates have become unjustly burdened (and I have shown they have immensely), it is your duty to endeavour to relieve yourselves of them, and to have them equitably distributed over our very large and rapidly increasing population, so the land shall only contribute its proper share. To this end I advise you by all means to take unto your councils and to your aid an intelligent, wealthy, and powerful tenantry, a body of 800,000 individuals, who have long been held your subordinates, but now assume their independence as a class. I appeal to the farmers of the United Kingdom, but more particularly the farmers of England. I urge you to instant action. Lose not a moment in taking advantage of the new Reform Bill; depend upon it other classes will not be idle. It is to you I look more especially to uphold our position in the new Parliament. The nobility and gentry will gladly avail themselves of your aid. By all means act in conjunction with them. Never elect an inefficient man, whatever may

be his station in life. Seek out the right men in every county or divisions of counties; the more of your own class the better. I beg that every farmer will attend "the hustings" on the day of nomination; there elect your men by one spontaneous voice, and leave the onus, a contested election, to your opponents. If a contest is inevitable, meet it manfully; shrink not an atom; be English yeomen to the back-bone!

[It is as well that the tenant-farmer going into Parliament should know something of the actual extent of his work. At a sheep sale in Norfolk the other day Mr. Sewell Read said: "The labour which was expected from a member of Parliament really exceeded all the weight and dignity which might accrue to him. During three or four months of the past Session he had given an average weekly attendance in the House of Commons of 50 hours. He had been on no less than eight committees, independently of ten or a dozen Irish railways which came under consideration; and when a man went into the House at twelve o'clock in the daytime, and sat there, not for one day or for one night, but week after week, until twelve or one in the morning, he need not say that it certainly entailed an immense amount of work and anxiety. So much was he impressed with this that he would just paraphrase the first two lines of an old song, and say:

'Ye gentlemen of Norfolk, who live at home at ease,  
Ye little know, I'm very sure, the labours of M.P.'s.']

## MILLS AND MILLING.

### OLIVER EVANS' IMPROVEMENTS IN AMERICAN MILLS, A.D. 1800.

In previous papers frequent reference has been made to the mills of the United States of America, but in most cases justice has barely been done to their details of mechanism. From a patent-office point of view, little more, perhaps, requires to be said; but it is otherwise when we enter the large flour manufactures of the *Union*, or consult those standard American works which give an account of them. From time to time short notices of American mills have appeared in the columns of the *Mark Lane Express* and *Farmer's Magazine*, but such notices have been almost exclusively of a commercial character, being confined for the most part to the number of pairs of stones in the mill, and the quantity of flour they daily turn out to market—topics of themselves invaluable, but which nevertheless leave the progress of mechanical science in the mill in the background, whereas the very opposite of this is the peculiar view which we purpose placing before the reader.

Oliver Evans in his work, "The Young Millwright and Miller's Guide" (we quote the eleventh edition, published at Philadelphia, 1846), gives an account of the improvement which he made upon mills about the commencement of the present century. The work is a standard one in the United States, and the editor in his preface to a previous edition dated Washington, 1834, informs his readers that the improvements were made about forty years prior to that date, or towards the close of the last century. But the first edition of the work was not published until some time after this, but before 1805, so that the commencement of the present century may be taken as the date of the improvements we are about to describe. In the eleventh edition an illustrated description of "commercial flour mills," as erected about 1846, is added to the previous ones by C. and O. Evans, engineers; but they do not show any real advance made worth noticing. In the *Franklin Journal* and other works an account, however, is given of various improvements which we shall notice.

The improvements on flour mills made by Evans on "elevators, conveyors, drills, descenders and hopper-boys, the former four being both for wheat and flour, the latter for cooling flour only. In addition to these, we find from the "Journal of the Franklin Institute," that a patent in 1808, for machinery

for cooling flour on a totally different plan from the "hopper-boy," which plan was afterwards improved upon, and reduced to practice by Nathan Tyson, under patent dated 1831; but at present we confine our remarks to the above.

Evans' improvements, it will thus be seen, belong chiefly to the wheat and flour dressing departments of the mill, their object being to abridge manual labour, improve the sample of wheat by scouring and cleaning, and to cool and barrel the flour so as to obviate heating, prevent waste of floating stive in the mill, and impregnation with the ova of insects and life-germs of other microscopic "little bodies" of the animal and vegetable kingdom. We shall first describe the above improvements, in the following order, and then give a general account of the mills illustrated in the work, together with the principles of the construction and action.

*Elevators* for wheat and flour are similar to those now in use in this country, so that a detailed description of their mechanism is unnecessary.

*Conveyors* are of three kinds; *First*, the common screw or "creeper," working in a trough; *second*, upon the eight sides of an octagonal shaft small turn-over "flights" (as they are technically termed) are placed angularly, so as to change the principle of the machine from that of the screw, as in the first kind, to that of a number of rotary ploughs; the function of these flights being to turn over the flour in the bottom of the trough, each flight turning it over to the next in advance, and so on, with the view of letting out the heat and steam the better from the hot meal. *Third*, between these turn-over or conveyor flights "*lifters*" are set, with their broad sides foremost, so as to lift the hot meal at one side of the octagonal shaft, and to let it fall into the trough on the other side, thereby cooling it. These lifters are only put on when the flour comes from the stones much heated.

The *hopper-boy* is a machine for cooling the flour, so as to fit it for bolting and barrelling direct from the stones. It consists of a vertical shaft, about ten feet high, which revolves, carrying two cross-arms near its lower end, each from six to ten feet long; thus covering in their revolution a circular floor from twelve to twenty feet in diameter, according to the amount of work they have to perform. In appearance the machine has thus some resemblance to a brewer's fan for cooling wort; but its mode of operation is widely different, for the brewer's

cooling apparatus, in cooling his wort, moves at a rapid fanning velocity, whereas the miller's hopper-boy must not make more than four revolutions per minute in cooling his flour. Its *modus operandi* may be described as follows: First, by means of sweepers and turn-over flights on the under-side of the arms it spreads the flour over the cooling-floor, working it outwards or inwards, according as the miller finds it necessary to set the sweepers and flights, so as to effect the object he has in view. The more common practice is to plough and sweep the cooling flour inwards to the hopper of the bolting-machine below, thereby bolting it directly from the hopper-boy. There are four sweepers, two on each arm—one near the outer end, and the other near the shaft, so that the two outside sweepers cover a ring towards the outside of the circular cooling-floor, and the inside sweepers a ring immediately surrounding the shaft. There are two gangs of ploughs or flights, or a gang between each pair of sweepers; the ploughs being for turning over the flour, thus bringing it from the outside sweeper to the inside sweeper. Within the inner ring there are two holes, one on each side of the vertical shaft. These two openings across the ring lead to the hopper of the bolting machine, and into them the two inside sweepers sweep the cooled flour as they slowly revolve. Thus the shutes from the millstones discharge the hot meal into the conveyors; the conveyors, in the performance of their part of the work, collect the hot meal to the receiver of the elevator; the elevator raises the flour as fast as it is collected by the conveyors to the top of the cooling room, discharging it into a long shute, down which it flows slowly, falling gently in a continuous stream upon the outer ring traversed by the two outside sweepers. The outside sweepers as they revolve spread the hot meal evenly all round, bringing it within the circuit of the two outside ploughs, one on each arm; the first plough turning it over to the second, the second to the third, and so on, the last or inside plough of each gang turning it on upon the inner ring, when the inside sweepers sweep it into the hopper of the bolting machine, and from the shute of the bolting machine the flour flows directly into the barrel below, while the offal is carried to the offal department of the mill by a separate conveyor, drill or descender as the case may demand. The two arms can be lowered or raised by two cords over two pulleys, to which weights are attached, according as to the peculiar practice of cooling may require.

*Drill*.—This is an endless cloth rake for conveying or raking along the bottom of a trough corn or flour. It can sometimes be made and used at considerably less expense than the screw conveyors, and it performs its work well, especially if there is a small descent. It will, however, raise meal or corn up a small ascent. It is made by nailing pieces of some tough wood across an endless band, working over two pulleys, the breadth of the bottom of the trough or close box in which it works, and it will last a long time, it is said, under ordinary wear.

*Descender*, as its name implies, is for conveying corn or meal from a higher to a lower level in the mill. In construction, it is similar to an elevator—viz., an endless bucket-band, but moves in the opposite direction, and, like the old Roman endless chain-bucket, hydraulic prime mover, or mill wheel, the weight of the corn or flour, when once in motion, keeps it going. It will convey corn or meal downwards in places where spouts and plain bands are impracticable.

Such are the principal improvements which this celebrated American engineer made upon flouring mills towards the close of last century and commencement of the present. The date of these improvements requires to be closely borne in mind in judging of their merits in the march of mechanical progress in the mill, for to view them in the light of the present day would be to lose sight of the thread of discovery, or march of improvement in the United States.

Numerous plates of sectional drawings of mills are given expressly for the purpose of showing how the above improvements are carried into practice in mills by millers of the United States. Thus one drawing shows a section of a mill with four runs of stones, one end of the mill being to the river. At this end there is a grain-laden vessel being discharged by means of an elevator, which raises the wheat out of the hold, and delivers it into a self-acting weighing machine, from whence it passes into the trough of a screw conveyor, which in its turn conveys it along to an elevator, the latter raising it to

the granary above. At the other end of the mill a farmer is unloading a waggon into a weighing-machine, which discharges it into the trough of another screw conveyor, the latter taking it along to an elevator for the granary above. The stones discharge the hot meal into the conveyors for the elevator, hopper-boy, bolting machine, and flour barreling as already described. The drill and descender are shown in operation in the dressing of the corn for grinding, and in the offal department, the whole of this vast combination of machinery being actuated by water and requiring very little expenditure of manual labour in the manufacture of wheat into flour for market.

The author discusses "*the principles of grinding*" under the following sub-heading, viz.:

"ON THE PROCESS OF MANUFACTURING GRAIN INTO FLOUR AS PRACTISED BY THE MOST SKILFUL MILLERS OF THE UNITED STATES."

This process is described as cutting in principle by means of a sharp-edged *dress*, the runner moving at a rapid velocity so as to scrape off the meal from the husk or bran with the least possible pressure upon the broken grain being thus reduced to flour. "To prepare the stones for grinding to the greatest perfection, we may conclude, therefore, that the faces must be put into such order that they will *first* cut the grain into several pieces, and then pass it between them in such a manner that none can escape without being ground to a certain degree of fineness, whilst at the same time it scrapes the meal off cleanly from the bran or skin."

He next goes on to say that the best plan of sharpening the little edges of the *dress*, so as purposely to cut fine, as above, is by grinding sand or water between the newly-dressed stones, a transverse section of the furrows being of the proper angularity and depth; and the following is the description given of the form of the face of the stones:—

"It is also necessary that the face of the stones be dressed to such a form as to allow room for the grain or meal in every stage of its passage between the stones. In order to understand this, let us conceive the stream of wheat entering the eye of the stone to be about the thickness of a man's finger, but instantly spreading every way over the whole surface of the stone. This stream must therefore get thinner as it approaches the periphery, when it would be thinner than a fine hair, if it did not pass slower as it became finer, and if the stones were not kept apart by the bran for this reason; the stones must be so dressed that they will not touch at the centre within about the sixteen-twentieth part of an inch, but get closer gradually, till within about ten or twelve inches from the verge of the stone proportioned to the diameter; and from this part out they must fit nicely together. This close part is called the *flouring* of the stone. The furrows should be deeper near the centre to admit wheat in its chopped state, and the air which tends to keep the stones cool."

*DRESS*.—A curved style of laying out the furrows is given in the original part of the work, but right-line furrows in the recent addition. For the curved style, we quote the following:—

"Rules for laying out a five-foot millstone."

1. "Describe a circle with three inches, and another with six inches radius round the centre of the stone."
2. "Divide the three inches' space into four spaces by three circles, equidistant; call these five circles draught circles."
3. "Divide the stone into five parts, by describing four circles equidistant between the eye and the verge."
4. "Divide the circumference of the stone into eighteen equal parts, called quarters."
5. "Then take a straight-edged rule, lay one end at one of the quarters at 0 at the verge of the stone, and the other end at the outside draught-circle, six inches from the centre of the stone, and draw a line for the furrow from the verge of the stone to the circle 5; then shift the rule from draught-circle 6 to the draught-circle 5, and continue the furrow-line from circle 5 to circle 4; then shift the rule to draught-line

4, and continue to 3; shift to 3, and continue to 2; shift to 2, and continue to 1, and the curve of the furrow is formed as 1—6."

6. "To this curve form a pattern by which to lay out all the remainder."

The furrows of the two stones with this curve will cross each other, making the following angles, circle 1 being the eye of the stone:

Circle 1 making 75 degrees angle.			
" 2 "	45	"	"
" 3 "	35	"	"
" 4 "	31	"	"
" 5 "	27	"	"
" 6 "	23	"	"

Different dimensions of draught circles and diameters of stone would give different angles for the crossing of the furrows, and several tables are given for these in the work; but the above is sufficient for illustration of principle.

Before offering any remarks on the preceding, we shall quote *verbatim* what he says:

"Of the most proper degree of fineness for flour.—As to the proper degree of fineness for flour, millers differ in their opinion, but the great majority, and many of the most experienced and of the best judgment, agree in this, that if the flour be made very fine it will be killed (as it is termed), so that it will not rise or ferment so well in baking; but I have heard many millers give it as their opinion that flour cannot be made too fine, if ground with sharp, clean stones, provided they be not suffered to rub against each other. And some of those millers do actually reduce almost all the meal they get out of the wheat into superfine flour; by which means they have but two kinds—viz., superfine flour and horse feed, which latter is what is left after the flour is made, and is not fit to make even the coarsest kind of ship-bread.

"To test the properties of the finest flour, I contrived to catch as much of the dust of that which was floating about in the mill as made a large loaf of bread, which was raised with the same yeast, and baked in the same oven with the loaves that were made out of the most lively meal. The loaf made of the dust of the flour was equally light, and as good, if not better, than any of the others; it was more moist and pleasant to the taste, though made of flour that from its fineness felt like oil.

"I conclude, therefore, that it is not the degree of fineness that destroys the life of the flour, but the degree of heat produced by the too great pressure applied to grinding, and that flour may be reduced to the greatest degree of fineness without injuring the quality, provided it be done with sharp, clean stones, and with little pressure."

Such is what we glean from the eleventh edition of O. Evans' "Young Millwright and Miller's Guide," the whole showing the progress of mills and milling in the United States about the commencement of the present century. At that period large flour mills were being erected in various parts of the Union for millers who were free from the antiquated prejudices of the mother countries, and who consequently adopted all the most important improvements then in existence either in the Old World or the New, to which they added their own discoveries, demanded by the peculiar exigencies of their position relative to the expense of labour and the quality of flour to suit export and foreign markets—i. e., cool flour, free from all sorts of organic life, so as to obviate souring and mustiness, and also peculiar attention to the dressing and cleaning of the wheat preparatory to grinding. To effect these objects was the grand desideratum of the improvements made by Oliver Evans. His claims to the discovery of some of these were called in question, but into topics of this kind, now more than half a century old, we need not go. In the *Franklin Journal*, and other standard works, O. Evans is always quoted as one of the highest authorities in the Union on mills and milling in his own time, and the foregoing extracts from his work bear ample testimony to the same. The last paragraph quoted proves, for example, that he was familiar with the principle of grinding at a high velocity; and it was, no doubt, this which laid the foundation of the very high velocity at which the millers of the United States to this day grind, from 200 to 300 revolutions per minute being a common rate of driving. But of this more hereafter.

## VARIOUS IMPROVEMENTS IN AMERICAN MILLS FROM 1800 TO 1865.

In addition to the improvements made by Oliver Evans on the flour mills of the United States, noticed in his "Millwright and Miller's Guide," there are a few others that demand a special notice in number something like one per cent. of the whole, the ninety and nine needing nothing more than what has already been said in previous papers. In point of fact, it is our previous favourable reference to mills of the Union that calls for the present paper, in order to illustrate by detailed facts the soundness of what was formerly advanced, and the authorities cited, &c., so as to enable those of our readers who have an opportunity to consult those works and judge for themselves. In short:

The American improvements which we propose discussing are similar in principle to those now engaging the attention of the pioneers of progress in this country, or which have at some previous period engaged their attention, and now form part of our milling system. The greater number of them have been patented in the United States; but up to 1853 the Patent-office publications of the Union throw very little light upon the nature of the improvements made. To find out the latter, other American works must be consulted, and these often throw the claims of the patent in the background, from its being combined with other patents in the mill. Hence the practical conclusion, stated in the preceding page, that things in the mill are often very different from those very things as specified and claimed in the Patent-office. To have discussed those improvements previously in the light of the Patent-office, and in contrast them with similar improvements in England would have swelled our former papers to twice the length without doing justice to the mills and millers of the United States; while comparisons of the above kind are often rather invidious and disliked. By discussing the American improvements together in this paper we greatly economize space, while at the same time we show the footsteps and path of American progress more clearly, and avoid the invidious nettle altogether, it being only necessary to make comparisons of cases involving sound progress, which can never, or at least ought never, to ruffle the pioneering genius of any one.

The improvements in question have reference chiefly to the cooling of the flour, including its general economy, both as to quantity and quality and modes of grinding, so as to economise motive power and manual labour.

We find from the *Franklin Journal* and other scientific works of the United States, that the millers of the Union suffered heavily from the souring of flour and from mustiness about the commencement and early part of the present century, and that various propositions were promulgated to obviate such losses. Two of these—the cooling and drying of the flour, so as to barrel it up for market direct from the stores—were extensively reduced to practice. One of the plans for the former, quoted from Evans's "Young Millwright and Miller's Guide," has already been noticed; the latter—the drying of the flour—we shall now proceed to examine.

Oliver Evans invented a plan for drying flour in 1808, and in 1831 an extensive Baltimore miller, Nathan Tyson, invented and reduced to practice in his own mills an improvement upon Evans's plan, which we find very favourably noticed by the editor of the *Franklin Journal* in 1834. We shall therefore take this latter example as an illustration.

Mr. N. Tyson, in his specification, acknowledges his invention to be "Improvements in the kiln-dryer patented by Oliver Evans, January 22, 1808." It embraces several ways of drying flour—the *first* being a cylinder or box within another cylinder or box, the space between the two (the inner cylinder and outer one, or jacket) being for steam or heated air. Like a bolting cylinder, the inner one revolves at an inclination, the influent current of hot moist meal from the stones being at the upper end, and the effluent current at the lower end. On the interior surface of the revolving cylinder ledges or flights are so placed as to lift and agitate the meal, so as to expose it the better to the heated current of air outside for carrying off the steam, which passes out at the upper end of the cylinder or lower end, as millers may prefer.

*Second.* Instead of a straight cylinder, a convolute or spiral tube is proposed, to revolve within a cylinder or jacket.

*Third.*—Instead of a revolving cylinder or spiral tube, a

vertical cylinder or chamber is proposed, the interior of which is furnished with suitable floors or shelves, the one above the other. In each of these floors a hopper-boy or similar machine works. Into the upper floor the hot moist meal from the stones or bolting machine is raised by an elevator; it is then worked down from one floor to the other by the hopper-boys, so as to be sufficiently dried by the time it is swept from the floor or shelf into the bolting machine or barrel, as the case may be, below. Into this chamber heated air is admitted directly; but when steam is used for heating and drying, then the floors or shelves are made double, so as to admit the steam into the interior.

For drying with steam the cylinder and floors would require to be made of iron or other metallic plate; but wood would answer for heated air. But in order the better to economise heat in large mills, the revolving cylinders, spiral tubes and hopper-boys may revolve inside ovens built of brick, &c.

"A current of air sufficient to carry off the moisture and stive separated from the flour must in all cases be admitted into the interior of the inner cylinder, bar, spiral tube, or chamber, in which the flour is being dried."

In reply to the Editor of *The Franklin Journal*, requesting information relative to how his patent drying apparatus was succeeding, the patentee answers from Baltimore, 1834, and from this reply we quote the following sentence *verbatim*:

"In accordance with thy request I now inform thee that my flour dressing apparatus has been in successful operation for upwards of two years, during which time I have prepared many thousand barrels of flour, which has been shipped to every quarter of the globe, and has stood the test of all climates from six to twelve months, without any deterioration whatever."

Annexed to the patentee's report is a letter from extensive purchasers of the dried flour, confirming Mr. N. Tyson's statement. The certificate of "The General Inspector of Flour for Baltimore," is so short and to the point that we also quote it *verbatim*.

"I have visited Mr. Nathan Tyson's mills and seen his flour drying machinery in operation, and have no hesitation in pronouncing it an important discovery; and that flour thus prepared must necessarily keep for a long time."

The Editor gives a long article in favour of the project of drying the flour as compared with the old one of kiln-drying the wheat preparatory to grinding, more especially in the manufacture of superfine flour. Two reasons are given for arriving at this conclusion, the one that less heat is required to expel from 8lbs. to 12lbs. of moisture from a barrel of flour than would be necessary to remove an equal per centage of moisture from the wheat before it was ground; and the other, that in grinding kiln-dried wheat the bran is chopped up into grains, thereby depreciating the market value of the flour.—*The Franklin Journal*, Third Series, vol. xiii., pp. 267-270, 1834.

Judging from the records of the Patent-office, as reviewed in the *Franklin Journal*, the proposition of blowing in air between the millstones to cool them was first patented in the United States between 1810 and 1830. Thus, Elisha Bridgely, of Washington, obtained a patent, dated Feb. 11, 1831, for holes in the runner made for the purpose of keeping the millstones and flour cool; but, by this time, the principle appears to have been public property, as between this date and 1811 a great many patents were obtained for similar projects; while, in reviewing them, the editor of the *Franklin Journal* keeps reminding patentees that there is very little novelty in what they propose, the like having been done long before. Mr. Oliver Evans's first patent for improvements in the manufacture of flour is dated 1796; and between that and 1811 he obtained, in addition, about half-a-dozen patents; but he had numerous rivals in the Patent-office and mill, all striving to outrun him in the race of progress. In 1809, for example, Elliott obtained a patent for cooling flour; in 1801, F. G. Sallonstall; and then, and in 1813, we have the flour pump already noticed, which involves the cooling of the millstones on the exhaust principle. Indeed, between 1800 and 1831, there is an annual crop of patents in connexion with this branch of milling; but about this latter period the pioneers of progress in the mill evidently enter upon the solution of a new proposition—one which, if in existence prior to this date, was not seriously entertained in the mill, but which was now adopted, not with

the view of millers giving up the old processes of cooling and drying flour, but rather as an auxiliary to them, purposely to facilitate grinding and improve the sample, the old cooling and drying processes falling short of the demands upon the flouring trade in both these respects; and, besides, the stimulus of the American Patent-office. *The sowing of American flour* was a topic that was openly discussed by practical and scientific writers in the columns of the *Franklin Journal*, and other periodicals of a kindred character, with much talent and force. Thus a correspondent ("J. R.") of high authority in the columns of the *Franklin Journal* (vol. vii., p. 102—1831), discusses the topics of "sour flour" and "musty flour" at some length, and proposes as a remedy the use of fans in blowing upon the hot meal and up the elevator-spouts, so as both to cool and dry the flour—a proposition which would, very naturally, start numbers of new ideas in the minds of those actively engaged in the work of improvement.

Of the many examples patented a few will suffice to illustrate the march of improvement in the aeration of millstones by means of blast and exhaust fans, pupaps, &c., all quoted from the *Franklin Journal*.

"Gideon Hutchkin obtained a patent, dated January 27, 1832 (vol. ix.), for a fan in the eye of the runner of a grist-mill for forcing currents of air through channels or pipes in between the stones, so as to distribute a continuous supply over the grinding surfaces."

John Morley, New York, Nov. 28, 1833 (vol. xi., p. 316).—Ring millstones; the breadth of the ring of the bedstone 12 inches, that of the runner 11 inches. Upon this odd inch the grain is fed-on, by means of a conical cap; and by this device the patentee proposes keeping the grinding surfaces cooler and producing a finer quality of flour than on the common plan.

Jacob B. Merick, of Manlius, Onondaga Co., New York, Aug. 10, 1834 (vol. xiii., p. 115).—Making deep cross-furrows, two-thirds across the grinding surface, and forcing currents of air into these furrows, by means of fans and drums at the eye of the runner, for keeping the stones and flour cool.

John R. Sleeper, Philadelphia, Jan. 27, 1835 (vol. xvi., p. 107).—A farmers' mill, on the principle of rollers moving at different velocities, so as to give them a grinding as well as crushing action.

Austen Taylor, of Littleton Grafton County, New Hampshire, March 31, 1836 (vol. xviii., p. 404).—Blowing or forcing in air between millstones by any pneumatic machine detached from the runner, as a fan, bellows, or pump.

We might continue these American examples of aerating millstones down to the period when the American practice was introduced into England from France—in 1846—as an improvement of those then in use by English millers; but the above will suffice for illustration. In the examples thus selected no mention is made of a stive-room, and the filtration of the excess of air used in the process of aeration and conveyance; but the millers of America were not ignorant of these contrivances, but in their improvements they economised the stive without a separate stive-room. Thus, in the flour-pump of John Ewing and David Dickey, Oxford, Pa., 1813, the flour and stive were exhausted from the stones, and blown direct into the cooling-room of the hopper-boy, from whence the surplus air was filtered out into the atmosphere, as in the old plans of this country, introduced from Holland about 1710, and perhaps from China into Holland two hundred years prior to that date. The above example, of 1846 (No. 11,084), had a combined flour and stive-room of this kind, with a hopper-boy, or rather its equivalent, and an opening above for the removal of steam and surplus air into the atmosphere, thereby keeping the atmosphere of the grinding department and of the mill generally free from floating stive. The difference, therefore, between the two systems, is one of special mechanism; and the best of the two systems is a question we leave our readers to solve at their leisure.

In 1845, a long favourable notice appears in the *Franklin Journal* (vol. xi., p. 337-344, third series), of "Bogardas' Universal Eccentric Mill," first patented in 1832, the notice being fortified by a number of experiments. The reviewer in his report pronounces the grinding with millstones on the eccentric principle to be really a new discovery of sufficient importance to merit the special attention of the milling interest of the United States, it being

the only new discovery made for a great many years previous that involved new principle. Consulting other works, it appears, however, that the article and the performance of eccentric millstones in grinding gave rise to an outpouring controversy, in which opinion was by no means universally in favour of this kind of mills. At the same time opinion was equally divided on the new proposition of acrating millstones by blast and exhaust fans. In a recent work, "The American Miller and Millwright's Assistant," by W. Carter Hughes (Philadelphia and London, 1859), the aeration of millstones by currents of air is not favorably commended, but the contrary, while the curved dress of Evans and other old authors is condemned at the bar of experiment as being more heating than the common quarter right line dress; but the experiments and scientific arguments of Mr. Hughes are neither of them conclusive, so that they leave the practical question at issue much about the same as they found it. And the like may be said of the eccentric grinding controversy, consequently both the one and the other must be left open questions on the other side of the Atlantic for the future to solve, more especially the question of an eccentric movement with a slow velocity of only some three or four revolutions per minute, as in the ass mills of the olden time.

There is one other topic requires a special notice before we

conclude our remarks on American mills, viz., the prominence given by Oliver Evans, W. Carter Hughes, and other authorities of the United States to the grinding with the lowest possible pressure, sharp clean stones, properly dressed being also a standing rule, the velocity of the runner being a secondary question. With them friction-heating and the killing of the flour are the results of pressure, and not velocity. But we presume the experiments at Hecker's steam-flour mills, Brooklyn, New York, made by chief engineer B. F. Isherwood, U. S. navy, which we shall notice in our next paper, under "The economy of motive-power," has thrown cold water on the rapid velocity at which the millers of the Union generally drive. In the experiments made by Mr. Hughes with a 4½-foot runner, the rate of driving was 180 revolutions per minute; while Hacker's was 228 revolutions per minute, which under the no-pressure dogmas was cool-grinding the flour from the stones with straight dress, being, in Hughes' experiments, 18 deg. lower than that with curved dress, and so on, 15½ bushels of wheat being ground per hour. It is not very easy to reconcile such conclusions from the pens of practical men with the established data of Science, and yet when the facts of the case are gone into piece-meal, as it were, difficulties disappear in the form of different modes of expressing the same things in the mills of England and America. ENGINEER.

### DAIRY MANAGEMENT IN DENMARK.

A comparison between the dairy management and produce of our own country with that of Denmark would be valuable to both countries, if the data of both were equally reliable. But unfortunately this could not be ensured, as, with a few exceptions, we are not in possession of any dairy statistics that we could offer for comparison, and those even are too limited in their details to justify a verdict on either side. The following returns from our own dairy records, however, may interest the Danish farmers, and perhaps induce a more general attention to selection and care in breeding, as adopted by Mr. Tesdorpf, and perhaps also the introduction of foreign blood, possessing milking properties, to cross with the best of their own. These returns are, no doubt, to be relied upon, as far as they go; still they must be only taken for what they are worth, being the milk produce of certain dairies on a comparatively limited scale.

Our principal dairy breeds are the Ayrshire, the Channel Islands, the Shorthorn, the Suffolk, and the Kerry. Some published returns of two dairies of Ayrshire cows give the annual milk produce per cow at 650 and 632 gallons respectively. Three returns of dairies consisting wholly of Shorthorns show a produce of 540 gallons, 630 gallons, and 765 gallons respectively, or an average of 625 gallons per annum for each cow. In two dairies where half-bred Shorthorns were kept, the yield was 810 and 866 gallons respectively for each cow. In four dairies in Ireland where pure Kerrys and crosses with Shorthorns and Ayrshires were kept, the annual produce per cow was returned at 500 gallons, 600 gallons, 675 gallons, and 740 gallons respectively; or an average, on the four dairies, of 630 gallons per annum for each cow. A dairy of that remarkably small native Irish breed, the "pure Kerrys," gave an average of 485 gallons per cow, and another of the larger Irish breed gave an average of 583 gallons per head per annum. In the great London dairies, now well-nigh extinguished by the ravages of the Cattle Disease, these returns are greatly exceeded. The cows kept are large framed Shorthorn and Yorkshire crosses, which by good feeding bring the returns up to nearly 1000 gallons per annum for each cow kept. The custom in these establishments is to dispose of a cow directly her milk falls below two gallons a day, and buy another in her place.

The following milk return of one of our best managed dairy farms (Frocester Court) shows the relative produce of cows in the successive years of their milking. The first lot were bought in at two years old; all the others at three years.

No. of Cows.	Year of Milk.	Produce per head.
8	1st	317 gals.
15	1st	472 "
14	2nd	535 "
15	3rd	616 "
20	4th	665 "
18	5th	635 "
9	6th	708 "
15	Old	651 "

The maximum reliable milk produce that we have recorded was that of a single cow belonging to the keeper of the gaol at Lewes, the details of which were authenticated by the Board of Agriculture. In eight consecutive years she gave 9,720 gallons or at the rate of more than 1,210 gallons per annum. In one year she milked 328 days, and gave 1,230 gallons, which yielded 540 lbs. of butter, or at the rate of 1 lb. of butter to 22½ lbs. of milk. In the early part of the present year (1866) a return was published of the produce of a cow in a Vermont (U.S.) dairy, which was stated to have given in the previous year a butter yield of 504 lbs., at the rate of 1 lb. of butter to 20 lbs. of milk.

Quite recently too our agricultural journals have recorded the butter produce of an Ayrshire cow at 399½ lbs., in the 10 months between calving (March 10, 1866, and January 10, 1867), besides supplying the family with milk and cream; and of another cow of the same breed which has supplied the owner's family with milk and cream, and given for the three past years, 1864-5 and 6, respectively 269 lbs., 282½ lbs., and 274½ lbs. of butter.

The proportion of butter varies with the season and with the breed of the dairy cows; the milk of the Ayrshire cow is generally richer in butter than that of the Shorthorn or Suffolk, but this again is not so rich as that of the Kerry or Channel Islands breed. As a rule it has been found that the best returns have been obtained in the latter summer or early autumn months, when we have returns of 1 lb. of butter to 20 lbs of milk (Ayrshire breed); 1 to 19 (breed not stated); 1 to 19½ (Irish breed); 1 to 18½ (Ayrshire); 1 to 17½ (Ayrshire); 1 to 16½ (pure Kerry); and even 1 to 16 (Shorthorn), this latter, no doubt, was under exceptional conditions. In all probability, the average butter yield of our dairies is about 1 in 30, ranging between 25 to 35 lbs. of milk to 1 lb. of butter.—*Professor Wilson's Report of the Danish Exhibition at Aarhus.*

## THE FAILINGS OF CHESHIRE FARMERS.

The following paper was read at the Swan Hotel, Tarporley, under the auspices of the local agricultural society, by Mr. Finchett, of Rushton:—In speaking of the failings of the Cheshire farmers I shall have to notice—first, our want of united action in matters of importance, as, for instance, in the steps that were taken, or rather the steps that ought to have been taken, in our recent visitation of the cattle plague; in the attempt which was made a few years ago to adjust the varying natures of our weights and measures; in the desirability, or otherwise, of abolishing the malt-tax; and in our efforts to obtain a better farm agreement between landlord and tenant. I think there is no class of people in which there is less combination than amongst the tenant farmers. I am not one to advocate anything nearly akin to the trades' unions among the mechanics, but I do think it would have been better for us had there been sufficient union to have resisted some of the Government restrictions imposed upon us with regard to the movement and disposal of our cattle, without some guarantee had been given for compensation; for you are aware that our losses were not confined to cattle, but, owing to the orders in Council, were extended to sheep and pigs; and this was done to benefit the public as well as ourselves, so the public ought to bear a share of its loss. As to the Compulsory Slaughtering Act, considering the little sympathy we received from the manufacturing and commercial interests, or from the small country towns who partly live by us, and the small compensation granted by Government for the few that were slaughtered, some would say we should have been justified in offering an active resistance to their measure. Our receiving no compensation for cattle dying between the 23rd November and 25th February is doubly galling, when we think that neither the late nor present Government deny the justice of our claim. Sir Stafford Northcote, in the House of Commons, when speaking of the deputation that waited upon him, said, "The inhabitants of Cheshire had suffered a very severe calamity which had fallen upon them particularly during this period; and under these circumstances they, not unaturally, came to Government to know whether anything could be done to compensate them for that loss." When he says we "not unaturally came to Government," I say it is admitting our claim; and were the same calamity again to befall us, I think we should not unaturally resist their interference without compensation. No other class but the farmer would have tolerated such arbitrary enactments. Those of you who read the Royal Agricultural Journals will see that Earl Cathcart, at one of the weekly council meetings, in speaking upon this subject and referring to the plague 100 years ago, in quoting from the *Gentleman's Magazine* from 1745 to 1757, says "that in the sixth year of the plague the justices have great difficulty in enforcing the orders," and "in the eighth the cattle are shot by order of the Quarter Sessions, and paid for out of the county stock;" and when it spread to Holland, that "the population was impatient of restrictions and even resisted them by force." The lecturer then noticed at length the inconvenience resulting from a want of unanimity in the weights and measures in local use, stating how difficult and puzzling the transaction of business became with such varying standards. In regard to the malt-tax, he thought its abolition would conduce to sobriety rather than the opposite, as he thought it would lead to more extensive cottage-brewing. Beer was now sufficiently cheap for a man to make a beast of himself if he wished, and he (Mr. Finchett) thought if it were cheaper, the disgrace attending drunkenness would be greater. In order, however, that the abolition of the tax might produce its legitimate effect, he thought that small beer-houses should be put down, as insobriety proceeded more from the adulterated drink sold at these places, than from the consumption of good wholesome ale. The duty, again, was taken off wheat to benefit the consuming part of the population, and it ought to be taken off barley for malting purposes to benefit the producing part. Barley, Mr. Finchett added, is a grain that has hitherto been little grown in this county; but this year, owing to the cattle plague, and having found it a

very productive crop, I think it will be more extensively cultivated, especially if we consider its value as a cattle food, but which we are prevented using by the duty payable on its being made into malt. The growth of barley does not so much exhaust the land as wheat, and as the maltsters are not now so particular as to colour, if the duty was taken off there would be a readier sale for this description. Our want of unity on this subject was shown just previous to the present Session of Parliament. When a deputation waited upon Mr. Disraeli to abolish the malt-tax, he replied by saying "that when he proposed to reduce the tax by one half, in 1852, the proposal was not received with any enthusiastic support from the agriculturists themselves, and it was owing to the opposition offered to that measure that any portion of the tax now remained." The subject of Farm Agreements is one of great difficulty, not only in this county, but in the adjoining ones. About two or three years ago the North Staffordshire Agricultural Society offered a £50 prize for the best farm agreement, for which there was good competition, and the best failed to give satisfaction. In connection with our county society's meeting, some few years ago, we had discussion meetings, and this was one of the subjects, and I think it led to Mr. Humberston's bringing out a farm agreement, and it, too, was not satisfactory. The difficulty in this county arises from the varying natures of our farms, some being all clay, some all sand, and others an admixture of both; hence arises the difficulty of making the same agreement apply to all: I think we should have agreements for each. I shall not attempt to draw out one suitable for any of the above classes of farms, but will just point out one or two objectionable clauses that are sometimes inserted, and that we ought to have erased—First, where tenants are not allowed to sell off root crops: I think this very objectionable, as very often these have been raised with artificial manures bought, and the farmer may have more than he requires. Secondly, where in our agreements certain fields are mentioned that we are not allowed to plough, others to mow, without the consent of our landlord or his agent in writing: where this occurs we are no longer our own farmer, but our landlord is for us. It is very right and proper we should be bound to a certain quantity (and for my own part I should not care how little); but it is placing us very low, as a class, when we are told where we shall plough or mow. It is not long since I saw a farmer going to ask his landlord if he might plough a certain field. I felt thankful I did not live under such an one. Thirdly, where we are charged with 10 per cent. for any outlay our landlord may make in bone-manure. Under a good agreement it is almost impossible for a farm, with a good tenant, to sink into its former state after a large outlay in bones; and if the landlord charged, say six or eight per cent. for the outlay, it would pay him better than buying more land which would in all probability pay him only 3 per cent. The tenant with a small capital may take a hint from this, by improving what land he already has, instead of taking more or a larger farm, and so produce more food for our fast-increasing population. When I have said that all farm agreements ought to have compensating clauses for unexhausted improvements, I think I have mentioned all that we as tenants need keep in view; the rest the landlord will not lose sight of. After pointing out these objectionable clauses and suggesting the last one, I would wish you to understand I do not think it important to have such strict agreements with all landlords; on the contrary, I would rather live under some without one, than others with the most stringent. These facts prove the necessity for the formation of Chambers of Agriculture, which would have a tendency to produce more unity of action in these matters. I will now mention a feeling very general and of great importance, viz., that of not keeping better farm accounts. There is no class of people who keep such loose or bad accounts as the tenant farmers; in fact, very many keep none at all, whilst others have them in a most complicated and unintelligible form. A few years ago a nobleman's bailiff, having heard that I kept farm-accounts, called upon me with his books to compare notes, but I must confess I could not

understand them. I said, "Can you tell me from these accounts—with a very little trouble—what you make of any particular part of your stock, say sheep?" "Well, no," said he, "not without going through the year's accounts." Well now, gentlemen, it is very easy to arrange our accounts so that such questions may be answered as quickly as asked, and tell at a glance what we make of any particular stock or produce. I have always been in the habit of keeping a farming account, but I never saw any before my own, and had to form them to suit my system of farming. They are very plain and simple, but answer every purpose of my own; and I think farm accounts are like machinery—the simpler the better. It is said it is more difficult to keep farm accounts than any others; if so, some are very easy. My plan is to keep a separate account of every kind of stock and produce bought and sold, or reared upon the farm, and a labour account; and then on the 6th March (the day on which I commenced farming, and which I think a good time for a Cheshire farm), I make out a balance-sheet, and so know what profit or loss I may have had. If every farmer kept accounts, many would farm very differently; they would be a guide, in many cases, to show what is the most profitable system, or otherwise, of farming in Cheshire. I found keeping accounts beneficial to me in 1857, when I lost twenty cows and a few heifers by the pleuro, by getting off the property-tax under schedule B. I don't think it necessary to keep a field account in this county, except on very large farms. A bankruptcy commissioner once said, "If men kept their accounts better, we should have far less come into this court." The lecturer then proceeded to remark that it was one of the farmer's failings not to employ more manual labour. They underworked their arable land, and did not keep it sufficiently clean, especially when in green crops. The weeds which were encouraged impoverished the land more than a proper crop, and in too many cases took place of it. Again, it was said by some to be one of their failings to spend all they got upon their farms; and perhaps it was often done where there was confidence in the landlord.

It would be well to remember the advice given by a retired tradesman in that room, that "out of every £100 made off the farm, £50 should be spent upon it in improvements and £50 put in the bank for the family." There were those who erred on the other side, and spent nothing on the farm; but were he (Mr. Finchett) landlord to such, he would give them notice to quit. Another fault was to be behindhand with their labourers' work—not to be fully prepared for each succeeding season of the year. Having too much tillage, again, was a fault; while other failings were, taking a larger farm than they had capital to stock well, under-keeping their dairy stock, and, finally, there was a mistake committed by many farmers of bringing all, or nearly all, their sons to agricultural pursuits. Lest they should think him too censorious, he would now go on to notice the hindrances to successful farming. Some of these were—the growth of too much hedge-row timber, such as ash, sycamore, and that worthless sort poplar; the over-preservation of rabbits, which, besides making it very expensive to keep neat fences, and almost impossible to rear young ones, was a great encouragement to poaching, and often led to unpleasantness between landlord and tenant; the hazardous nature of their dairy and feeding stock, owing to the periodical return of the pleuro-pneumonia, and now of the rinderpest; the state of the labour market, as labour was becoming scarcer and dearer every day; the sale of land above its legitimate value; and lastly, the difficulty of obtaining good female farm-servants. The lecturer, while considering the paucity of efficient labourers, strongly advocated the building of good and substantial cottages on every farm, by the landlord, as a means of retaining the active and skilful among them. He was aware, he said, that this, viewed by itself, would not be a paying speculation; and to meet that part of the outlay which was unremunerative, he thought the farmer should be prepared to sink a small sum annually, as well as the landlord. In the end it would, he felt convinced, answer the purposes of both. A few observations on successful farming concluded the paper.

## ON STEAM CULTIVATION:

### THE ADVANTAGES TO BE DERIVED FROM IT: ITS PRESENT POSITION AND FUTURE DEVELOPMENT.

[Read before the British Association at Dundee, September 5, by Mr. DAVID GREIG, of Leeds.]

It is not my intention in this paper to treat of the mechanical part of the above subject. For, although the greatly varying nature of the soils and circumstances to be dealt with over the country renders it necessary to have many different adaptations of the apparatus employed; still, the machinery has now been so nearly brought to perfection that the farmer has no longer any difficulty in obtaining apparatus suited to his own particular acquirements. The means employed to bring about such results as those to which I shall advert can scarcely be considered of that importance which the subject assumed during the earlier stages of steam cultivation. The points I propose to deal with are: The advantages to be derived by the farmer from the use of steam, in the shape of better crops; tillage operations more economically effected; the lessening of the number of operations required; and, most important of all, work done at precisely the right time, and when it can be done to the greatest advantage.

I shall also advert to the present state of steam cultivation, and its prospects for the future.

It is asserted by all who have tried spade husbandry that the crops obtained under that system are much better than those which can be got from horse-cultivated land. Indeed, this is so far the case that, although it cost from four to five times as much as horse labour, its adoption has been found no disadvantage, where an abundance of labour, at a moderate cost, could be obtained to do the work at the proper time. This is now rendered impracticable by the present state of the labour market in England. However, the fact of its superiority remains, nevertheless, indisputable. The chief feature of advantage in spade husbandry is the thorough loosening and mixing of the soil, and as this is much better accom-

plished by steam, it logically follows that crops upon steam-tilled land will be far superior to those grown under horse culture. And this is borne out by actual experience, the exchange of horse for steam power being generally followed by a marked improvement in the crops, and much greater yield per acre, varying, of course, with the nature of the soil, but amounting in some cases to two quarters more corn per acre. Ample proof of the accuracy of this statement may be found in the recently-published "Reports of the Royal Agricultural Society's Commission on Steam Cultivation," a work with which, I presume, most agriculturists are well acquainted. The reason for this increased productiveness can be easily understood. A team of four horses ploughing a 12-inch furrow will leave more than 300,000 footprints per acre; and, as these nearly cover the ground, the effect, as every farmer well knows, is to leave a hard subsoil or "pan" beneath the cultivated ground, which becomes worse with every successive ploughing at the same depth. The tractive power that horses are able to exercise upon a plough or other implement is very limited, and is further decreased in consequence of having to convey their own weight over the broken and uneven soil, and also to partly undo the compression caused by the treading of their feet.

If a horse be taken when the land is in a rather plastic state, and walked across the track of the steam-plough, and made to travel to and fro transversely, on every ten inches width, until a breadth of six yards is trodden over, it is then found that, if the steam cultivator has just sufficient steam to perform its work properly, before it arrives at the ground so trodden down, it will be completely stopped before it gets through the six yards; and considering the momentum of the



fly-wheel, this experiment shows plainly that the power required is something very material, and experience shows one-third additional draught to be required on land that has been trodden down to the same extent as in cultivation by horse-power. With steam the case is very different. The engine stands on the headland, and hauls the implement to-and-fro by means of a wire rope. All treading, and compressing of the soil and subsoil, is thereby entirely avoided, and the implement is driven at a much more rapid pace, throwing up the soil to a greater depth, and in a loose state, enabling it to derive full benefit from the influences of the atmosphere. It is found in practice that the rapid motion of the steam-driven implement tends to loosen and aerate the soil, much below the actual depth at which the tine or share is running. In horse or ox ploughing, the case is just the reverse, as the sole of the plough and the treading of the animals so consolidate the bottom, that the necessary chemical action between soil and subsoil is prevented, and consequently all escape of gas and water. The result of the deep tearing-up and loosening of the soil at the proper time by steam is that its temperature is raised, and a much greater quantity of ground is penetrated by air. The air is replaced in the same proportion by water, when rain comes, and this moisture is retained in the cultivated ground as though in a sponge, any superfluous quantity sinking away to the drain beneath, instead of the whole lying for some time on a hard trampled subsoil, as though held in a dish, making the land cold and ungenial.

I am now more particularly referring to heavy land; but a similar result is observable in the case of light land. Light lands are never much damaged by wet; the principal danger is from 'burning' in dry weather, but the deep cultivation and loosening of the soil, instead of having it lying on what might be termed a board, causes even light land to retain its moisture, in a dry season, for a considerable time. The mere question of aerating the soil deserves much more attention than is generally given to it. Mr. Bailey Denton lately wrote an able letter to the *Times*, which forcibly illustrates the importance of this question. He says:—

'Within a few miles of the metropolis, on Northpark Farm, Blackheath, Mr. Shepherd has raised a breadth of wheat, which any earnest agriculturist will be pleased to see. It is growing on land not naturally fertile, which Mr. Shepherd underdrained at his own cost, and has since cultivated with steam plough. The yield has been estimated by good judges as an average of 45 bushels per acre. At 8s. per bushel, this will bring £18 per acre irrespective of the straw, which may be considered as equivalent to the harvest expenses. Adjoining Northpark Farm is some very good wheat growing on similar land, equally well drained and treated except in the one particular of steam cultivation. It has been horse-ploughed. This yield may be fairly put at 30 bushels, which at the same price per bushel will bring £12 per acre. Within sight of these two instances may be seen some wheat, also growing on land similar in character to Mr. Shepherd's, which has neither been drained nor steam-cultivated, the yield of which cannot be estimated at more than 20 bushels to the acre. The return in money at the same price per bushel will be at £8 per acre. Hence we have within a short drive of London three cases of comparison, which cannot fail to show that by the adoption of deep steam cultivation on deep-drainage, the produce from stiff soils may be doubled.'

Steam cultivation improves the crops in another way. If the soil has been thoroughly and deeply loosened, at the right period, and has not been consolidated, except by its own weight, the roots of the plants have ample liberty to penetrate until they are stopped by natural causes. In dry seasons the roots are thus enabled to follow the moisture in the ground very much further than would otherwise be possible; and, as no burning can take place until the deepest root has entirely exhausted the moisture around it, the crop is made capable of resisting the effects of drought for a very long time. I believe that the success or otherwise of a crop depends upon the number of cubic feet of soil that the roots are able to penetrate; and I have found that a grain-crop will stand up much better, and is not so easily laid, on a deeply-cultivated soil as on one that is shallow. From what has been said on this part of the subject, it will be readily conceded that a great improvement in the crops is one of the results that must inevitably follow the use of steam on the land.

At the present time, the cost of performing tillage operations by steam is very far from being so low as it should be, or what it eventually will be. In many cases, and especially with machinery working for hire, the very heaviest portion of the work is given to steam, and generally that which cannot well be done by horses. Now, before we can obtain the maximum of cheapness, we must cause steam-power to perform all the operations connected with the tillage of the ground; for if, after steam-ploughing a field, horses are taken upon it, perhaps two or three times, for the purpose of harrowing or doing other similar work, the ground is of course trodden down and consolidated again. The consequence is, that the next year it requires much more power to break it up than would otherwise be the case; and not only does it require this extra force, but clod-crushers and other implements have to be applied to it, which would not be required if the treading was avoided. The generality of land, if put under steam cultivation, and kept entirely free from the tramping of animals, would only require one very deep cultivating operation every fourth or fifth year, and would be kept in such a state as to allow air and moisture and the roots of the crop to penetrate freely, so that the cultivation of the cereal crops in the rotation would only require to be light or surface operations, sufficient to receive and cover the seed.

The cost of steam cultivation has hitherto been greatly increased by the excessive breakages that have occurred to the machinery. These have arisen from two causes—namely, the want of men properly educated to the work, and the deficient construction of the machinery at first employed. The varying circumstances under which the apparatus had to work involved much more experimenting, to bring it to perfection, than would have been the case with any fixed machinery. These difficulties are now, however, altogether overcome, and with ordinary good management any mishaps of the kind named may be wholly avoided. With regard to the cost of steam, as compared with horses, I find, from careful observation, that, including interest on money, depreciation, and repairs, the average yearly cost of maintaining a set of steam cultivating machinery, doing 2,000 acres per year (say 10 to 12 inches deep), is under £300, or 3s. per acre. This allows money enough for its replacement in ten years. A good machine of this kind should displace over thirty horses, and, of course, many horse-implements. Now the wear-and-tear of the harness, implements, and the amount of farriers' and other bills, in connexion with these thirty horses, with interest and depreciation, will be at least twice as great as the corresponding items chargeable upon the steam tackle. The average price of coals per horse-power per day—that is, the cost of the quantity of coals we should have to burn in an engine, to get out of it work equal to what one horse could do in a day—is 7d. It is quite evident that the daily keep of a horse must cost much more than this. Less than half the number of men, also, are required to do the same acreage of work, although their wages have to be somewhat higher than those of the ordinary farm-labourer.

Or to put the case more concisely: A pair of horses in an ordinary plough cannot pull with a force of more than 3 or 4 cwt. at the most, and a day of this work cannot cost less than 10s. On the other hand, a steam-ploughing engine will give off, during the whole day, eight or nine times that draught at a cost of certainly not more than £3. These calculations are per day only; but as the horses have to be kept and fed when they are idle, as well as when they are working—which is not the case with the steam engine—the comparison is manifestly unfair to the latter. The whole of the comparisons should be based on a yearly average; but it is rather difficult to come to a conclusion how many acres a pair of horses can cultivate in a year, even supposing them to be exclusively occupied in such work.

But money is saved in another way. After a thorough deep ploughing or cultivating by means of steam, it is evident that only half the number of after-operations will be required to bring the ground to a sufficient tilth. In heavy land, twitch will be found to disappear altogether, as there will be no treading and planting of it by the horses' feet, which has so much effect in undoing the very operation while being performed, and consequently necessitating many successive operations in thoroughly cleansing the land. A steam-driven implement always tends to bring the weeds and rubbish to the top; never buries them. Heavy land is not naturally in-

clined to grow twitch; and if so much treading and trampling could be prevented, it is the writer's firm opinion that no such thing would grow on it, except through gross mismanagement or very light crops. The want of suitable implements has been a drawback to the cheap use of steam in tillage, as farmers have not been able to effect more than a portion of their work by its means.

Although it is no doubt an advantage to be able to do the farm operations more cheaply than by horse-power, the writer looks upon this as of minor importance compared with the results referred to in the first part of this paper, and with the increased certainty that will attend the carrying out of the farming business, about which I shall say more presently. The cultivation of soil is a business that requires a great amount of care and attention. A very false idea of a farmer's business is conveyed when it is said that any one is fit for farming; on the contrary, I do not know of any business which requires such minute attention and such keen observation; and this arises mainly from the extraordinary variations in the climate, weather, and soil, and the great effect these variations have upon the crops. Those persons who most carefully observe the state of their land, and never work it except at proper times, will derive the greatest advantage from it. On a farm under horse cultivation, however, this is a very difficult task, as the small amount of profit yielded by farming will not allow the number of horses, &c., to be kept that would be necessary to deal with all the land at the right period and in the most economical manner. This inability to perform the work when the land is in its best condition involves its deterioration, until it can scarcely be considered to be in a growing condition, and not unfrequently involves the total or partial loss of a crop. When we reflect that there are only two or three months in the year during which tillage work can be profitably performed, the fact that the horses are sometimes kept going continually, in order not to fall behindhand with the work, shows that the soil must often be operated upon when it is in a very improper condition. But the person who farms by steam has a powerful and ample force at his disposal, so that he can afford to wait until his land is in a fit state for working; and this force is also an untiring one, which he can work night and day, with relays of men, if necessary. You may often hear farmers complain that they have got behindhand with their work; and they will point out to you a field, or perhaps two fields, in which the crop has been nearly lost, simply because it was put in two or three days later than the remainder, or when the land was in a state unfit for its reception.

This occurs because the farmer is usually obliged to keep his working force of horses down to the narrowest possible limit, and the consequence is that in some unfavourable seasons he requires twice the power at his disposal to do his work in time. But, as the writer has shown, these irritating and expensive difficulties are almost unknown to the man who farms by steam. Hitherto farming has very rarely been highly successful as a commercial undertaking, and when taken up by commercial men it does not often pay. The reason is that to effect the different operations required in the best possible way entails an expenditure all the year round which cannot be borne by the profits of farming. As the use of steam develops itself, however, farming will become a business in which a man may see his way with some degree of confidence, and be able to calculate beforehand the cost of each operation, and whether he will gain or lose by it. The season and the weather will have only half the control over the crops and tillage operations that they have at present. But before these results can be effected, it is necessary that the very cheapest system of cultivation—cheapest I mean as regards the cost per acre—should be adopted, that the tillage should be done at a given time, and at a cost not greater than that of the actual day's work. For instance, if, under the present system, a farmer were to take each field consecutively, and just calculate beforehand the cost of the different operations required for cultivating it under ordinary circumstances, he would probably find that such an estimate would have to be double before it would cover his actual expenditure; and this in consequence of wet days and other contingencies compelling him to keep his teams and men standing idle. Such a state of things in an ordinary mercantile business would be ruinous; and this is the great drawback in all calculations connected

with farming—wet days have to be paid for exactly the same as dry ones, and often expenses are running on when real harm is being done to the land. Before, also, we can attain the cheapest system of cultivation, we must have the farm remodelled in order to admit of engines and machinery being worked in the most profitable way, and, as the writer has before pointed out, we must have steam implements that will perform every operation required, so as to keep horses off the land altogether, and thus lessen the power required to till the ground. The land must be brought into a uniform state, and be consolidated only by its own weight. When these principles are thoroughly carried out, the cost of cultivation will be only one-half of what it is at present, even where steam is partially employed. It is important that the fields should be made of a size to suit exactly the routine of work that the farmer wishes to carry out, and arranged so that all the crops of one kind are together; thus avoiding unnecessary delays and removals. The removal of a number of implements from one field to another entails a loss of time which should be reduced to a minimum by making the fields as large as possible, consistent with the rotation of crops the farmer intends to follow. Some may argue that, as their farms consist of different kinds of land, they require a particular crop upon each kind; but the writer believes that when steam is used, the advantage of having the whole of a crop in one place more than counterbalances any drawbacks of this nature, except of course in very exceptional cases; and, besides, the fact that steam can work on one kind of land just as easily as another, will often remove these objections altogether.

As an example of the advantages of enlarging fields and pulling down old fences, the writer would refer to the case of a gentleman in Essex—Mr. Prout, of Sawbridgeworth—who, on a holding of 450 acres, by pulling down fences and dividing his farm into seven or eight large fields, has gained no less than 16 acres of arable land—land which was formerly occupied by old straggling fences, trees, and water-courses; and this has been done at a cost which is trifling in comparison with the benefits obtained from the improvements.

The question of roads on a farm has an important bearing on the subject. There is an objection generally made that they take up too much ground, but this is altogether unfounded. The headlands, which are generally trodden down and compressed by horses and carts, require at least twice the cultivation of the other parts of the field, and yield worse crops, there can be consequently no profit in their tillage, and the width of a road dividing two fields is of course much less than that of two headlands and the hedge. But, however that may be, by having properly-constructed roads on a farm the cost of taking off the produce is very considerably lessened—say, by  $0\frac{1}{2}$ d. per ton on the whole. This would much more than cover the rent of the ground occupied and prevents any treading on land to be cultivated.

When these and such kindred improvements are carried out, farming will become a business which any thoughtful and intelligent man may manage with profit, and will be free from most of the vicissitudes which now cause the investment of capital in farming to be looked upon as of so precarious a character. Besides the advantages to the agriculturist, the nation at large will derive great benefit from the increased yield of crops, and also from the fact that the materials to feed the power used in tillage will be drawn from the coal-mine or the forest, instead of being taken from the produce of the fields. We shall not be obliged to import so much corn as hitherto, and a larger percentage of the crops will be converted into food for human beings, instead of food for horses.

In these days of dear labour, a very important point is the reduction in the amount of manual labour required to till the soil, together with the enlightenment of the agricultural labourer, tending to make him use his mind as well as his body. So far as this country is concerned, the state of the labour market is becoming a question which every farmer will have to study; for while the labourer is justly participating in the progress of the condition of people in this country, the rise in labour must materially lessen the farmer's profits, except by employing such machinery as shall considerably diminish the number of men required.

COMPOSITION AND PROPERTIES OF THE HOP.

The value of the article depends very much on the kinds raised, the character of the soil and climate, as well as careful pruning, drying, and preparing for market. On the deep and dry limestone soils of Kent and Surrey, rich in alkalies and phosphoric acid, the Farnham whitebines and Goldings usually command from thirty to forty per cent. better prices than the coarser varieties, such as grapes, Colegates, and Jones's, commonly raised on the inferior clay lands of the Wealds of Kent and Sussex. This made a great difference to the planter when he was subjected, as was the case only a few years ago, to a heavy excise duty, fixed at so much a pound, irrespective of the quality or commercial value of the article. The only mitigation of this inequality was, that the inferior hops would yield a larger average crop per acre on deeper land. As these facts involve considerations of much practical importance to hop growers in all parts of the world, we shall condense, for the benefit of our readers, some results of analyses of hops made several years since by the late Mr. J. C. Nesbit, of London, and Professor Way, the then consulting chemist of the Royal Agricultural Society, in whose transactions full details are given.

In the subjoined table, No. 1 is the analysis of four hills of hops of the Farnham whitebine variety, grown in a calcareous soil in Surrey, rich in phosphoric acid. No. 2 represents the mineral constituents of three hills of the yellow grape variety, grown on the Wealden clay in Kent:—

	No. 1. Farnham W. Bine.			No. 2. Kent Yel. Grape.		
	Hop.	Leaf.	Bine.	Hop.	Leaf.	Bine.
Per centage of ash on dry matter .....	9.90	16.33	5.00	15.80	25.11	5.10
Analyses of the ashes:—						
Silica .....	20.95	10.14	4.61	24.96	20.38	5.66
Chloride of sodium ..	7.05	7.92	4.95	3.18	4.58	9.98
Chloride of potassium ..	1.63	—	7.38	2.21	—	—
Soda .....	—	0.32	—	—	2.29	2.32
Potash .....	24.50	12.18	18.62	15.61	5.13	12.97
Lime .....	15.56	41.46	29.59	23.75	32.28	17.39
Magnesia .....	5.63	1.99	3.15	6.13	6.24	12.61
Sulphuric acid .....	5.27	4.20	2.63	4.16	3.63	3.14
Phosphoric acid .....	9.51	2.02	5.22	5.26	3.68	8.14
Phosphate of iron .....	7.26	2.93	0.31	6.79	0.51	2.06
Phosphate of alumina ..	—	—	—	—	—	1.55
Carbonic acid .....	2.61	16.54	23.51	3.36	21.25	24.18
Manganese .....	—	—	—	1.59	—	trace.
	100.00	100.00	100.00	100.00	100.00	100.00

Professor Way gives the following results of analyses of two dried specimens of hops grown, No. 1 by Mr. Paine, of Farnham, Surrey; No. 2 by Mr. Eggar, of Bently, Hampshire; both being the Farnham whitebine, and from a similar calcareous soil; the only difference being that No. 2 was gathered a week earlier than No. 1, and therefore not so fully ripe:—

	No. 1. Farnham.	No. 2. Bently.
Per-centage of ash on dry subst.	5.95	8.07
Analyses of the ashes:—		
Silica .....	19.71	22.97
Chloride of sodium .....	3.42	—
Chloride of potassium ..	—	5.45
Soda .....	—	—
Potash .....	24.88	11.98
Lime .....	21.59	17.93
Magnesia .....	4.69	5.94
Peroxide of iron .....	1.75	1.86
Sulphuric acid .....	7.27	7.01
Phosphoric acid .....	14.47	21.38
Carbonic acid .....	2.17	5.44
	99.95	99.96

The following table exhibits the composition in pounds, removed by an acre of hops, with the leaves and bine, 1,200 hills; total growth when thoroughly dried, 2,240 lbs.:—

	Hop.	Leaf.	Bine.
Silica .....	32.65	97.28	12.95
Chloride of sodium .....	1.26	13.58	3.40
Chloride of potassium ..	15.26	9.96	19.90
Soda .....	—	—	—
Potash .....	54.01	57.15	22.81
Lime .....	16.33	133.98	30.99
Magnesia .....	8.17	21.06	4.88
Peroxide of iron .....	1.14	0.82	1.03
Sulphuric acid .....	8.69	8.22	3.02
Phosphoric acid .....	29.53	40.61	15.15
Carbonic acid .....	3.39	52.40	15.41
	170.43	435.06	129.54

The above hops were carefully analyzed by Professor Way with a view to determine the amount of nitrogen carried off per acre by the crop, with results as follows: In the hops 56.4 lbs., leaves 49 lbs., bine 23.86 lbs.; total amount of nitrogen removed being 129.5 lbs. per acre, or nearly equal to that which is supplied by 1,000 lbs. of the best peruvian guano.

The reader, by glancing at the foregoing tables, will see that the hop is probably the most exhausting crop to the soil that can enter into any system of cultivation. It would be so as a mere rotation crop; but as producing annually on the same land, and that often for a long term of years, we can readily understand why hop grounds imperatively require so constant and liberal a dressing of manure—the money-value of which, in the best cultivated districts of England, would amount annually to £5 or £10 sterling per acre. From the above analyses it will be apparent why it is that hops delight in a calcareous soil, since lime enters so largely into the composition of every part of the plant, as do also the alkalies potash and soda, and particularly phosphoric acid. We remember seeing, some years since, a field of hops in Canada, a small portion of which had always been remarkable for producing a larger crop, of better quality, than the other parts, though it received little or no manure. The explanation we found, on investigation, to be, that the favoured spot was exceedingly rich in phosphate of lime, arising from the slow decomposition of human bones, the place having been an ancient Indian burial-ground. The foregoing tables will also show the hop-grower how important it is that the bine and leaves, after gathering the fruit, should not be allowed to run to waste, but in some way or other returned to the soil, from which during the previous season's growth they had extracted so large a quantity of plant-food, particularly inorganic materials. The bines should therefore be cut into short lengths, and incorporated with the soil, by ploughing or digging, or, which is perhaps better, by putting them into yards to be trodden down with straw by cattle, the excrements of which would hasten fermentation, and both increase and enrich the mass of manure to be applied the ensuing season. The practice of burning the bines on the ground is objectionable, as the whole of the organic matter is dissipated, and therefore lost to the soil. Hop-bines, when thoroughly dried by the sun, made into stacks, and protected from wet, make good fodder, and are much relished, particularly if salted, by cattle and sheep during winter. It should always be borne in mind, that even in soils the most naturally rich, successful hop-culture requires an annual dressing, more or less, of suitable manure; good farm-yard dung, from a liberal feeding of animals, being generally the best adapted to the purpose. The occasional application of quicklime, ground bones, wood ashes, guano, &c., when farm-yard manure cannot be got in sufficient quantity, will, if judiciously applied, be attended by very beneficial results.

Although little or nothing has been done till of late years by analytical chemistry towards determining with accuracy the constituents of hops, the properties of three active ingredients have now been pretty well made out:

1. *The volatile oil.*—Dried flowers of hops will yield from 7 to 9 per cent. by weight of this substance, according to their quality, which we have seen is much influenced by variety, soil, climate, &c. It is thought that this oil contributes

largely to the well-known narcotic property of hops, but in precisely what way has not yet been determined. Hop-pillows are often used with great comfort to the sick, inducing rest. It is said that George III. experienced much relief from this source during his protracted mental indisposition. It is this oil that gives to hops their peculiar and agreeable odour, and it being very volatile, they require to be closely packed in bags made of good compact linen, and stowed away in dry rooms, protected from atmospheric currents, and other causes that would injure them greatly. By proper attention to these precautions, hops may be kept several years; but with the greatest care their strength and value will inevitably diminish in proportion to their age.

2. *The aromatic resin.*—When fully ripe hops are carefully dried, they yield, by rubbing, a fine yellow dust, equal to a sixth or seven part of their entire weight. To this fine powder the name of "lupulin" has been given; and it is known in commerce as the "condition" of the hop, and, consequently, is the chief element that determines its market value. This powder consists of exceedingly minute grains or glands, of a bright yellow colour, and of a cellular texture, having a strong agreeable odour and bitter taste; and when taken internally

they are aromatic, soothing, and tonic. About one-half their weight consists of a transparent, aromatic resin, the properties and action of which, though no doubt of great importance, have yet been but imperfectly determined.

3. *The bitter principle.*—In addition to the resin, lupulin contains a small amount of a volatile oil and tannin, and 10 per cent. of a peculiar bitter principle, which gives flavour to beer, assists in regulating its fermentation, and forming its keeping quality. "Though," remarks Professor Johnston, "the specific action of each of the chemical principles contained in the hop-flower has not been very well ascertained, the united action of all of them together is well known. The tinctures and extracts of hops which we use in medicine, and introduce into our beers, contain them all, so that all the virtues of the hop, in whichever of the ingredients they reside, are present in them, in a greater or less degree. Hence, well-hopped beer is aromatic, tonic, soothing, tranquillising, and in a slight degree narcotic, sedative, and proconvulsive of sleep. The hop also aids in clarifying malt liquors, arrests the fermentation before all the sugar is converted into alcohol, and thus enables them to be kept without turning sour."—*The Canada Farmer.*

## THE RELATIVE MERITS OF SHORTHORN AND AYRSHIRE CATTLE.

At a meeting of the Logic and Lecropt Farmers' Club G. H. BINNING HOME, Esq., of Argaty, said that, not being a member of this Club, and having been asked—as he was now about to do—to speak to them on "Shorthorn and Ayrshire cattle," he considered it a very high compliment indeed. It, therefore, became him to do what he possibly could to set agoing an interesting and beneficial discussion upon the subject. At the commencement, then, he thought there would be no harm in looking at the various breeds of cattle. Having paid at all times the greatest possible attention to the different kinds of breed, there was one thing that appeared to him quite clear, that the cattle in different parts of the country had been introduced by the different tribes of population therein now settled. When at the Great Exhibition of Paris, in 1861, he paid very great attention to the various breeds of cattle exhibited there. He saw, amongst others, red cattle from Flanders, with almost all the qualities which are desired in Shorthorns. He might say that, with the exception of being of every colour, the cattle in Normandy resembled the Shorthorn very much. The splendid butter that was to be had at Paris all the year round was produced by them. He believed that the only pure breed of cattle to be found in this country was the West Highland and the black cattle of Wales, which were much about the same—the only difference being, the Welsh had much less hair than the Highland, which might be accounted for by the difference of climate. As to the Shorthorn and Ayrshire cattle, neither of them, he believed, could be strictly called a pure breed. The population which had emigrated from Flanders into Yorkshire brought with them a fine, large, red stock, and from thence Holderness cattle were known to have been imported into the neighbourhood of Kilmarnock, by Cambell, of Cessnock. Dunlop, of Dunlop, introduced Dutch cows, and others had introduced cows from the Channel Islands, from all which, combined with West Highland blood, the present improved breed of Ayrshire had arisen, and were now recognised as a distinct breed, though they were neither more nor less than the result of a judicious crossing, to make them what they now were famed for—first-rate milkers. As to their West Highland blood, he remembered seeing, as a constant prize-taker, a bull named "Geordie," whose colour was nearly black, and was said to have one-eighth of West Highland blood, and with upturned horns, which was now the fashionable shape among prize-taking Ayrshires. He did not know if any improvement had been made on Ayrshire cows for many years; as he remembered, when a boy, of his father having at Auchinbowie two cows which had almost all the shapes and qualities now so much desired. He also recollected old Lord Abercromby having some wonderfully milking Ayrshires. The principal object in the breeding of Ayrshire cattle had been to attain great milking properties, whilst the sole aim in the breeding of shorthorns was beautiful forms combined with great feeding pro-

erties. He considered it a great mistake of the English breeders in not looking more to the milking properties, for he considered a cow that could not nourish its own calf was of very little value. He was quite certain that young heifers forced to great fatness at an early age had their milking properties completely ruined or destroyed. He considered this a great loss to the farmer when cows were rendered unfit for breeding, owing to the great aptitude for fattening. Shorthorned cattle were not considered good milking cows; but he would mention one instance of a cow of that breed which belonged to the late Mr. Burnett, of Gadgirth, and which gave 18 Scotch pints of milk and 2lbs. of butter in the day. He might say that in Yorkshire for long there was a competition between Booth and Bates; Booth's cattle going wonderfully to fat, while Bates maintained that his were excellent milkers. He recently attended a sale near Hull, where he saw a number of cows with as beautiful milk-vessels as anybody could look upon; and yet it was a remarkable fact that there was not a single man in England who knew what every Ayrshire breeder looked first at in choosing a bull for getting milking stock—that was as to the position of the teats in the male. Many people said that the first cross was the only cross worth breeding. This, however, was diametrically opposite to the theory of shorthorned and Ayrshire cattle being brought to their present perfection by a great variety of crossing. He might also mention that Mr. Bates told him that at one time he had got some fine West Highland heifers from Lewis Macfarlane, from which he had bred by his shorthorned bulls some of the finest animals he had ever possessed. Whether the longish and black-tipped horns of his Wild Eyes tribe had anything to do with this cross, might be left for conjecture—parties might draw their own inferences. The celebrated Frederick the Great of Prussia thought of breeding great grenadiers by getting the largest men in his army to marry the largest women. However well this system had done in regard to cattle, it was a very different thing between men and women, who might be supposed to have certain fancies somewhat different from those in bulls and cows, and of course this project of the Prussian king turned out a failure. With regard to cattle, they had sufficient evidence that great perfection could be attained by crossing the breed of those animals which had the different points required. Bakewell, of Dishley, proved the same as to Leicester sheep, and he believed it to be of general application in almost every respect, whether of milking, fattening, or strong constitution, fitted to contend with coldness of climate. He should be very much inclined to cross the West Highland cow with the shorthorned bull. In short, a judicious selection of the best animals to breed was the great secret in the breeding of good stock. He was of opinion that it was that, and that alone, that had made the shorthorns and Ayrshires what they now were. As to the

difference of milk, he had found out by experience that the milk of the shorthorns was much richer than of the Ayrshire cows—that was, they gave a larger percentage of cream. On testing the milk, which he had done for many years, he found that that of the shorthorns contained from twelve to seventeen parts of cream, whilst the milk of the Ayrshire cows only contained from nine to twelve parts; and, therefore, although the apparent quantity of milk might not be so great, there might be fully as much butter, and of a richer quality. He was rather puzzled to know what further to say on the matter. He believed that the great point for the breeders of stock to observe was, if possible, to get a judicious selection of pure shorthorns, and cross with whatever breed they found most suitable. Climate seemed to have considerable effect on the milk-producing qualities of cattle, and he would rather buy a shorthorned cow from Cumberland or Westmoreland than from the east side of the island. As to the Ayrshire cattle and their milking properties, the average good milkers among them produced about eight Scotch pints per day. As to the shorthorns, he had not yet ascertained as to the real quantity of milk produced by them, as many of his cows suckle their calves. He hoped that what he had said might lead to some discussion on the subject. He ought to have added that, at the Paris Exhibition of 1861, there were a great many Dutch cows, having every point of Ayrshire stock except that of their colour, being all black-and-white without exception.

Mr. CHRISTIE (Cottonhaugh) asked Mr. Home if, in the event of a shorthorned cow having had produce by an Ayrshire bull, would it afterwards by a pure shorthorned bull have stock indicating pure shorthorned blood?

Mr. HOME said he did not venture to answer that question, as it was well known that the produce of females frequently retained one of the points given by the first male.

Mr. CHRISTIE then asked if Mr. Home approved of the high feeding of breeding stock?

Mr. HOME said he considered it in every way most injurious,

and that those who did it were guilty of madness. Some shorthorns, however, could scarcely be kept down, although they got nothing more than straw and water. He had the misfortune to lose the use of three of his very best animals from their tendency to excessive fat.

Mr. CHRISTIE asked Mr. Home what farmers could do with shorthorns on high land?

Mr. HOME did not mean to say to keep pure shorthorns on high land. He thought if they crossed the native breed of the district with pure shorthorns, they should have a great amount of frame.

Mr. GALLOCH (Knockhill) thought that a good Ayrshire cow with a shorthorned bull was the best breed for their district, both for breeding and other properties.

Mr. PEAT, Manor, said that Mr. Galloch had just anticipated what he was going to say. The breed betwixt the Ayrshire cow and shorthorn bull was very hardy in their constitution, and also grew to a good weight. It was very difficult, so far as his experience went, to get good shorthorns good milkers. He had always thought that the Ayrshire cows were the best milkers, and that the shorthorns were the most suitable for the cattle-shed.

Mr. JARVINE said that the shorthorned cow was very apt to go wrong in the milking vessel. Their milk was richer than that of the Ayrshire cow, but they did not give so much of it. He thought that they would not go wrong in crossing two or three times. The herd he had at present was the same as that he had had for forty years. There was one cow he had kept for twelve years; she was one of the best milkers he ever had. She had had three times twins, and four calves within one year.

Several other members made a few remarks on the subject, and the general opinion was that the cross betwixt the Ayrshire cow and the shorthorned bull were the most profitable animals.

The CHAIRMAN proposed a vote of thanks to Mr. Home, which was seconded by Mr. Henderson, Craighall, and cordially responded to.

## DISEASES IN PIGS.

SIR,—In my last contribution on the diseases in pigs I described to you the most malignant form of typhus charbonneux. I now proceed to the second division of this subject, viz., the subacute or more ordinary form of the disease, but whose distinguishing characteristics are not to be marked by so much a less fatal tendency as by the slowness of accession and mildness of symptoms compared to the more acute attack; and here, for the first time, do we meet with a faint ray of hope that medical treatment may not be unavailing in retarding a fatal termination and effecting a cure; and though attempts at treatment in the past may have been marked by failure or but little success, let not the avowment and consciousness of this fact paralyze our efforts or destroy the public faith in the cure and curability of this disease, for the want of success goes by no means to prove that the disease is incurable; for let it be borne in mind that even in medical as well as veterinary practice the discovered remedy for a disease has been the sequel to years, if not centuries, of patient inquiry and oft-repeated experiments.

The symptoms in the second division of this disease are the same in kind, and differ only in degree, to the symptoms described in the first division, and, therefore, require here only a partial enumeration; being milder and well marked in their early development, they are, consequently, less alarming and easier to be appreciated, and if advantage is taken here of the tide of time, a reasonable hope of cure may be entertained. In the early stage we first observe that the animal appears prostrated and crest-fallen, keeps lying, and evinces a disinclination to be raised; ears are warm, pendent, and painful; eyes are red, with a fixed expression; pulse and respiration quickened and disturbed; flanks painful, which if pressed but lightly the animal will grunt; the tail is flaccid, and hangs like a cord; the animal refuses or eats but little, even of the most delicious food; drinks sparingly, and swallows with seeming difficulty. The above symptoms may be observed for two days, and must not be trifled with: for only during their early

existence can curative means be rationally attempted. From this is to be dated the turning point, and in most cases rapid departure to the acute form and fatal termination of the disease, announced by the increased intensity of symptoms.

The pathological lessons differ but little from those in the first division, except being aggravated (from the longer standing of the disease); the mucous membrane, chiefly lining the nose, mouth, and throat, is occasionally to be found in a sloughing condition. The causes of this disease, like those of blood poisoning (cholera), rest somewhat in obscurity; yet, in ordinary language, may be said to exist in the impurity of their habitations, the air they breathe, the water and food they drink and eat. But before entering more minutely into these causes, it would be wrong to suppose that the disease does not extend its ravages, or never originate in apparently the best-managed piggeries, but it must be generally conceded that, comparatively speaking, they enjoy an exemption, and where the occurrence of exceptional cases cannot be traced to contagion, might yet justly be attributed and verified to be due rather to the altered, fermented, or decomposed state of the aliments (rendered so by intention), than otherwise to the absence of naturally sound and nutritious elements. But to return to the first class of symptoms, I shall mention epizootic, or, in other words, atmospheric causes. This, to say the least of it, is a mere matter of inspiration, and I might further add, the air is nothing more than a gasiform liquid floating round this material globe (earth). Treating this matter merely in a Newtonian material point of view, that the air, considering its remote distance from the celestial bodies, can attract but little from the moon or the stars, we must fix our attention on mother earth: from her alone can we trace the source (physiologically) of life, disease, and death, but also the atmospheric constituents, and again sets before us that all the ills the flesh is heir to spring from the earth, and to her alone must we confine our observations. And whether we personify her as a huge deity or a lifeless mass of matter, for practical

purposes we may assert that her body superficially is literally a breathing apparatus, and by this means alone can the atmosphere be vitiated or poisoned, and become the great medium or carrier of contagion, bearing the germs of disease like the stray seeds of plants, to deposit them broadcast over the earth, to be reproduced again by favourable circumstances. This teaches us not only the moral, but practical, lesson that we must inquire from beneath and within, and that, as far as individually concerned, to prevent and arrest the porcine epidemic, we must study to observe and stringently put in force the most intelligent sanitary measures in the rearing and feeding of pigs; otherwise the violation of these can only be responded to by the introduction of disease.

In the pursuit of this inquiry into the epizootic in pigs it will be necessary to review the domestic habitat of this animal; and here we find him shut into a small covered area a few feet, the floor of which contains a daughill of some six months' standing. The better to hide its filthiness, it is covered with a thin layer of litter, and here the hero of our subject lives, lies, and spends the greater part of his solitary and prison life, with an outside atmosphere of a cesspool, from which he inhales a poisoned air, or wanders out to wallow in a putrid sea of filth, in which he may only bathe, drink, or pick up stray articles of food, while that which in other respects is given by the trough, may be chiefly composed of pernicious weeds or other decomposing vegetable matter, which, if he had freedom of choice, he would instinctively reject. But it may be said I have pictured only an exceptional case; if so, let me inform my readers that I have at least established one hotbed of nursery of disease, which may spread its germs far beyond the radius of this pigsty.

I shall now review our hero in a more dignified position, as a tenant of the cabin, from which he emerges either to satisfy the cravings of hunger, to gulp up almost every sort of brute and human refuse (though he never resorts to this morbid practice in a savage state—a vice evidently begotten by domestication); and should it bask in the rays of the sun, its next probable move is to drink, and in a place too often only accessible to it—the cabin pond of filth, and maybe that this luxury, impure as it is, is denied it. Water in this case is not only necessary to quench thirst, to neutralize crude materials in the digestive organs and blood vessels, but also to open the pores of the skin, so that transpiration may not only protect this organ, but rid the system of impure matter; and I may mention and substantiate a fact not generally known, that, dirty as the pig (in its domestic state only) may appear in its habits, nothing is more conducive to health and prevention of distemper in this animal than to keep its skin scrupulously clean and in good breathing order, by brushing and frequently washing its skin with soap and water, with occasional small doses of nitrate of potash and sublimed sulphur in its food. This method was marked by complete success in the Kilkenny Model Farm herd of pigs, around which (in neighbouring piggeries) the disease was raging with intensity; and though daily and direct communication was kept up between the pigs of this establishment and those from diseased piggeries by the almost hourly introduction of sows to the model boars, it

maintained its high standard of health and exemption from disease, and others who were persuaded to follow this plan can attest not only as to its power of preventing disease, but also in rapidly promoting the growth of the animal. Overlooking many minor causes of disease, to consider the flesh of diseased pigs in a sanitary aspect and as a *prima facie* evidence to medical inquiry, I beg to state that the consumption of distempered pork by the carnivora has not produced any decided derangement of health; neither has the inoculation with the morbid matter produced any local or constitutional effect in this animal (the dog) owing, perhaps, to some peculiar idiosyncrasy; for, when the matter is introduced into the system of the herbivora, either by the skin or the mucous membrane, the animal shows symptoms of blood poisoning. As to its action on the human subject, I am not placed in a position to make any positive statement, but simply surmise that its consumption cannot be otherwise than injurious to health.

*Preventive Treatment.*—It is a generally recognised fact that it is often easier to treat the causes of disease than the effects they produce: this is particularly the case with the acute form of the disease; and first in the right direction let the pigsty be built roomy, airy, yet comfortable, on a dry, foundation, with a sunny aspect. Whitewash and remove all filth, supply a liberal allowance of sweet, sound food, fresh water, and litter, keep the skin of the animal clean, and if summer let it have clean water to bathe in, and to drink, to which may be added nitrate of potash, or occasionally a few drops of sulphuric acid, and in the food sulphur, camphor, or even a few grains of calomel. Gentian by some has been recommended, along with a spoonful of magnesia; but last, not least, I would insist on the occasional use of small pills of aloes, wrapped neatly in oiled paper, given in cold food while the animal is hungry. More might be said, yet enough for practical purposes.

Curative treatment, to say the least of it, has in most cases met with less success than what might be expected; but to me the most effective and rational treatment consists in as quickly as possible removing all crude or effete matter from the bowels, by a gentle purge composed of castor-oil two ounces, aloes one scruple, calomel three grains, gentian one drachm given to a large sized pig. Emetics have their advocates, but it must be admitted that vomiting to the pig is necessarily a very painful operation. Frequent injections of camphorated water, a mustard-poultice to the belly, frictions to the loins and back, with some stimulating liquid, serve materially to diminish the pain and to encourage generally free circulation. While the medicine is in course of action give light, refreshing drinks, in which is dissolved a little nitre, or a few drops of nitric or sulphuric acid. This in course of symptoms of improvement should be followed by farinaceous drinks containing a glass of wine or spirits. Bleeding in this disease cannot be otherwise than hurtful, serving only to weaken the animal and to increase the morbid tendency. Apologising for having trespassed so far on your space and the patience of your readers,

Yours, &c.,

JOHN MOIR, V.S., C. P. Inspector.

—*Irish Farmer's Gazette.*

## THE USE OF ALKALINE SALTS IN AGRICULTURE.

[TRANSLATED FROM THE JOURNAL D'AGRICULTURE PRATIQUE.]

Another inquiry upon the question of manures has recently been set on foot, showing what solicitude the Government feels for the wants of agriculture. In all parts of France, the authorities have displayed the disastrous plagues which consumed practical culture, officially disclosing the abuses in the trade of artificial manures, and pointing out the incessant efforts of certain manufacturers to place at the disposal of the soil a quantity of matter hitherto neglected, to the great detriment of the wealth of France.

They put in order all those disgraceful traffics, to the mercy of which, for the want of instruction, knowledge, and working capital, our rural population is exposed; and, in spite of the evidence of facts, as well as the seriousness of the usurious excesses of certain bonders, the general conclusion of

the honourable commission was that it is better to give entire liberty to commerce in manures, persuaded, as all its members were, that agriculture in France is no longer in an infant state, and that, strong in its knowledge and intelligence, it will become more and more capable of guiding itself, able to distinguish the false from the true, and detect almost instantaneously the dishonest or disloyal manufacturer. Every sensible man must approve of that broad way which reveals to his own eyes the agricultural manufactures. But if agriculture refuse to be guided by a repressive hand, proud of what it already knows, it seeks advancement in its studies, and demands from science and its representatives redoubled zeal and activity in order that it may be enlightened by their discoveries. The works and acts of nature must

become more and more clear to the eye of the cultivator, greedy of knowledge. What formerly was complete mystery becomes now a natural act of vegetable life; laws preside from the birth to the full development and whole existence of plants as well as animals. The wants and exigencies of each family are made known, and the conditions, like the materials necessary to each plant for completing its destiny, are nearly all known.

When a seed, after having found a suitable soil, has produced the new being upon which the hopes of the cultivator rest, it requires a complex nourishment. Azotic and mineral substances all in a particular state of assimilation have been tried. There is the whole secret of the agricultural question. Farm manure is the universal compost, the complex and complete aliment. But there is not sufficient manure for the consumption required; that is the evil. Hence we have artificial manure, the thousand-and-one guanos, the universal panacea which pertain to the industrial manufacturer.

It is against these supplementary manures that one universal cry has been raised. With the exception of Peruvian guano and the products of some houses, who justly claim reputation for honesty, we find a crowd of mere pretended improvers of the soil.

However, next to the azotic matter furnished by the excrements of animals, and fecal matter mixed with straw, and herbaceous litter, which according to M. Malaguti himself, ought never to be held in the first rank, what is wanting far more in a soil after having been for a long time productive, are mineral substances such as carbonate and phosphate of lime, magnesia, soda, potash, &c. The fact that a soil does become destitute of mineral substances after long-continued cultivation has been pointed out at all times. Our ancestors the Gauls, as well as the Romans, tried to resolve that problem, and led the way for us to follow. Marling and huing was the first step made on the broad road of progress, but there it is the cultivator himself who is the marler and liner. He took the first substance required from the soil or from the producer, and, deceived neither in its quality nor its nature, always obtained good results, whilst he conformed to the laws of sage experience. In the latter century Franklin taught us the use of sulphate of lime, and there again the cultivator uses the first matter, after it has been submitted to a simple preparation which in nowise changes its former nature. Now, in our time, devoted men have carried out the Gallic method, and sought to procure new elements hitherto overlooked. Phosphates are no longer put into the hands of farmers mixed with inert matter such as animal charcoal and its adulterations, but even in the state of natural phosphate of lime, put into a condition for assimilation pointed out by experience and controlled by science. Thus the use of phosphate of lime has gained a great step. The cultivator knows it is needed for his crops, and when he buys it, he does not fear deception, because he has simple means at his disposal for testing the honesty of the vendor. In a few more years its use will be as common in France as that of marl.

But that method of making the farmer manufacture his own manure is not perfect. There will be yet wanting in his soil mineral elements that the culture of beetroot and potatoes render more and more indispensable. Salts of potash, soda, ammonia, and even magnesia hold an important place hitherto neglected, and will become increasingly valuable when *intensive* culture is more general in our country. For that reason M. Cartier has published a small work, in every respect worthy the attention of thoughtful men.

This small tract is a tissue of facts and scientific and practical researches upon the character and action of alkaline salts. It is a complete and reasonable paper, a compilation of all the acts proper to the cause, a verification of all the advice of the most competent men, French and foreign, as MM. Boussingault, Liebig, Kulmann, de Gasparin, &c.

The evidence of utility is the first conclusion, but it is necessarily a second which permits to practice the possibility of applying the lessons of theory, and it is to that second part that the author principally addresses himself, by making known to the cultivator the source from which he can best obtain alkaline substances at a moderate rate. These sources are the alkaline salts extracted and drawn from the mother-waters, formerly abandoned by our salt works in the south,

and which may be delivered either in a state of common salt, or sulphurated alkaline manure. Through the medium of salines, the sea would yield in France annually 100,000 tons of manure, containing nearly 15,000 tons of potash, 10,000 tons of magnesia, and as much soda. From such quantities of alkalis, obtained economically, either in a state of silica, sulphate, or soon perhaps carbonate, employed by our rural population, our deficiencies might be supplied, the exhausted lands revived, and culture abandoned for being unproductive, in consequence of the exhaustion of the soil, again renewed.

The inquiry into the manure question has already revealed to us the immense sources of sulphate of ammonia, phosphate of iron, and magnesia that the manufacturers of Paris, Lyons, and Marseilles have been compelled to obtain from fecal matter and drains. The price of these substances, for a long time appreciated, but always beyond the reach of the cultivator, is becoming more and more accessible, and may fill up that immense gap which exists and prevents the possibility of obtaining mineral substances, such as potash, soda, and magnesia, in a pure state.

After a careful perusal and study of M. Cartier's little work, the reader may draw this conclusion: that the cultivator can now procure himself all mineral elements essential to agricultural plants at a reasonable rate and in a primitive state, so that he can mix them according to the requirements of his soil or crops.

Marling, liming, and plastering are old and good practices; the use of phosphate of lime has taken the municipal right in our stables and dung heaps; the complement of mineral substances is now a thing accessible to culture by the aid of alkaline salts.

Now all these elements, brought to our doors in a pure state, are just the same as we buy in artificial guanos; only instead of inert substances being mixed with them, adulterated with sand, brickdust, peat, &c., we can buy them cheaper one by one, and introduce them all into our manufactures as they are required. This manufactory is our dung heap, which is the true and most active factory for fermentation. There all the reactions take place, having been tempered and regulated by the manure pump. Agriculture may yet gain one thing by this mode of procedure; it will avoid the frauds and deceptions, besides diminishing the cartage of these masses of manure, and rendering them richer, more complete, more active, and less bulky.

H. L. CORBELLER.

**DRY EARTH AS A DISINFECTANT.**—Porous earth acts on putrefying animal and decaying vegetable matters on the same principle as that on which the purifying powers of the charcoal depend. On account of their greater porosity and absorbing properties, wood and peat charcoal are superior to earth as disinfectants. However, dry earth is a very good absorber and destroyer of foul smells; and as it can be had anywhere at little cost, it deserves to be used extensively, especially in the country, for preventing nuisance and loss in fertilizing constituents, which is caused by the careless mode in which human excreta are usually disposed of. Earth impregnated therewith, like charcoal, has the power of purifying itself on exposure to the air; so that earth may be used over and over again for the disinfection of human excreta. It is indeed worthy of special notice that a mixture of earth with night-soil, after having been kept for some time under a shed, confined at one or more sides, and covered by a roof to exclude rain, and become dry, has its original disinfecting powers almost completely restored, and may be used again for absorbing and retaining the manuring elements of a fresh quantity of night-soil. Earth in this way may be used three or four times over for the disinfection of human excreta, and at the same time becomes a valuable vehicle for absorbing and concentrating all the fertilizing constituents which enter into the composition of liquid and solid excreta. Human urine contains 91 to 94 per cent. of water, and feces not less than 80 to 85 per cent.; hence the practical difficulty of converting them into a dry and portable manure. Simple evaporation or artificial drying is impracticable; because, in the first place, it creates an intolerable nuisance; and secondly, because it is attended with the decomposition and loss of the nitrogenous and most valuable manuring constituents. These practical dif-

faculties, which are experienced in the conversion of night-soil into a portable manure, may be completely obviated, at all events in the country, by the free use of dry earth in closets. If a sufficient quantity of earth is employed to absorb completely the mixture of the excreta, the contents of the closets can be removed periodically, say, once a month, in the day-time, with little or no inconvenience. They should be wheeled at once under a roofed shed, and spread out as much as the space admits, and left exposed to the drying influence of the air. According to the state of the weather the mixture of night-soil and earth will become sufficiently dry in two or three

months, when it may be used again in the closet like fresh soil, and the same process be repeated three or four times. During the drying in the shed no appreciable amount of fertilizing matter is lost, and as the earth after each removal from the closets becomes charged with an additional quantity of manuring matter, a very useful manure is finally produced with little trouble and at a mere trifling expense. In country places, where proper drainage is not provided, the nuisance of open closets may be best avoided by the use of the arrangements adopted in the so-called earth-closets.—*Feetcher on Disinfectants.*

THE MEASURE AND VALUE OF OATS.

(Paper read in Section F, British Association, Sept. 9th).

This paper is part of an experimental inquiry into the Mathematics of the Cereals. It refers exclusively to oats.

The corn trade of this country is in a state of great confusion. In one place corn is sold by the quarter; in another it is sold by some unit of weight; and in another by some other unit. These units have generally a reference to the weight per bushel. It seems very desirable that a uniform practice should be established throughout the whole kingdom, so that quotations of prices might become easily intelligible.

Except for liquids, the quarter is probably the most indefinite unit in existence. Two quarters of oats may differ from each other to the extent of ten lbs., or twenty lbs., or forty lbs., or eighty lbs., or one hundred and fifty lbs. The bushel is a legal measure; but there is no legal or uniform way of filling it. No two meters will put the same weight into it. Half-a-bushel measure, except of particles perfectly fluid, is only half-a-bushel of corn by an unknown and constantly varying method of filling. Neither is a peck the fourth part of a bushel of corn, if both measures are filled in the same way.

The reason why it has hitherto seemed desirable to combine measurement with weight in exchanging corn is, the assumption that the weight per bushel is an index of the quality or value. In other words that, the heavier the grain is per bushel, it contains proportionally (the proportion unascertained) the more meal. This is one of the bases of the corn trade. If it is true, it is of sufficient importance to warrant a very strenuous endeavour to devise a uniform mode of filling the bushel. The method which, after various trials, the writer has adopted is, to place a flat-bottomed perforated filler one-fourth of an inch above the rim of the bushel or measure, and to stir the corn through the holes, thus filling the measure equally all over, constantly from the same height, and without enclosing masses of air. In general, this method increases the weight above the ordinary basket-filling from three to eight lbs. With certain sorts of oats approaching the *Canadian* type, successive trials yield very uniform results. But with all rough oats approaching the *Tartarian* type, the weight generally increases at every successive trial with the same sample. Indeed, to increase the weight of many sorts of oats, per bushel, nothing more is necessary than to give the sample to be weighed a good smart whisk in a corn basket. This friction will rub off a great many of the asperities, and permit the seeds to flow more easily into a compact mass. The weight per bushel will thus increase, while the absolute weight diminishes.

Again, the weight of oats per bushel, in all sorts which have awns or long rough hulls, depends, to a considerable extent, on the instrument by which the oats have been thrashed. If thrashed by the flail, the awns and sharp points will be less broken and huddled than if thrashed by machinery. Whatever huddles the grain most will produce the heaviest bushel, while, of course, extremely little variation will have taken place in the dynamical relation of the kernel and hull.

Again, oats which are smooth, well closed, and sharp at the ends flow closely together, and leave much less space unoccupied than oats which may be better filled and the glumes somewhat open at the upper end; so that the *smoother* oat will give the heavier bushel.

From these considerations a suspicion arises that the weight per bushel is no true test of the comparative value of oats, and

in order to mature this suspicion into belief, the following six pairs of experiments are selected:—

Experiments.	Sort.	Localities, &c.	Weight per Bushel.	Weight Kernels per Cwt. Com.	Weight Hulls per Cwt. Com.	Loss.	Comparative quantity in respect of weight per Bushel.
1 { 27 37	B. Tartarian, Sherrif.	Hampshire, Hurst and Son. Lothians, Lawson and Son.	43-169 43-989	77-780 85-114	33-792 26-610	.438 .249	189 193
2 { 40 91	Potato, Potato.	Lothians, McLean and Hope. Forfarshire, Stewart and Sons.	49-707 44-330	84-865 87-186	26-881 26-335	.274 .279	171 192
3 { 69 85	Sandy, Sandy.	Berkshire, Lawson and Son. Perthshire, Dickson and Turnbull.	47-286 45-006	83-283 86-616	27-661 25-134	.256 .200	177 192
4 { 43 54	Various, Tenn Finlay.	Sweden, Mr. Hutchison. Dumfriesshire, J. Kennedy & Co.	43-200 44-907	75-988 83-631	35-465 27-966	.547 .403	176 190
5 { 18 48	Various, Various.	Archangel, Mr. Smith. Sweden, Mr. Hutchison.	49-771 48-200	81-671 75-988	29-763 35-465	.566 .547	200 176
6 { 29 103	Canadian, W. Dunthorn.	Hampshire, Hurst and Son. Aberdeenshire, collected.	53-840 34-792	77-090 82-965	34-641 28-741	.269 .294	143 239

In the first pair, which are different sorts of home oats, the weights per bushel are nearly equal; while the weight of meal per cwt. varies nearly seven-and-a-quarter lbs.

In the second pair, which are the same sort of home oats, the weights of meal are nearly equal, the advantage being in favour of the sample which weighs least by five-and-a-quarter lbs.



The third pair are also samples of the same sort of home oats. No. 85, weighing forty-five lbs. per bushel, contains eighty-six-and-a-half lbs. of meal, while No. 69, weighing forty-seven-and-a-quarter lbs., contains only eighty-three-and-three-quarters lbs.

The fourth pair compares home with foreign oats. Both samples are nearly of the same weight per bushel, while the one contains more meal than the other to the amount of seven-and-a-half lbs. per cwt. of grain.

In the fifth pair both samples are foreign. The sample from Sweden weighs forty-three lbs., and contains seventy-six lbs. of meal per cwt., while that from Archangel weighs forty-and-three-quarters lbs., and contains eighty-one-and-a-half lbs. of meal per cwt.

The sixth pair are both home oats. In weight per bushel, the Canadian stands at one extreme of the oat scale, and the white Danthonia, or bristle-pointed, at the other. The smooth, compact Canadian, with a hull like plaster lath, contrives to

slide into the bushel to a weight of nearly fifty-four lbs., but gives no more than seventy-seven lbs. of kernels to the cwt., while its less accommodating opposite (though deprived of its awns) sticks out its bristles, and demands elbow-room in the bushel, and so will permit no more weight there than thirty-four-and-three-quarters lbs. But it far surpasses its rival in the only point which is commercially and agriculturally important, namely, the ratio of kernels to hulls.

The qualities are the quotients of the weights of kernels divided by the bushel weight; but the absolute qualities, which are really important, are simply represented by the weight of kernels, the weight per bushel being evidently a thing of no permanent meaning or importance whatever.

It appears, therefore, to the writer, that a uniform corn trade should be based on a uniform unit of weight, the quality or comparative value to be tested in the manner adopted in these experiments, and that the bushel should be wholly set aside.

A. STEPHEN WILSON.

AGRICULTURAL STATISTICS, IRELAND, 1867.

Mr. William Donnelly, the Registrar-General of Ireland, has made the following return to the Government, dated Sept. 12th, 1867 :

The collection of these statistics was carried out, as in former years, by nearly 4,000 enumerators, selected from the Constabulary and Metropolitan Police; and they have furnished returns of the tillage and live-stock on the several holdings in Ireland, which amount to about 600,000. The inquiries were conducted by the officers and men employed on this duty with their usual efficiency.

The abstracts are compiled from summaries made by the enumerators, and may differ slightly from the revised figures hereafter to be published; but it is not apprehended that any important change will be necessary.

The total acreage under all crops in 1867 was 5,458,945  
 The total acreage under all crops in 1866 was (revised numbers) 5,520,568

Showing a decrease in the extent under crops in 1867 of 61,623

The crops which diminished in area this year are—

		Acres.	
CEREALS	Wheat.....	37,282	79,307
	Oats.....	40,283	
	Bere and rye.....	415	
	Beans and peas.....	1,327	
	Potatoes.....	48,808	
GREEN CROPS	Mangel and beet.....	1,357	67,866
	Cabbage.....	12,510	
	Carrots, parsnips, and other green crops.....	1,267	
	Vetches and rape.....	3,924	
	Flax.....	10,402	

Total decrease on the foregoing crops.....157,575

The crops which increased in acreage in 1867 are—

CEREALS, Barley.....	20,411
GREEN CROPS, Turnips.....	18,513
Meadow and clover.....	57,928

Total increase on the foregoing crops ... 95,952

Making a net decrease in the area under all crops of 61,623

Compared with 1866 the area under wheat decreased by 37,282 acres, oats by 40,283 acres, bere and rye 415 acres, and beans and peas by 1,327 acres. Barley increased by 20,411 acres. In green crops the area under potatoes diminished by 48,808 acres, and cabbage 12,510 acres. Turnips increased by 18,513 acres.

The following abstracts exhibit the acreage under each crop in 1866 and 1867, and the increase or decrease in the latter year :

ABSTRACT OF CEREAL CROPS.

	1866.	1867.	Increase in 1867.	Decrease in 1867.
	Aeres.	Aeres.	Aeres.	Aeres.
Wheat.....	299,190	261,908	—	37,282
Oats.....	1,699,695	1,659,412	—	40,283
Barley.....	150,293	170,704	20,411	—
Bere and rye.....	10,021	9,606	—	415
Bean and peas.....	14,834	13,507	—	1,327
Total...	2,174,033	2,115,137	20,411	79,307

Decrease in cereal crops in 1867 ..... 58,896 acres.

ABSTRACT OF GREEN CROPS.

	1866.	1867.	Increase.	Decrease.
	Aeres.	Aeres.	Aeres.	Aeres.
Potatoes.....	1,050,353	1,001,545	—	48,808
Turnips.....	317,198	335,711	18,513	—
Mangel wurzel and beet root.....	20,162	18,805	—	1,357
Cabbage.....	36,531	24,021	—	12,510
Carrots, parsnips, and other green crops.....	26,738	25,471	—	1,267
Vetches and rape.....	30,623	26,699	—	3,924
Total.....	1,481,605	1,432,252	18,513	67,866

Decrease in green crops in 1867..... 49,353 acres.

GENERAL SUMMARY OF CEREAL AND GREEN CROPS, &c.

	Acres.	Acres.
Decrease in cereal crops..... in 1867.....	58,896	} 118,651
Do. in green crops..... in do. ....	49,353	
Do. in flax..... in do. ....	10,402	
Increase in meadow and clover in do. ....	57,928	

Total decrease in the extent of land under crops in 1867... 61,623

From the foregoing statement it will be seen that there has been a decrease of 61,623 acres in the total area of land under crops in 1867, compared with 1866. Grass has increased by 52,828 acres, fallow by 772 acres, bog and waste (unoccupied) by 13,176 acres. Woods and plantations show a decrease of 5,153 acres.

The returns of live-stock for 1867, compared with 1866, show a decrease in the number of horses of 13,451; of cattle, 43,799; and of pigs, 263,381; and an increase in the number of sheep of 551,733. This increase in sheep is spread over every county in Ireland.

The total estimated value of horses, cattle, sheep, and pigs this year was £35,095,224, being a decrease of £114,491, compared with 1866.

Mr. Donnelly here repeats the observation made when submitting the General Abstracts of Tillage and Live-stock for

last year: "There is great cause for thankfulness to a merciful Providence that Ireland has hitherto been almost entirely free from the distressing ravages of the cattle-plague by which almost every county in England and Scotland has so deeply suffered." And he concludes as follows: "I have again the pleasure to state that, with scarcely an exception, the particulars given in the returns have been readily afforded to the

enumerators by the various stockowners and occupiers of land, which I beg to say is highly creditable to their good feeling and intelligence; and I have now to repeat my respectful acknowledgments to the landed proprietors, tenant-farmers, the clergy of all denominations, and to the public press, for their continued valuable assistance with reference to the collection of these statistics."

## PRIZE ESSAY ON THE DISEASES OF WHEAT.

By MR. W. EY.

TO THE COMMITTEE OF THE AGRICULTURAL SOCIETY OF SOUTH AUSTRALIA.

GENTLEMEN,—In an essay on the diseases of wheat it will be unnecessary to treat of any but those named by you, viz., takeall, black and red rusts. All others occur so rarely as not to require mention.

Of the three named, the first and most serious claiming our attention must be "Takeall." The question suggesting itself will be, "What is takeall, and from what does it proceed?"

In examining a field of corn infected with this disease it will be found in irregular patches spread through the field. Should the examination have taken place in the early part of the season, these patches are but small, but rapidly increase in size, spreading in a circle round the original diseased plant, leading us to the conclusion that the disease is propagated from one or two plants infected.

The plant so infected presents a sickly appearance, with blackish linear spots on the leaves, somewhat similar to a blight, appearing more on the tip of the leaf than near the stem. This apparent blight, if examined by the microscope, will be found to be a kind of mould resembling in appearance doek mould (*Peronospora obliqua*).

On a careful examination of this mould we must come to the conclusion that this is not the cause, but rather the effect of disease.

Examining the roots, we find their general outward appearance, in most cases, perfectly healthy, and in only a few instances these roots present a black appearance; on being cut open they are found to be more or less decayed, a number of them being quite black, but still no cause of disease being visible.

Examining the stem, we find, on stripping it completely, a perfectly black colour, from the first to the second knot, this colour being also communicated to the last covering. This colour presents the appearance of a thin skin; on gradually cutting the stem lengthways this colour penetrates the stem to a greater or less degree, according to the advanced state of the disease. The cells in some cases are quite filled up, in others wholly destroyed, and therefore preventing any or at least but an insufficient quantity of nourishment being taken in by the plant from the roots.

On detaching a piece of this skin and submitting it to the microscope it has the appearance of a very fine moss, and in this moss we found curled up a number of animalcules resembling the eels of wheat (*Tribio tritici*), but showing not the least sign of life.

A drop of water was now put on the object and covered with a thin glass slide, when in about half-an-hour these vibriones were found to have a wriggling motion, and in an hour several had extricated themselves from their bed of moss, or rather network, in which they were confined, and moving about with great rapidity.

A thorough observation of their movements and construction confirmed the previously entertained opinion that this was really an eel of wheat. These must therefore be looked upon as the real cause of the disease named takeall.

The true origin of these vibriones has not as yet been determined, but that they find their way into the ear of corn is certain, from the numerous experiments made by the Rev. M. G. Berkeley and others, and being there they lie dormant for six or seven years, when on being put in water or moist ground, they again come to life. These vibriones being in the seed when sown, are, upon the first rain falling on them,

called to life, when they eat their way out of the seed, and fasten upon the young shoot, eating their way into it and gradually stopping all circulation, thereby preventing the plant from coming to maturity, rendering it weakly and liable to all the different attacks of parasitic plants.

We now come to Black Rust. After a careful and lengthened examination, no doubt can exist that this disease is really corn smut (*Ustilago sergetum*); and as this disease is so well known, and has been so thoroughly investigated by the most eminent men at home, it will be quite unnecessary to give anything but a passing notice of it. The careful farmer is really but little afraid of it; in fact it is only where farming is carried on on very loose principles that it becomes dangerous to the crop. Certainly the most careful farmer will sometimes get it amongst his crop; but it is owing to his less careful neighbours that his crop gets infected, and sometimes through influence of the season, in which case but little can be done to guard against it.

We now have only Red Rust.

This disease is the true corn rust (*Trichobasis rubigovora*), and we can only repeat what has been said in regard to black rust. In fact, it is much more harmless even than that disease, for unless the ear of corn itself is attacked, which occurs but very rarely, no damage is done.

The above is a description of the diseases of wheat as they appear here. In comparing them to those known in England, black rust or corn smut, and red rust are well known, while the takeall seems to be but little known. In fact, we can only find one reference to a disease which appears to be at all similar to the before-named. Of this the Rev. M. G. Berkeley says: "This disease has not, we believe, been described in any English publication, though it has more than once been observed in England."

It was observed in France about the same time that it occurred in England, and was so abundant there as to attract the attention of the peasants, who gave it the name of "l'etien," from its originating near the base of the stem, upon the first or second internode.

The malady was recognized first by the brown tint in the interior of the diseased stem; this tint gradually became deeper, the circulation of the sap seemed impeded, the spikes remained short and slender, the organs of fructification were more or less abortive, the grains small and wrinkled when dry, while the stem was more and more changed under the influence of rain, moisture, and heat, and became brown through their whole extent; so that nothing but meagre grains and inferior straw could be expected from plants which ceased to live before they had accomplished the successive phenomena of vegetation, or had attained maturity.

At this period the cavity of the diseased internode presents a white filamentous mycelium, which seemed to have originated within, under the upper knot of the part attacked, descending thence into the cavity between that and the lower knot in general for about half its length. Observation some time after the above showed the disease in the same state, except that the progress of the evil was characterized not only by the brown colour of the greater part of the large cells, but by impaired condition and brown tint of a portion of the wall of the cells, some of which contained a brownish liquor, filling completely the tubular cavity.

Now although the above is a description in most respects applicable to the disease here, it makes no mention of the vi-

briones found in it here. These must be considered as the cause of the evil, while the fungus is a result from their destroying powers.

It has several times been stated that the malady was due to the wheat midge (*Cecidomyia tritici*), or Hessian fly (*Cecidomyia destructor*), but a comparison between the effect produced by them, and their mode of destruction, will be convincing that these are not the cause.

Having now reviewed the different maladies, our next care is to determine the most probable cure and preventive.

All remedies for the above must necessarily start from one point, that is care and cleanliness; for where a farmer allows his farm to be surrounded or infected with weeds, that all have their parasites, these being easily communicated to the wheat plant, and changing on it to those peculiar parasites causing its disease, there no preventive can be depended upon.

That the analysis of soils should give the cause and remedy of the different diseases must be looked upon as a failure; to expect that 100 or 200 sample analyses should give us a remedy or manure for all, is like expecting Holloway's pills to be a cure for all human disease. It is only in special cases where analysis of soil would determine the best manure suitable for that particular field to restore it to a healthy condition. In fact, the failure has already been proved by the abandonment of both Baron Liebig and Dr. Macadam's theories.

In most cases the farmer will himself know what manure is most beneficial to his land; that to employ a rank manure in a dry and sandy soil would be a great error will be apparent to every one, for these soils being already so hot, their heat, and consequently evaporation of moisture, would be greatly increased.

In regard to the three maladies specially spoken of, the eradication of the remains of them from the field will first demand attention. For this purpose it will be of the utmost importance to burn all remaining straw or stubble, as well as to eradicate all weeds previous to the new seed being put in. Should it have existed for a length of time, it is absolutely necessary to change the crop, and wherever practicable, peas or beans would be the best to plant, these containing a number of those ingredients necessary to the wheat plant, and supplying the soil therewith. So is it reverse, the wheat leaving that which the pea requires. Little fear need be entertained of the failure of a pea crop, the plant being so much stronger than that of wheat.

To far as our experiments have been made here, bones dissolved in sulphuric acid, or the so-called super-phosphates, have proved the best manure most generally applicable, and we hope before long to see them come into general use, as a manufactory of sulphuric acid is about being established here.

The experiments already made have given the most satisfactory results, the crop being perfectly healthy, and much heavier than any other.

The seed now requires our attention, and in this lies our great care, for that the seed be in a perfectly healthy and sound condition is the first necessity for obtaining a good crop. What can the best prepared soil do if a diseased or weakly seed is put in? It forces it to grow, bearing consumption at its heart, being weak and sickly, rendering it liable to all the attacks of parasites, against which it has no power to resist; for it is only on such plants that these parasites can obtain the mastery, while, on the other side, a good sound seed brings forth a powerful and healthy shoot, able to resist all their attacks, and succumbs only when compelled through reasonable influences.

The farmer should be most scrupulously careful in the purchase of his seed, that he procure one obtained from a neighbourhood in which there has been no disease, or but little made its appearance. I should advise every farmer to set aside a patch of ground for the special cultivation of a seed crop, which could be attended to with much more care than could be bestowed upon the field; indeed, to this subject Professor Henslow, in his report to the Agricultural Society of England, says: "From a variety of considerations it has always appeared strange to me that the practical agriculturists are accustomed to pay so little attention to the raising of pure seed-crops. There may be reasons which I do not properly appreciate that would render it inexpedient to cultivate a seed-crop; but I should have thought that it was always worth while for every farmer to set aside a proportion of ground to be more carefully tended than the rest, for the purpose of

securing good and clean seed. Amongst other reasons for such a practice, he would then be able to weed his crop from every plant infected with bunt or smut before the fungi ripened."

It is also of utmost importance that the seed-wheat be changed every two or three years, and, where practicable, the variety also; for where a seed is constantly resown from the same family it gradually becomes degenerated, weak, and unhealthy.

It now only remains to take into consideration the preparation of the seed, to arm and protect it against the various enemies ready to attack it. So long as we can put the seed in a position to produce a strong and healthy plant, but little need be feared. The greatest enemy to guard against is the takeall, or rather the vibriones producing it.

The present mode of steeping the seed in bluestone is no doubt a very good one, but not so satisfactory as might be desired. The active principle of sulphate of copper (bluestone) is the sulphuric acid, and this alone affects the corn. The copper can be of no benefit, but rather deleterious to the growth of the plant, as it forms no constituent part thereof, but may stop up those pores through which the seed receives its first nourishment.

If we, therefore, employ dilute sulphuric acid only, we have not only all the benefit of bluestone and none of its deleterious properties, but being able to use it in stronger proportions, we can rely upon it destroying the vibriones lying dormant in the seed, as a grain of corn containing these would not float like other infected grain, and could not be skimmed off; so that by their being wholly destroyed is the only safeguard of the seed being safe for use, and that they are so destroyed can be easily proved by adding, while they are in full motion and under the microscope, a drop of the most dilute acid, when they will be instantaneously dead; in fact, observing them through the glass, it seems as though they were shot.

But sulphuric acid alone would not be sufficient to guard against all disease, for sporules of some, such as bunt, &c., contain oily matter. To destroy this we therefore, after having steeped the seed in dilute acid—say one part acid to from 350 to 400 parts of water—and being left in there, say, 10 to 12 hours, then taken out and drained either in a sieve or old basket, and spread on the barn floor, dust it over, whilst still moist, with caustic or quicklime, so as completely to dry it. This would effectually destroy those sporules, at the same time forming a coating of sulphate of lime or gypsum round the seed, and forming a soluble silicate with the soil surrounding, and supplying the plant therewith, giving it strength and durability to resist the various attacks of disease. There is little doubt that it is the want of silicates that renders our plants here so liable to destruction by the various fungi.

The foregoing is a description of the various diseases of the wheat plant, after carefully conducted observations and lengthened examination, both by the microscope and analysis of both soils and straw. The experiments have been various, conducted both on the field and at home, and the results given in the above suggestions are the conclusions arrived at.

MR. MAUGHAN'S ESSAY ON DISEASES IN WHEAT. — In justice to the Rev. J. Maughan we extract from the *Argus* the remarks of it agricultural reporter, which show that there are some at least who do not agree in the opinion expressed by the judges that "the money awarded for these essays is so much money wasted;"—"The essays on the diseases of wheat sent in to compete for the Adelaide Society's prizes of £30, £25, and £20, have been adjudicated upon, and the Rev. James Maughan is the writer of that to which the first prize was awarded. But the judges in their report say 'that they are unanimously of opinion that the money awarded for these essays is so much money wasted, as there is nothing in any of them that all practical farmers were not aware of beforehand. That care in the selection and preparation of the seed, good ploughing, draining where required, fallowing, manuring, and keeping the land in good heart, would be rewarded by good crops, and the contrary, is a self-evident proposition, and does not require any discussion. The essays do not throw any practical suggestions on the diseases that have attacked our wheat crops for some years, and none of them offer any really feasible remedy.' So say the sapient judges, and by their own report they prove their unfitness for the task of having to express an opinion on the labours of better-educated men than ourselves. What did they expect for their money?"

Did they suppose that the offer of £30 would procure them information which the best scientific knowledge and practical skill in the world have not yet attained, and which must most probably remain undiscovered by both for years to come yet, even with large sums at command for purposes of experiment? It was even proposed at the meeting of committee, on receipt of this report, that the premiums should not be paid, on the plea of value not being received; but, fortunately for the credit of the Society, the majority considered themselves bound in honour to keep their engagement, and the first-prize essay, the only one which has reached us as yet, is well worth all the money paid for the three. In this Mr. Maughan clearly and scientifically describes the nature of the fungoid plants which cause, or appear in connection with, the different kinds of rust, and the 'takeall' which is becoming worse than any of them. He gives the only known remedies for some, and explains the reasons why these are remedies. He winds up by saying that he has furnished the Society with all that is really known on the subject, and has thus supplied material for further discussion, and cleared the starting point for fresh advances. This alone is no slight boon to the farmers, for without such a clearance practical men are very apt to waste many precious years, and lose a very large part of the returns they might have had for their work, in going over ground trodden long before, only to arrive at conclusions they might have started with. Having performed his task, the writer points out that remedies are to be found for all these diseases in time, and recommends the appointment by Government of an agricultural chemist, as it is in vain to hope for the discovery of any such remedies here unless the investigations be taken up on behalf of the public. "No one man can be expected to devote himself to such a purely national object without the authority and appliances of the Government to sustain him." And no moderate amount of public money could probably be better expended in South Australia, for the value of the wheat now destroyed by these diseases alone is estimated at about a quarter of a million a year."

#### WHEAT DISEASES.

The Rev. J. MAUGHAN addressed a meeting on the subject of "Wheat Diseases as Exhibited under the Microscope." The task which devolved upon him was, he remarked, of a very simple character. When the Secretary called upon him for the purpose of asking his co-operation in the preparation of that conversation, it occurred to him that, as at the present time much interest was felt in the question of diseases in wheat, and as a large amount of popular misapprehension prevailed respecting it, they could not render a greater service to themselves and to science generally than by giving an opportunity to the science-loving people of Adelaide of seeing with their own eyes some of the forms of disease of which they had heard such a great deal. It was somewhat remarkable that, notwithstanding all that had been said and written on wheat diseases, there were still intelligent farmers, particularly in the country districts, who still persisted in maintaining erroneous views. He knew full well that Dr. Muecke had been labouring hard to instil right ideas into their minds; but yet, strange to say, only the previous week, in visiting a distant part of the colony, some farmers insisted upon it that Dr. Muecke did not believe the disease to be occasioned by a fungus, but by an insect at the root of the plant which sapped its life. He believed the Doctor was present, and was prepared to say that he never believed such a thing, that he had never taught it, but had been endeavouring all the time to correct this popular misapprehension. Might he be permitted to state that recently the Agricultural and Horticultural Society had called for essays upon this important subject, and that one of the essay writers was of opinion, and stoutly maintained his opinion too, that some of the rust in wheat was not fungitic at all. He had been somewhat amused in reading a paper a few days ago—a paper which commanded the approval of the very intelligent judges of the Agricultural Society—the writer of which urged that the red rust was not a disease in wheat. He suggested that during the rains the tissues of the wheat plant became largely expanded, and that during the hot weather a corresponding contraction took place, in course of which contraction a red powder exuded, called red rust, having nothing at all fungitic about it. Any gentleman who had read anything on the subject during the last 50 or 60 years must know that in 1805 Sir J. Banks determined the

precise character of rust, and that a drawing was made for the Royal Agricultural Society, in which it was put out of question what its characteristics were. He might state that there were three different forms of disease to which the wheat-plants of this colony were subject. The first kinds were bunt and smut. (Explained by diagram.) Bunt was one of the least serious of the wheat-diseases in the colony at the present time, owing to the chemical remedies known for it. Almost every farmer knew that by refined processes of pickling the seed it became cleansed of its spores, so that the crops were likely to be little affected by them. The second class of diseases were a little more serious than the bunts and smuts, and were known here by the name of rust. (Illustrated by diagram.) He sincerely hoped the gentleman was present who had stated that red rust was the powder exuding from the plant, for he was sure Dr. Muecke would convince him of his mistake. The Rev. gentleman then explained the meaning of the terms *trichobasis*, *rubigo vera*, *trichobasis linearis*, and *puccinia graminis*. He remarked that the red rust, with proper care, could be kept so far under as not to be a source of very grave apprehension to the farmer; but not so the black rust, which was becoming so destructive in its results. Dr. Muecke, at great trouble, had sent home to eminent German mycologists specimens of the diseased plant, and they had designated it *urocystis occulta* in preference to the term *polycystis occulta*, the term conferred upon it by English mycologists. The ostensible reason was that an Algean plant was similarly designated; but in his (Mr. Maughan's) estimation there was not sufficient ground for departing from the expressive and appropriate denomination *polycystis*, many-cysted, or containing many spores. The last and most serious disease was one which occupied much attention at present, the "takeall," and in this case it was a small woolly fungus that attached itself to the root of the plant. There were two or three questions in connection with this disease which needed careful attention. Dr. Muecke and himself had been engaged that afternoon in an interesting discussion as to whether the fungitic matter adhering to the roots of the plant was the primary, or merely the secondary cause of the disease. There were a large number of facts in favour of the view that the fusidium at the root was the true cause, and there were a number of facts on the other side. They were scarcely in a position yet to pronounce dogmatically on the matter. His own opinion was that the fungi of the takeall appeared at different stages of the plant's growth; that in the early stage it was at once fatal, but that when the stem was well grown, it had sufficient vitality to struggle against its influence after being affected by it, and reach maturity, with the one exception that there was a lack of strength to develop the seed. Dr. Muecke, he understood, believed that the disease was occasioned by the want of mineral material in the soil; that the mineral material was used up in fact, and the soil became deteriorated in quality by constant cropping, and that therefore the plant, through inherent weakness, was predisposed for any disease that might seize it. A great deal could be said in opposition to this opinion, but the question was not one in discussing which victory should be sought, but truth. He hoped that the Agricultural Society, having taken this important subject up, would not let it drop, but would prosecute the inquiry to an issue, and collect all the facts that could bear upon the origin and remedy of the disease. Dr. Muecke thought the true remedy was in the treatment of the soil. No doubt a great deal had yet to be taught farmers as to the proper management of their land, and the means of securing larger yields per acre. In England the land realized 20½ bushels to the acre, whereas here it was barely 12. And this was a proof that the good farming of the old country resulted in good yields as compared with those here. He hoped that there would yet be discovered a remedy for the last and most destructive type of wheat diseases. Medical men knew that diseases in the human frame had to be treated constitutionally and specifically as well, and the same rule would have to be applied with respect to wheat. He hoped the ladies and gentlemen would take the opportunity of looking through the microscope at some of the material obtained from diseased plants, and they would learn that nothing could be more preposterously absurd than to question for a moment its fungitic character. He had heard the question asked whether the fungus was an animal or a vegetable—(a laugh)—and he would wish Dr. Muecke to state plainly how it was that he had spoken of the disease as being caused by animalcules at the root of the

plants. Of course, as he had stated that, all the farmers believed it; but Dr. Muecke had declared that he never said or meant anything of the sort, and therefore he hoped that the question would from that night be for ever settled (applause).

Some time was then spent in examining the microscopes and other objects of interest in the room. Great interest appeared to centre in a spectroscope exhibited under the direction of Mr. Haycroft.

## DUNDEE UNITED AGRICULTURAL SOCIETY'S SHOW.

This open Show held under the auspices of the Highland and Agricultural Society of Scotland, and of the Societies of the district of Dundee, opened on Friday, Sept. 13. There were upwards of 500 entries, embracing all descriptions of stock. In the Shorthorn breed the chief prizes were awarded to the Duke of Buccleuch, Mr. Barclay, Keavil, and Mr. Lawrence Drew. The sheep were altogether of superior quality, the chief prize-takers being the Earl of Strathmore, Mr. Ainslie, of Costerton, Mr. Walter Reid, of Drum, and Mr. Lyell, Old Montrose. Among the long-woolled other than Leicesters, the most remarkable sheep were those belonging to the Earl of Strathmore. They were considered very perfect specimens of their class. The following is a list of the awards:—

### CATTLE.

#### SHORTHORNS.

JUDGES.—Mr. George Bell, Lincoln.

Mr. George Culshaw, Towneley, Lancashire.

Mr. Wm. Sandy, Holme, Pierrepont, Notts.

Best bull calved before 1st January, 1865, not exceeding eight years old, £10, his Grace the Duke of Buccleuch; £6, Alexander Bruce, Keig, Whitehouse, Aberdeen; £4, Lord Kinnaird, Rossie Priory.

Best bull calved after 1st January, 1865, £10, G. R. Barclay, of Keavil, Dunfermline; £6, Lord Kinnaird; £4, D. R. Williamson, of Lawyers, St. Fillans, Crieff.

Best bull calved after 1st January, 1866, £6, Lawrence Drew, Merryton, Hamilton; £4, Lord Kinnaird; £2, Walter Scott, Glendronach, Huntly.

Best cow of any age, £3 and £5, Colonel Munro Ferguson, of Raith, Kirkcaldy; £3, David McGibbon, Inveravon.

Best heifer calved after 1st January, 1865, £8, Lord Kinnaird; £5, David Ainslie, Costerton, Blackshields; £3, Walter Scott, Glendronach.

Best heifer calved after 1st January, 1866, £6, David Ainslie, Costerton; £4, Lord Kinnaird; £2, the Duke of Buccleuch.

### POLLED ANGUS.

JUDGES.—Mr. Robert Hector, Montrose.

Mr. Howieson, Alyth.

Mr. George Leslie, The Thorn.

Best bull calved before 1st January, 1865, not exceeding eight years old, £10, the Earl of Southesk; £6, Thomas Ferguson, Kinnochtry, Coupar-Angus; £4, A. Morison, of Bognie.

Best bull calved after 1st January, 1865, £10, Jas. Scott, East Tulloch, Fordoun; £6, Alexander Bowie, Mains of Kelly, Arbroath; £4, W. Wedderspoon, Balthayock, Perth.

Best bull calved after 1st January, 1866, £6, William McCombie, of Easter Skene; £4, Robert Walker, Portlethen; £2, Wm. Whyte, Spott, Kirriemuir.

Best cow of any age, £5, William McCombie, of Easter Skene; £5 and £3, Alexander Bowie, Mains of Kelly.

Best heifer calved after 1st January, 1865, £5, William McCombie, of Easter Skene; £5, Wm. McCombie; £3, Robt. Walker, Portlethen, Aberdeen.

Best heifer calved after 1st January, 1866, £6, Earl of Southesk; £4, Wm. McCombie; £3, Alexander Bowie.

### FAT STOCK.

JUDGES.—Mr. Brown, Cupar.

Mr. Burns, fletcher, Dundee.

Best ox or cow of any pure or cross breed, calved after 1st January, 1863, J. and W. Martin, Aberdeen; 2, Lord Kinnaird; 3, Charles Lyall, Old Montrose.

Best ox or cow of any cross or pure breed, calved after 1st January, 1864, Walter Scott, Glendronach, Huntly; 2,

William Crawford, Bargarvie, Perth; 3, J. and W. Martin, Aberdeen.

Best ox or cow of any pure or cross breed, calved after 1st January 1865, J. and W. Martin; 2, Walter Scott, Glendronach, Huntly; 3, Alex. Duncan, Pusk, Leuchars.

Best pure or cross heifer, calved after 1st January, 1865, Alexander Bruce, Keig, Aberdeen; 2, James Bruce, Burnside; 3, Robert Husband, Gillet.

### AYRSHIRES.

JUDGES.—Mr. Kirkwood, Maryhill.

Mr. John Young, Houston.

Mr. John Waugh, Biggar.

Best bull, calved before 1st January, 1865, William Buchanan, Coxithill, by Stirling; 2, John Stewart, Burnside Cottage, Strathaven; 3, ditto.

Best bull, calved after 1st January, 1865, John Stewart, Burnside Cottage, Strathaven; 2, Robert McKean, Lumloch, Bishopbriggs; 3, John Stewart, Burnside Cottage.

Best bull, calved after 1st January, 1866, John Fleming, Meadow Bank Cottage, Strathaven; 2, David McGibbon, Inveravon, Polmont; 3, John Meikle, Seafield, Bathgate.

Best cow in-milk, of any age, Sir G. G. Montgomery, Bart.; 2, Robert Fleming, Bankhead, Bellshill, by Glasgow; 3, John Stewart, Burnside Cottage.

Best cow in-calf, of any age, John Pender, Springhill Stane, Motherwell; 2, John Meikle, Seafield, Bathgate; 3, Earl of Southesk.

Best heifer, calved after 1st January, 1865, Lawrence Drew, Merryton; 2, John Stewart, Burnside Cottage; 3, John Meikle, Seafield, Bathgate.

### DAIRY STOCK.

Best cow in-milk, Alderney breed, Thomas Greig, of Glencaire; 2, Sir J. S. Richardson, Bart., of Pitfour.

Best cow, of any breed, in-milk, Sir G. G. Montgomery, Bart.; 2, John Pender, Springhill Stane, Motherwell.

Best two cows, of any breed, in-milk, in-calf, or having had calves since 1st January, 1867, John Pender; 2, Sir G. G. Montgomery, Bart.

### HORSES

#### FOR AGRICULTURAL PURPOSES.

JUDGES.—Mr. Salmon, Johnstone.

Mr. Wilson, Wester Cowden.

Mr. Young, Wester Fulwood.

Best mare, with foal at foot, Laurence Drew, Merryton; 2, William Chrystal, Cowden, Stirling; 3, John Collier, Panlathly, Carnoustie.

Best mare, in foal, Laurence Drew, Merryton; 2, Duchess Dowager of Athole; 3, James Kydd, Grange of Barry.

Best filly, foaled after 1st January, 1864, Laurence Drew, Merryton; 2, David Gordon, Netherton, Melgund, Aberlennno.

Best filly, foaled after 1st January, 1865, George Dick, brewer, Dundee; 2, John Balfour of Balbirnie; 3, Patrick Anderson, Carlungie, Carnoustie.

Best filly, foaled after 1st January, 1866, David McGibbon, Inveravon; 2, Sir William Stirling Maxwell, M.P., of Keir.

Best entire colt, foaled after 1st January, 1865, Sir William Stirling Maxwell, M.P., of Keir; 2, Robert Andrews, Allans, Paisley; 3, Robert McKean, Lumloch, Cadder, by Bishopbriggs.

### ROAD OR FIELD.

JUDGES.—Captain Kinloch, Gilmerton.

Mr. J. Wilson, Wester Cowden.

Best horse or mare, not under five years old, Laurence Drew, Merryton; 2, James Bruce, Halkerton, Forfar.

Best horse or mare, for road or field, not under four years

old, rising five, David Cowe, Balnissie, Carnoustie; 2, William Whyte, Spott, Kirriemuir.

Best horse or mare, for road or field, foaled after 1st January, 1864, James Hill, Braidistone, Cupar-Angus; 2, James Gow, Bankhead, Denny.

#### PONIES.

Best mare, gelding, or stallion, not exceeding 14½ hands high, Thomas Erskine, Lulathen; 2, D. Gillespie, Montquhannie, Cupar-Fife.

Best mare, gelding, or stallion, not exceeding 13 hands high, Colonel Macdonald Macdonald of St. Martins; 2, David Hunter of Blackness.

#### CART-HORSES.

Best cart-horse, in harness, David McGibbon, Inveravon; 2, Alexander Weir, farmer, Newhouse Mill, East Kilbride.

#### S H E E P.

##### L E I C E S T E R.

JUDGES.—Mr. George Baird, Ormiston.

Mr. A. Bell.

Mr. Sandy.

Best tup of any age, William Ruxton, Farnell, Brechin; 2, Mr. Rodger, West Seaton, Arbroath; 3, Laurence Drew, Merryton.

Best shearling tup, John Lees, Mavingston, Haddington; 2, Mr. Smith, Stevenson Mains, Haddington; 3, David Ainslie, Costerton.

Best pen of five ewes, not less than two-shear, D. Ainslie, Costerton; 2, Right Hon. Earl of Southesk; 3, Laurence Drew, Merryton.

Best pen of five gimmers, or shearling ewes, Laurence Drew, Merryton; 2, Thomas Ferguson, Kinnochtry; 3, D. Wallace, Balgrummo.

#### LONG-WOLLED, OTHER THAN LEICESTERS.

JUDGES.—Mr. G. Bell, Horncastle.

Mr. G. Stewart, Cureton.

Mr. Crauford, Balgonie, Perth.

Best tup of any age, 1, Walter Reid, Drem; 2, William Johnston, Carnbeg.

Best shearling tup, 1 and 2, Walter Reid, Drem.

Best pen of five ewes, not less than two shear, 1 and 2, Walter Reid, Drem.

Best pen of five gimmers, 1, William Reid, Drem; 2, Wm. Johnston, Carnbeg.

#### SOUTH-DOWNS OR OTHER DOWNS.

(In this class the Southdowns were separated in the judging from the Shropshires).

Best tup of any age, 1, Charles Lyall, Old Montrose (Southdown); 1, the Earl of Strathmore (Shropshire); 2, the Earl of Strathmore (Shropshire); 2, D. R. Williamson, of Lawers (Southdown).

Best shearling tup, 1, Charles Lyall, Old Montrose (Southdown); 1, the Earl of Strathmore (Shropshire); 2, D. R. Williamson, of Lawers (Southdown).

Best pen of five ewes, not less than two shear, 1, J. Bruce, Burnside (Southdown); 1, the Earl of Strathmore (Shropshire); 2, the Earl of Strathmore (Shropshire).

Best pen of five gimmers, 1, Thomas Erskine (Southdown); 1, the Earl of Strathmore (Shropshire).

#### BLACKFACED.

JUDGES.—Mr. Hector, Montrose.

Mr. Howieson, Alyth.

Mr. Salmon, Johnston.

Best tup of any age, 1 and 2, John Archibald, Overshiels, by Stowe.

Best shearling tup, 1, John Archibald, Overshiels; 2, the Earl of Airlie.

Best pen of five shearling ewes, John Archibald, Overshiels.

Best pen of five ewes, 1, John Archibald, Overshiels; 2, the Earl of Airlie.

Best pen of five wethers, lambed after 1st January, 1863, 1, James Smith, Marchburn; 2, James Stewart, Newmarket, Aberdeen.

Best pen of five wethers, lambed after 1st January, 1864, 1, the Earl of Airlie; 2, Peter Kinnear, flesher, Broughty Ferry.

#### CROSS BREDS.

Best pen of five cross-bred wethers—cross of blackfaced and Leicester, age considered, J. and W. Martin, Newmarket, Aberdeen.

Best pen of five cross-bred wethers—cross of Cheviot and Leicester, or any other cross, age considered, 1, Lord Kinnaird; 2, J. and W. Martin, Newmarket, Aberdeen.

#### SPECIAL PREMIUMS.

For the best Shorthorn Bull of any age.—The Perth Citizens' Cup, becoming the property of the exhibitor on being gained three successive years, G. R. Barclay, Dunfermline.

For the best bull of the polled or Angus breed, of any age.—The Earl of Dalhousie's Premium, £5, the Earl of Southesk.

For the best cow of any age, polled or Angus, the Earl of Dalhousie's Premium, £5, Alex. Bowie, Mains of Kelly.

## THE STAFFORDSHIRE AGRICULTURAL SOCIETY.

The annual show of the Staffordshire Agricultural Society was held at Lichfield, and, considering that two years have elapsed without any meeting and cattle stock was not exhibited owing to the cattle-plague regulations, the result must be regarded as satisfactory.

As might be expected from the district, a good assemblage of hunting horses was brought together, and the Shropshire sheep mustered in great force. In these departments the strength of the show consisted.

The horses formed the chief feature of the show. The first two classes were very good horses. Mountain Dew, Captain Keygate's horse, which took the first prize, was not for sale, but it was stated that a Frenchman had bid £400 for him. Little John, shown by Mr. Joseph Gilman, of Birmingham, found many admirers; the owner, we heard, refused £200 for him. In the four-year-old class Mr. George Keeling's bay horse, which took the first prize, was a strong serviceable animal; the owner asked £120 before he got the prize, which he afterwards raised to guineas. The second prize horse (Mr. J. R. Stirrup's, of Dillhorn) was a good hunter; and Mr. Mitchell's bay filly, which was highly commended, was a very handsome horse. The mares were only moderate. The show of harness and riding horses was the best we have seen at the Staffordshire meeting. Mr. Tyler's bay took the first prize; and

Mr. George Cheatham's dark bay cob was a very pretty animal. The following were the

#### JUDGES.

AGRICULTURAL HORSES.—Messrs. T. Hopwood, Rowney; J. W. Larkin, Lutterworth.

HUNTING HORSES, HACKS, &c.—Messrs. S. B. Congreve, Harboro' Magna; C. Randall, Chadbury; W. J. Cartwright, Wolverhampton.

SHROPSHIRE SHEEP.—Messrs. Edward Lythall, Rudyard Hall; Thomas Horton, Harnage Grange; J. Wood, Clipstone.

LEICESTER SHEEP AND SHEEP OF ANY BREED, AND PIGS.—Messrs. William Tomlinson, Bradley Pastures; J. A. Beale, Brockhurst.

#### P R I Z E S

##### HORSES FOR AGRICULTURAL PURPOSES.

Entire horses.—First prize, £10, and silver medal, J. Yeomans, Pennynore Hay; second, £6, T. Wallace, Tamworth.

Geldings and mares in pairs.—First prize, £10, F. Whitgrave, Burton Manor, Stafford; second, £6, J. Dean, Brereton and Hayes Collicies, Rugeley. Commended: J. Line, Lichfield.

Mares and foals.—First prize, £8, J. Selby, West Hill Farm, Lichfield.

Two-year-old geldings or fillies.—First prize, £5, M. Madan, Haselour, Tamworth; second, £3, J. Hawkesworth, Barton Blount. Commended: J. Coxon, Freeford, Lichfield.

Yearling geldings or fillies.—First prize, £5, G. Orgill, Rough Park, Rugeley.

#### FOR HUNTING PURPOSES.

Horse or mare, any age.—First prize, £21, Capt. E. N. Heygate, Buckland, Leominster; second, £10, Lieut.-Col. R. H. Fitzherbert, Somersal Herbert, Uttoxeter. Highly commended: Capt. E. N. Heygate. Commended: J. Gilman, jun., 148, Lancaster-street, Birmingham.

Four-year-old geldings or fillies.—First prize, £15, G. B. Keeling, Hampton House, Penkridge; second, £10, J. R. Stirrup, Dilhorn, Cheadle. Highly commended: G. T. Mitchell, Newton Mount, Burton-on-Trent. Commended: T. Pearson Moss, Winnington, Market Drayton.

Mares and foals.—First prize, £6, the Stonetrough Colliery Company; second, £4, W. Yates, Grindle House, Shiffnal.

Harness horses or mares.—First prize, £7, J. Tyler, 144, Islington, Birmingham; second, £4, J. Coxon.

Cobs.—First prize, £7, G. Cheatham, Rose Cottage, Lichfield; second, £4, J. Gilman, jun. Highly commended: H. Ashton, Polefield Hall, Prestwich.

Ponies.—First prize, £5, J. Hardy, M.P., Dunstall Hall, Burton; second, J. Roberts, Streethay, Lichfield.

#### LEICESTER, OR OTHER LONG-WOOLLED BREEDS.

Rams.—First, £5 and silver medal, E. Foster, Alkington, Longford, Derby; second, £3, R. Johnson, Kirkireton, Wirksworth, Leicester. Commended: G. Turner, jun., Alexton Hall, Uppingham.

Shearing rams.—First and second, £5 and £3, E. Foster.

Ram lambs.—First and second, £3 and £2, R. Johnson.

Shearing ewes.—First, £3, W. Dester, Seckington, Tamworth.

Ewe lambs.—First, £3, R. Johnson.

#### SHROPSHIRE AND BLACK OR GREY-FACED SHEEP.

Rams.—First, £5 and silver medal, G. A. May, Elford Park, Tamworth; second, £3, J. H. Bradburne, Pipe-place, Lichfield.

Shearing rams.—First, £5, W. Holland; second, £3, W. Baker, Moor Barns, Atherstone. Highly commended: G. A. May. Commended: J. Beach, The Hattons, Brewood.

Ram lambs.—First and second, £3 and £2, W. Stubbs, Stockton, Stafford. Commended: J. Coxon.

Breeding ewes.—First, £3, J. Coxon; second, £2 and highly commended, Mrs. A. O. Baker, Grendon, Atherstone. Commended: J. H. Bradburne.

Shearling ewes.—First, £3, J. Coxon; second, £2, J. Beach. Highly commended: J. H. Bradburne.

Ewe lambs (pens of five).—First, £3, J. Coxon; second, £2, J. Beach. Commended: J. Brawn, Sandhills, Walsall, and Col. Dyott, M.P., Freeford, Lichfield.

Ewe lambs (pens of ten).—First prize, silver cup, value £5, G. A. May; second, £3, J. Upton, Manor House, Alrewas, Lichfield.

Fat shearling wethers.—First, £5, J. Reach. Commended: The Marquis of Anglesey, Beaudesert, Rugeley; and Mrs. A. Stanley, Yeldfields Hall, Bloxwich, Walsall.

Short-woolled ram.—First, £5, W. Holland.

#### SHROPSHIRE AND BLACK OR GREY-FACED SHEEP.

(Not trimmed after being shorn bare.)

Rams.—First, £5, H. J. Meakin, Shobnall Grange, Burton; second, £3, J. H. Bradburne. Commended: J. Brawn.

Shearing rams.—First, £5, J. Coxon; second, £3, J. H. Bradburne.

Breeding ewes.—First, £3, J. Beach; second, £2, Col. Dyott, M.P. Highly commended: The Marquis of Anglesey and J. H. Bradburne.

Shearing ewes.—First and second, £3 and £2, J. H. Bradburne. Highly commended: Col. Dyott, M.P. Commended: J. Brawn.

#### SINGLE SHEEP, ANY BREED.

Wethers.—First, £2, J. Beach.

Ewes.—First, £2 and highly commended, J. Coxon. Commended: W. Stubbs.

Lambs.—First, £5, W. Grindley, Berkswich, Stafford; second, £3, E. J. Greene, Littles Farm, Alrewas, Lichfield. Commended: J. Beale, Walton, Burton; W. Holland; and J. Booth, Shenstone, Lichfield.

#### PIGS.

Boars (large breed).—First, £4, H. Tomlinson, Blythford, Rugeley; second, £2, J. Hawkesworth, Barton Blounts. Commended: J. Whitworth, Measham, Atherstone.

Sows (large breed).—First, £4 and commended, M. Walker, Stockley Park, Anslow, Burton; second, £2, H. Tomlinson.

Boars (small breed).—First, £4 and commended, M. Walker; second, £2, the Marquis of Anglesey. Highly commended: Col. Dyott, M.P.

Sows (small breed).—First and second, £4 and £2, the Marquis of Anglesey. Highly commended: Col. Dyott, M.P.

Pen of pigs.—First and second, £4 and £2, M. Walker. Commended: J. Whitworth.

#### EXTRA STOCK.

Sheep.—Silver medals, J. Coxon and J. Brawn.

Pigs.—The Marquis of Anglesey.

### THE BATH AND WEST OF ENGLAND AGRICULTURAL SOCIETY.

The usual monthly meeting of the council of this society was held at Taunton on the last Tuesday in August, under the presidency of Sir J. T. B. Buckworth, Bart. There were also present—Messrs. H. G. Andrews, R. H. Bush, Thos. Danger, J. Tanner Davy, J. Daw, R. R. M. Daw, E. S. Drewe, F. W. Dymond, Mark Farrant, John Fry, John Gray, W. R. Hicks, T. Hussey, Robert May, E. F. Mills, Rev. T. Phillpotts, Messrs. S. Pitman, Wm. Porter, W. R. Scott, Ph.D., John Sillifant, J. C. Moore Stevens, H. Williams, and J. Goodwin (secretary and editor).

The committee and stewards of the ensuing year were appointed.

FALMOUTH MEETING, 1868.—The council took into consideration the amount desirable to be offered in prizes for stock and poultry at the meeting in 1868, and a meeting of the prize-sheet committee will be held on the 23rd of September, to determine as to the mode of its distribution, regard being had to any prizes that may be offered by the Falmouth local committee for objects of especial local interest.

THE SOCIETY'S MEETING IN 1869.—The SECRETARY reported that he had received letters from Gloucester, Bath, and Taunton, asking for information as to the conditions on which the society would be willing to hold its meeting for 1869 at one or other of those places; and, after considerable discussion, in the course of which the principle was strongly affirmed that the society could not merge its identity by entering into temporary connexion with any other association, it was directed that the secretary should at once write to the parties asking for information, forwarding a copy of the society's printed conditions, and stating that the place of meeting will be taken into consideration at the next meeting of the council, on Tuesday, September 24th, when any deputations or communications will be received.

THE TIME OF SHEEP-SHEARING.—On the motion of Mr. DANGER, a resolution was passed "that the time for the shearing of sheep intended for exhibition be not necessarily determined by the practice of the Royal Agricultural Society."

## GLOUCESTERSHIRE AGRICULTURAL SOCIETY.

This Society held its twelfth annual exhibition in the fashionable town of Cheltenham, the site selected being the spacious and delightful Pitville Gardens and adjacent grounds. The exhibition was opened on Tuesday and closed on Thursday, and was a marked success. From some cause or other there was, with the exception of two or three classes, very little competition in the sheep department, even with the long-wools; while of short-wools the Earl of Radnor was the only exhibitor of Southdowns in three classes, and Mr. Holland, M.P., the president of the society, the only exhibitor of Shropshires in the same number of classes. This branch of the show was, therefore, numerically weak; but in other respects it was very satisfactory, very grand specimens of Cotswolds, Southdowns, Shropshires, and Oxfordshire Downes being penned. There was a keener competition in the pig classes; but this department was, nevertheless, not so good as at former shows. The horses were the grand and attractive feature of the show, and its extent and general excellence certainly did much to compensate for the deficiency in the sheep classes. The whole of the classes may be pronounced as "good," those for cart horses, hacks, and ponies notably so; and the indifferent specimens, relatively to the whole number exhibited, were comparatively few. The first class, for cart mares and foals, had ten entries, and the first prize was taken by the President of the Society with a grand old mare, Royal Matchless, and a good foal; Mr. Stephen Davis, of Woollershill, Pershore, being second. The class for entire cart horses was a fair one, but the judges did not hesitate long in picking out the winner, the Birmingham prize-horse. Lord Chief Justice Rolit's second prize of £10—the first prize being £20—went to Mr. John Sivell, of Longford.

## LIST OF PRIZES.

## SHEEP.

## LONG-WOOLS.

For the best five breeding theaves, not more than 23 months old, £10, the gift of the Right Hon. the Earl of Eldon, Mr. Robert Lane, Cottage Farm, Northleach; second-best, £5, Mr. Thomas Walker, Stowell Park, near Northleach.

For the best ram of any age, £10, the gift of Mr. J. H. Elwes, Mr. J. King Tombs, Hathorop, near Fairford; second-best, £3, Mr. John Wheeler, Long Compton, Shipston-on-Stour.

For the best shearing ram, £5, the gift of Mr. A. A. Bathurst, M.P., Mr. J. King Tombs; second-best, £5, Mr. T. Herbert, Eastleach; commended, Mr. Thomas Walker.

For the best ram and five breeding ewes of the Cotswold breed, £10, the gift of Sir M. E. Hicks-Beach, Bart., M.P., Mr. J. King Tombs.

For the best ten ewes of the long-wool breed, that have bred up lambs this season, £10, the gift of the Cheltenham Local Committee, Mr. Robert Lane.

For the best long-wool ram in the yard, £5, Mr. J. King Tombs.

For the best five ram lambs, £10, the gift of Sir F. Goldsmid, Bart., M.P., Mr. J. King Tombs; second-best, £5, the gift of the Hon. R. H. Dutton, M.P., Mr. J. King Tombs.

## SHORT-WOOLS.

For the best five breeding theaves, not more than 23 months old, £10, the gift of his Grace the Duke of Beaufort, Earl of Radnor, Colehill; second-best, £5, Mr. Charles Lawrence, The Queens, Cirencester.

For the best ram of any age, £5, the gift of the Right Hon. the Earl of St. Germans, Earl of Radnor.

For the best shearing ram, £5, the gift of Mr. W. P. Pricc, M.P., Earl of Radnor.

For the best five ewe lambs, £5, Earl of Radnor.

## SHROPSHIRE.

For the best five breeding theaves, not more than 23 months old, £10, the gift of Mr. Edward Holland, M.P., and the Society, Mr. Edward Holland, M.P.

For the best ram of any age, £5, and the best shearing ram, £5, Mr. Edward Holland, M.P.

## OXFORDSHIRES.

For the best five breeding theaves, not more than 23 months old, £10, Mr. Henry Payne, Frampton Mansell.

For the best ram of any age, £5, Mr. George Walker; highly commended, Mr. G. Wallis, Old Shifford, Bampton.

For the best shearing ram, £5, highly commended, and for the best five ewe lambs, £5, Mr. George Wallis.

For the best ten ewes of the short-wool breed, that have bred up lambs this season, £10, the gift of the Cheltenham Local Committee, and for the best short-wool ram in the yard, £5, Earl of Radnor.

## PIGS.

For the best boar pig under a year old, £5, the gift of Mr. T. Gambier Parry and the Society, and second, £2 10s., Rev. W. Holt Beever, Peneraig Court, Ross.

For the best boar pig more than a year old, £5, Mr. Heber Humfrey; second, £2 10s., Earl of Radnor.

For the best three sow pigs, of the same litter, under 9 months old, £6, the gift of Mr. T. B. Lloyd Baker and the Society, Earl of Radnor; second-best, £3, Mr. Heber Humfrey; commended, Mr. Edward Holland, M.P.

For the best sow pig for breeding purposes, first prize, £5, Mr. Heber Humfrey; second, £2 10s., and highly commended, Mr. W. Yells, Highworth.

For the best sow and pigs, first prize, £5, Mr. Heber Humfrey; second, £2 10s., Earl of Radnor.

Judges: Edward Little, C. Raudell, and James Goulter.

## HORSES.

For the best mare and foal (her own produce) for agricultural purposes, £10, the gift of the Right Hon. Earl Bathurst, Mr. Edward Holland, M.P.; second-best, £5, Mr. Stephen Davis, Woollershill, Pershore.

For the best stallion, for agricultural purposes, above 2 years old, £20, Mr. W. Wynn, Grafton, near Alester; second-best, £10, the gift of Lord Chief Justice Rolit, Mr. John Sivell, Longford, Gloucestershire.

For the best gelding or filly, for agricultural purposes, under 3 years old, £5, the gift of Mr. J. H. Elwes, Mr. John Crump. Judges: William Richards, William Allen.

For the best stallion, calculated to get hunters or hacks, £25, the gift of the Right Hon. Earl of Ducie, Mr. Edward Griffiths, Marle Hill, Cheltenham; second-best, £10, Mr. Holman, Cheltenham.

For the best hunting mare or gelding, £16, the gift of Mr. Robert Staynor, M.P., Mr. Henry Humphreys, Cheltenham; second, £8, Mr. Thomas Taylor, Turckean, Northleach; third, £4, Mr. Samuel Bawtree, Tarn, Ross-shire; commended, Mr. G. C. Matthews, Great Malvern.

For the best hunting mare or gelding, under five years old, £10, Mr. Thomas, Little Norcot, near Cirencester; second, £5, Mr. Joseph Cooper, Redmarley, Newent; third, £2 10s., Mr. William Spencer, Alderton, Chippenhain.

For the best hack, not exceeding 15 hands high, £10, Captain St. Clair Ford, Cheltenham; second, £5, Rev. George Watts, Cheltenham; third, £2 10s., Sir George S. Jenkinson; highly commended, Sir George S. Jenkinson; commended, Mr. H. G. English and Mr. John Griffiths.

For the best pony, above 12 and under 14 hands high, £10, Mr. W. Baker, Cheltenham (disqualified); second, £5, Mr. Richard Milward, Southwell; third, £2 10s., Mr. William Gardner, Cheltenham; highly commended, Captain J. Simpson Bolland, Cowbridge.

For the best pony not exceeding 12 hands high, £7, Mr. James Smith, Cheltenham; second-best, £5, Mr. Edward Humphries, Cheltenham; third, £3, Mr. Edward Cripps, Cirencester; highly commended, Mr. Robert Newcombe; commended, Mr. W. Phelps and Mr. R. G. Verney.

Judges: Messrs. William Richards, Edward Hallowell, and John Walker.



## CHEESE.

To the exhibitor of the best cwt. of thick cheese made from land in his own occupation, £5, Mr. T. B. Lloyd Baker and the Society, Mr. Henry Thompson, The Moat, Newent; second-best, £2 10s., Mr. Joseph Pitman, Berkeley; commended, Mr. Joseph Pitman.

To the exhibitor of the best cwt. of double cheese, made from land in his own occupation, £5, Mr. Martin Neale, Berkeley; second-best, £2 10s., Mr. Arthur Keene, Olveston, Bristol; commended, Mr. A. Keene and Mr. J. Pitman.

To the exhibitor of the best cwt. of thin cheese, made from land in his own occupation in the county of Gloucester, £5, the gift of the Right Hon. Lord Fitzhardinge, Mr. Arthur Keene; second-best, £2 10s., Mr. Martin Neale; highly commended, Mr. Joseph Pitman.

Judge: Mr. Benjamin Brunsten.

## ROOTS.

For the best collection of roots, grown exclusively from seeds purchased of him (12 swedes, 12 mangolds, and 12 turnips), a silver cup, the gift of Mr. J. Clare, of Cheltenham, Mr. John Wigmore, Bickerton, Much Marcle.

Judges: Messrs. Edward Little, C. Randell, and James Gouter.

## THE SHEEPFOLD v. FARM-YARD MANURE.

SIR,—“There is nothing like the sheepfold.” How frequently we are told this by practical men! “The treading the land does so much good.” Yes, if it is very light land; but if it is heavy land the sheep treading is most injurious. It is not the sheep's feet that do the good, but the sheep's tails. But I wish to show to my brother-farmers in this paper that there is something like the sheepfold, and something quite equal to it, and that is the voidances of well-fed cattle on paved floors under cover, carried immediately from the shed to the field. I am going to prove why this must be equal to the sheepfold, and why the ordinary farm-yard manure is so inferior to the sheepfold, and after this I expect that both landlords and tenants will gradually, and as soon as may be, discard open and unpaved farm-yards as destructive of farm profits. We are all naturally so attached to things that have existed from time immemorial, and to which we have been accustomed from our youth, that it would be unreasonable to expect a “sudden conversion” of a whole nation of agriculturists; but I have great faith in the common sense of my countrymen when they are brought to deal with comparative facts—so I shall expect that in a generation or two (which is not a long period in the history of a nation) open farm-yards and unpaved floors will have become “the light of other days,” and that the “shedfold” will be then considered equal to the “sheepfold.” But let us come to the facts. When sheep are on land the whole of their voidances are at once appropriated by the soil; nothing is wasted: there is no washing, drying, mangling, or turning over, and twice moving or carting, with weeks or months of exposure. The soluble portions are all washed into the soil, and not down the ditches. There is much less manual and horse labour, and wear and tear of carting. The reverse of all this takes place with the respected old, open, unpaved farm-yard, and the untroughed buildings around it. Here it is all washing, drying, and mangling, sopping up heavy rainfalls with mops in the shape of huge waggon loads of valuable straw, which should be used as food rather than as mops. How often, and only recently, have I seen farmers letting off the strong tea into the ditches, owing to the heavy rain having rendered the farm-yard impassable or impracticable; and after all this, the tea-leaves are carted to what is mistakenly called a dung heap, and, after a time, duly turned over, refilled and recarted, and then spread upon the land. All this is really a bitter satire on agricultural commerciality. The real causes and objects of this mistaken, costly, and injurious manipulation were no doubt originally twofold, viz., to keep the cattle dry, and to rot the straw. But the practice must be altered now. The time will come when farmers shall as soon think of treading their oil-cake as their straw underfoot, seeing that it has a much greater value as food than as litter. There is no

straw in the sheepfold, yet no farmer ever complains that his land is insufficiently manured by the sheepfold. I don't believe that farmers generally know that for every pound of solid voidance made by the animal there are 12 or 13 lb. of liquid, and that nearly all the value of the manure is in the liquid; the insoluble matter of the solid being comparatively worthless. Well may they prefer the sheepfold to the old open farm-yard, where not only so much runs away, but also, where such precious fluid sinks into the floor or ground. But see how economical the covered shed is, both in time and money. The accumulated voidances of 20 bullocks (equal to 110 sheep) for two months may be placed on the land at once, and spread ready for plunging in at a trifling cost. I am now putting it on for Cabbage after Tares, and it will heat any guano or artificial manure. It is, in fact, the cattlefold. Better still is the cattle manure from under the sparrow floors without any straw; that is the stuff we want plenty of to make great crops. I claim no merit, and I make no apology for so constantly “pitching into” ancient agriculture, or rather its erroneous practices. If I had been bred a farmer, I should no doubt have done as other farmers do; but having been well shaken in the commercial blanket before I entered into farming, I take a commercial view of its proceedings, and come to my work free and unfettered by the trammels of antiquated customs and prejudices. I know that some agriculturists will be angry with me, but what I commend I practise; and my sole object in making public those of my views which I have found profitable, is a sincere desire to benefit British agriculture and agriculturists, and thus to provide more cheap and abundant food for my fellow-countrymen. J. J. MERRI.

## KEEPING GOATS FOR MILK.

In ancient times large flocks of goats were kept both for meat and milk. The flesh of a young kid was highly esteemed by epicureans in the days of yore. Large use was also made of goats' milk. We moderners, for some reason or other, make but little use of this animal. Here and there a goat is kept as a curiosity, but rarely with practical, utilitarian objects in view. We observe that as one result of the cattle plague in Britain, the keeping of goats is being resorted to more extensively, and milch goats command high prices. Having experimented with one of these animals the past summer, we feel qualified to express an opinion as to their merits. The goat in question came under our observation in June last, having been bought by a neighbour shortly after her kid was weaned. She was then giving three quarts of milk daily. Some time afterwards her owner, requiring a larger supply of milk than her ladyship could furnish, concluded to purchase a cow, when we bought the goat. Our trial of her has been very satisfactory. At this date she gives three pints of milk daily, which is worth nearly twice the quantity of such milk as you usually get from vendors of the common article. We are inclined to think she is a rather better milch goat than the ordinary run of these creatures; but we see no reason why, with some attention to breeding, their milking qualities might not be improved. The milk undiluted is excellent in tea and coffee, imparting no unpleasant flavour. With the addition of one-half water, it makes a good article of diet for little children, for whom and for invalids it is supposed to possess qualities of a peculiarly beneficial nature. We detect no unpleasant smell from the creature, though we have heard it objected to keeping goats that they emitted an offensive odour. It may be that *some* goats, like some human beings, have this peculiarity. Nanny is a great pet, and makes herself very agreeable, never butting or using her horns except in play. To prevent her jumping and climbing mischievously, we have thus far kept the fore and hind leg on one side strapped, just so as to embarrass her movements without hurting her. We have read somewhere that it is best to keep a pair, and to couple them as hounds are coupled; their dispositions being so contrary that they are never unanimous in going into a particular mischief, and so one checks the other. They have a greedy and not over-particular appetite, eating anything almost that teeth can masticate or stomachs digest. We incline to think that mischievous and ill-natured butting with which they are sometimes charged is the result of their being teased. They seem as capable of being influenced by kind treatment as any other

animal with which we are acquainted, and on the whole we incline to the opinion that they are worthy of receiving more attention from stock-keepers than they are getting at present. Some time ago the following communication on this subject appeared in the *American Agriculturist*:—"In December, 1864, I purchased a pair of young goats to keep in the barn with my horses, as I heard that horses would be more healthy if stabled with goats. When the teamster landed the goats in the front yard, every neighbour was on the alert and horribly alarmed, expecting nothing short of the murder or maiming of half their children. Nanny had a kid the last day of April, 1865, and has supplied our family with excellent milk ever

since; and now, in February, she gives a half pint every morning, which is worth more than a pint of such milk as I buy of the neighbours. And now the lady of the house says she would not take fifty dollars for Nanny if she could not get another. The goat has all the oats and hay she will eat, but she is rejoiced to get brakes, twigs, bark of small trees, acorns, and occasionally a 'chew of tobacco.' She has a small field to range in in summer, and I never have to chain or hamper her, as she is not breachy. I have a board with cleats nailed on at the pitching window in the barn, so that the goat can go in and out as she pleases. If cows become sick and unhealthy don't you think we had better keep goats?"—*Canada Farmer*.

## THE PARIS EXHIBITION.

### THE TRIALS OF THRASHING AND OTHER MACHINES AT BILLANCOURT.

A certain amount of interest was elicited by the trials of thrashing machines at Billancourt on Saturday, Aug. 17, from the fact that no less than seven of our English makers had submitted their well-known machines to the ordeal of the operations of a French jury. When we say *French* jury, we must qualify that expression to the extent that on this occasion they had, at last, admitted our countryman Mr. Scott, whom they had so persistently excluded from their body on the occasion of the late trials at Fougilleuse and Vincennes. But even this tardy admission of an English judge, when so great a proportion of the machines to be tested are English, was not obtained without much trouble; and a less persevering man than Mr. Scott would have retired from his baffled endeavours at their very onset. We met him the day before the trials at the Imperial Commissioners' offices, this time only provided with what he considered his *credentials*, which consisted only in a stiff letter from Mr. Cole, signifying to the French Commissioners that he had appointed Mr. Scott, and requesting that majestic body to admit him as a juror. Happily we were able to smooth the troubled waters that immediately arose at the perusal of that precocious epistle.

The Frenchmen contended that Mr. Cole, and the body of English Commissioners whom he represented, had absolutely nothing to do with their international competitions, and that he had no right whatever to appoint judges of their own. They appeared to feel no little indignation at this assumption on the part of our English officials. We calmly suggested that inasmuch as there were many English competitors in the forthcoming trial, it would be but a matter of justice and courtesy that these English exhibitors should be represented in the jury by a countryman of theirs, just as the Americans had been in the previous trials. This they readily admitted, and further expressed their readiness to recognize Mr. Scott as one of their body, if proper request to that effect were made to the Commissioners. We suggested to Mr. Scott that such should be done at once, and advised him to return to Mr. Cole, and demand a differently-worded letter. This we presume was done, as on the next morning when we arrived on the island we saw that everything was courteously settled, and our countryman duly invested with all the prerogatives of his hard-won dignity.

The mode of trial adopted by the jury was to allow fifty sheaves of wheat to each combined machine, and note the time occupied in the complete thrashing of that quantity. The weight of the sheaves was ascertained beforehand, and after the operation the clean wheat was carefully weighed. What comparative criterion this offered we are at a loss to understand.

Each competitor had to provide his own sheaves—at his own cost of course—and was obliged to take what he could get at a few hours' notice. From the following account, showing the performance of each machine, our readers will see how the weight of each lot of sheaves differed in every instance one from the other—an evident proof of the great difference that existed in the quality of the grain. If the quality and the quantity of the grain thrashed by each machine are to affect the judgment of the jury, it is obvious that undue advantage would fall to the lot of those who had the best and heaviest sheaves to thrash. We have, however, no

inclination to carp too severely at the French method of testing thrashing machines; suffice it to say that the jury nobly stuck to their work, and seemed to glory in exposing themselves to the shower of dust belched forth from the machines, owing to the wretched and dirty condition of the wheat they had to thrash, which soon obliterated every distinction which the colour of their coats might have afforded.

The first machine tried was Ransomes and Sims' large combined machine, with straw chopping and mincing apparatus attached; also a newly-invented blast-elevator, chaff-cutter, and blower attached. To this machine one hundred sheaves had been allowed, as a double experiment was necessary, to test its powers with and without the chaff-cutting apparatus. The time taken by the machine (without the chaff-cutter) thrashing fifty sheaves, averaging 916lbs. English weight, was 6 minutes, and the weight of the grain amounted to 176lbs. The time employed with the chaff-cutting apparatus was just double, viz., twelve minutes. We do not exaggerate when we say that the work of this machine excited, with the French jury and bystanders, much admiration. The straw, whether thrashed long or cut by the chaff-cutter, was left in admirable condition; and no grain whatever could be detected either in the straw or in the cavings.

The next machine tried was that of Messrs. Clayton and Shuttleworth, which devoured its fifty sheaves, weighing 340 kilos. (equal to 750lbs.), in four minutes and a-half, "as clean as a whistle," as the saying is, to the great astonishment of the foreign attendance, which, by-the-bye, was as scanty as usual at Billancourt.

The next machine tried was Ruston, Proctor, and Co.'s. The weight of the fifty sheaves brought by that firm was 530 kilogrammes (equal to about 1150lbs.), and the amount of grain to 112½ kilogrammes (247lbs.). This machine took seven and a-half minutes to accomplish its task.

Marshall and Son's machine took six minutes to thrash its fifty sheaves, weighing 503 kilos. (equal to about 1,080 lbs.) The grain weighed 123 kilos.

Robey's machine unfortunately broke down just as the last few sheaves were handed to the feeder.

Barrows and Carmichael's machine was also tried with pretty similar results. Marshall's machine created great interest among the French judges, from its being provided with a grinding-mill. They looked at this plaything with the same astonishment as children would look at a toy; and we should not wonder that this adjunct to Mr. Marshall's machine will obtain some token of the judges' admiration in the shape of a prize or high commendation.

A small two-horse thrashing machine, exhibited by the Reading Company, created some wonder at the lightness of its draught, only two by no means strong horses, compared with the amount of work done. This machine not only thrashes the grain, but shakes the straw and gives the grain a first cleansing preparation. Among the French horse-power machines we remarked one equally good. It was exhibited by Monsieur Gautrand, and is worked only by two horses. This machine did excellent work, and must be pronounced a very clever and useful machine for small occupations. We hope the jury will have the good sense to give it a first prize.

Although, as we said at the beginning of this report, we are not disposed to find too much fault with a body of men whose principal fault is evidently a most manifest lack of experience

in conducting such trials as these, yet we cannot pass over the very loose and senseless way in which the operations of the jury were conducted, from beginning to end. If such a system were pursued at any of our smallest local shows in England, no exhibitor would submit to it, and such a body of judges would become the laughing-stock of the agricultural community. We have already adverted to the great difference in the bulk, weight, and quality of the sheaves, which the exhibitors were told to procure at their own expense, and where they could, at a few hours' notice. Of course no criterion could be established under such a diversity of samples. But what will our readers think of the manner in which these trials were conducted when we tell them that no account whatever was taken of the power of the engines that worked the machines. Some had 6-horse engines, some 8, some 10; and, of course, the pressure at which they worked was even more varied. We suppose it was their English colleague who drew the judges' attention to that discrepancy, in order to remedy the evil; and, after due deliberation, they coolly signified to the English exhibitors that their steam-engines would be tried on the Monday week following, *with their own breaks*; and they were told that they must send forthwith to England, each exhibitor to get his own break over in good time.

Our readers will easily understand how such a request was received by the English exhibitors. Some had sent away their men back to England, and, of course, if they chose to submit to this senseless ordeal, their men must make a fresh journey to Billancourt.

But what can exceed the folly of these tyros in insisting on every exhibitor providing his own break? What test can be expected from such a regulation? Do these French gentlemen think, forsooth, that the break of one maker is identically the same as that of another, and that all breaks are made after the same standard? We do not happen to be well initiated into the exhibitors' intentions, and we cannot foretell whether or not they will obey the injunctions of the Imperial Commission; but we can hardly think that men like Clayton and Shuttlesworth, Ransomes and Sims, and others, would tamely submit to such a senseless ordeal. To us, accustomed as we are to the business-like method adopted in our English shows, this mode of conducting trials at Billancourt looked to us childish in the extreme and almost a farce.

"Comparisons are odious;" but we cannot help mentioning that most of the thrashing-machines of French construction, with the exception of that exhibited by Mons. Gautrand, were extremely faulty in almost every point. With most of them the thrashing was so indifferent that, on the straw being passed through our English machine, a large proportion of grain was found to have remained: this, we think, was equally due to the imperfect mode of shaking the straw as to the bad thrashing.

On the next day the winnowing machines were tried; but this, again, was done in such an extraordinary way that it really looks like a joke. To test the efficiency of the machines the clever French judges had imagined to pass through them the very filthiest stuff they could find—short thin chaff, mixed up with gravel, earth, and even horse dung. The whole mass was so incongruous and unwieldy that it had to be pressed down by main force through the hoppers! *Risum tenentes amici!* The condition of the little grain that resulted from such an operation is more easily imagined than described; and of course all the gravel which the sagacious judges had imagined to pass through the machine was duly found with the grain.

The trials of the grain-crushing mills were equally ludicrous. The various mills were arranged in a room, and about fifteen minutes were spent in examining some twenty machines!

We beg our readers to believe most implicitly that the foregoing description of the Billancourt trials is by no means exaggerated or overdrawn. We are conscious that what we have said is rather under than over stated, and our wonder will be great if, after such ludicrous proceedings, any English exhibitor of any standing is found to ever cross the Channel again to adorn French *concours* with their goods and chattels.

Last Tuesday, the 20th instant, was fixed for the adjourned trial of the ploughs. Our readers are aware that at a former trial, some two months ago, the English ploughs entered by the Messrs. Howard and Messrs. Ransomes and Sims had so thoroughly beaten the nondescript foreign ploughs brought into competition with them, that the French exhibitors and

their friends in the press had to eat the leek and confess their defeat. They had recourse to the usual excuse of the vanquished, viz., the deficiency of the means at their command. They contended that their English rivals had every advantage on their side in the shape of superior teams, got over on purpose all the way from England; they had, besides, experienced men to steer, &c., &c. In fact, they admitted the superior generalship of the English, and loudly attributed their defeat more to the tactics of their adversaries than to the superiority of their implements.

The clamour was so great, the disgrace of the defeat so manifest, that the national honour was piqued, and a new trial demanded. To this the English exhibitors most properly demurred. They argued that it would be a gross injustice to them if they were compelled to get their teams and their men over a second time, at a very heavy expense; that the trial had been fairly accomplished, and that its results ought to be accepted as final. But all reasoning was in vain: the defeated French were bent upon a new battle, to eradicate their wounded pride, and they were the more decided to have their way when they heard that their successful rivals declined to renew the fight.

No little curiosity was excited on the occasion, on the part of the public, who flocked to the island in unusual numbers, to see whether or not the English exhibitors would be true to their word and keep aloof. This they found to be the fact, and ludicrous in the extreme were the remarks we heard made in the crowd respecting the withdrawal of the English ploughs from this supplementary trial. Of course the motive was no other than downright cowardice. Now that the French ploughs were drawn by good teams, and the land was in proper condition, the English dare not enter into competition, &c.

As to the teams, they were indeed excellent. We saw no less than fourteen oxen yoked to one big plough, which as draught animals were as perfect as could be: they belonged to M. Rignon, the proprietor of Café Riche, so well known to epicures on the Boulevard. This M. Rignon has made a large fortune by selling *côtelettes* and *jillets de bœuf*, and he has taken to agriculture in the department of Loiret with an equal success. There was, besides, another excellent team of eight grey horses, which would have done credit to any farmer in this country. We saw also two teams of three beautiful white and black cows, a variety of the Dutch breed no doubt, which were harnessed with collars, and three abreast: they worked beautifully.

Of the nondescript, uncouth, unskillful implements yeelp ploughs, which were tearing up this poor field at Billancourt, we shall say nothing, as, in this respect, our readers would derive neither profit nor recreation from any description we might offer them; and, besides, the sandy soil loosened by three months' constant ploughing and stirring was ill-adapted to any trial at all.

Now comes the farcical drama of the Steam-Plough Trial; but, inasmuch as this part of the programme is being acted and still undergoing that process of cross-purposes, bungling failures, mystifications of the public, postponements, running to and fro, personal animosity and antagonism, which has hitherto cursed everything undertaken by the Imperial Commissioners in connection with the agricultural departments of the Great Exhibition.

#### THE STEAM PLOUGH TRIALS.

Among the most telling items in the Billancourt programme, trials of steam cultivation were much relied upon by the Commissioners to draw visitors to their Robinson Crusoe Island. But in this respect they have reckoned without their host. In the first place it is evident that none of them had the faintest idea of what a steam plough meant. They thought that it was like another plough, and could be worked to and fro like a sea-saw within the narrow limits of the field at Billancourt, merely showing how it moved, by turning up the same furrow over and over again. Special days had been fixed for these interesting experiments, and the turistic keepers were on the alert to fill their tills. The exhibitors, viz. Messrs. Fowler and Howards, were told in the usual peremptory style in which Commissioners are wont to address mere exhibitors, to get ready on the space allotted to each, and provide water and fuel, as well as men—at their own expense of course, the honour of working for the benefit of the said Commissioners

being held as a sufficient indemnity. It never occurred for a moment to the minds of the Commissioners that the two exhibitors aforesaid would have the bad taste to decline the honour, but as a matter of course so Messrs. Fowler and Howards did.

If the two firms in question had simply remained in that position, nobody in his senses would have found fault with them; but not content to stand aloof from the Commissioners and say nay to their biddings, Mr. Fowler and the Messrs. Howards did the very foolish thing to bind each other not to work the one without the other. This was a godsend to the Commissioners, who were not slow to clutch at this and make it a grievance. It was natural enough that the two firms should decline to work their tackle at their own expense in so small a space, and under such stupid conditions; but why they should enter into such an agreement is beyond our comprehension, except it was merely to vex the Commissioners, and enjoy the fun of making them savage.

It was at this juncture that a friend of steam cultivation came upon the scene. Astonished that no trials of steam ploughs had taken place and that none were even contemplated, that gentleman, anxious that such a great opportunity as the Paris Exhibition should not be allowed to pass without showing to the multitude of visitors from all parts of the globe who flock to it the greatest mechanical achievement of the age, that is, steam applied to the tillage of the soil in full and practical operation—that gentleman, we say, immediately set to work and soon found out how matters stood. By dint of conciliatory interviews, he managed to smooth down asperities; and encouraged by the positive assurances of one of the exhibitors who happened to be in Paris at the time, he ventured to make overtures to the Imperial Commissioners, and finally an agreement was entered into between him and that body, by which it was arranged that a steam-plough trial should take place at Vincennes, on the Imperial farm, where land was provided by the Emperor, the Commissioners engaging to provide fuel and water for the engines, and to give at their expense every possible publicity to the event by means of bills and advertisements. How miserably this scheme, which had cost our friend so much time, so much anxiety, and no small amount of money in the shape of personal expenses, has failed, it is now our painful duty to lay before our readers.

In the first place, for some reasons which it does not belong to us to explain, the Messrs. Howard declined to attend with their tackle. This we merely record as a fact, and not in reproach, although every expectation had been held out by that firm that they would come to Vincennes, and work their steam plough. We suppose the treatment which the Messrs. Howard have received at the hands of the Billancourt commissioners, in common with all their fellow-exhibitors, had something to do with this withdrawal; and no wonder. But whatever reasons actuated Messrs. Howards' mind, and made them alter it, the fact remains that they did not make an appearance. But what will the readers think of the Commissioners' folly, when we tell them that all at once a bill was posted all over the Exhibition, and the announcement made in the *Moniteur* with due solemnity, that a new trial of ploughs and other implements should take place at Billancourt on certain days, and that a grand trial of steam ploughs should be held at the Imperial farm of Vincennes on the 21st and 22nd of August. As our friend had not been at all consulted about the date of this trial, and as moreover this date was short by many days of the month he had stipulated as one of the conditions of his agreement with the commissioners, he naturally thought that this trial of steam cultivation announced for the 21st and 22nd of August had nothing to do with the demonstration of steam-ploughing which he was then engaged in arranging. Of course it was altogether out of the question that Mr. Fowler, who had at least consented to work at Vincennes, could be ready in time; and as soon as our friend became aware that the Commissioners had committed another reckless blunder, by advertising a trial which could not take place, he hastened to write to them to say that no English steam plough could possibly work at Vincennes on the day fixed by them. On the 20th was the plough trial at Billancourt, which we have already described in this Paper; and our friend insisting again that some announcement should be made to postpone the steam-plough affair, after a short consultation among themselves, the officials desired all the reporters present to announce that the trial of steam ploughs should be postponed to the 16th

of September. Our friend remonstrated strongly against this long delay, urging that Mr. Fowler's men had arrived, and would be ready to work on the 29th and following days; that it could not be expected that that staff of men could be kept in Paris so long, and that if they were sent back to England they certainly would not return, and thus the steam-plough trials would be given up altogether. As it oozed out afterwards, some of the Commissioners had planned a trip to the sea-side just at that time, and they had arranged to stay on their holiday up to the 15th of September, hence the date of the 16th which had been selected. However, nothing could make them alter their decision, and everybody then present at Billancourt left the island under the impression that the great event was duly postponed. But in this they were mistaken. Scarcely had this alteration been communicated to head-quarters at the Champ de Mars, than the Billancourt officials were severely handled for daring to postpone on their own authority an event which had been so long announced to the public, and a large bill was immediately printed and profusely posted all over the walls, stating that the steam-trial should *not* be postponed, and inviting the public to attend. The jury were summoned and ordered to proceed to Vincennes on the day appointed, and Mr. Fowler's agent was immediately sent for by the irate commissioners, and it was peremptorily signified to him that he must be at work with his tackle early on the morrow.

Can any one conceive a "confusion worse confounded" than this? The morrow came, and early in the morning the station of Vincennes Railway was besieged by a large crowd of agriculturists, many of whom, allured by the official announcement, and believing that everything had been properly arranged before-hand, had come from long distances, leaving their harvest-work, to attend this long-hoped-for trial of steam-ploughs. The disappointment of the crowds of visitors who had come to Vincennes is more easily conceived than described. They scanned the vast plain in all directions, but saw nothing; the fields were there, but there were neither ploughs nor jury. At last a puff of smoke in the distance behind a clump of trees close to the Imperial farm-buildings revived the drooping spirits of the baffled public; a shout of joy was raised, and a rush was made in the direction where it was expected a real English steam-plough was at work. But alas! a fresh disappointment awaited them. Painfully toiling-up a barley-stubble, there was our old friend the French digger—the self-same old shaky and rickety machine which we remember having seen so many years ago. Old age seems to have passed lightly over it, for it is not in the least altered; if it displays no improvement, it shows no decay. A little rust here and there may be seen; but for this occasion it had evidently been drawn out from the shed where it is wont to repose, and furnished anew. At all events its wind had not improved, as it stopped quite as often as on the other occasions, when it was our privilege to witness its achievements—to take breath as it were. The sighs and groans which the thing uttered, whilst at work, seemed to produce on the bystanders a wholesome sensation of awe, as we observed that the public wisely gave the machine a wide berth; and the wonder is, it did not go off with a crash, scattering terror and death in every direction.

On the next day, the 22nd, it had been announced that the jury would attend, and this circumstance gave rise to the hope that, after all, the English ploughs might turn up, because, as people argued, if the jury come, there will necessarily be a trial between several exhibitors; for if there is only one in the field, there can be no competition, and the jury will have no work to do. This hope against hope had still the effect of drawing even a larger number of visitors on the second than on the first day. Those who had been so cruelly hoaxed on the 21st took care not to say anything about it, on the principle of *simile similiti gaudet* we suppose. But the number of visitors was greatly swelled by a large posse of country-school teachers, to whom great facilities and privileges had been granted by the Government, to visit the Great Exhibition during this period of vacation. Altogether the crowd was very large, and loud were the curses that were heaped upon the heads of the Imperial Commissioners by the numerous victims of as cruel a hoax as ever was perpetrated by any body of men at the expense of the public.

The facts resolve themselves into this, that the Commissioners had actually announced a trial of steam ploughs, without troubling themselves at all with the care of getting ex-

hibitors to compete for the prize offered, and without caring a jot whether there would be any entries of steam ploughs or not. They were told that none would come, and yet they calmly allowed a large number of agriculturists to leave their homes and their work, at a great sacrifice of time and money, absolutely to be fooled at Vincennes, where nothing was to be seen but as bad a specimen of farming as can well be met with in France, with the exception of Fougèreuse. No wonder then, that in several of the daily papers, and especially in the *Liberté*, edited by the celebrated Emile de Girardin, there appeared most violent articles, complaining in savage terms of the insult inflicted by the Commissioners to French agriculture.

It would seem to any sensible man quite natural that, after such a blunder, the Imperial Commissioners would be but too happy to avail themselves of any opportunity likely to repair the mischief they had made, and efface to a great extent the bad impression they had produced. Mr. Fowler being now ready to work, the friend whom we already mentioned advised the Commissioners in due time that the demonstration of steam-tillage, which he had undertaken to organise, would take place on the 29th and 30th of August, and called upon them to fulfil the conditions of their agreement, especially in regard to giving the trial all due announcement and publicity. Their reply was, that having once deceived the public by advertising a steam-plough trial which, owing to the absence of steam-ploughs, did not take place, they had determined not to commit themselves to any announcement whatever until they saw Mr. Fowler's plough actually on the ground and ready to work! It was of no use to tell them that the tackle could not leave the Exhibition before the Thursday morning, and as it could work only on that and the next day, it would then be too late to put in any advertisement, or make any official announcement. The fact is, that they did not believe Mr. Fowler's engines would succeed in steaming from the Champ de Mars to Vincennes. They thought, and perhaps hoped, the things would break down; and we recognized afterwards on the field some of the officials, who had been sent no doubt to see what had happened. The result of such obstinacy was easy to anticipate. Mr. Fowler's tackle left the Exhibition in the Champ de Mars, under steam at a quarter-past six on the Thursday morning, and true to the statement he had made, he was in full work at Vincennes at one o'clock in the afternoon, although the distance the engines had to travel was fully twenty miles. But, with the exception of a few nursery-maids and idlers from the town of Vincennes, a few straggling soldiers from the neighbouring camp, and a very few agriculturists who had been advised of the event, there was no attendance whatever to witness one of the most successful trials of steam cultivation that was ever made. On the morrow (last Friday week) the new turning cultivator—an eight and a six-furrow plough—were tried with complete

success. The land at Vincennes is light, it is true, but it is full of large stones, several of which were cleverly wrenched off from the soil by the cultivator, to the great astonishment of the bystanders. The great steam harrow was also tried at a gallop. On that day there were more influential agriculturists than on the first, and we are happy to say that Mr. Fowler's great pluck in working his tackle, notwithstanding so many obstacles, difficulties, and drawbacks of various kinds, was in some measure rewarded, as we understand he booked a good many orders for France and other countries, so satisfied were practical men with the thorough success of his system.

Thus the question remains. French agriculture is evidently becoming alive to the great importance of steam cultivation, and a strong desire is everywhere expressed that a proper trial should ultimately take place. The Imperial Commissioners having tried their hands at it, and most ludicrously failed, private efforts are being made to organise a good trial. Monsieur Lecouteux, a distinguished agricultural writer, has started a subscription to defray the expenses of such a trial, and he has already succeeded in collecting a goodly sum. All friends of agricultural progress must wish him good speed.

We have now done with the agricultural trials of Billancourt, and the doings of the Imperial commissioners in respect to agriculture. Our readers are now fully edified, we hope, as to the shameful treatment which English exhibitors have suffered at the hands of all the Exhibition officials, not excepting the English portion of that bungling staff. In fact, it is not too much to say that the English commissioners, whose offices are a long way off from the Exhibition, in a pleasant house, situated within the cool shades of the Elysian Fields, and for which the nation has been made to pay no less than four thousand pounds for a few months' hire, have been worse than useless to our agricultural exhibitors. A lisping, yaw-hawing youth, styling himself the English Commissioner for the Agricultural Department! had actually the assurance to attempt preventing Mr. Fowler's agent from removing his steam tackle from the Exhibition, on the plea that *his* permission ought first to have been obtained! In other respects, their behests have constantly been ignored by the Frenchmen, and consequently this costly English staff has been of no earthly use to English exhibitors. We hope that when the accounts are overhauled in the next session of Parliament, a thorough investigation will be made into what it appears to us has been nothing but a huge job from beginning to end.

Monsieur Lecouteux's trial has at last been successfully organized. It will take place on the 19th and 20th instant, at Petit Bourg, some twelve miles from Paris, in highly favourable grounds, and in the midst of the best agricultural district of France. We shall not fail to give our readers a full account of this interesting trial.

## REVIEW.

THE HISTORY OF THE KILLERBY, STUDLEY, AND WARLABY SHORTHORNS. By WILLIAM CARR. London: Ridgway, Piccadilly.

Mr. Carr may be considered the champion of the Booth blood, just as Mr. Strafford is of the Bates, while either has by no means confined his advocacy of these renowned strains to the eloquence of the auctioneer's box. In earlier days Mr. Strafford handled his pencil, as Mr. Carr still does his pen, although only at rarer intervals than once was his wont. This is to be regretted, as the owner of the Stackhouse Herd is unusually well-qualified for such an office as the faithful historian or kindly critic of the Shorthorn and his fortunes. Beyond his natural taste, great experience, and tried judgment, Mr. Carr has the further advantages of being a gentleman in feeling and by education. He writes, indeed, with singular grace and facility; and though his style may at times be playful, this is always kept very true to the text of his book. His illustrations, as it were, his sketches of

character, and his anecdotes in point are peculiarly happy, as they give a charm to a work, the worth of which, however, is built upon a more substantial foundation. Seldom has there been so suggestive a record as this chronicle of Killerby, Studley, and Warlabby, and many a man might turn shorthorn breeder simply from a study of its pages. There is no make-believe, no sham enthusiasm, but our artist paints the patriarch and his herds and his people just as he found them at home, and a very pleasant picture is he able to group together. A noticeable feature in this is the natural talent of the family; and though the name of Booth may go down to posterity as specially famous in one way, it is associated with many accomplishments beyond the breeding of shorthorns. Of the late Mr. Booth of Killerby, our author says:—

“As might have been expected, from his fine and manly character, he was also a keen sportsman; like Chaucer's squire,

“Well could he sitte a horse and faire y-ride;”

and Yorkshire, that modern Thessaly of horsemen, knew no

more thorough judge of hack or hunter. His skill in this respect still survives in his sons; many a field and many a showyard testify that in this regard, as in others, Killerby has not degenerated from its ancient fame. He had, too, a natural taste for the fine arts, and when from illness he could not go far from home, he had his horses led out, and would sit on the lawn, or in the hall, to paint them. Here, too, his taste survives, and if I touch lightly on the subject it is because more delicate fingers now hold the brush, and I would not trespass unbidden upon the elegant recreations of Killerby's fair Mistress."

The *history* is well worthy of its name, for it traces lucidly and fully the origin and advancement of the three herds with which the Booth blood is directly identified. The legendary lore takes us back to Mr. Thomas Booth, a contemporary of the Collings, who "began his career quite independently of them as an improver of the cattle of the same district, and commenced it nearly at the same time." It is not proposed in our notice to follow out the rise and progress of these herds, but from the first the Booths have had a strong predilection for moderate-sized animals, avoiding a big beast as carefully as ever did Sir Tatton an over-sized stallion, and regarding, in fact, "a great bull as a great evil." Another strong element in the system was a disinclination to force or feed up animals for the show-ground, and it was only at a comparatively late period in his career that Mr. Booth could be induced to admit of the practice. Mr. Carr writes here with a deal of force and humour, as perhaps with a slight dash of sarcasm when touching on the "nice, soft, and unctuous fat" for which that much-abused term "quality" has so often to answer. Speaking to the merits of Sister to Windsor and Chastity, he says:

"Happening to be at Warlaby a fortnight before the Warwick meeting, Mr. Booth showed me these cows in the pasture, pointing with pride to the extraordinary depth and firmness of the flesh on their backs and ribs, which being the product of natural food, naturally acquired by grazing, was just what a butcher likes—'solid,' as Mr. Booth expressed it, 'as a well-stuffed wool-pack.' They were destined for Warwick."

'Oh! that this too too solid flesh would melt,'

thought I. The cows had no 'quality.' They were signal examples of what animals of unfashionably robust constitutions are brought to by pasture grass, open air, and exercise. The lean flesh was evidently in excess of the fat; and the fat was evidently blended with the lean, instead of being all outside of it. Moreover, the fat was not of that nice soft unctuous nature which is acquired by close confinement and liberal supplies of new milk, linseed-cake, and linseed-oil, but of the firm waxy consistence, so unpleasant in venison. I felt convinced that cows in this untramed condition had no chance of favourable recognition in the show-field, and ventured to express this conviction to Mr. Booth—a conviction which was fully realised. There are those who contend that agricultural associations, professedly formed for the improvement of animals designed for the food of man, and the encouragement of tenant farmers to vie with their richer rivals in effecting this improvement, ought not to discountenance the natural and inexpensive system of feeding which induces a healthy and vigorous development of flesh, and encourage the artificial mode, which results in a diminution of flesh, and that substitution of flabby fat to which some attach the name of 'quality;' but these people appear to look at the matter in a vulgarly utilitarian point of view. Few people are aware what this 'quality' represents. It represents the liberality of the owner, the lavish expenditure of costly food upon the animal that possesses it, the overflowing pails of new milk, the superabundant supplies of cake, corn, and condiment, and the luxurious repose and warm housing and clothing it has enjoyed. Some readers will add: 'it also denotes the torpor and derangement of all the animal functions which result from this liberality and indulgence—this eating of the bread of idleness in the lap of luxury.' Be it so: Nature, in default of other outlets for this excess of nutrition, deposits it—no matter whether by an unnatural and morbid process or not—in the shape of fat, where it 'communicates a pleasurable and delightful sensation' to

judicial fingers, and valuable parings for the tallow tub. Once do away with this 'quality' test, disqualify animals with soft, or what some irreverently call 'flabby,' handling, and you abolish the *forcing* system. For if *firm* substance were insisted on, it would be necessary to develop lean flesh, or in other words, muscle; and, to do this, the animal would require to have constant exercise, and therefore to be what *Nature* doubtless designed a beef-growing animal to be, a *grazing* animal. Under such conditions it would no longer be those animals that had cost the most money to rear and feed that would take the prizes; but such as had the greatest *natural aptitude* and capacity for healthy and ample development."

In these days, when Grand Duchesses run up to such prices at the hammer, it may be as well to point the Booth history with the highest price ever offered for a shorthorn, and with this we shall conclude our taste of the book.

"It has been reported that Mr. Booth refused for Queen of the May an offer of 1500 guineas, the highest price ever bidden for a shorthorn. The circumstances—which are given on the late Mr. R. Booth's authority—are these; Two gentlemen from America, apparently agents for an American company, came to see the herd, and when they saw Queen of the May were completely riveted by the fascination of her beauty. After dwelling for some time upon her perfections, they inquired of Mr. Booth whether he would part with her. He replied that he 'would not sell her for the highest price ever given for a shorthorn.' 'That, sir,' said one of them, 'was, I believe, 1200 guineas?' Mr. Booth answered in the affirmative. They consulted together, and asked him whether he would take 1500 guineas, which Mr. Booth declined to do, remarking that if she bred a living calf, and he had the luck to rear it, she was worth more to him to keep, and they relinquished her with regret, leaving on Mr. Booth's mind the impression that, if he had entertained the idea, even that large amount might possibly not have been their final offer."

Bearing the willing witness we do to Mr. Carr's abilities as a writer, we must claim something like kindred with his work, as indeed it would be unfair to recommend this to our readers on anything like false pretences. The opening sentence of the preface declares that "the history of these important herds has for the most part already appeared in the form of letters in the pages of the *Mark Lane Express* and *Farmers' Magazine*." But there is evidently a deal of new matter interwoven with the original, and we certainly know of nothing of the kind that so well merits preserving. The only illustration is a portrait of the white bull Windsor, from which Mr. Carr has himself bred so successfully, and that serves in some measure to identify the author still closer with his subject. Well, moreover, as the book is turned out, a critic can still scarcely be considered to do his duty without he finds fault, and we would accordingly suggest that in the next edition the demarcation line should be more strongly marked. The name of the herd treated on should, for instance, fill the head line at the top of the page; and it would be as well to give the opening of each chapter a little more room. Where all is Booth and Booth blood, it is only the reader going conscientiously from end to end who can at the moment fix the venue for Studley or Warlaby. Indeed, a Table of Contents or an Index would be still better, by way of reference to names and dates, and there is hardly a name or an era but that has an interest of its own.

THE MEMBERS FOR EAST NORFOLK.—No one can blame Mr. Clare Read, M.P. for East Norfolk, for telling his constituents, a day or two ago, that when he went into the House of Commons he thought "himself the most wonderful man in it;" for, taking his own glossary on his statement, he was without birth, station, riches, or learning, and was a Knight of a Shire. There are many 'men in the House who

want all of these qualifications but one, but for whom the possession of that one is enough. But Mr. Read modestly forgot to mention his own special quality, and that is sound common-sense, and a practical acquaintance with the men and things which he went into Parliament to represent. At least, he cannot complain of want of appreciation: for he obtained that hearing which the House invariably gives to a member who is talking, ever so plainly, about that of which he knows ever so little, so that he knows something of it; and it was to be remarked that, gradually, Mr. Read worked his way beyond his immediate sphere of knowledge, and more than once towards the end of the Session ventured to give opinions on matters of more general policy, and was listened to with the same favour as he had hitherto enjoyed. Such and so peculiar a representative was not likely to have had much to excuse or to defend before those who "had eyes, and chose him," as a county member, in preference to candidates who might have been considered the ideal of county representatives. The prin-

cipal notion that Mr. Read seemed desirous to impress on his constituents appeared to be that he had been harder worked in the Legislature than any ploughman whom he might have the honour of addressing. Perhaps, in a quiet way, there is no gentleman in the House who is more respected than the other member for East Norfolk, Mr. Howes. More than once when committees had to be chosen which it was felt should be composed of men on whom no shadow of prejudice or partiality could rest, Mr. Howes has been selected as their chairman by acclamation: and, besides, he is one of the essentially business members of whom very little is heard, but who are, so to speak, the wheels of the Parliamentary machine. In appearing with Mr. Read at the county meeting to which allusion is being made, he was characteristically calm, and what he had principally to say about the Reform Bill to which he had been tacitly an assenting party was that he had no fear of an increase in the number of his constituents. Why, indeed, should he?—*The Illustrated London News*.

## BARNET HORSE FAIR.

Barnet without its Devons, Welsh, Herefords, and Scots is not a very attractive exhibition: as for its horses only, it would never have been famous as a fair. Given a straight quarter of a mile of turnpike-road, rather on the incline, with grass-fields on either side. Line one side of the road with stalls, itinerant shows, and vendors of ash sticks—a weapon that nearly all comers arm themselves with immediately. Then, in one grass field put two or three refreshment booths and a goodly array of cart-horses, with a fair string or two of nags, cobs, and harness-horses in rugs, with their points well protected—as dealers only love to wrap them up—nicely arranged in rows, with business conducted in a quiet orderly manner. In another field, of much smaller acreage, besides refreshment booths, cram in twenty times as many horses of all denominations, regardless of any order (with the exception of a lot or two at the bottom of the field, and three or four strings tied to the fur fence or rail), in clusters, consisting of some of the roughest specimens of young things, ponies, galloways, and horses. These, with few exceptions, are the refuse of this country, or the sweepings of Ireland and Wales; with ruffians of the lowest caste, apparently in their glory, running the wild unbroken things with long lugging halters; whilst others make the air ring again with their bellowing and yelling, and guttural shrieks, as they wale the poor half-cowed brutes with their catgut flails or ground-ash plants. The horses rushing madly about in every direction, take people unawares and send them rolling about like nine-pins! Away goes a respectable elderly gentleman—intent on the form of a young harness horse—off his legs, and his white hat, that he must have taken out a patent for, flying! Then down comes a brawny young fellow close by us with a *thud!* And yonder half-a-dozen rogues and gulls are tumbling one over each other, as a scared youngster, with a ruffian hanging on to him, dives headlong into one of the numerous crowds gathered round the card-sharps and gambling tables, for thieves muster in strong force. Sprinkle this ragged gathering with fourth-rate samples of hacks, cobs, and harness horses, anything approaching first-class not being on the ground; add a goodly number of screws of all grades, from the gentleman with his satin coat, led about by his groom, in one of the best London-made bridles, to the one-eyed, gummy-legged, ragged-hipped and rough-coated bit of antiquity, in one of the worst of Brummagens, that the Gip at the bottom is continually rattling up and down, shouting "*Hie, hie, hie!*" while the tawny dark-eyed lady is assuring one of the clan, with an oath, that "He is Bob's own, and an out-and-outer, if he wants one." And so you have the first day of Barnet Fair of 1867.

In field the first, as we have said already, the show of cart-horses was very good indeed, both for numbers and quality; which, we think, was, in a great measure, owing to contracts of

late being dull, as most of them were Shire horses, strong and very active-looking. The prices were not high, averaging about £35, as we heard one of the dealing fraternity tell a quiet-looking gentleman: "Mind and put 'em at a good figure now, governor, as they have been low enough for some time." The principal strings belonged to Messrs. Payne, Harris, and Crews; and by the side of these were some nags, cobs, and harness horses of Mr. W. Burton, decidedly the best string of the fair; as among these were some fair hacks and carriage horses, a match pair or two, and some useful cobs, the few we saw out being very fair steppers. But business was anything but brisk in this part of the assembly, dealers declaring they could do much better at home. In the other field there was the same complaint among the more respectable, who said trade was nothing to be compared with last year, while those who held forth like Cheap-Jacks became short and dull in their harangues, and the well-known shouts of "Sould agin" from the Welsh were few and far between; the Irish faring very little better, although, as the selling-off tradesmen say, no reasonable offer was refused, but neither strings nor droves appeared to greatly diminish. The Welsh, when drawn out, were nothing to look at, and we waited for a good-headed one or two, who were either deficient in shoulders, quarters, or middle—in fact, three-cornered things; a heap of an animal, on which it would be hard keep anything, going for £6 10s., while for another for which they asked £13 went for £9; and, amongst the Irish, a fair-shaped one, with better shoulders than many, that the seller wanted £14 for, on an offer of £8 being made seemed over-anxious to close with £9. For a useful butcher's or baker's cob in an English lot, with anything but free action, his owner asked thirty-three, saying "he liked to see them with the string-halt before," a nervous affection the cob was not at all troubled with, "and that with a suit of clothes on in the other field he would be put at fifty"; but what they ask and what they take are very different things, some of the prices wanted seeming to astonish the would-be purchasers as much as ever Oliver Twist did Bumble the beadle, when he asked for more!

As to the ruffianism we have alluded to, it was the most wanton brutality; one out of the many sufferers, a bay by the pond in the field to the right, was literally covered with wales as big as one's finger; this we pointed out, appealing to a man, a bystander, with anything but the kindest-looking features, "Is not that cruel?" "Well, sir," shaking his head as he replied, "it do'n't look kind!" And we feel satisfied that many a costermonger or cabman has had, and deservedly too, a week or a fortnight for much less, without the option of a fine. An officer of the Society for the Prevention of Cruelty to Animals would be well placed at next Barnet fair.

## SALE OF MR. THOMAS ELLMAN'S SOUTHDOWNS.

The name of Ellman is so directly associated with the success of the Southdown, that the dispersion of one of the family flocks should be something of an era in the history of this sheep. And there is no question but that the Beddingham sale will leave its mark, recommended as it was by the most genuine of advertisements. It was pretty generally known that Mr. Ellman was retiring from business; his farms, in fact, having been for some time re-let, so that there could be no doubt as to the "without reserve" condition upon which the lots would be offered. Then the character of the stock was as clearly established; "bred," as the introduction has it, "with the greatest care and nicety for nearly forty years, and originally selected from the far-famed Glynde flock, belonging to Mr. Ellman's father." To give even some additional *clat* to the occasion, the services of Mr. Strafford, "the great London auctioneer," as the country folks called him, were secured, and the important event duly announced forthwith far and wide.

Nor were these inducements without their effect, although the elements of a very good company were made out more from country people and neighbours than of customers from a distance. Indeed, at the first glance, the absence of those who have transplanted the Southdown into other districts was very remarkable, and, beyond Mr. Woods' from Osberton, there was scarcely a stranger of any note on the show-ground to be seen. Some-one was, it will be found, in commission for Lord Sondes, but the Norfolk men held off, and Mr. Rand and Mr. Boby had the representation of the Eastern Counties pretty much to themselves; while Mr. Stenning came from Surrey, and Mr. Adcock from the Shires. The Sussex breeders, however, with Mr. Rigden at their head, mustered in great force, and, in fact, the home market aided by one or two budding flock-masters like Sir John Sebright and Captain Thurlow, was amply sufficient to make up a capital sale, and to furnish an average that will serve to show how well the Southdown sheep still stands, either at home or abroad.

The absence of other judges and connoisseurs is the more to be regretted as a look through the flock might have been turned to account as something of a lesson for hereafter. Although they have occasionally had at Beddingham the use of rams from Babraham, Mr. Sainsbury, Mr. Rigden, and Mr. Pinnix, the flock would seem to have been kept very true to the type of the elder Ellman, with a certain native purity as the great essential to go for. We have certainly seen larger, and here and there better balanced sheep, but we have never met with any that for style, quality, and *wool*, more thoroughly combined the excellences of the Down. There was something in the very carriage of the ram lambs, as one after another they were suffered to parade at liberty round the ring, that of itself conveyed the notion of the thorough-bred. Their well-covered, nicely-tinted heads, their good backs and smart active habits just fitted them to the scene, looking as they did ready to roam the opposite range of breezy upland, and fairly earn their "short bite." The ewes were better still, and some of the dowagers of the flock really extraordinary for the freshness with which they had worn; with clean heads and necks, beautiful round barrels, and good legs of mutton, their merits here again culminated in wool of admirable texture. There are few Downs that ever carry such a fleece; and when we did object to some

of the ewe lambs as having almost white countenances, it was urged in answer that if you go for black faces, you get coarseness, and so forth. But there is a happy medium that should be no where more carefully cultivated than in the colouring of a Southdown sheep's head, a point of which the Beddingham ewes furnished many an admirable illustration; whereas the ewe-lambs were by no means so good in this way, nor in any respect equal in character to their dams. The old rams, on the contrary, were not so remarkable for their merits, although very uniform in their appearance; while about the best of them was one which Mr. Poljambe had last season; but having since fallen lame, Mr. Woods went back again without him, and, as we believe, without even making a bid.

With upwards of £3,000 as the sum-total of the day's business, a proper estimate of the prices will perhaps best be gathered by a comparison with those just made by the best show flock in the county of Sussex. At Hove, the other day, Mr. Rigden's choicest pen of ewes made £6 5s. a-head, and the next best 5gs. each; while at Beddingham Mr. Rigden himself gave £10 a-head for ewes, with other pens selling at £8 15s., £8 10s., and £6 10s. each. The best ram at Hove was let for 42gs., and a ram lamb at Beddingham sold for 43gs. But, then, ram lambs never did sell as they went on Friday; and there was quite a sensation over some of the lots, as more particularly over this said 21, the first of No. 7's get offered. He is a great, well-grown, hardy-looking animal, with a capital back, but very bad before, being terribly pinned in, and some of the leading judges would not have had him "at any price." Sir John Sebright's man and Mr. Arkeoll, however, thought differently, and it was said that fifty guineas would not have stopped the former. Mr. Gibson, a Sussex squire, was the purchaser of the next best ram lamb at 33 guineas, and the longest priced ewes also remain in the county. Mr. Rigden's lot had more substance than anything in the catalogue, but we doubt whether the lot immediately preceding them in the list, and bought by Mr. Edward Cane, at £8 10s. each, were not, for all points, a better pen. They had more style and breed about them, though there was little to quarrel with either lot in these respects, while their famously sprung ribs made up a very model of what a sheep's body should be. Mr. Sturt's six-tooth ewes at £8 15s. per head were also extraordinarily good in this way, and Mr. Webster's bargain adjoining at £5 each a very sweet gay pen; as, indeed, we might go on to interpret many a similar note of admiration that figures in our catalogue. But the old ewes were better than the shearlings, and the shearlings better than the lambs, so that the sale would seem to have been very happily timed. The prize list will tell the rest of the story out, and many a short-wool fancier, who was not present, will feel, as he reads this, that, in the classic language of the box, he has missed "an opportunity such as seldom occurs."

Beddingham, separated from Glynde by the Hastings line, is by no means a show-place, and the buildings will be all the better for a little repair when the new tenant comes in. Mr. Ellman, however, has had a good innings here, and with the care of the flock no longer on his mind will now be able to devote himself, if possible, with increased energy to the repeal of the Malt-tax. May the return prove as satisfactory as that made by the Southdowns!



[The prices of the ewes are put in the number of shillings *each* sheep fetched, the biddings being made in this way; thus the first lot of five were knocked down for £20.]

- LOT SHEARLING EWES.**
1. Five two-tooth ewes, 80s., Mr. J. Gorringe.
  2. Five ditto, 75s., Mr. Webster.
  3. Five ditto, 85s., Mr. Webster.
  4. Five ditto, 130s., Mr. Webster.
  5. Five ditto, 100s., Mr. Webster.
  6. Five ditto, 126s., Capt. Thurlow.
  7. Ten ditto, 63s., Mr. Arkcoll.
  8. Ten ditto, 85s., M. C. Boby.
  9. Ten ditto, 80s., Mr. R. Boys.
  10. Ten ditto, 95s., Mr. Webster.
  11. Ten ditto, 70s., Mr. T. Cooper.
  12. Ten ditto, 80s., Mr. W. Ellman.
  13. Ten ditto, 75s., Mr. Lamb.
  14. Ten ditto, 65s., Mr. Gibson.
  15. Ten ditto, 72s. 6d., Mr. Gibson.
  16. Ten ditto, 70s., Mr. W. Back.
  17. Ten ditto, 67s. 6d., Mr. Gibson.
  18. Ten ditto, 75s., Mr. Back.

- FOUR-TOOTH EWES.**
19. Five four-tooth ewes, 65s., Mr. Back.
  20. Five ditto, 105s., Mr. R. Boys.
  21. Five ditto, 90s., Mr. E. Cane.
  22. Ten ditto, 70s., Lord Sondes.
  23. Ten ditto, 63s., Mr. J. Gorringe.
  24. Ten ditto, 80s., Mr. J. Verrall.
  25. Ten ditto, 65s., Mr. Heasman.
  26. Ten ditto, 60s., Lord Sondes.
  27. Ten ditto, 60s., Mr. Saxby.
  28. Ten ditto, 60s., Mr. T. Belling.
  29. Ten ditto, 63s., Mr. Gibson.
  30. Ten ditto, 75s., Mr. Gibson.
  31. Ten ditto, 55s., Mr. T. Cooper.

- SIX-TOOTH EWES.**
32. Five six-tooth ewes, 125s., Capt. Thurlow, Baynard Park, Horsham.
  33. Five ditto, 100s., Lord Sheffield.
  34. Five ditto, 175s., Mr. G. Sturt, M.P.
  35. Ten ditto, 90s., Mr. Agate.
  36. Ten ditto, 100s., Mr. Webster.
  37. Ten ditto, 92s. 6d., Mr. Gibson.
  38. Ten ditto, 92s. 6d., Mr. Gibson.
  39. Ten ditto, 80s., Mr. H. Ellman.
  40. Ten ditto, 75s., Mr. W. Burrell.
  41. Ten ditto, 65s., Mr. W. Burrell.
  42. Ten ditto, 72s. 6d., Mr. W. Rand.
  43. Ten ditto, 72s. 6d., Mr. H. Gorringe.
  44. Ten ditto, 75s., Mr. W. Burrell.

- FULL-MOUTHED EWES.**
45. Five full-mouthed ewes, 84s., Mr. C. Ellis.
  46. Five ditto, 90s., Mr. Stenning.
  47. Five ditto, 170s., Mr. E. Cane.
  48. Five ditto, 200s., Mr. W. Rigden.
  49. Five ditto, 120s., Mr. Ramsden.
  50. Five ditto, 115s., Mr. Ramsden.
  51. Ten ditto, 84s., Mr. H. Gorringe.
  52. Ten ditto, 75s., Mr. C. Ellis.
  53. Ten ditto, 70s., Mr. C. Ellis.
  54. Ten ditto, 63s., Mr. Ellman.
  55. Ten ditto, 63s., Mr. Rand.
  56. Ten ditto, 55s., Mr. Tapper.
  57. Ten ditto, 55s., Mr. W. Jones Loyd.
  58. Ten ditto, 55s., Mr. Gibson.
  59. Ten ditto, 65s., Mr. J. S. Turner.

- EWELAMBS.**
60. Five ewe lambs, 50s., Capt. Thurlow.
  61. Five ditto, 75s., Mr. Gibson.
  62. Five ditto, 42s., Capt. Thurlow.
  63. Five ditto, 50s., Capt. Thurlow.
  64. Ten ditto, 55s., Mr. Emery.
  65. Ten ditto, 57s. 6d., Mr. Thurlow.
  66. Ten ditto, 50s., Mr. Thurlow.
  67. Ten ditto, 52s. 6d., Mr. Thurlow.
  68. Ten ditto, 50s., Mr. Thurlow.
  69. Ten ditto, 52s. 6d., Mr. Thurlow.

70. Ten ditto, 54s., Mr. Thurlow.
71. Ten ditto, 55s., Mr. Agate.
72. Ten ditto, 52s. 6d., Mr. Boby.
73. Ten ditto, 50s., Mr. Back.
74. Ten ditto, 46s., Mr. Blaker.
75. Ten ditto, 40s., Mr. Back.
76. Ten ditto, 40s., Mr. Back.

- RAM LAMBS.**
1. One ram lamb, 12½ gs., Mr. R. Emery.
  2. One ditto, 7 gs., Mr. W. Adecock.
  3. One ditto, 23 gs., Sir J. Sebright.
  4. One ditto, 25 gs., Mr. W. Botting.
  5. One ditto, 21 gs., Mr. W. Adecock.
  6. One ditto, 17 gs., Mr. T. Arkcoll.
  7. One ditto, 9 gs., Mr. R. Emery.
  8. One ditto, 6½ gs., Mr. Jones Loyd.
  9. One ditto, 25 gs., Sir J. Sebright.
  10. One ditto, 17 gs., Mr. T. Arkcoll.
  11. One ditto, 8 gs., Duke of Manchester.
  12. One ditto, 6 gs., Lord Sheffield.
  13. One ditto, 8 gs., Lord Sheffield.
  14. One ditto, 8 gs., Mr. Back.
  15. One ditto, 6 gs., Mr. Boby.
  16. One ditto, 8 gs., Mr. Gibson.
  17. One ditto, 6½ gs., Mr. Boby.
  18. One ditto, 5 gs., Mr. Elicik.
  19. One ditto, 6 gs., Mr. Walker.
  20. One ditto, 5 gs., Mr. Porle.
  21. One ditto, 43 gs., Sir J. Sebright.
  22. One ditto, 8 gs., Mr. H. Gorringe.
  23. One ditto, 32 gs., Mr. Gibson.
  24. One ditto, 6½ gs., Mr. Arkcoll.
  25. One ditto, 20 gs., Mr. W. Botting.

- RAMS.**
26. One two-tooth ram, 30 gs., Mr. T. Challen.
  27. One ditto, 8 gs., Mr. J. Ellis.
  28. One ditto, 33 gs., Sir J. Sebright.
  29. One ditto, 24 gs., Mr. Humphrey.
  30. One ditto, 8½ gs., Mr. J. Gaudem.
  31. One ditto, 1½ gs., Mr. J. Gaudem.
  32. One four-tooth ram, 23 gs., Mr. Challen.
  33. One ditto, 31 gs., Duke of Manchester.
  34. One full-mouthed ram, 48 gs., Sir J. Sebright.
  35. One four-tooth ram, 18 gs., Mr. Boby.
  36. One six-tooth ram, of Mr. Webb's Menipo, 23 gs., Mr. C. Ellis.
  37. One full-mouthed ram, 22 gs., Mr. Humphrey.
  38. One ditto, 33 gs., Mr. Challen.
  39. One ditto, 15 gs., Mr. Turner.
  40. One ram, bred by Mr. Pinnix, 25 gs., Mr. Stanford.

AVERAGE AND SUMMARY OF SALE.

	£	s.	d.	£	s.	d.
500 Ewes ... ..	3	19	4	1983	5	0
150 Lambs ... ..	2	11	6	3	1	15
25 Ram lambs ... ..	14	4	9	355	19	0
15 Rams ... ..	24	18	5	373	16	0
				£3994	15	0

**PETERBORO' RAM FAIR.**—The following is a short account of the prices, averages, &c. Messrs. Mason and Son offered 50 shearling rams of Mr. Casswell, of Pointon: they were all sold at an average of £15 10s. each, and for a total of £775. No. 10 was sold to Mr. Burdett, of Pytchley, for £52 10s.; 11, to Mr. Edwards, of Backforth, for £15 10s.; 16, to Mr. Simpkin, of Allerton, for £44; 18, to Mr. Little, of Heckington, for £22; 19, to Mr. Edwards, for 17s. 10s.; 23, to W. Holland, of Market Deeping; 26, Mr. Ullett, of Higney, for £21; 30, to Mr. Goodlife for £30; 34, to Mr. Wallace, of Barton Seagrave, for £38; 35, to Mr. T. Borman, £15 10s.; 36, to Mr. Clarke, of Wykham, £21; and 40, to Mr. Saunt, £35. Mr. Law sold 52 rams for Mr. Clarke, of Ashby-de-la-Laund; the highest price obtained was £37 16s. from Mr. Rudkin, the average being £12 10s. each; Mr. Fox sold for Mr. Kirkham 45 rams, the highest price obtained being £36, for an animal bought by Simpkin, and the average £11; Mr. Warwick sold 30 for Mr. Popham, of Welford, the highest price, £15, being given by Captain Hemsley; Mr. Mann sold for Mr. Woolhouse, of Wellington, 30, the highest

price being £11 for an animal sold to Mr. Hetley; Mr. Mann sold 30 for Mr. Cartwright, Dunstan Pillar, the highest prices being £24 (given by Mr. Lester), 18 guineas, £15, and £14; Mr. Calthrop offered 40 for Mr. Fisher, of Weston, the highest price obtained being £10, and £25 for Mr. Wright, of

Nocton Heath, the highest price being £7; Mr. Law sold 25 for Mr. Sanderson, the highest-priced one being sold to Mr. Newton for £26, the average being £10; Mr. Deacon sold 30 of Mr. Clarke's (of Canwick) rams, the highest price obtained being £13 10s. for a sheep sold to Mr. Attenborough.

### THE GREAT SALE AND SHOW OF SHROPSHIRE SHEEP.

THE GREAT ANNUAL AUTUMNAL SALE! TWENTY-TWO THOUSAND EIGHT HUNDRED GRAND RAMS AND EWES!! CHALLENGE FOR £1,000. Mr. G. R. PREECE WILL SHOW AT SHREWSBURY, AT THE SHEEP BREEDERS' GREAT SHOW!!! and so on. Everything, moreover, is in the same noble strain. Every ram in the catalogue is *grand*, and every ewe equally, as a matter of course, *superb*. The auctioneer's clerk, as so called in common parlance, is not a clerk, but a *Secretary*; the breeders are all "the most eminent" in the kingdom, and the superlative degree is everywhere predominant. But Mr. Preece is as good in the box as he is in type; and it is by no means too much to say that he is the heart and soul, the very life-blood of these "great" sales. His energy is indomitable, his enthusiasm unmistakably genuine, and his thorough knowledge of his subject as admirable. From ten o'clock in the morning until past five in the afternoon he never flags, but runs on from one lot to the next, with the same amazing power of voice, fluency of tongue, and fertility of description. Nothing stops him or dispirits him. He turns a "grand" ram out of the ring without a bid, in the same cheery way in which he might have sold him for a hundred; and introduces another of the flock with yet more emphatic illustration. This next shearing is "a rent-payer;" he is "a wool-grower." He is "a sheet-anchor for the farmer." He has "the skin of a cherry;" he has "the shoulders of a runner;" he has "a noble countenance;" he has "masculine character;" he has "a muscular neck;" he has "a round barrel;" he has "a fat back;" he has "perfect symmetry;" and so he is christened "PERFECTION" on the spot. What will anybody give for Smith's Perfection? His sire was first at "the Royal," and his dam would have been if she had ever been entered. He has majesty of appearance, his texture is unsurpassable, and there is no reserve over the five guineas. Will anybody give six for him? And a half? Going for five-and-a-half—there must be no dwelling. Gone for five-and-a-half. Royal blood, and a fat back. Gone—six guineas bid—thank you, sir! And then down comes the hammer, or rather the walking-stick, with a *thwack!* that manifestly still more surprises the already much admiring shearing; who hurries out of the ring with commendable alacrity on hearing that they are "already three-quarters of a minute behind time," and clearly not without a suspicion that the next crack of the baton may be devoted still more directly to his "high-bred, noble countenance."

But when we have said so much of the great Autumnal Shropshire sheep sale, and the thousand pounds Challenge, we have said nearly everything. There seemed to be as many or more buyers than sellers present, and though some of the sheep offered were from famous flocks, these were rather "the tailings" and leavings than the sheep to be shown for a thousand pounds. Other lots, again, from breeders less known, were utterly unsalable; and both at the beginning and the end of the first day ran after ram was passed without an offer. Even the Uffington entry from Mr. Evans, "the man of the year," was by no means remarkable for anything beyond high condition, and the top price was 18 gs., the other thirteen going for 9, 12, 10, 13, 7, and so on. The highest figure we heard given was 30 gs., for

a ram from Lady Willoughby de Broke; but the sample of the Compton Verney flock was not uniform, either in general character or individual excellence, and this sheep stood a long way before his fellows. A ram of the Hon. Noel Hill's made 28 gs., but the biddings here appeared chiefly to come from the box, and it was said the purchase was made on behalf of the Colonies. One of the nicest drafts in the yard was that from Adcott, and the Bath and West of England prize ram drew another 28gs.-worth. For so long a string none came out better than Mr. Henry Smith's, one of which was let to Mr. Lythall at 24 gs., two others sold at 18 gs., another at 16 gs., and so downwards. The almost only really good sheep of Mr. Horton's let for 25 gs.; but this flock would seem to be rather training off, or at least the rams here exhibited were not as a lot very clever. Mr. Price Bowen still goes for size, at a clear sacrifice of quality, and an immense Shrawardine shearing sold for 15 gs. Mr. Thornton was not up to his previous form; but Messrs. Crane's dozen and a-half were pretty and uniform; while Mr. Sheldon, of Brailles, showed nine of about the best rams in the fair. They combined style and size, with good lean meat and capital wool, and their average was one of the highest of the day. We own to not having stopped the business out, but when we left between three and four, Mr. Preece was turning out the Rev. Mr. Botfield's lame, badly-done, rams one after another, without an offer, but with as much spirit and strength of tone as if they were going off readily. They were in honest working condition: they had capital constitutions: they were bred from well-known prize-sheep: they had quality and symmetry and nobility; and will nobody give five guineas for one of them? Then, let him go, Dick! And here is No. 7, a deal better one of the same sort, and just the animal for a good cross.

Nothing can be better conducted than these sales, or than the convenient arrangement by which the stock from certain flocks is put up at certain specified times, so that a customer, who has a catalogue to go by, can make his visit fit to a minute if he so chooses: for this declared time is admirably kept, and, with an interval of only eight minutes for refreshment, there was scarcely a minute lost during the day. The mistake is to announce a sale of culls, and pretty generally second-rate animals, as *the* great sale of the season. This in reality took place during the last week in July, when Mr. Evans' (Uffington) highly-commended shearing at Bury St. Edmunds was let to Mr. Masfen for 85 guineas; the first-prize shearing from the same flock to Mr. Beach for 60 gs.; the second prize to Mr. Horley for 45 gs., and Mr. Mansell's prize two-shear to Mr. H. Smith for 77 gs. Lord Chesham also hired Mr. Smith's highly-commended sheep at Bury for 40 gs.; and Messrs. Crane let two shearings for 40 gs. and 36 gs. to Lord Lisburn and Mr. Horton. The Uffington three-shear sheep, the third prize at the Royal Meeting, was also said to be let for 95 gs., but it is not so clear into whose hands he has gone.

The sale of the "superb" ewes was to follow on Friday; but, as none of the prices have reached us, it may be assumed that these scarcely warranted the magnificence of a £1,000 challenge.

SALES OF SHORTHORNS.

BY MR. CARR.

THE DUKE OF MONTROSE'S HERD—LORD STRATHALLAN'S HERD.

The herd of the Duke of Montrose, and the largest portion of the herd of Viscount Strathallan, were sold on Tuesday, Aug. 27, at Mr. Dewar's farm, King's Park, near Stirling. The sale was opened with the Duke of Montrose's cows and heifers, for which there was a good competition. Rosedale, the best cow in the herd, was purchased by the Duke of Montrose, at Lady Figot's sale, for 217 guineas. In the herd of cows belonging to Viscount Strathallan, Violante obtained the highest price, 91 guineas, Sir William Stirling-Maxwell being in this case the buyer. The highest price paid for a bull was Scottish chief, belonging to the Duke of Montrose, which fetched 67 guineas. It may be stated that the sale was the greatest which has ever occurred in Scotland. Excepting Rosedale and a few others, the most of the animals will remain in Scotland, a circumstance which shows how much the Shorthorn stock is appreciated on that side of the Border.

THE DUKE OF MONTROSE'S HERD.

COWS AND HEIFERS.

La Valliere, roan, calved October 12th, 1855; got by Gainford 5th (12913), dam (Farewell) by Royal Buck (10750)—41 gs.; Mr. Fox, of St. Bees.  
 New Year's Morn, white, calved January 1st, 1857; got by Baltic (12431), dam (Lady Marguerite) by Master Charlie (13312)—30 gs.; Sir W. Stirling Maxwell, of Keir.  
 Rosedale, roan, calved February 13th, 1861; got by Valasco (15443), dam (Rosy) by Master Belleville (11795)—235 gs.; Mr. Beattie, of Montreal.  
 Flower Girl, roan, calved July 6th, 1861; got by Baron Killerby (19280), dam (Flora) by Victor Emmanuel (15460)—100 gs.; Sir W. Stirling Maxwell, of Keir.  
 Rosy Morn, red roan, calved October 3rd, 1862; got by Victor Royal (21028), dam (New Year's Morn) by Baltic (12431)—61 gs.; Duke of Richmond.  
 Baroness Killerby, roan, calved January 14th, 1863; got by Baron Killerby (19280), dam (Flavia) by Baron Warlabby (7813)—78 gs.; Mr. White, of Little Chinterty, Blackburn, Aberdeenshire.  
 Early Dawn, roan, calved February 28th, 1865; got by Fashion (21724), dam (New Year's Morn) by Baltic (12431)—58 gs.; Mr. Turnbull, of Huntingtower.  
 Ballet Girl, roan, calved March 12th, 1865; got by Fashion (21724), dam (Flower Girl) by Baron Killerby (19280)—58 gs.; Mr. Turnbull.  
 Princess, red, calved March 25th, 1865; got by Fashion (21724), dam (La Valliere) by Gainford 5th (12913)—50 gs.; Mr. Turnbull.  
 Pride of the Morning, roan, calved January 23rd, 1866; got by Scottish Chief (22849), dam (Rosy Morn) by Victor Royal (21028)—75 gs.; Sir W. S. Maxwell.  
 Highland Girl, roan, calved April 6th, 1866; got by Scottish Chief (22849), dam (Flower Girl) by Baron Killerby (19280)—56 gs.; Mr. Balfour, of Balbrinie.  
 Lady Booth, roan, calved April 10th, 1866; got by Baron Booth (21212), dam (La Valliere) by Gainford 5th (12913)—42 gs.; Mr. Storer, of Hellidon, Daventry.  
 Day Spring, roan, calved May 14th, 1867; got by Scottish Chief (22849), dam (Early Dawn) by Fashion (21724)—31 gs.; Mr. Scott, of Brotherton, Kincardine.  
 French Lady, roan, calved June 15th, 1867; got by Scottish Chief (22849), dam (La Valliere) by Gainford 5th (12913)—23 gs.; Mr. Fox, of St. Bees.

BULLS.

Scottish Chief (22849), red, calved January 10th, 1864; got by Ravenspur (20265), dam (La Valliere) by Gainford 5th (12913)—67 gs.; Duke of Richmond.  
 Rose Hill, roan, calved October 15th, 1865; got by Fashion (21724), dam (Rosedale) by Valasco (15443)—40 gs.; Mr. Stirling, of Cockermouth.  
 Northern Light, roan, calved October 15th, 1866; got by

Scottish Chief (22849), dam (New Year's Morn) by Baltic (12431)—42 gs.; Mr. Balfour, of Whittingham.  
 Scotch Rose, red, calved October 18th, 1866; got by Scottish Chief (22849), dam (Rosedale) by Valasco (15443)—51 gs.; Mr. Cruickshanks, of Sittyton.  
 Clausman, roan, calved December 30th, 1866; got by Scottish Chief (22849), dam (Rosy Morn) by Victor Royal (21028)—32 gs.; Mr. Forman, of Windyminns, Upperkeith.  
 Jacobite, roan, calved June 21st, 1867; got by Scottish Chief (22849), dam (Flower Girl) by Baron Killerby (19280)—30 gs.; Mr. Charles Tenant, of Buchlyrie.

Average of cows .....	£70 4
Average of bulls .....	55 0
Total average .....	62 18

VISCOUNT STRATHALLAN'S HERD.

COWS AND HEIFERS.

Violante, red, calved May 20th, 1857; got by Valiant (10959), dam (Roan Duchess 2nd) by Frederick (11489)—41 gs.; Sir W. S. Maxwell  
 Rosebud, roan, calved April 8th, 1859; got by Dick (14399), dam (Ruby) by the Squire (15401)—47 gs.; Mr. Fox, of St. Bees.  
 Mysie 10th, roan, calved June, 1859; got by Indispensable (16295), dam (Mysie 3rd) by Barnaby Rudge (11142)—30 gs.; Mr. Arklay, of Dundee.  
 Princess Royal, red, calved February, 1860; got by Indispensable (16295), dam (Princess Mary) by The Baron (13833)—24 gs.; Mr. Symes, of Courton, Fife.  
 Warlabina 2nd, roan, calved January 3rd, 1861; got by Hautboy (18034), dam (Warlabina) by Baron Warlabby (7813)—53 gs.; Mr. Botcherby, of Darlington.  
 Rosa Bonheur, roan, calved January 31st, 1862; got by Bridegroom (17441), dam (Rosa Lee) by Hautboy (18034)—74 gs.; Duke of Richmond.  
 Harmless, roan, calved March 9th, 1862; got by Bridegroom (17441), dam (Harmony) by Redgauntlet (16805)—31 gs.; Mr. Currie, of Halkerston.  
 Harmonica, white, calved April 24th, 1863; got by Fosco (17869), dam (Harmony) by Redgauntlet (16805)—28 gs.; Mr. Fox, of St. Bees.  
 Rosa Bianca, red and white, calved May 10th, 1864; got by Fosco (17869), dam (Ruby) by The Squire (15401)—24 gs.; Mr. Allen, of West Park, Auchterarder.  
 Princely, roan, calved May 30th, 1864; got by Warrior (23178), dam (Princess of Cambridge) by Duke of Cambridge (12742)—30 gs.; Sir W. S. Maxwell.  
 Queen Mary, red, calved August 13th, 1864; got by Fosco (17869), dam (Princess Royal) by Indispensable (16295)—33 gs.; Mr. Drummond, of Colt M'Allender, Auchterarder.  
 Harpsichord, roan, calved February 16th, 1865; got by Allan (21172), dam (Harmonica) by Fosco (17869)—25 gs.; Mr. Aitken, of Fettercairn, Kincardine.  
 Rose of Strathallan, roan, calved March 29th, 1865; got by Allan (21172), dam (Rosa Bonheur) by Bridegroom (17441)—86 gs.; Mr. Currie, of Hatherston, Dalkeith.  
 Rosabel, red and white, calved April 3rd, 1865; got by Allan (21172), dam (Rosa Lee) by Hautboy (18034)—66 gs.; Sir W. S. Maxwell.  
 Queen of Scots, roan, calved February 12th, 1866; got by Fosco (17869), dam (Princess Royal) by Indispensable (16295)—26 gs.; Mr. Souter, of Banff.  
 Red Rose of Strathallan, red, calved March 30th, 1866; got by Allan (21172), dam (Rosa Bonheur) by Bridegroom (17441)—50 gs.; Mr. Sadler, of Raths.  
 Warlabina 4th, roan, calved May 31st, 1866; got by Earl of Strathearne (21638), dam (Warlabina 2nd) by Hautboy (18034)—37 gs.; Mr. W. Sime, of Orchard, Cambus.  
 Harriet, red, and white, calved February 20th, 1867; got by

Earl of Strathearne (21658), dam (Harmless) by Bridegroom (17441)—13 gs.; Mr. Greig, of Muircot.  
 Strathearne's Mysic, roan, calved March 5th, 1867; got by Earl of Strathearne (21658), dam (Mysic 10th) by Indispensable (16295)—15 gs.; Mr. Drew, of Marryton, Hamilton.  
 Rosa Roy, red and white, calved April 5th, 1867; got by Rob Roy (22740), dam (Rosa Bianca) by Fosco (17869)—Not sold.  
 Harmonia, roan, calved April 6th, 1867; got by Roderick, dam (Harpichord) by Allan (21172)—21 gs.; Mr. Balfour, of Balbirnie.  
 Warlabina 5th, red, calved May 17th, 1867; got by Rob Roy (22740), dam (Warlabina 2nd) by Hautboy (18034)—36 gs.; Mr. Allen, of West Park.  
 Heicess, red and white, calved June 18th, 1867; got by Earl of Strathearne (21658), dam (Heartsease) by Allan (21172)—Not sold.

## BULLS.

Rob Roy (22740), red, calved April 26th, 1864; got by Bridegroom (17441), dam (Rosa Lee) by Hautboy (18034)—46 gs.; Mr. Cruickshank, of Stityton.  
 Fitz-Allan, red and white, calved January 13th, 1865; got by Allan (21172), dam (Jeannette) by Redgauntlet (16805)—20 gs.; Mr. Arklay.  
 Royalty, red and white, calved May 30th, 1866; got by Earl of Strathearne (21658), dam (Rosa Bianca) by Fosco (17869)—18 gs.; Mr. Finlayson, of Stirling.  
 Prince Teck, red and white, calved June 1st, 1866; got by Earl of Strathearne (21658), dam (Princely) by Warrior (23178)—Not sold.  
 Duke of Edinburgh, roan, calved February 23rd, 1867; got by Earl of Strathearne (21658), dam (Harmonica) by Fosco (17869)—35 gs.; Mr. Scott, of Brotherton.  
 Robin Hood, red and white, calved February 27th, 1867; got by Rob Roy (22740), dam (Rosebud) by Dick (14399)—30 gs.; Mr. Fox, of St. Bees.  
 Prince Charlie, red and white, calved April 22nd, 1867; got by Rob Roy (22740), dam (Princely) by Warrior (23178)—18 gs.; Smyth, of Balmain, Fetterscrair.  
 Maximilian, red, calved May 24th, 1867; got by Rob Roy (22740), dam (Queen Mary) by Fosco (17869)—Not sold.  
 Craicrossie, red, calved June 18th, 1867; got by Rob Roy (22740), g.d. (Warlabina 3rd) by Fashion (21724)—16 gs.; Mr. Sadler.

**MR. MASFEN'S SHROPSHIRE SHEEP SALE,** at Pendeford, took place on Monday, Sept. 9, under the direction of Mr. Preece, when 50 rams averaged over £15 each. The following were the chief prices: Shearling rams—Masterpiece, 21 gs., Mr. Dales; Masterman, 30 gs., Lord Chesham; British Tar, 25 guineas, Mr. Dales; Mussuham, 21 gs., Mr. Brooksbank; Majestic, 20 gs., Mr. Levick; Viceroy, 25 gs., Mr. Firmstone. Two-shear rams—Pride of Pendeford, 40 gs., Mr. Sharp, for Lord Aylesford; Romeo, 32 gs., Mr. Wardle; Lord Verney, 18 gs., Mr. Dales. Three-shear rams—Mainstay 2nd, 30 gs., Mr. Firmstone; Madeap, 20 gs., Mr. Broughall. Seventy-five stock ewes and theaves were put in lots of five each, and they were sold at the following prices per head: Lot 1, Mr. Taylor, 57s. 6d.; 2, Mr. Gover, 11s.; 3, Mr. Robinson, 70s.; 4, Mr. Wright, 65s.; 5, Mr. Firmstone, 67s. 6d.; 6, Mr. Firmstone, 70s.; 7, Mr. Myatt, 60s.; 8, Mr. Chambley, 60s.; 10 (theaves), Lord Chesham, 80s.; 11, Mr. Myatt, 65s.; 12, for Lord Aylesford, 70s.; 13, Mr. Myatt, 55s.; 14, Mr. Clewes, 65s.; 15, Mr. Sharpe, 65s.; 16, Mr. Nash, 62s. 6d.

The sale of Mr. R. G. F. Howard's Lincoln rams was held at Temple Bruer. At all the ram-sales hitherto held in the county this year there has been a considerable falling-off in the averages, owing to the present depressed state of the trade for both mutton and wool, Mr. Howard alone exceeding any former average. The sixty-seven animals realized £51, being an average of £13 14s. each. Mr. Buttersley, of Scotherne, secured the plun for £60. No. 12 was knocked down to Mr. Kirkham at £38; and Mr. Clarke, Rutland, took two sheep at £30 each, Mr. Mackender one at £30, Mr. F. Brook one at £26, and several others were disposed of at prices ranging from £15 to £20 each.

**NORFOLK STOCK.**—The second annual sale of South-down sheep and red polled Norfolk (or Suffolk) cattle, the property of Lord Soudes, took place on Sept. 9, at Elnham. 140 shearling ewes realized £425 15s., the average being £3 0s. 9d. each. Ninety ewe lambs sold for £161 15s., the average being £1 16s. 11d. each. 190 wether lambs realized £299 5s., the average being £1 15s. 2d. each. Only seven rams were let, but the total proceeds of the letting were £92 13s., giving an average of £13 4s. 8d. each; the highest price at which a ram was hired was £16 16s., given by Herr Gouth, of Prussia. The polled cattle were then brought forward; 17 heifers (with four calves, which sold for £11 6s.) realized £349 16s., being an average of £19 18s. 2d. each. Three Norfolk bulls were offered, and the first made £26 5s., the second £24 3s., and the third £15 15s.

**LINCOLNSHIRE RAMS.**—Although on the Yorkshire wolds the Lincolns have been found unproductive, yet in the low warm countries they appear to maintain their position. The great annual sale was held at Wottondale, Ulcby, on Sept. 6, by auction. Mr. Havercroft's rams were sold, numbering over 60. The shearlings had famous competition, some of them fetching as high as £30, and the older rams were well sold as much as £36 10s. being given. On Tuesday last, the Culverthorpe flocks, belonging to Mr. George King, of Culverthorpe-hall, near to Sleaford, were offered for sale by Mr. Elston Law. There were 55 lots put up, and of these only nine were unsold: the pick of the lots ranged from £21 to £10 10s., and averaged over £15 each. They were sheep of immense size, fine symmetry, and with excellent fleeces. The other sale took place on Thursday afternoon at Norman-ton-hill Farm, near Grantham, where the rams belonging to Mr. Charles Winter were offered by Mr. Spreckley. There were about 80 lots let for the season, the best lots being numbers 1, 2, 5, 12, and 41, at £13, and 48, at £16, 45 at £14, 43 at £12 15s., and 61 at £13 15s.

**SALE OF POLLED CATTLE AT TILLYFOUR.**—Mr. McCombie, Tillyfour, had a sale of pure-bred Aberdeen and Angus cattle on his farm of Tillyfour on Thursday, Sept. 5. The average price obtained for the cows was £37 14s. per head; the average price for the first ten on the list, bred by Mr. McCombie, being £45 15s. 6d.; the average price of six two-year-old heifers was £41 9s. 6d.; the average of ten yearlings was £24 1s.; the average of six heifer calves was £15 1s.; and the average of five bull calves was £28 7s. each. The total proceeds of the sale amounted to £1,513.

**THE ULCEBY GRANGE RAMS.**—Mr. C. J. Calthrop, on Sept. 9, held an auction for the sale of rams, the property of Mr. John Turner, of Ulceby Grange. Fifty-four sheep were sold for £325, being an average of £9 14s. 5d. each. Two hundred fresh shearling wethers were then offered, in lots of ten each, and the average was 37s. 6d. each. Seventy gimmers were then offered in lots of ten, and were all purchased by Mr. Johnson, a dealer, at the following prices:—Lot 1 37s. 6d. each, 2 and 3 40s. 4 39s., 5 39s., 6 38s., and 7 38s. 6d. each.

At the **DUMBLETON RAM SALE** the competition was not so spirited, nor were such good prices realised, as in former years. Thirty-eight pure Shropshire rams were first offered for competition: four of these were to let and the remainder for absolute sale, and they were all disposed of with the exception of five. A two-shear ram, reserved for exhibition at the Gloucestershire Agricultural Exhibition, at Cheltenham, next week, was let for the season to Mr. C. Randall, of Chadbury, for 25 guineas; and three others were let at the respective sums of 7½ and 10½ guineas. The highest price realised for shearling rams absolutely sold was 14 guineas, and the lowest 5½ guineas. Yearling and stock ewes from the same breed sold readily in pens of five each at prices from £1 18s. to £3 3s. per head; in several instances the scarcity of food during the summer had told upon the ewes, hence the lower figures in some instances which realized.

**BIENNIAL SALE OF MR. BRYDON'S CHEVIOT RAMS AT BEATPOCK.**—The sale was presided over by Mr. Oliver, Hawick. "Craigpatrick" four year old, a splendidly made sheep, realized the fabulous sum of 185 guineas. The total number of rams sold was 173, and the sum which they realized was £1,910 7s. The subjoined is a list of some of the principal prices with the averages

of this and of the last sale:—Five-Year-Olds: Highest price £11 10s., lowest £5. Four-Year-Olds: Highest £194 5s., lowest £3, average £16 4s. 9d., average in 1865 £21 6s. 1d. Three-Year-Olds: Highest £75 12s., lowest £2 10s., average £10 12s. 3d., average in 1865 £15 11s. 3d. Two-Year-Olds: Highest £37 16s., lowest £2 5s., average £6 15s., average in 1865 £11 8s. 8d. One-Year-olds: Highest £13 10s., lowest £2 5s., average £5 0s. 2d., average in 1865 £6 13s. 5½d.

**SALE OF LEICESTER RAMS AT KELSO.**—On Friday, September 13, was held the annual sale of Leicester rams, under the auspices of the Border Union Society. There were upwards of 2000 sheep for sale altogether, and the biddings were more spirited than last year, although the averages in several instances were lower; but when the fall in the price of sheep is taken into consideration, the decline is nothing. The lot belonging to Lord Polworth was surrounded by an eager and interested assemblage. There were altogether 29 of his Lordship's sheep sold, which brought a total of £743 15s., being an average of £25 13s., or £1 8s. less than last year. His highest ram this year was £106; last year it was £98. In Mr. Torrance's lot, of Sisterpath, the highest price was £19. Mr. Torrance's highest

price last year was £17, and his average £9 4s. 7d. In Mr. Robeson's (Springwells) lot, Mr. Mein, Barnes, gave the highest price, £15. The highest last year was £18, and his average £6 16s. 3d. His average this year was £6. Miss Stark of Melleudean's rams were brought into the ring. The prices of the highest this year were as follow:—Mr. Mills, Horsburgh Castle, bought the best ram at £84; Mr. Foster, Ellingham, bought one at £76; Mr. Robertson, Harperton, bought a splendid animal at £69; Mr. Clarke, Oldhamstocks, one at £28; Mr. Stevenson, Hales, one at £20; Mr. Robertson, Harperton, another at £22; Mr. Franks, Ireland, one at £35; Mr. Allen, Billiemains, one at £51; Mr. Laing, Cornhill, one at £26; Mr. Calder, Kelso Mains, one at £20. The total amount of the sale for the 34 tups was £773. The average last year was £25 15s. and the highest £80. In the lot belonging to Mr. Purves, Linton Burnfoot, the highest price was £60. Mr. Lees, Mervington, sold two rams, and his average was £26 10s. In Mr. Errington's lot, Sir George Dunbar bought one at £27; and Mr. Calder, Kelso Mains, one at £16. In Mr. Simsons (Courthill) lot, Mr. Hogarth, Eccles Tofts, bought one at £10 10s. In the Rev. Mr. Bosanquet's lot, Mr. Hope, Fentonbarus, purchased one at £29; Mr. Murray, Edinburgh, bought one at £21.

CHESHIRE AGRICULTURAL SOCIETY.

At the annual show in spite of the cattle plague and all the dire angaries to which it gave rise, some £20 more was taken in 1867 than in any previous year. Perhaps that is not saying a great deal, but it is unquestionably a step in the right direction. The total takings at the show-yard gates amounted this year to £271—a sum indicating the visits of above 5,000 people to the enclosure on the Roodee.

LIST OF PRIZES.

CHEESE.

JUDGES.—Mr. Bowles, 13, West Smithfield, London.  
Mr. Warburton, Manchester.

Champion prize, for the best dairy of new cheese, not to average less than 40lbs. weight each, £20; second best £10; open for general competition to the United Kingdom—1, Joseph Robinson, Lee Green Hall, Church Minshull; 2, Thos. Finchett, Rushton.

Best dairy cheese, either old or new, not to average less than 450 weight each, £15; second best, £4, given by Mr. Wm. Atkinson—1, G. Gibbons, Tunley Farm, Bath; 2, Joseph Aston, Brassey Green, Tarporley.

Best dairy of new cheese, not less than 50lbs. weight each, £10; second best, £3, given by Mr. Wm. Atkinson—1, John Vernon, Willington, Tarporley; 2, Joseph Owen, Weaver Park, Over.

Best dairy of new cheese, not less than 20lbs. nor more than 50lbs. weight each, £5; second best, £2, given by Mr. William Atkinson—1, Samuel Davies, Eardswick Hall, Middlewich; 2, Earl Grosvenor, M.P., Moat Farm, Calveley.

Best dairy of cheese, averaging above 40lbs. weight each, not made on the Sabbath-day, £6, given by Mr. J. Tollemache, M.P.; second best, £4, given by the Rev. John Thornycroft—1, George Jackson, Tattenhall Hall; 2, Samuel Wright, Woodhouses, Frodsham.

Best dairy cheese, not on the average exceeding 40lbs. weight each, and not made on the Sabbath-day, £4, given by Mr. John Tollemache, M.P.; second best, £2, given by the Rev. John Thornycroft—1, Joseph Beckett, Peel Hall, Ashton; 2, William Willis, Rushton, Tarporley.

FATTED PIGS.

JUDGES.—Mr. Hindson, Liverpool.  
Mr. Hill, Bache.

Agricultural labourer's best fatted pig, £2, Joseph Gresty, Clotton Hoofield.

LARGE BREED.

Best boar pig, of any age, £3, William Eardley, Larkton, Malpas.

Best boar pig, under two years old, £3, Samuel Davies, Eardswick Hall.

Best breeding sow, of any age, £3, George Jackson, Tattenhall Hall.

Best breeding sow, under two years old, £3, Marquis of Westminster.

Best pen of pigs, four in number, bred by the owner, born since 1st January, 1867, £3, Mrs. Deccroft, Upton, Cheshire.

Best pair of gilts, bred by the owner, born since 1st January, 1867, £3, Peter Wright, Minshull.

SMALL BREED.

Best boar pig, of any age, £3, and best breeding sow, of any age, £3, E. C. Walker, Lead Works, Chester.

Best breeding sow, under two years old, £3, James Parr, Hatton Hall, Warrington.

Best litter of pigs according to age, £3, Earl Grosvenor.

Best pen of pigs, four in number, £3, Mrs. Beecroft, Upton, Cheshire.

SMALL BREED.

Best boar pig, of any age, £3, Thomas Atherton, Chapelhouse, Speke, Liverpool.

HORSES.

JUDGES.—Mr. John Barker, Rushton.  
Mr. James Boote, Weston.

Best pair of horses, for agricultural purposes, £8, Earl Grosvenor.

Best mare or gelding, for agricultural purposes, £6, G. C. Dewhurst, Beechwood, Lydm.

Best stallion, for agricultural purposes, £12, James Lloyd, Winbolds, Trafford.

Best mare or gelding, as a roadster, £5, Robert Martin, Harleston.

Best brood mare, with the foal at her foot, for agricultural purposes, £7, Stonetrough Colliery Company.

Best two years old gelding or filly, for agricultural purposes, £5, Thomas Bahner, Tattenhall.

Best yearling gelding or filly, for agricultural purposes, £4, Stonetrough Colliery Company.

Best brood mare, for breeding hunters, £5, given by Earl Grosvenor, Thomas Parker, Aldford, Chester.

For the best three years old colt, for hunting purposes, £5, given by the Earl Grosvenor, M.P., Nathan Ellison, Lea Green Farm.

## EXTRA PRIZES FOR HORSES.

JUDGES.—Lord Combermere.  
Sir W. W. Wynn.  
Mr. Reginald Corbet.

Best thorough-bred stallion, for hunting purposes, £12, Thomas Parker, Aldford, Chester.

Best roadster stallion, £10, John McGregor, Acton, Northwich.

Best mare or gelding suitable for a hunter, £10, Captain E. N. Heygate, Buckland, Leominster.

Mare or gelding, which is the best performer as a hunter, £10, Edward Dixon, St. John-street, Chester.

Best roadster, not exceeding 15 hands in height, £5, Ambrose Dixon, Chester.

Best two years old gelding or filly likely to make a hunter, £5, Thomas Green, Stapeley Villa, Nantwich.

Best yearling gelding or filly likely to make a hunter, £5, Thomas Green, Stapeley.

Best pony not exceeding 14 hands high, £5, C. W. Potts, Heron Bridge, Chester.

## SHEEP.

JUDGES.—Mr. Hopkins, Marbury.  
Mr. Hassall, Bmbury.  
Mr. McGill, Crabtree Green.  
Mr. Griffith, The Rake, Hlwarden.

Best long-woolled ram, £4, Joseph Simpson, Spofforth Park, Wetherby.

Best long-woolled shearling ram, £5, Joseph Simpson.  
Best long-woolled tup lamb, £3, Richard Richardson, Sandbach.

Best three long-woolled ewes, £4, Joseph Simpson.  
Best three long-woolled shearing ewes, £5, Joseph Simpson.  
Best three long-woolled ewe lambs, £4, Thomas Richardson, Elton.

Best short-woolled ram, £4, Thomas Mansell, Adcott Hall.  
Best short-woolled shearling ram, £5, Thomas Jones, Agden, Whitechurch.

Best short-woolled tup lamb, £3, Thomas Mansell.  
Best three short-woolled ewes, £4, Thomas Mansell.

Best three short-woolled shearing ewes, £5, Reynolds Davies, Mere Old Hall, Knutsford.

Best three short-woolled ewe lambs, £4, Thomas Mansell.

## WARWICKSHIRE AGRICULTURAL SOCIETY.

## MEETING AT SUTTON COLDFIELD.

With respect to the sheep, Mr. Cresswell's Leicester rams were as good as usual, and Messrs. Tombs, Gillett, and Wheeler had it all in their own hands with the other longwools. With Shropshire shearlings, Mr. W. Baker's Lichfield winner was again first, and obtained the extra prize for the best short-woolled ram. Mr. Holland's R.A.S. ram stood first in old sheep. Mr. G. Wallis made a clean sweep of the prizes with his Oxfordshire Down rams. The following is the

## PRIZE LIST.

## SHEEP.

## LEICESTERS.

Shearling Ram.—1st and 2nd, Mr. R. W. Cresswell, Ravenstone; 3rd, Mr. George Turner, jun., Alexton Hall.

Two-shear Ram.—1st and 2nd, Mr. R. W. Cresswell; 3rd, Mr. George Turner.

Pen of five Ewes.—1st and 2nd, Mr. S. Umbers, Wappenbury.

## LONGWOOLS, NOT BEING LEICESTERS.

Shearling Ram.—1st, Mr. John Tombs, Hatherop; 2nd, Mr. John Gillett, Oaklands; 3rd, Mr. John Wheeler, Long Compton.

Two-shear Ram.—1st and 2nd, Mr. John Gillett; 3rd, Mr. John Wheeler.

1st and 2nd, Mr. John Gillett.

## SHROPSHIRE.

Shearling Ram.—1st and 2nd, Mr. W. Baker, Moor Barns, Atherstone; 3rd, Mrs. Anne Baker, Grendon.

Two-shear Ram.—1st, Mr. E. Holland, M.P.; 2nd, Mrs. Anne Baker; 3rd, Mr. E. Tongue, Aldridge.

Pen of five Ewes.—1st, Mrs. Anne Baker; 2nd, Mr. J. Beach, Brewood.

## OTHER SHORTWOOLS.

Shearling Ram.—1st and 2nd, Mr. G. Wallis, Old Shifford.

Two-shear Ram.—1st and 2nd, Mr. G. Wallis.

Five Shropshire Theaves.—1st, Mr. E. Holland, M.P.; 2nd, Mr. J. Beach.

Five Shropshire Wether Lambs.—1st, Mr. E. Jenkins, Wyld Green; 2nd, Mr. W. Tidy, Middleton.

Five Shropshire Ewe Lambs.—1st, Mr. E. Jenkins; 2nd, Mr. W. Tidy.

Three fat Shearling Wethers, of any breed.—1st and 2nd, Mr. W. Tidy.

For the best Ram exhibited in the Longwool classes, £5, in addition to any other prize gained, to Mr. R. W. Cresswell, Ravenstone.

For the best Ram exhibited in the Shortwool classes, £5, in

addition to any other prize gained, to Mr. W. Baker, Floor Barns, Atherstone.

## HORSES.

## AGRICULTURAL HORSES.

Best Stallion.—1st, Mr. W. Wynn, Grafton; 2nd, Mr. J. Wallwork, Clifton.

Best Mare, in-foal or with foal at her foot.—1st, Mr. E. Holland, M.P., Dumbleton; 2nd, Mr. W. Hurlston, Ditchford.  
Best Gelding, under three years old.—Prize to Mr. W. Hurlston.

Best Filly, under three years old.—Prize to Mr. Thomas Baldwin, Earlswood.

Best pair of Cart Geldings or Mares above four years old.—Prize to Mr. E. H. Haawkes, Cliford Hill.

## HUNTING HORSES.

Best Hunter.—Prize to Mr. H. J. Sheldon, Brailes House.  
Best Hunter four years old and upwards.—1st, Mr. J. Gilman, jun., Birmingham; 2nd, Mr. H. Summerfield, Warwick.

Best four-year-old Colt or Filly adapted for hunting purposes.—Prize to Mr. C. Griffin, Chesterton.

Best Half-bred two-year-old Colt or Filly.—1st, Mr. J. D. Ledsam, Griffen's Brook; 2nd, Mr. W. Dester, Seckington.

Mare (with a foal) best calculated to breed hunters.—Prize to Mr. W. J. Sheldon, Earlswood Farm.

## HACKNEYS AND PONIES.

Best Hackney exceeding fifteen hands high.—Prize to Mr. W. J. Sheldon, Earlswood Farm.

Best Hackney not exceeding fifteen hands high.—1st, Mr. H. Summerfield, Warwick; 2nd, Mr. C. Griffin, Chesterton.

Best Pony above thirteen and not exceeding fourteen hands high.—1st, Mr. R. Milward, Thurgarton Priory; 2nd, Mr. J. T. Glover, Warwick.

Best Pony above twelve and not exceeding thirteen hands high.—1st, Mr. R. Madeley, Coombe Fields; 2nd, Mr. H. Johnson, North Lindsay.

## PIGS.

Best Boar Pig of the large breed (except Berkshire) under eighteen months old.—1st and 2nd, Mr. R. E. Duckering, Northorpe.

Best Boar Pig of the large breed (except Berkshire) above eighteen months old.—1st, Mr. R. E. Duckering; 2nd, Mr. Thomas Bantock, Wolverhampton.

Best Boar Pig of the small breed, under eighteen months old.—1st, Mr. G. Turner, jun., Alexton Hall; 2nd, Sir J. W. C. Hartopp, Bart., Four Oaks Hall.

Best Boar Pig of the small breed, above eighteen months old.—1st, Mr. R. E. Duckering; 2nd, Mr. J. Wheeler, Long Compton.

Best Boar Pig of the Berkshire breed, under eighteen months old.—1st and 2nd, Mr. Joseph Smith, Henley-in-Arden.

Best Boar Pig of the Berkshire breed, above eighteen months old.—Prize to Mr. Joseph Smith.

Best Breeding Sow, suckling pigs, of the large breed (except Berkshire).—Prize to Mr. Thomas Bantock, Wolverhampton.

Best Breeding Sow of the small breed, suckling pigs.—1st, Mr. R. E. Duckering; 2nd, Mr. T. S. Wilkins, Peddlemore Hall.

Best Berkshire Sow, suckling pigs.—Prize to Sir J. W. C. Hartopp, Bart.

Best Breeding Sow of Tamworth breed.—Prize to Sir J. W. C. Hartopp, Bart.

Three best Breeding Pigs of one farrow of 1867, of large breed.—1st, Mr. R. E. Duckering; 2nd, Mr. Thomas Bantock.

Three best Breeding Pigs of one farrow of 1867, of small breed.—1st, Mr. R. E. Duckering; 2nd, Mr. John Wheeler.

Three best Breeding Pigs of one farrow of 1867, of Berkshire breed.—Prize to Mr. Joseph Smith.

Best Sow of any breed, suckling pigs.—1st, Mr. R. E. Duckering; 2nd, Mr. John Wiggan, Sutton Coldfield.

JUDGES.—Sheep: Mr. George A. May, Elford Park, Tamworth, and Mr. W. Sandy, Holme Pierrepont. Agricultural Horses: Mr. J. Clayden, Littlebury, Safron Walden, and Mr. J. E. Bennett, Bosworth Grange. Riding Horses: Mr. T. Percival, Wansford. Pigs: Mr. J. Dale, Spetchley, and Mr. B. Fowler, Browton, Aylesbury.

## BORDER UNION AGRICULTURAL SOCIETY SHOW.

On Thursday the annual show of this Society was held at Kelso. A large number of the leading agriculturists of the Borders attended. The show was highly successful, and was considered one of the best held in connection with the Society. The short-horned cattle were fair in numbers and of good quality. The Cheviot sheep were a very good show, but were not near so numerous as the Leicesters, which for quality and excellence have never been surpassed at any previous show. The half-bred sheep were a capital show, and of the premium ewes and gimmers of this class the Judges stated that they had never seen them surpassed. There was a very large and splendid show of horses of all descriptions. The following gentlemen officiated as Judges:

Shorthorns and Pigs.—Mr. Borthwick, Whitehaven, and Mr. Hardy, Herriethfield.

Leicester Sheep.—Mr. J. Usher, Stodrig, Mr. J. Turnbull, East Middle, Hawick, and Mr. R. Fender, Rulesmains.

Cheviot Sheep and Half-breeds.—Mr. John Robson, Byrness; Mr. James Hedley, Bewslough, Falstone; Mr. Henderson, Langlesford; and Mr. A. Haddon, Honeyburn.

Draught Mares.—Mr. A. Calder, Yetholm Mains; Mr. Geo. Hogarth, Eccles Tofts; and Mr. Robert Bell, Cessford.

Hunting Horses.—Mr. Elliot, Clifton Park; Mr. Dove, Eccles Newtown; and Mr. Lynn, Mindrim.

The following are the awards:

### CATTLE.

#### SHORT-HORNED BULLS.

Best bull, calved before Jan. 1, 1865, £20, Mr. Milne, Dryhope.

Best ditto, calved after Jan., 1865, £15, Mr. Stenhouse, Wester Printonan.

Highly commended—Mr. Fawcett, Scaleby Castle; commended—Mr. Brown, Ruletownhead; Mr. Atkinson, Bywell Hall.

#### SHORT-HORNED COWS.

Best cow, fit for breeding, £8, Mr. Atkinson, Bywell Hall Farm.

Second best, £5, Mr. Currie, Halkerston, Corebridge.

Commended—Mr. Haddon, Honeyburn.

#### SHORT-HORNED QUEYS.

Best quey, fit for breeding, calved before Jan. 1, 1866, £5, Mr. Atkinson.

Second, £2, Mr. Haddon, who was also commended.

Best quey, fit for breeding, calved before Jan. 1, 1866, £5, Mr. Ainslie, Costerton. Second, £3, Mr. Haddon.

### HORSES.

Best cart mare, to have a foal at her foot, or to be in foal at the time of exhibition, £10, Mr. Lawrie, Michelston, who was also highly commended. Second, £5, Mr. Shortree, Otterburn.

Best mare for agricultural purposes, £5, Mr. Lawrie, Michelston.

Best mare for agricultural purposes, £7, Mr. Howe, Howtler. Second, £4, Mr. Henderson, Middlethird. Commended: Mr. Oliver, Lochside.

### HUNTING STOCK.

Premiums given by his Grace the Duke of Roxburghe.

For the best four-year-old, £12, Mr. Haudyside, Fernieherst.

For the second best, £6, Mr. Elliot, Galalaw.

For the best three-year-old, £12, Mr. Patterson, Terrona, Langholm.

For the second best, £6, Mr. Boyd, Doddington.

For the best brood mare, £10, Mr. Usher, Stodrig.

For the second best, £4, Mr. T. E. Boog, Lanton.

Premiums by the Right Hon. the Earl of Wemyss.

For the best hunting colt or filly, four years old, 5gs., Sir John Marjoribanks, Bart., of Lees.

For the best three-year-old, 5gs., Mr. Calder, Kelloe Mains.

For the best made hunter, 10gs., Mr. Younger, Milne Graden. Highly commended: Mr. Dove, Wark.

For the best hunting colt or filly, one year old, given by Sir John Marjoribanks, Bart., of Lees, £5, Mr. Wilson, Woodhorn Manor, Morpeth.

### S W I N E.

Best boar of the large breed, £3, Mr. Rutherford, Printonan.

Best of the small breed, £3, Mr. Smith, Galagate House, Norham.

Best sow of the large breed, £3, Mr. Wilson, Woodhorn Manor.

Best of the small breed, £3, Mr. Wilson.

Best litter of pigs, £3, Mr. Milne, Dryhope.

### LEICESTER SHEEP.

Best shearing tup, £10, Mr. Purves, Linton Burnfoot.

Second, £5, Mr. Torrance, Sisterpath. Commended—Messrs. Laing, Cornhill.

Best tup, £5, Mr. Borthwick, Cowbog. Second, £3, Miss Stark, Mellendcan.

Best tup, of any age, £5, Mr. Wotherspoon, Spotsmains.

Best pen of five gimmers or shearing ewes, £5, Mr. Torrance, Sisterpath. Commended—Mr. Purves, Linton Burnfoot.

Best pen of five ewes, which shall have had lambs and nursed them in 1867, £5, Mr. Simpson, Courthill.

Best pen of five gimmers or shearing ewes, £3, Mr. Thomson, Rutherford.

Second, £2, Messrs. Laing, Cornhill.

Best pen of five ewes, £3, Mr. Nisbet, Lambden.

Second, £2, Mr. Wilson, Haymount.

Premiums offered by the Highland Society.

Best tup of any age, £5, Mr. Wotherspoon.

Best shearing tup, £5, Mr. Purves, Linton Burnfoot. Commended—Mr. Torrance.

Best pen of five ewes, £5, Rev. R. W. Bosanquet, Rock, Alnwick.

Best pen of five gimmers or shearing ewes, £5, Mr. Torrance.

### CHEVIOT SHEEP.

Best two tups, £5, Mr. Elliot, Hindhope.

Second, £3, Mr. Turnbull, Redlees. Commended—Mr. Douglas, Upper Hindhope, and Mr. Elliot, Hindhope.

Best tup, £5, Mr. Elliot, Hindhope. Second, £3, Mr. Elliot, who was also commended.

Best pen of five ewes, £4, Mr. Shortreed, Attonburn. Second, £2, Mr. Elliot.

Best pen of five gimmers, £4, Mr. Elliot. Second, £2, Mr. Elliot. Commended—Mr. Shortreed.

#### HALF-BRED SHEEP.

Best tup, not above three shear, £5, Mr. Blaikie, Cammeston.

Best tup, not above one shear, £3, Mr. Blaikie.

Highly commended—Messrs. Hubback, Sunlawshill.

Best pen of five ewes, £4, Mr. Primrose, Langlands.

Best pen of five gimmers, £4, Mr. Primrose, Langlands.

### FOREIGN AGRICULTURAL GOSSIP.

Some time since M. Jaille, of Agen, called attention to a system of association proposed by him with a view to the extended working of his fine manure manufactory at Agen. The proposal did not prove successful, and M. Jaille now announces that the funds paid up by the subscribers are at their disposal at M. Guizot's, late receiver-general at Agen.—The past season appears to have been favourable to the development of the beetroot crop in France. The humid state of the soil somewhat interrupted the process of sowing, but the warm weather of August greatly increased the saccharine richness of the roots. The beetroot sugar manufacturers will, it appears probable, be thus compensated for disappointments experienced last year. This result will probably be more clearly established next month.—The French Minister of Public Instruction has just addressed to the prefect of the department of the Morbihan a letter from which we make a few extracts. "The Emperor," writes the Minister, "wished that each of the districts in the empire characteristically distinguished by the nature of its soil or industry should have one of these great schools of secondary instruction specially adapted to the wants of the locality. While Cluny, in the centre of a district at once commercial, industrial, and agricultural, forms masters for all France, Mulhouse in the east has already its special college for its particular requirements. Mont-de-Marsan, in the south-west, does not suffice, although enlarged to meet the wants of families. Alais, in a splendid coal and metallurgical basin, will become a fruitful nursery for the population of the valley of the Rhone; and other establishments, differing in their internal organization, but all conceived in view of the same object, will be successively opened in the south and the north. His Majesty desires that Brittany should also have its great establishment of special instruction in view of a particular industry—that is, of agriculture. In placing at Napoleonville this centre of a new civilizing action, the views of the founder of the town itself and of its *lyceum* will be developed." Here we have another proof of the official desire to promote the course of agricultural instruction in France.—The second fortnight of this rapidly-waning month of September is being devoted to the exhibition of mules, crossings between mules and horses, and donkeys. There will then remain only the exhibitions of October, which will witness the closing of the Exhibition as well in the Champ de Mars as at Billancourt. A good deal of thought is being given to the great prize of £100, proposed to be awarded in connection with the agricultural department of the great show, and it is expected also that there will be some official ceremonial on the occasion of the distribution of the prizes generally offered to agriculturists. It has not been altogether a matter of satisfaction that in the splendid *fête* of July 1 Agriculture was, as it were, set aside. By this time the juries have had means to complete their work, and a wish is expressed in many quarters that the agricultural laureats should receive due honours at a solemn *fête*.—The Central Agricultural Society of France has given some important answers in connection with the questions proposed to it on the official *enquête* into the condition of French agriculture. We subjoin one or two of these questions and answers by way of example. Question: "What facilities and what obstacles are met with, in connection with the outlet and sale of the agricultural products of the country?" Answer: "The railways already opened have greatly contributed to the outlet and sale of agricultural products, and they often sustain a favourable competition with shipping in bringing to Paris the wines of Bordeaux, Languedoc, and Provence. The conveyance of living animals has also been notably facilitated and improved. It is to be regretted, however, that tariffs should be so high both for agricultural products and for manures and amendments: as if the rate charged for the conveyance of the latter were sufficiently reduced to render their employment much

more general among cultivators, the price of products would be proportionately diminished, and their consumption would be developed. A reduction of tariffs would facilitate also the conveyance of slaughtered meat to the advantage of producers and consumers: this branch of traffic has acquired a great development in England." Question: "What are the outlets already opened, and what are those which it is yet possible to open?" Answer: "Thanks to the nature of the soil, climate, and geographical position of France, its agricultural products are sought after and find important outlets, not only in immediately surrounding countries, such as England, Spain, Italy, Germany, Switzerland, and Belgium, but also in the whole world,—that is, in all the districts in which governments have not rendered access too difficult by prohibitive tariffs. Accordingly we see new outlets open themselves, and old ones take more and more considerable developments in proportion as new treaties of commerce reduce barriers and diminish transport expenses between France and foreign countries. The exports of French agricultural products, which only amounted to £18,240,000 in 1861, exceeded £36,000,000 in 1865, and £40,000,000 in 1866, according to official documents. There appears to be no country which does not consume more or less largely French agricultural products. French agriculture is accordingly profoundly interested in the development of commercial relations with all foreign countries." Question: "What progress has viability made in France during the last thirty years?" Answer: "Since 1836, means of communication of every kind have made immense progress in France; but this progress is not distributed equally over the whole surface of the territory. Dividing France into two parts we find that the northern half contains two-thirds of the railways, roads, canals, vicinal roads, &c., and the southern half only one-third. Agricultural wealth follows the same proportion; the north of France is twice as rich as the south of France. Facility and rapidity of communications give a great impulse to agriculture, as agriculture, like every other industry, lives especially on its outlets." Question: "Have the greater facility and rapidity of communications for a certain number of years past given an extension to the deliveries of agricultural products for long distances?" Answer: "It cannot be doubted that this has been the case. If it is not so, how is it that the fruits of the south, such as apricots, peaches, plums, &c., are now consumed at Paris? or, how is it that large quantities of beasts, fowls, &c., are forwarded to England? From Brittany and Normandy apples are forwarded to Paris and Picardy; while the alcohol and sugar-manufacturers of the Nord send for cattle for grazing purposes from the Sologne, the Nivernais, the Franche-Comté, Poitou, and Normandy. Since the cattle plague has prevailed in England we have forwarded to that country as many as 900 head of cattle from a single Poissy market; while Algeria supplies Paris during all the winter with its artichokes, potatoes, and other vegetables and fruits." Question: "What progress would it be possible to realize still in this respect?" Answer: "An extension of railways, canals, roads, and vicinal roads, so as to bring all the French départements into the best possible position as regards communications. To attain this object, it may be affirmed that the present network must be doubled. It appears to be generally admitted that the new work undertaken must have, before everything else, a departmental and communal character. This opinion is justified by the consideration that the works of general interest executed by the State are now very far advanced. Those which remain still to be accomplished principally concern local interests; but it would not be just to conclude from this that we should henceforth abandon départements and communes to their own unaided resources, and suppress all assistance from the general funds of the budget."



AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR SEPTEMBER.

The weather having been somewhat favourable, although rain has fallen in most localities, great progress has been made in England in securing the crops. In the Southern, Western, Eastern, and Midland Counties scarcely any grain now remains in the fields; whilst in the North fully two-thirds have been stacked, in, on the whole, fair condition. Advices from most counties differ materially as regards the produce of the wheat crop. On the one hand it is contended that the yield is a very deficient one; on the other that it is quite an average. As far as we can learn, the crop on heavy soils is nearly equal to the most favourable seasons; but on light lands it is certainly a poor one. It seems to follow therefore that the total growth does not amount to an average. Barley and oats, however, are heavy crops; but beans and peas are certainly deficient.

Although the imports of foreign and colonial produce have been very large, the wheat trade has ruled very firm, and the quotations have tended upwards. The quantities of new English wheat brought forward have been only moderate, whilst the stocks of old grain are completely exhausted. The few samples of barley on sale have realized extreme rates. Oats, beans, and peas have produced rather more money; whilst the value of flour has been fully supported.

Hop-picking has been actively carried on in Kent, Sussex, &c., and the growth has considerably exceeded the expectations of the majority of the growers. Sales have been effected in the Borough at from £7 to £13 13s. per cwt. These quotations show a great difference in the quality of the hops grown this year. On the Continent, as well as in the United States, the produce is represented as quite equal to last season.

The wool trade has continued in a most unsatisfactory state. The public sales of colonial wool, at which 143,031 bales were brought forward, closed heavily at a decline in the quotations of from 1d. to 2d. per lb., although from 50,000 to 60,000 bales were taken by continental houses. It is anticipated that nearly 90,000 bales will be offered in November, and that the next season's crop in Australia will be quite 50,000 bales in excess of the present year. Lower prices for wool seem evident, although the money market may continue in an easy state for many months. In English wool about an average business has been passing; nevertheless prices have had a drooping tendency.

It is stated that the potato-disease has made its appearance in several localities, and inflicted considerable damage to the crop. Our impression is, however, that the losses will be far less than has been represented. The London market has been well supplied with potatoes in good condition. The prices realized have been £3 10s. to £7 per ton. The growth of hay has turned out the largest ever known in this country: with very few exceptions, it was secured in good condition. Prices, therefore, have been moderately low. Meadow hay has sold at from £2 15s. to £4 5s.; clover, £3 to £5 10s.; and straw, £1 10s. to £2 2s. per load.

The quantity of wheat and other produce now on passage from the Black Sea ports is very large, and good supplies are expected to reach us from Australia and the United States. We believe, however, that the whole of the future arrivals will be required for consumption, more especially as the growth of wheat in France has turned out deficient.

Harvest-work in Scotland has progressed steadily; but it is not expected to be brought to a close before the middle of October. The yield of wheat and most other articles is fairly represented. The sale for wheat has been firm, and the quotations have ruled steady. Barley, oats, &c., have commanded quite as much money as in the previous month.

In Ireland the bulk of the crops has been secured in fair condition. On the whole, the grain is yielding well. The exports to England have, therefore, been on the increase.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Fair average supplies of beasts having been on sale in most of the leading markets, and the stock having arrived in improved condition, the demand for most kinds has been in a very inactive state, at a decline in the quotations of from 2d. to 4d. per 8lbs. Rather large numbers of Irish beasts, in very poor condition, have appeared in the London Cattle Market; but the "season" from Scotland has been closed. A few very superior Devons and Herefords have sold at 5s. 4d.; but the general top figure has not exceeded 5s. per 8lbs.

Sheep, both English and foreign, have come forward somewhat freely. The sale for them has been heavy, at depressed currencies. The month closed with prime Downs and half-breeds at 5s. per 8lbs.

Calves, owing to limited importations, have sold at good prices.

There has been a slight improvement in the sale for pigs, and the quotations have been well supported. The supplies have been moderately extensive.

Grass having been very abundant for the time of year, depastured stock has fared remarkably well. As there is now a great abundance of hay on hand, and as the crops of turnips, swedes, &c., are expected to be large, the outlay for food during the winter months will be very moderate.

The imports of foreign stock into London have been as under —

	Head.
Beasts ... ..	11,982
Sheep and lambs ... ..	34,572
Calves ... ..	774
Pigs ... ..	4,500
<b>Total ... ..</b>	<b>50,928</b>

COMPARISON OF IMPORTS.

Sept.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
1866 .....	15,465	43,611	2,014	2,183	2,942
1865 .....	12,553	67,640	2,152	3,192	9,434
1864 .....	14,444	45,760	2,441	3,161	5,701
1863 .....	11,923	48,021	2,759	3,213	2,691
1862 .....	7,219	32,154	1,830	2,257	2,546
1861 .....	6,759	34,570	1,366	2,323	3,214
1860 .....	8,120	36,381	1,039	2,200	3,188
1859 .....	6,966	37,783	1,358	1,744	1,895
1858 .....	5,999	25,488	717	2,735	2,472
1857 .....	7,346	24,090	198	1,953	2,067
1856 .....	7,984	20,605	3,090	2,772	1,559
1855 .....	7,161	22,744	613	1,646	2,266

The total supplies of stock brought forward were:—

	Head.
Beasts ... ..	25,290
Sheep and lambs ... ..	127,510
Calves ... ..	1,565
Pigs ... ..	2,979

COMPARISON OF SUPPLIES.

Sept.	Beasts.	Cows.	Sheep.	Calves.	Pigs.
1866 .....	26,360	100	129,430	1,984	3,120
1865 .....	27,040	530	151,440	3,324	3,287
1864 .....	30,910	560	137,490	3,184	3,700
1863 .....	27,710	534	131,100	2,458	2,637
1862 .....	28,074	526	139,270	2,264	3,031
1861 .....	26,950	520	142,990	2,260	3,626
1860 .....	27,980	500	144,450	3,309	2,922
1859 .....	24,560	514	145,430	1,891	2,771
1858 .....	27,446	533	131,150	3,210	4,281
1857 .....	25,734	534	117,715	2,220	2,585
1856 .....	24,002	485	132,014	2,452	2,800
1855 .....	24,667	540	152,120	2,477	3,921

The arrivals of beasts from our own grazing districts, as

well as from Ireland and Scotland, thus compare with the three previous years:—

From—	Sept. 1864.	Sept. 1865.	Sept. 1866.	Sept. 1867.
Lincolnshire, Leicester-shire, &c. ....	12,500	8,000	65,000	7,550
Other parts of England..	4,000	2,800	3,790	2,770
Scotland .....	1,362	135	35	11
Ireland .....	161	1,150	335	1040

Beef has sold from 3s. 2d. to 5s. 2d.; mutton, 3s. 1d. to 5s. 2d.; veal, 4s. to 5s. 8d.; and pork, 3s. 6d. to 4s. 1d. per 8 lbs. to sink the offal.

The COMPARISON OF PRICES is as follows:—

	Sept., 1861.		Sept., 1862.		Sept., 1863.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Beef from . . . . .	2 10	4 8	3 0	4 8	3 4	5 0
Mutton ... . . . .	3 2	5 4	3 8	5 4	3 6	5 4
Veal ..... . . . .	3 6	4 8	4 0	5 0	3 8	4 8
Pork ..... . . . .	4 8	5 0	3 10	4 10	3 6	4 4
	Sept., 1864.		Sept., 1865.		Sept., 1866.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Beef from . . . . .	3 4	5 4	3 4	5 8	3 6	5 6
Mutton .... . . . .	4 0	5 8	4 4	6 8	3 8	6 4
Veal..... . . . .	4 0	5 0	4 4	5 8	4 4	5 6
Pork ..... . . . .	3 6	4 10	4 2	5 8	4 0	5 2

Good supplies of meat have been on sale in Newgate and Leadenhall markets. The demand has ruled inactive, as follows:—Beef, from 3s. 2d. to 4s. 8d.; Mutton, 3s. 2d. to 4s. 8d.; veal, 3s. 10d. to 5s. 2d.; and pork, 3s. to 4s. 6d. per 8 lbs. by the carcase. About 260 tons of meat from Rotterdam have been disposed of.

### SOUTH WILTSHIRE.

Our harvest is now completed, with the exception of here and there an isolated patch of barley or beans, and we are now in a fair position to give an estimate of the yield. All parties agree that the crop of wheat is below an average, and many of those who have thrashed find that they had previously over-estimated the quantity per acre. Some districts are better than others; some having suffered much from blight; whilst others are perfectly clean in the straw, but terribly "serawled" with the winds, in which there will doubtless be much tail corn. The crop of barley will be good; but quality middling. This crop varies in quality perhaps more than the wheat: on some farms one piece will be pretty good, whilst another on precisely the same soil is dreadfully thin—not much better than inferior foreign. Oats are good, and decidedly over an average crop. Swedes, mangolds, turnips, and rape were never looking better at this season of the year, and all kinds of sheep-keep are very plentiful, which no doubt has been the means of keeping up the price of sheep at our recent fairs, although they are now from 6s. to 8s. lower than they were last year. Beans, though short in the haulm, are podded well; but were struck with blight before they were thoroughly matured, therefore they will be very small. Peas are a good crop; and cloverseed, which is not yet harvested, from what one can judge at present, will (if taken well) be an unusually heavy crop. The crop of hay grown this past season was made well, and is one of the heaviest on record—Sept. 17.

### SURREY.

The weather of this week has enabled farmers to clear the corn fields of the outstanding crops, and the harvest in this county is virtually over, although a few fields of beans and late-sown oats may require time before carting in. There is a cessation of thrashing-out wheat, as the markets indicate a reduction in the value, and with the exception of prime old samples, millers will not give the late-advanced rates, and farmers will hold over at present. The oats and barley are quite up to an average, both in bulk and weight. New wheat is light, many samples will not exceed 55 lbs. per bushel, yet there is plenty which will turn 60 to 62 lbs., and if fair prices are maintained there is no reason to complain of this year's harvest. The plough teams are already moving summer fallows and breaking-up stubbles in preparation for wheat-sowing. The mangold wurtzel and swede crops will not be heavy,

although they have considerably improved. The roots are growing to perfection, but they stand thin on the ground; much of the seed missed after sowing. The round turnips will come to full crops, and they never looked finer than at the present time. Sheep-feed is abundant, both in the meadows and on the clover-ley; but sheep farmers are overstocked with store sheep, and no sale can be obtained; and fat wethers make lower prices at markets, and store lambs are sold at from 6s. to 8s. a head lower than at a corresponding period last year. There is the usual discussion in reference to Croydon Fair, the 2nd of October. Some efforts are made to obtain a special licence from Her Majesty's Privy Council to hold the fair for horned stock, but at present nothing definite is known. Several localities are mentioned for the horse mart, and this portion of the fair will be divided; but the sheep fair will form the most important part, and this will be held in the fields used last year (east of Croydon). Hop picking is proceeding favourably; many gardens near Farnham are gathered in and cured, and another week will clear the plantations in this county. The crop will not be a fair average yield. There are many farms let in this county, and the changes will take place at Michaelmas. The potato crops are being raised, and come up well, and only slight instances of blight or disease is manifested. The restrictions imposed by the cattle plague regulations preclude trade and competition among horned stock; and although the Orders are relaxed, very few dealers and farmers avail themselves, as little assistance is obtained from the officials.—Sept. 21st.

### AGRICULTURAL INTELLIGENCE, FAIRS, &c.

**ALFORD FAIR.**—There were about 3,500 sheep, and there was a ready sale for them at good prices.

**BALLOCH HORSE FAIR.**—Among the sales reported were the following: Mr. Archibald Yuill, Glasgow, sold draught horses at prices ranging from £20 to £40; Mr. Clark, Mearns, sold cart-horses at from £25 to £35, three-year-olds at from £30 to £50, and colts at from £28 to £35. Mr. Miller, Glasgow, sold draught horses at from £30 to £40. Mr. Crawford, Kibbarchan, sold two-year-olds at from £25 to £35, and cart-horses at from £25 to £40. Mr. Crawford, Beith, sold cart-horses at from £30 to £40. Mr. D. Riddell, Kibbarchie, sold a draught horse at £39. Mr. Waterstone, Beith, sold cart and saddle horses at from £20 to £35. Mr. D. McFarlane, Row, sold a two-year-old at £28. Mr. James Clark, Glasgow, purchased a beautiful riding pony for £48. Mr. James McKinlay, Glasgow, sold cart-horses at from £20 to £40.

**BANBURY FORTNIGHTLY FAIR.**—Supplies of stock in both beast and sheep markets were fully an average, but trade dull at late prices. Beef made about 5s. the 8 lbs., and mutton from 4s. 6d. to 5s. 2d.

**BOSTON SHEEP MARKET.**—Only a small supply of fat sheep; but the demand was not great, and last week's prices were not sustained.

**BOSTON FOAL FAIR.**—There was a very fair show of animals, and many of the better sort changed hands at good prices. One of the most interesting features of this show is the competition for the prizes offered for the best and second-best cart foals exhibited. The first prize, a silver cup worth £5, is the annual gift of Messrs. Gee, Wise, and Gee, bankers, Boston, and the second, £2, is given from the society's funds. The first prize was awarded to Mr. Joseph Rose, of Leake, and the second to Mr. Belton, of Benington. The prize foals were afterwards sold, Mr. Rose's for 20 gs., and Mr. Belton's for £15.

**CAISTOR FAIR.**—Prices exhibited an upward tendency, and trade was generally brisk. One lot of lambs made as high as 33s. per head. There was also an animated competition at the ram sales. The improved trade is due to the prospect of abundance of turnips, and a most successful harvest.

**CARLISLE FAIR.**—Seldom has a finer display been seen; of Irish cattle the supply was splendid. The stock embraced many prime-conditioned bullocks and heifers. The attendance of buyers was large. Good bullocks were in great request, and superior heifers met a good sale; inferior sorts were a drag. A

few very nice West Highlanders were shown, and in the Galloway class a few lots of prime three-year-old bullocks were exhibited. Shorthorns were only a poor show, but of milch and calving cows there was a good supply. Trade in this department of the market was very good, especially for anything in good marketable condition; former prices were maintained. Inferior Irish £4 10s. to £5, middling £6 to £7, first-class bullocks and heifers £9 to £10 10s. and £12 10s. a head, Galloways £6 10s. to £14, Highlanders £5 to £9, milch cows £12 to £20 each.

**DARLINGTON FORTNIGHTLY MARKET.**—There was a fair supply of all sorts of cattle; a fair business was done at late rates. There was a large show of sheep, and a great many poorer ones remained unsold; there was generally a reduction in the prices. Pigs as before.

**DRIFFIELD FAIR.**—There was a very large number of lambs, for which this fair is remarkable. They were not bad to sell, and many changed hands. Lambs from 2s. to 3s., and shearlings from 4s. to 4s. 7s. per head.

**DUNSE FAIR.**—There was a considerable quantity of sheep, but the greater portion of the lambs were secondary lots. Business was exceedingly dull, and at the close a good many were returned to their former pastures unsold. Prices for lambs ranged from 1s. to 2s., and draft ewes from 30s. to 35s.; the latter price, however, only being obtained for lots in extra-good condition.

**FINDON FAIR.**—There were between 10,000 and 11,000 sheep and lambs, a number beyond the average. Business was languid; the demand was best for good things, and many sellers sent their sheep home unsold. The range of prices was very wide. Lambs fetched from as low as 19s. to as high as 34s. (Mr. Carew Gibson). Ewes ranged between 30s. and 48s. (Mr. Parlett). The following show the relative prices this year and last:

	1866.	1867.
Mr. Parlett (Bury) ewes ...	53s. 6d.	48s. 0d.
Mr. G. Hards (Cobden) ewes ...	50s. 0d.	46s. 6d.
M. G. Hards (Findon) lambs ...	36s. 0d.	33s. 6d.
Mr. Hampton (Findon) lambs ...	38s. 0d.	32s. 0d.

Some rams exhibited by Messrs. J. and A. Ilesman, of Augmering, were sold at prices ranging between 10 and 20 guineas; Messrs. E. and R. Emery, of Hurston, let and sold rams at 15 to 18 guineas. Mr. Humphrey, of Ashington, let rams at 15 guineas, and sold ram lambs at 8 guineas. Business was not very brisk.

**GLASTONBURY MONTHLY MARKET.**—There was a large supply of fat beef, for which there was a brisk demand; and a great many changed hands. There was also plenty of Mutton; but the sale was dull. Pigs plentiful, and a brisk business was done.

**GLOUCESTER MONTHLY MARKET.**—The supply of beasts was quite equal to the demand; and trade was rather sluggish. The sheep and lamb market was well supplied. Heavy mutton met a dull sale, while small weights sold well. The lamb trade being nearly over, the demand was slow. A clearance was, however, made, at the following rates: Beef from 7d. to 7½d., mutton from 6½d. to 7½d., lamb from 7½d. to 8d. per lb., pigs from 9s. 3d. to 10s. per score.

**GRANTHAM FAT STOCK MARKET.**—A good show of sheep for this period of the year; business brisk. Mutton 6d. to 7d. per lb., beef 5s. 3d. to 5s. 3d. per stone.

**HORNCASTLE FAIR.**—The show of lambs was very small; good prices were obtained.

**HOWDEN GREAT HORSE FAIR.**—Many of the best horses in the vicinity of the town are picked up before the fair by the local agents of the London dealers, who are always on the look-out for first-class animals, and are acquainted with the pedigrees and properties of most of the saleable horses in the locality. The supply of horses was generally spoken of as being good; the best, as usual, realised high rates. Hunters and coach-horses are always most in demand on Tuesday. The former class sold well; really superior animals of high blood and celebrity were offered at from 100 to 200 guineas. On inspection of the principal stables we found some splendid coaching horses, but the trade in them seemed dull, and not nearly so many purchases were made in this class of cattle by the London dealers as might have been anticipated. Handsome grown horses, suitable for ladies' riding, were scarce. For roadsters there was a moderate demand, and a brisk inquiry for store horses suitable for London brewers, vans, heavy town trade work, &c., which met with a ready sale at prices varying

from 30 to 60 guineas. One of the London dealers has been buying largely for the British army. A greater number than ordinary of foreign buyers are over at the fair, and several of them have commissions for the purchase of horses for the continental armies. The French buyers appear to be inquiring mostly after roadsters and brooding mares for coaching purposes. Some of the local farmers have sold their horses well. The following were the average prices obtained: Harness horses, showy and well broken to single and double harness, 70 to 90 guineas; well-matched pairs of greys, chesnuts, &c., 200 to 250 guineas; young, well-grown horses ready for breaking, from 50 to 70 guineas; hunters, good weight-carrying hunters and clever fenceurs, were in request, and commanded prices varying from 150 to 300 guineas; young promising hunters, descended from celebrated sires and dams, 80 to 120 guineas; short, active, well-coupled horses, adapted for troopers, found a ready market at from 30 to 60 guineas; handsome park saddle horses, 90 to 150 guineas; light-actioned park hacks, adapted for ladies' riding, from 130 to 160 guineas; young Irish horses for hunters, 55 to 80 guineas; weight-carrying cobs, 30 to 50 guineas; roadsters and trotters, 30 to 80 guineas; galloways, 15 to 25 guineas; large van horses, from 40 to 55 guineas; cab and omnibus horses, 20 to 35 guineas; agricultural cart horses, 15 to 40 guineas.

**KEIGHLEY FAIR.**—The show of sheep was very good, but buyers were scarce, owing to a very general idea prevalent that mutton was falling in price. The show of loeks was numerous; but there was also a fine lot of South and Shropshire Downs, the latter of which were selling at prices varying from £5 to £7. Ewes were purchased at from 40s. to 50s., half-bred ewes 30s., and loeks varied at from 16s. to 24s. in price.

**KINGTON FAIR.**—There was but a scanty supply of cattle, and very little business was done. Fat cows averaged 7d. per lb. There was a greater supply of sheep than has been known for many years past. A great many changed hands, and many returned home unsold. Fat wethers from 6d. to 7d. per lb.

**KNIGHTON FAIR.**—The number of sheep was so large that hundreds had to be penned in the streets and in a field adjoining the Smithfield. The demand for fat wethers was brisk, the prices realized being fully 7d. per lb. The greater part of the sheep were store ewes, and these moved off very slowly in the early part of the day, although farmers were willing to lower from last year's prices fully ten shillings per head. As the day advanced, however, dealers bought more freely, and a good number changed hands; but it is thought fully one half of those penned returned home unsold. A good number of pigs, and prices were a little better than at last fair.

**LINCOLN FAT STOCK MARKET.**—A very fair show of beasts, and all sold, price 8s. 6d. per stone. Sheep were unaltered from the last market.

**LINCOLN FAIR.**—The number of animals was equal to former years, but there was so little demand that many remained unsold, especially lambs. The prices obtained were as follows: Steers from £14 to £21, cows and calves £17 to £20, calves about £2 10s. each. There were several Irish beasts on offer, and they realised from £7 to £10 a-head. The supply of sheep was good, with the exception of the wether class, of which there were none in the market. For ewes 35s. to 50s. were obtained. In one instance 55s. was given. Gimmers fetched 34s. to 50s., and lambs from 20s. to 34s. There was a great falling-off in the show of horses. This is considered the great foal fair, but in this class the animals offered, almost without exception, were of an inferior description.

**LOUTH FAIR.**—Those who brought beasts were well satisfied with the prices they fetched. Useful steers for grazing realised from £18 to £20 per head. Of sheep there was a large show, and on the whole the trade was an improvement on the past few weeks; good ewes ranged from 40s. to 50s., and lambs from 25s. to 30s. per head. There was a good supply of fat sheep, which sold at from 6½d. to 7d. per lb.

**LUDLOW FAIR.**—Pigs were remarkably cheap, some very fine fat specimens being sold at from 25s. to 40s. each. Sheep were also lower, the average being about 16s. a-head less than in the corresponding period of last year.

**LUTTERWORTH FAIR.**—The supply of good horses was very limited. There was a good supply of fat sheep, but not a very brisk sale, at high prices. A good amount of business was done, at considerably lower rates than were realised last year.

**MOFFAT TUP FAIR.**—The attendance of buyers was

rather limited, while the bad quality of the stock caused the market to be dull. Cheviot rams would be a fourth to a third, and in some cases a half, down in price from last year. One-year-old Cheviot rams ranged from £2 to £6, but the bulk of them were under £3; two-year-old rams from £3 to £10, but few reached the latter figure, and not a great many exceeded the half of that sum. The demand for black-faces was even worse than for Cheviots; prices ranged from £1 15s. to £6.

**NEWTON-STEWART SEPTEMBER MARKET** was good as to quality and fair as to quantity. There were altogether about 300 head of cattle, the great majority of which were sold. There were 30 heifers at £12 each, and 92 three-year-olds at £10 10s. Six quarter-olds sold at from £1 to £7; two-year-olds at from £7 to £9 10s.; three-year-olds at from £9 to £12. 30 Yorkshire tups were sold at prices from £2 to £5 7s. 6d. 150 cross lambs were sold at 15s. each.

**PARTNEY FAIR.**—Prices were not higher than at the previous fairs, and in order to effect sales in many instances lower terms had to be accepted. Many remained unsold. The ram trade appeared to partake of the general dullness of the day, with the exception of Mr. J. L. Needham's, of Huttoft. These reached an average of £14 9s. Mr. Betts' (Holbeck Lodge) 37 sheep were offered by Messrs. Willson and Son. The highest price was £3 l. Mr. Parish's (Toynnton) 20 sheep were offered by Mr. J. Parish. The highest price was £2 9.

**PENRITH FORTNIGHTLY MARKET.**—Business continued brisk from the opening to the close, when nearly all the stock shown had changed hands. Beasts 32s. to 34s. per stone, sheep 6½d. to 7d., and of the finest kinds 7½d. per lb.

**REDDITCH FAIR** was tolerably well supplied with sheep, lambs, and pigs; the latter meeting with but slow sale at give-away prices, 4s. and 5s. being offered for six-weeks-old pigs; stores proportionately low. There was a fair amount of business amongst sheep and lambs done at prices ranging from 6d. to 8d. per lb.

**TAUNTON GREAT MARKET.**—A good supply of all descriptions of stock. Farmers not being so busy as they have been of late, the attendance was good; and sales were effected with little difficulty at the following prices: Fat heifers, £18 to £25; grazing steers, £14 to £18; grazing heifers, £11 to £14; fat wethers, 45s. to 48s.; ewes, 39s. to 48s.; grazing wethers, 36s. to 42s.; lambs, 20s. to 33s.

**UPPINGHAM FAIR.**—A large quantity of sheep of all descriptions were penned, the greater part of which changed hands. The first prize was a silver cup, value £5 5s., for the pen of ten best lambs: it was awarded to Mr. H. Hay, of Beaumont Chase. The second prize of £3 3s. was carried off by Mr. Franklin, of Barford Lodge. The third prize of £2 2s. was awarded to Mr. Bryan, of Seaton Grange. There was also a fair show of horses and foals, but only few business transactions took place. The cup, value £5 5s., for the best two-year-old, was awarded to Mr. Thomas Stokes, of Caldicott. Mr. B. Green, of Harringworth, received the silver cup, value £5 5s., for the best foal. The second prize of £2 2s. was awarded to Mr. Sleath, of Braunston.

**WORCESTER FAIR.**—Sheep were in good supply, and the late decline in prices was not improved upon. Fat sheep 6½d. to 7½d. Of rams a good supply. Fat pigs fetched 9s. 6d. per score. A great deal of stock, as usual, was disposed of by auction, rams varying from £3 to £5 8s., quality and breed being very various.

**YORK FORTNIGHTLY FAIR.**—There was a large quantity of stock, and a considerable amount of business was done. Fat beasts were a good show, and in brisk demand, at about the same prices as last market, 7s. 9d. to 8s. 5d. per stone. A good show and a slow trade for lean beasts, prices ruling in favour of the buyer. Calvers were much inquired after, and sold at from £15 to £25 each. A large show of Irish beasts and a brisk trade, prices ranging at from £5 to £14 per head. The display of fat sheep was limited, and, consequently, the trade was animated, and all the animals were sold at from 6d. to 7d. per lb. A healthy demand for grazing sheep, which sold at 1s. to 2s. per head more money, owing to the plebeiousness of turnips and fog. Good-bred lambs sold slowly, and many left the fair unsold. The prices obtained ranged from 19s. to 30s. per head. There was the largest show this season of cross-bred lambs, which were disposed of at 11s. to 20s. each. North country ewes were shown this season for the first time, and they were limited in number. Notwithstanding this, there was a slow demand. Best-bred animals £2 2s. to £2 8s.

each; three-parts-bred 30s. to 40s. per head. In half-bred Cheviots little or no trade was transacted, and the prices ruled from 20s. to 30s. per animal.

**IRISH FAIRS.**—**TAGHMON:** Pigs were numerous and heaves and sheep moderately exhibited; the former still evince a slight downward tendency. The general quotations were as follows: Beef from 59s. to 65s. per cwt.; new milch cows, springers, and three-year-old heifers from £11 to £17, according to quality; two-year-old heifers, top price £10; yearlings from £4 to £6 10s.; bullocks, three years old, two years old, and yearlings, sold at from 15s. to £1 less than heifers; weaning calves from 33s. to £3 each; mutton, wether from 5d. to 6½d. per lb., ewe (top price) 5½d.; hogget sheep from 32s. to 42s. each; lambs from 19s. to 27s. each; bacon pigs from 49s. to 52s. per cwt.; stores from 35s. to 45s., advanced class went as high as £2 15s. each; slips 28s., bonhams 14s. each. —**STRABALLY:** Best beef from 60s. to 66s. per cwt., inferior ditto 57s. to 60s.; springers in calf brought from £12 to £15 each; milch cows averaged about £9 to £14; strippers sold at from £9 5s. to £11 10s. each. A good supply of young stock, all of which were quickly disposed of, principally to the foreign traders. Three-year-old heifers and bullocks from £10 to £14 10s. each, two-year-old from £8 10s. to £12 10s., and yearlings ran up to £6 and £8 a head. In the sheep department the supply was a full average. Fat sheep brought £2 10s. to £3 each; stores in dull demand from £1 15s. to £2 per head; lambs fetched £1 2s. 6d. to £1 10s. each. In the pig fair prices were as follows: Bacon pigs from 49s. to 54s. per cwt., stores ranged from 40s. to 55s. each, slips from 20s. to 27s., and bonhams from 7s. 6d. to 13s.—**BANAGHER:** The first day of our great yearly fair commenced under the most favourable circumstances as regarded the weather. Buying, which in general in former years began early, was very dull, and morning had partly advanced before many sales were effected. Mutton sold at about 5½d. per lb., and the price for ewes and wethers were fully from 10s. to 15s. under last year—in indeed in some instances £1; while the decline on lambs was from 10s. to 12s. It was early seen that, from the scarcity of buyers, those intending to sell should submit to a reduction. Two-year-old wethers from 35s. to 45s., hoggets from 25s. to 32s., lambs from 16s. to 24s. (condition in most instances good). On Wednesday there was a crowded fair of bullocks, which were in great demand, and good heifers sold well (condition in both excellent). Three-year-old heifers sold at from £12 to £16, two-year-olds from £10 to £12, yearlings from £6 to £8 10s.; bullocks, three-year-olds from £12 to £17 10s., two-year-olds from £9 to £12 10s., one-year-and-a-half from £5 to £8. Some lots of yearling calves, but sales very slack. —**DUNDALE:** Taking the average of prices obtained, prime beef did not realize more than 60s. per cwt. top price, and second quality from 50s. to 54s. Three-year-old bullocks brought from £10 to £13, yearlings from £4 10s. to £6 each. There were a few good springers, which met a ready sale at from £13 to £18 each. Sheep brought from 35s. to 45s. each; lambs brought from 20s. to 24s., and seemed in little request. —**CARLOW:** Store bullocks and heifers were in active request, three-year-olds fetching from £12 to £14, two-year-olds £8 10s. to £11, yearlings £5 10s. to £7 10s., and calves £4 to £5, according to quality and condition. Exporters were tardy in purchasing store sheep in consequence of the present dullness of English markets, and first-class mutton brought about 7d., second quality 5½d., to 6d. per lb.; fat lambs 20s. to 25s., and stores 17s. to 20s. each. Pork on the previous day (the pig fair) declined fully 2s. per cwt., selling at 54s.; forward stores 47s. to 60s., slips about 30s. to 40s., and younger animals from 15s. to 25s.—**STROKES TOWN:** Two-year-old bullocks from £8 10s. to £13 each, yearling bullocks from £6 to £8; good beef (best quality) from 70s. per cwt., second quality from 56s. to 60s.; three-year-old heifers from £13 10s. to £16 10s., two-year-olds from £8 to £12, yearlings from £7 to £9; milch cows and springers from £12 to £22, dry cows from £9 to £16, heifer calves from £1 10s. to £3 5s. each; best wether mutton from 6½d. to 7d. per lb., ewe mutton from 5½d. to 6½d.; inferior wether from 37s. to 45s. each, hogget ewes from 35s. to 56s., lambs from £1 to 30s., bonhams from 15s. upwards.—**CASTLEBAR:** Three-year-old heifers and bullocks from £8 to £12, two-year-olds £7 to £10, yearlings £4 to £8, milkers and springers £5 to £14, dry cows for fattening £6 to £10; sheep sold at from 20s. to 35s., lambs 10s. to 20s. A very small supply of horses.—**THOMASTOWN:** Fat cows

£14 to £17, milch cows £13 to £16, springers £10 to £15; three-year-old heifers £13 to £16, two-year-olds £9 to £12, yearlings £6 to £8; three-year-old bullocks £11 to £14, two-year-olds £8 to £11, year-and-a-half-olds £5 to 7 guineas; fat sheep £2 to £2 5s., hogget wethers 30s. to 35s., lambs 16s. to 24s.; store pigs 40s. to 47s. 6d., bonnies 16s. to 25s. each; fat pigs were 17s. 6d. to 53s. per cwt.—**BENNETT'S BRIDGE**: Excellent prices were obtained. Milch cows and springers of first quality fetched from £13 15s. to £17 per head, inferior £7 to £11. Sheep were in good request. Rapid buying was visible in the store cattle mart, and prices ruled in favour of sellers. Yearlings realized from £5 to £5 10s. each, two-year-olds £7 15s. to £11 10s., and three-year-olds £12 15s. to £15 10s.—**COOTEHILL**: Prices for bacon pigs averaged 56s. per cwt., suckers 20s. to 32s. per pair. In cattle there is an improvement. Prices: Yearlings £3 10s. to £6, two-year-old storks and bullocks £5 16s. to £9 10s., springers and small cattle small change to report; beef 6d. to 7½d. per lb. Good sheep from 32s. to 44s.; lambs dearer; mutton 8d. per lb., first quality.

**HOP MARKETS.**

**BOROUGH, MONDAY, Sept. 23.**—Our market is quiet, with a fair demand. Large supplies of the new growth have been received during the past week, and the quality proves much better than was anticipated, but the quantity bids fair to fall far short of the estimate formed a short time since; our prices, however, will doubtless be kept in check by the large supplies of foreign produce. Continental advices are unchanged; the yield in almost every district is coming down of excellent quality, and the quantity will admit of large exports to the London market. New York letters to the 10th inst. report a firm market; the new growth is realizing 60c. to 65c. per lb. for prime samples, but these are coming in in such small parcels that it is expected good qualities will shortly be very scarce.

New Sussex .....	£3 0	.....	£9 0	.....	£11 0
New Kent .....	7 0	.....	9 10	.....	13 13
New Farnham .....	11 0	.....	12 0	.....	13 13
Yearlings .....	9 0	.....	9 10	.....	10 10
Olds .....	3 0	.....	4 10	.....	5 0

**WORCESTER HOP MARKET, (Saturday last).**—Considering that this market follows so closely the fair day, more business has been transacted than was generally looked for, the public scale marking 1,060 pockets of new weighed to-day, and previously 2,146 pockets, so that already 3,206 pockets of this small growth have passed away. We have no noticeable change in the currency; good, middle, and best hops, although held with firmness, are not dearer, but low to good samples were scarcely bought on such favourable terms. Yearling and older hops are taken by consumers as required. With a week of fine weather, picking has proceeded rapidly, and is now being fast brought to a close, many having already finished. The result of the yield proves to be less than was anticipated a month ago, although the quality of a large portion of them is remarkably nice.

**POTATO MARKETS.**

**BOROUGH AND SPITALFIELDS.**

**LONDON, MONDAY, Sept. 23.**—These markets are scantily supplied with Potatoes. The trade is steady, and the tendency of prices is in an upward direction. Last week's import was confined to five hampers from Rotterdam.

Regents .....	70s. to 120s.	per ton
Kidneys .....	100s. to 120s.	"
Flukes .....	120s. to 140s.	"
Rocks .....	75s. to 90s.	"

**COUNTRY POTATO MARKETS.**—**Doncaster, (Saturday last)**: A good supply of round Potatoes, Regents; but very few Kidneys on offer. Round Potatoes made 10s. a load wholesale, and 1s. 3d. per peck retail; Kidneys 4s. 3d. a hamper wholesale, and 1s. 6d. to 1s. 8d. per peck retail.—**Pontefract, (Saturday last)**: Potatoes 1s. per score.—**York, (Saturday last)**: This market was moderately supplied; and, the demand not being great, prices were rather easier. They may be quoted at from 10s. to 12s. per tub of 250lbs., and from 10s. to 1s. per peck retail. There was a large supply of inferior Potatoes for pig-feeding; and they were sold as low as 10d. per bushel.

**ENGLISH BUTTER MARKET.**

**LONDON, MONDAY, Sept. 23.**—We note a quick sale upon fine Butters, which are scarce just now.

Dorset, fine .....	12s. to 126s.	per cwt.
Devon .....	110s. to 116s.	"
Fresh .....	12s. to 15s.	per doz.

**CARMARTHEN BUTTER MARKET, (Saturday last).**—Farmers still busy completing harvest. Small supply of butter, which was very firm at 10½d. to 10¾d. per lb., and a good demand. Cheese 21s. to 23s. per cwt.

**CORK BUTTER MARKET, (Friday last).**—Prices per cwt.: Ordinary, first quality 105s. to 108s., second 94s. to 97s., third 83s. to 86s., fourth 77s. to 80s., fifth 63s. to 66s., sixth 47s. to 50s.; Mild-cured, first quality 107s. to 110s., second 99s. to 102s., third 92s. to 95s. 3rds, 4ths, 5ths, and 6ths of Kegs 4s. per cwt. less. Ordinary 10s. and Spangled 2s. per cwt. less.

**NORTHAMPTON CHEESE FAIR.**—There were a few prime Leicester cheeses and a few Stiltons, but trade was very dull. Good Leicester cheese made from 7½d. to 9d. per lb., and averaged about 8d.; Stilton made 10d.

**ROAD CHEESE FAIR.**—Cheese sold very slowly, at a heavy reduction, 62s. the cwt, being the highest price obtainable.

**WORCESTER CHEESE FAIR** was poorer than ever, what was brought into the city being chiefly shown by the provision dealers. The prices were—common 20s. to 25s., two-milch 36s. to 45s., best 50s. to 65s.

**MESSRS. CORDEROY'S CHEESE CIRCULAR (Thursday, September 19).**—We have to report a good demand for really fine Cheshire cheese, at the quotations of last week. It is necessary to bear in mind that only first-class qualities will secure good prices; and we cannot too strongly reiterate that secondary and inferior sorts find no demand. If the latter descriptions are forwarded to this market, senders must be prepared for about 40s. to 44s. per cwt. Scotch cheese is dull of sale, unless of superior quality. American cheese are not so much in demand as quotations would warrant. Prime factory dairies' only bring 48s. to 50s. Really fine 54s. to 58s. The arrivals this week are 20,641 boxes.

**GLASGOW, (Wednesday last).**—There was a fair supply of cheese. The surplus stock of recent markets was well cleared off at no advance in prices. About 45 tons passed the weigh-house scales. New Dunlops 40s. to 45s., new Cheddars 44s. to 52s., fine old Dunlops 60s., skims 20s. to 24s.

**POULTRY MARKETS.**—Barndoor Fowls 1s. 9d. to 3s., Surrey 2s. 6d. to 3s. 6d., Capons 5s. to 6s., Ducks 2s. 6d. to 3s., Geese 6s. to 7s., Pigeons 5d. to 9d., Grouse 3s. to 5s., Partridges 1s. 3d. to 2s. 6d. each. English Eggs 7s. 6d. to 8s., French 7s. per 100. Fresh Butter 1s. 1d. to 1s. 2d. per lb.

**ENGLISH WOOL MARKET.**

**CITY, MONDAY, Sept. 23.**—We have again to report considerable inactivity in the demand for all kinds of home-grown wool, at barely stationary prices. The quantity of wool on the market is by no means extensive. For export, next to nothing is doing.

**BRADFORD WOOL MARKET, (Thursday last).**—Very little business has been done in this branch during the week, and the market to-day shows no improvement. While buyers act with increased caution, holders manifest more anxiety to sell, and consequently wool may be met with on rather easier terms. The quietness is due chiefly to the general want of confidence, but the news from France as to the probable winding-up of the Credit Mobilier is also a cause of the prevailing flatness.—*Bradford Observer.*

**LEEDS (ENGLISH AND FOREIGN) WOOL MARKETS, (Friday last).**—There is a decided falling-off in the demand for English combing wool; and prices are somewhat lower, with a downward tendency. Manufacturers buy only for immediate wants. The consumption of colonial and other clothing wool is not materially lessened; but the demand is not animated either here or at the London sales, and prices generally have not been fully supported.

**GLASGOW WOOL MARKET, (Saturday last).**—The marked improvement which prevailed in this market at the commencement of the season has gradually subsided.

## REVIEW OF THE CORN TRADE DURING THE PAST MONTH.

September has varied from warm and wet to dry and piercingly cold; but the wet has predominated and interfered in the middle of the month with the completion of harvest in the northern districts, as also in Scotland and Ireland. There is one feature about the season which has greatly saved us—that the heaviest damages have been local, and there has been no long continuance of drenching rain. The southern portions of the kingdom have some time completed their work; but, as thrashing proceeds, there is less satisfaction with the yield, and the quality generally is sadly below that of last season, weights varying from 55lbs. to 64lbs. per bushel; but the heavy weights are rare. Indeed, if weather has anything to do with the growth of vegetation, it was scarcely reasonable to expect anything better than a chequered harvest at the best. The South gained no growth by the wonderful heat of August, excepting in the root crops; but it conferred immense benefit to the late districts, where hope had almost died out; and the storms of July and August have, it would seem, brought us an abundance of oats, and the richest pasturage we have seen for many years. It was therefore a beneficent finish to an anxious beginning, and we have reason to be thankful that the stores on the ground have not been seriously diminished, and that there will be plenty of cattle-fed through the winter, from the fineness of the turnips and mangel wurtzel and the good second-cut of hay. As to potatoes, our fears as to the injury done them by wet have been fully justified. Many have lost half their crops by disease, and its ravages have spared neither Scotland nor Ireland, whence the first reports were so favourable. Since our last, Germany has had its gathering in the corn-growing districts; but reports in some districts of Prussia are very unfavourable as to the yield, though the earlier lands reaped a fine quality. Russia, too, promises less than lately, in consequence of early frosts in her northern districts, and the maize crop in America has been caught by bad weather, and much less will be gathered than at one time expected. This has already produced a rise in this grain, which is being more appreciated in this country as to its nutritive qualities in its raw state for cattle and its manufacture as human food. The downward course of prices for wheat noted all through the fine weather of last month has been stopped by general reports of a deficient yield and the heavy demands of France; so that the month's gain has been about 2s. to 3s. per qr. The chance of low rates is therefore further distanced, with a greater probability, as our stores run out, that prices towards the end of the cereal season will be yet higher, as no quantity can come from America till late next spring, and half Europe will be frost-bound in winter. The following prices were recently quoted at the places named:

White wheat at Paris, after the late decline there, 73s. per qr., the best red 71s. 6d. per qr.; at Liege, in Belgium, 68s. was quoted for red, at Courtrai 72s. for white; Holstein wheat at Hambro' 65s. 6d., Saale to 69s. 6d.; red wheat at Stettin to 64s., at Stralsund 58s., at Frankfort 57s., at Cologne 63s., at Konigsburg the same; high-mixed at Dantzic 73s. free on board, Sandomirka afloat here off the coast 66s., Ghirka to 63s. 6d.; Southern amber at New York 58s. per 480lbs., white Michigan 63s. per 480lbs.

The first Monday in Mark-lane commenced on fair arrivals of English wheats, with a liberal supply from abroad. The show of samples on the Kentish and Essex stands was moderate, and consisted chiefly of new qualities. The few fine parcels of red, being wanted on French account for seed, sold at full prices; but the bulk, consisting mostly of inferior white, gave way 1s. to 2s. per qr. The foreign trade was very quiet, but there was still enough inquiry to prevent holders offering at less money. Only a few floating cargoes were left unsold, and these were held at former prices. The country markets during the week showed great variety as to prices. Those held early differed little from the previous currency; some, like Sleaford and Rochester, followed the London decline of 1s. to 2s., while others advanced as much, as Newark, Birmingham, and Liverpool; and those held at the close of the week were mostly up 2s. to 3s. per qr. Edinburgh rose 1s. per qr. At Dublin 1s. improvement was demanded for foreign samples, the new Irish being in a poor condition.

The second Monday had a moderate arrival of home-grown wheat, and plenty of foreign, though rather less than on the week previous. On the Kentish and Essex stands the show of samples was moderate, condition fair, but quality various, and mostly poor. This was the day on which a leader in the *Times* spoke very favourably as to the yield and quality; but the market responded to the "quietus" by an animated sale at 2s. to 3s. per qr. advance. A good inquiry was also experienced for foreign at 1s. to 2s. rise, there being the greatest demand for fine soft Russian sorts. Floating cargoes during the week improved in value 2s. to 3s. per qr. Though the country markets on the previous week were slow to follow the London decline, they were not backward on this occasion to second the advance, and most of them noted the improvement at 2s. to 3s. per qr. Others were 1s. to 2s., and some few only 1s. per qr. higher. The improvement at Glasgow was 1s. to 1s. 3d. per boll (about 2s. to 2s. 6d. per qr.) Edinburgh also was 2s. higher. An advance of 1s. per brl. was noted at Dublin. Cork was only 6d. per brl. dearer.

On the third Monday there was again a moderate arrival of English growth; but the foreign supplies were largely increased, four-fifths being

from Russian ports. The exhibition of samples during the morning on the Essex and Kentish stands was below expectation. Fine red still being scarce was in good demand, but white sorts were dull, and inferior qualities rather in favour of buyers. Notwithstanding the heavy Russian supply, it was in good demand for mixing; but other descriptions were rather in calm. A good inquiry was experienced for floating cargoes at former rates. Most of the country markets this week noted no change of values; a few were tending downwards, as Andover and Doncaster, but others were dearer, as Bath 1s. to 2s. per qr. and Canterbury 1s. Bishop's Stortford and Croydon were dull. Scotland was in calm, Edinburgh and Glasgow quoting no difference in prices. Fine weather having improved the condition of new samples at Dublin, they went off at first freely, full prices being paid; but the market closed with some concession on inferior sorts.

On the fourth Monday there was another moderate supply of home growth, and an equal abundance of foreign again, chiefly from Russia, with, however, 5,000 qrs. from Adelaide. The morning's show on the Kentish and Essex stands was far from plentiful, with a greater proportion of inferior qualities, both red and white. The best samples were picked out, at unaltered rates; but low sorts, as respects quality or condition, were not cleared at a late hour. The foreign trade had a quiet aspect, buyers of Russian sorts being pretty well in stock. Offers within 1s. per qr. of the previous rates were made for Australian and other qualities; but not accepted. There having been a large business in floating cargoes, the demand to-day became languid.

The imports into London for the four weeks were 28,272 qrs. English wheat, 164,824 qrs. foreign, against 21,721 qrs. English, 59,355 qrs. foreign for the same time last year. The exports in the four weeks were 11,251 qrs. wheat, 2,456 cwt. flour. The general averages commenced at 68s. 2d., and closed at 61s. 3d. per qr. This great reduction must, however, be partly traced to the inferior quality of the new wheat in the latter sales. London commenced at 67s. 4d. and ended with 64s. 5d. per qr. The imports into the United Kingdom for the four weeks ending 14th September were 2,998,037 cwt. wheat 184,297 cwt. flour.

The flour trade has little varied during the month. Town millers, who, after the fall of wheat in August, were contemplating a reduction in the top price, finding the quality of the new crop below the last, and that some reaction was beginning in prices, abandoned their intention as impracticable to do themselves justice in maintaining the high quality of their best flour. It has therefore remained at 60s. per sack, and there seems but little chance of its reduction. The Paris market being relatively as dear, Norfolks have also been steady, and other country marks scarcely varying 1s. per sack, the change being against buyers. All foreign sorts have been well maintained, Spain wanting wheat herself, as well as France; and the imports from New York have been chiefly of low quality, of no use to first-class bakers. The imports into London for four weeks were 61,731 sacks English, 20,062 sacks 14,603 brls. foreign,

against 78,108 sacks English, 8,363 sacks 5,343 brls. foreign for the same period in 1866.

The month has passed with but very scanty supplies of new barley for the London market, and the foreign arrivals have continued moderate. Fine new malting has been worth fully 46s. per qr.; but the best yet received has been generally of secondary quality, worth from 38s. to 43s. per qr. New Saale, therefore, has been in request as a favourite with maltsters, from its fair colour; and the Hambro' market has consequently risen with the demand. It would therefore seem that this year's quality is below 1866, and has not come up to expectation; so we may have another dear year for malting sorts. Much of the barley was caught in the rain—enough to somewhat stain it, though but little has sprouted. Foreign has found a steady inquiry, at full rates; grinding sorts, weighing only 50lbs. per bushel, being worth 33s. to 34s. per qr.; and as it will be some time before Danubian and Odessa shipments can appear, prices seem likely to rule high, much having been purchased here for shipment, from 29s. to 33s. per qr. cost and freight. The imports into London for four weeks were 2,062 qrs. British, 21,065 qrs. foreign, against 3,036 qrs. British, 9,981 qrs. foreign in 1866.

Malt at the commencement of the month gave way, in consequence of a general opinion that there would be a good quantity of fine barley; but eventually prices hardened.

There have been liberal arrivals of maize during the month, which commenced at lower rates; but being relatively below barley, and the crop in the United States having suffered this season, prices eventually gained 2s. to 3s. on arrivals reaching to 36,219 qrs.

There have been heavy supplies of Russian oats during the month, but not many from other quarters. Had the market been left simply to a consumptive demand, perhaps no advance under these circumstances would have been maintained; but the failure of the oat crop in France has made such large and constant demands on London, that with some fluctuations we have gained about 2s. per qr., 38lbs. Russian being worth 25s. 6d., and new Swedes of that weight per steamer having brought 26s. 6d. per qr. With a late harvest our own native contributions hitherto have exceeded last season, and the crop is the best of the corn crops, so with more liberal supplies from our own and foreign stores, we expect some reduction in prices; though old oats from scarcity are likely to be high for a time. The exports from London alone in four weeks have reached to 41,350 qrs., a circumstance without a parallel, and a consequence of the altered state of the Corn Laws in France. The imports in the same time have been in English qualities 8,261 qrs., Scotch 429 qrs., Irish 1,350 qrs., foreign 266,885 qrs., against 6,110 qrs. English, 162 qrs. Scotch, 265 qrs. Irish, 190,573 qrs. foreign in 1866.

Beans during the month have rallied from the depression experienced in July and August, being about 2s. higher than recently, though foreign arrivals have been fair. In fact, not long ago they were relatively the cheapest grain, and this has





# THE FARMER'S MAGAZINE.

OCTOBER, 1867.

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20 lb. 100 " " " (cask and measure	.....	0 10 0
30 lb. 150 " " " included)	.....	0 15 0
40 lb. 200 " " " "	.....	1 0 0
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60 lb. 300 " " " "	.....	1 7 6
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DECEMBER, 1867.

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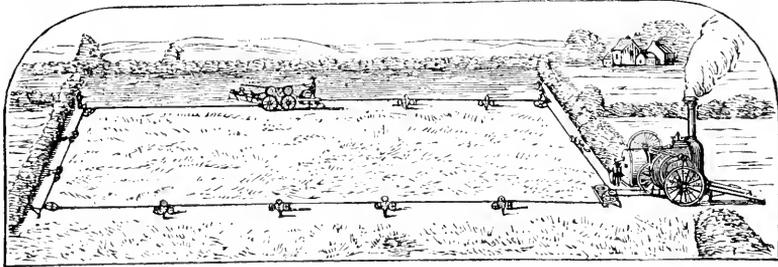
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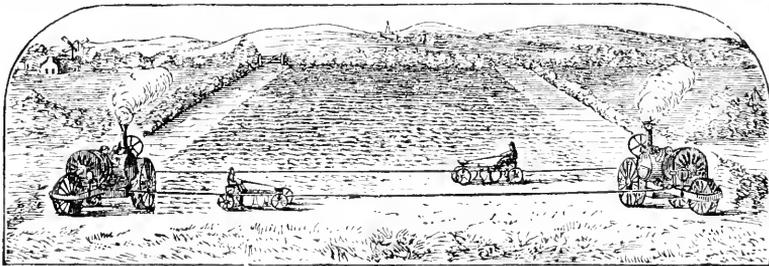
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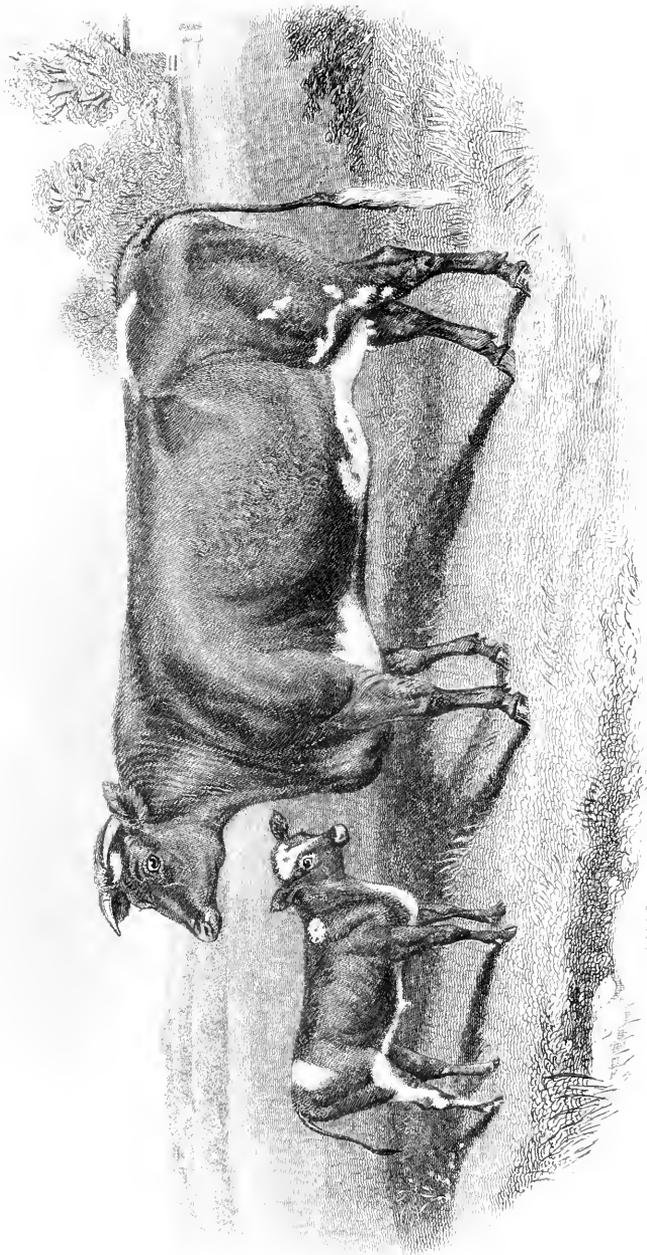
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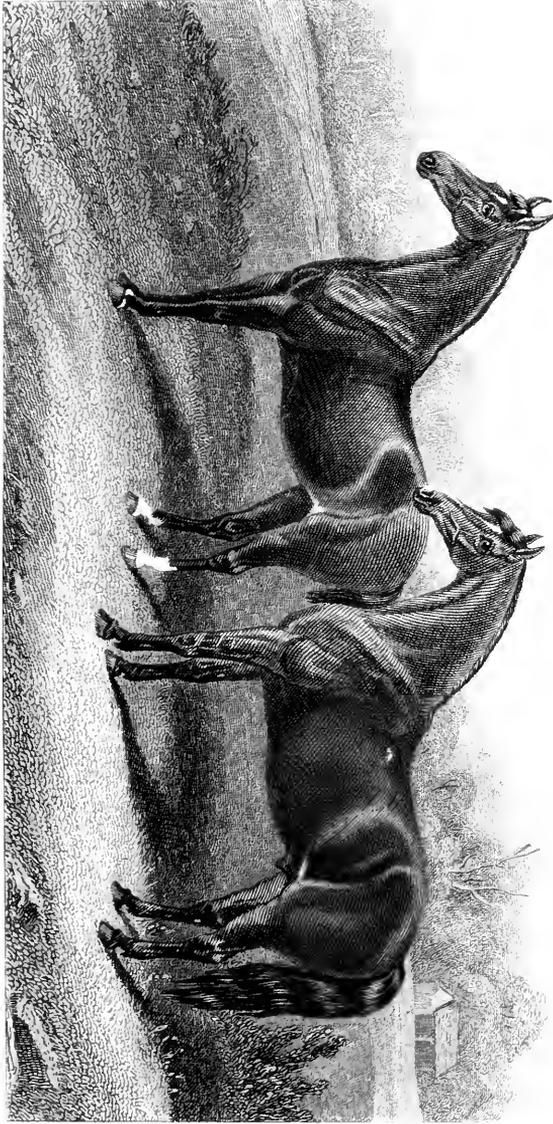


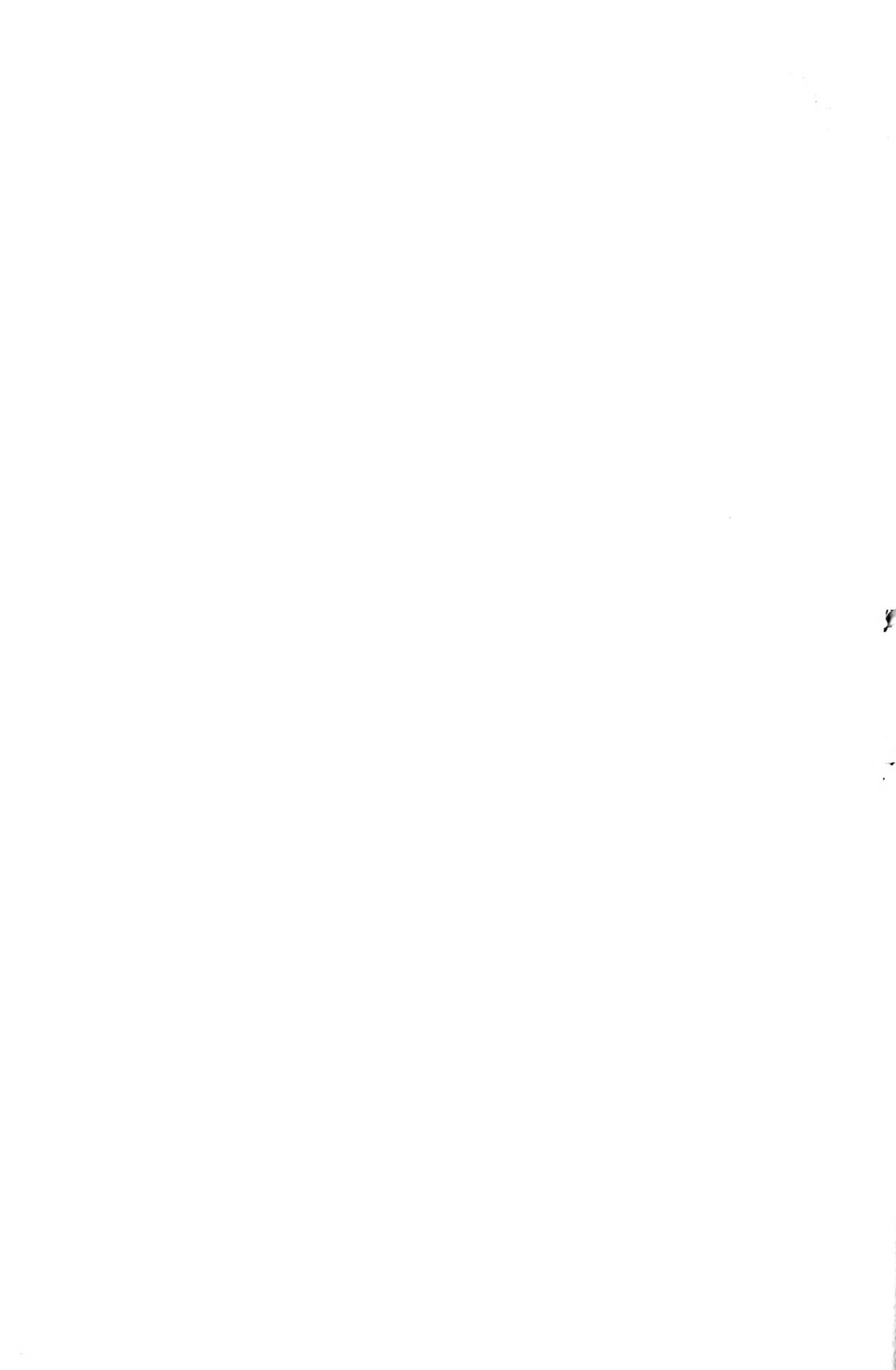
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*London: Published by Longman, Brown, Green, & Co., 15, Abchurch Lane, 1854.*



*Impresso di G. G. G. G.*





# THE FARMER'S MAGAZINE.

DECEMBER, 1867.

## PLATE I.

### FAWSLEY 4TH; A SHORTHORN HEIFER.

THE PROPERTY OF MR. CHARLES HOWARD, OF BIDDENHAM, BEDFORD.

Fawsley 4th, a red-and-white shorthorn heifer, bred by Mr. McIntosh at Haverings, in Essex, and calved March 4th, 1865, is by Grand Duke 4th (19574), out of Arch-duchess of Cambridge, by Arch-duke 2nd (15588), her dam Coquelicot by Duke of Cambridge (12742)—Blouzelind, by Earl of Dublin (10178)—Candytuft, by Janizary (8175)—Cathleen, by Caliph (1774)—Rosy, by Rob Roy (557)—by Satellite (1420)—by Sir Dimple (594)—by Styford (629).

Grand Duke 4th, a red bull, bred by Mr. E. S. Bolden, of Springfield, Lancashire, and calved April 25th, 1861, is by Grand Duke 3rd (16182) out of Grand Duchess 8th, by Prince Imperial (15095); her dam Grand Duchess 2nd, by Grand Duke (10284)—Duchess 51st, by Cleveland Lad (3407)—Duchess 41st, by Belvidere (1706)—by Second Hubback (1423)—by Second Hubback (1423)—by The Earl (646)—by Ketton 2nd (710)—by Comet (155)—by Favourite (252)—by Daisy Bull (186)—by Hubback (319)—by T. Brown's Old Red Bull (97). Grand Duke 4th was sold at the Preston Hall sale in May, to Lord Spencer, for 210 gs.

Archduchess of Cambridge, bred by the late Mr. Langston at Sarsden, in Oxfordshire, and calved on November 6th, 1859, is a red-and-white cow, the second calf of Coquelicot, who was bred by the late Sir Charles Knightley at Fawsley, where she was knocked down to Mr. Langston for 92 guineas. At the Sarsden sale, in 1864, she made 60 gs., and with her daughter Archduchess of Cambridge at 80 gs. travelled on to Essex, where, in May last, the family was further dispersed. Mr. F. Sartoris took old Coquelicot at twelve years old for 61 gs.; Mr. E. J. Clayden, Archduchess of Cambridge for 77 gs.; and Mr. Charles Howard, Fawsley 4th, at two-years-old, for 270 gs., the second-best price of all the cows sold at Havering. Mr. Howard also

gave 68 gs. for Fawsley 7th, a heifer calf of some six months old, out of Coquelicot, and by Grand Duke 4th. As we wrote at the time, "Coquelicot is of a rare good sort;" The Archduchess of Cambridge, "a nice cow, full of Bates' character;" and the Fawsley, "a wonderful improvement" on some of the lots previously offered. Fawsley 4th is indeed a very sweet heifer, full of good looks, with beautiful hair and touch; while, as not the least of her qualifications, she is a capital milker. The calf, a heifer, associated with her in the print, bred by Mr. Howard and dropped on the 20th of July, is by Baron Oxford (23375), a red bull, bred by Mr. McIntosh, and calved April 14th, 1865, by Duke of Geneva (19614), out of Lady Oxford 5th, by Third Duke of Thorndale (17749). At this same Havering sale Baron Oxford was sold to Colonel Towneley for 500 gs., and his dam, the famous Lady Oxford 5th, to the Duke of Devonshire for 600 gs.

Mr. Charles Howard has now in his herd at Biddenham seven animals of Sir Charles Knightley's blood; but he is still stronger in the Gwynne tribe, of which family he possesses some fifteen or sixteen cows and heifers. Nothing, however, is coming faster into fashion than the Fawsleys, tracing back, as these do, to the much-prized Rosy strain; and within the last few weeks Mr. McIntosh, who is beginning again, bid Mr. Howard a very handsome sum for his lot, Fawsley 4th with her calf, and Fawsley 7th; but though so tempting and quick a return, this offer was refused. Mr. Howard has not been a very frequent exhibitor, but he made his mark early, and at the Leeds Show of the Royal Agricultural Society in 1861 he took the first prize in a very large and good class of young bulls. He is also famous for his flock of Oxford Down sheep, and his two pens of ewes were first and second this year at the Bury St. Edmund's Royal Meeting.

## PLATE II.

## IMPROVED EXMOORS.

BRED BY MR. ROBERT SMITH, OF EMMETT'S GRANGE, SOUTH MOLTON.

Lunette, the bay mare pony on the right, foaled in 1860, is by Bobby out of Brunette, a picked Exmoor pony mare, with some of the oldest blood of the Hills in her veins, and a dash of the Katerfelto. Lunette, who stands 13 hands high, was sold by private contract to Mr. Milward, and exhibited by him at the Salisbury Meeting of the Bath and West of England Society in 1866, where she was highly commended, the one premium going to a little wonder entered by Mr. Rawlence, of Bulbridge. The Judges' Report, as published in the Society's *Journal*, thus speaks to the class: "There was nothing found more favour at Salisbury than Mr. Rawlence's chesnut pony—that is to say, a pony by his inches, but a modern bloodlike hunter in his character, as he has fairly earned this in the field. With little more before, Apricot would be close upon perfection, and therefore Mr. Milward finished no nearer than second, with a particularly neat daughter of the famous galloway Bobby, out of an Exmoor mare, and bred by Mr. Robert Smith on the Moor. It is not often that two better than these are seen together." Lunette, a few weeks afterwards, succeeded to the first prize of £10 in the thirteen hands' class of the Birmingham Horse Show, the Rev. W. Holt Beaver's grey, originally placed first, being disqualified as over the specified height. We saw the last of Lunette at Tattersall's, on the Monday before the Derby, when she came up with the Thurgarton string, and made 40 guineas to Mr. Pepys, the lowest figure of the day, a sufficient proof of the excellence of the collection.

The other pony in the plate is The Chieftain, also foaled in 1860, and by Bobby out of Nellie by Greyling, a horse that not only took several prizes himself, but was the sire of Mr. Baker's Gem, a first-prize pony at the Royal Battersea Show, in 1862. The Chieftain was only exhibited on one occasion—viz., at the Royal Society's Meeting at Plymouth, in 1865, in the Exmoor Pony Stallion Class, where he was not noticed; and, threatening to get coarse and heavy about his neck, he was subsequently cut, and sold at Tattersall's. He stands about thirteen-two, and an offer of 60 guineas was once refused for him.

Bobby, the sire of both these ponies, and hence the *improvement* traced in their title, was bred by that capital sportsman, the late Mr. Ramsay, of Barnton, N.B., and got by Round Robin, her dam by the Arabian Borack. This Arab, imported from Madras in 1823, was supposed to be of the Montefieck breed, and the fastest Arabian that ever ran in the Presidency. He was a dark brown, standing about fourteen hands and a quarter of an inch. Some marvellous tales are told of the time in which Borack won some of his races, and amongst others of his doing a second heat of

three miles in four minutes and four seconds! which, considering that it still takes nearly three minutes to run the Derby course of a mile-and-a-half, is a very pretty story. Round Robin, the sire of Bobby, was by Borodino, a son of Smolensko, out of a Cerberus mare, whose pedigree could be traced no further. Bobby was for some years in the possession of Dr. Beever; and, although under fourteen hands high, he won some private steeplechases, and carried twelve stone and a-half with the Rufford Hounds. When we saw Bobby in the North of Devon, some eight or nine years since, we thus wrote of his value as a cross: "Certainly, as far as looks can go, his use is well warranted. But Bobby's character is even better still. He is the sire of many famous hacks in Nottinghamshire, and some of the best of those clever cobs Mr. Milward annually brings up have been got by him. One, we believe, was sold last year—in 1858—for 200 guineas; while at the last sale—in 1859 that was—the highest price, at 110 guineas, was given for one of his get, and four averaged over 60 guineas each." And, as we went on to say, "The only question is, whether the cross with bigger animals may not gradually destroy the true character of the pony? But, as it is, the Exmoor has been 'improved' to the picture we now see. The original moor or mountain pony was a very different animal, with neither the size, power, nor handsome appearance of the present representative of the race." Bobby was taken in this year, 1859, by Mr. Robert Smith, with whom he remained two seasons; and we saw him again at Battersea, where he was commended, although, at two-and-twenty years old, he had of course gone in the back, and was quite out of show form. He was a bright bay, with black legs, and as clever to look at as he proved himself in other ways. He died at his old quarters in Nottinghamshire soon after his visit to London, leaving behind him some of the best little horses of the time. A dozen of Bobby's produce have realised at Mr. Milward's sales somewhere about 60 guineas each; and the cross also told well with the Exmoors, as Mr. Smith sold Master Bobby, a shooting pony, to Sir John Cathcart for 100 guineas, Sir Harry to Mr. Allen Ransome for 85 guineas, Latona to Colonel Evans for 65 guineas, and others for 50 guineas each at the hammer.

Mr. Smith, who has now been for twenty years on the Moor, began with Mr. Knight's ponies, for whom he was the agent; but he subsequently established a stud on his own farm, and the two herds or drives are now entirely distinct. His notion from the first was a nick with the short-legged thoroughbred horse, so as to bring cobs and galloways ranging from thirteen-three to fourteen-three inches high. The first result of this experi-

ment was tested by a sale at Simonsbath, a village in the centre of the Hills, where many a wrestling match has come off, many a keg been tapped, and many a haunch done justice to, with all the keen enjoyment for which stolen pleasures are proverbial. Bampton Fair, the autumn pony fair of the Hills, was the next place of sale, and then to suit more distant customers the lots were brought up to Taunton. Here, however, the interests of Mr. Knight and Mr. Smith were divided, the latter eventually making Bristol the mart for his galloways, where they are still sold, and Mr. Knight bringing up his ponies to Reading, until last season, when they were put up at Edgbaston, near Birmingham. For our own part, however, we always thought, and have often suggested, that these fancy articles would tell a deal better if they were sold in the spring instead of the autumn, and as near London as possible—say, in the Agricultural Hall, or at the East Acton Stud Farm. Mr. Milward has of course the best day in the year; and, if he took the Monday before the St. Leger, instead of the Monday before the Derby, he would soon find the difference in his averages. A quiet cob, a clever park-hack, or a pretty child's pony, is as much in fashion during the season as a Prima Donna or a whitebait dinner. When the business of people is to ride in the park, they want something to ride on.

At starting, Mr. Smith made use of anything that was handy, and he began on the way to better things with Old Port as a sire. This horse was

beautifully bred, being by Sir Hercules out of Beeswing; but he was nothing more than a cast-oll; and, from what we remember of his tall, narrow frame when he ran for the Derby, anything but a suitable cross for the Exmoor pony mares. He was followed by his son, the little steeplechase horse, Exmoor; but the produce of both these was too high and light, and, though now and then one would make thirty, or even occasionally fifty guineas, too many stopped at the tens and teens. Then came Bobby, to whose success we have just spoken; but the subsequent services of an Arabian led to no very profitable results, and the experiment was soon abandoned. Small thoroughbred horses, with short joints and smart action, have since been settled down to, and at the recent sale Nutshell by Nutwith took the top figures. One of his get, Queen of the Forest, made 76 guineas, a brown gelding 54 guineas, and two or three others almost equally high prices.

With such a cross, the "Improved Exmoors" have naturally more size and proportionately greater value, as there are few animals more "taking" than a well-bred cob, or rather perhaps galloway, of some fourteen-two inches, with the racehorse's head, clean neck, and oblique shoulders, coupled with the round barrel, strong back, and short leg of the pony proper.

Previous to braving the wastes of Exmoor, Mr. Robert Smith farmed at Burleigh-on-the-Hill, near Oakham, where he was as famous for his Shorthorn herd and Leicester flock.

THE POTATO PLANT.

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

It is needless to make any remarks upon the importance of the potato plant. The diminished produce of our crops through the disease, with which since 1845 it has been visited, is known too well; any practical researches, therefore, tending to enlarge its produce and to protect it from disease will be welcomed by every reader—few of whom are not growers of the potato.

The result of an insufficient crop of this valuable root has naturally led to increased imports from abroad. The following table gives in cwt. the amount imported since 1854 (*Parl. Paper*, 1867).

1854.....	17,467	1862.....	333,840
1856.....	19,222	1864.....	142,986
1858.....	337,521	1866.....	179,529
1860.....	136,576		

During this period the prices fixed by our Government as the computed real value of the potatoes imported have been per cwt. as follows:—

	s.	d.		s.	d.
1854.....	3	0	1862.....	7	2
1856.....	3	6		4	1
1858.....	3	8	1864.....	5	1
	3	8		3	4
1860.....	4	1	1865.....	5	1
	4	11		3	7

Of the origin and prevention of the potato disease we are at present as little informed as when it first made its

appearance. My own experience with a variety of dressings applied long before, and at the time of planting have led to very few useful results. By far the most practical conclusion to which these experiments have tended, is that early-planting and early-raising is the best prevention of the disease. In turning to the Prize Essay of Dr. Lang (*Jour. Roy. Ag. Soc.*, vol. xix., p. 75) I find that some Devonshire growers had accidentally arrived at a similar conclusion; this was the case where the potatoes were self-planted; the seed, therefore, had remained in the ground during the winter, and the plants were very wide apart. The effect of this planting at wide intervals has never yet been well examined. On this question Dr. Lang gives the results of two experiments. He says:—

"The ground, a wheat-stubble, was manured early in the autumn, and the manure was carefully ploughed down; soon after Christmas it was cross-ploughed, and about the 1st of March it was ploughed very deeply with Loock's patent iron plough; and the beam being loaded, to keep it down, it was found that the shillet had been broken up and brought to the surface, the depth averaging from nine to ten inches (this operation is called technically double-ploughing). The trench being now turned out with a spade, the sets were planted eight inches deep, in rows three feet apart, and twenty inches set from set. Whilst this experiment was in progress, Mr. Henry Lowcock, of Barton, was double-ploughing a large steep field, the

higher part of which was more than 250 feet above the lower portion—the method being for one plough to follow another in the same furrow, thus turning out a furrow downwards of a very uniform depth of eight inches. He then planted three rows of potatoes from the top to the bottom of the field in a manner similar to that just described.

“The results were that the crop was enormously increased in weight and bulk. Nor is it a matter of doubt that if land be trenched to the full depth of the spade or fork, or double-ploughed in the manner described, and the plants be early earthed-up, 300 bags (of 7 scores to a bag) of potatoes is a crop to be, not once, but ordinarily obtained per acre. Another and most unexpected result was also obtained—few or none of the potatoes so grown were diseased. The potatoes so grown are not only far more numerous than ordinary: they are also increased extraordinarily in bulk, but have the following defects: they are close, frequently have a core, or perhaps a hollow in their centre, surrounded by a thick portion of hard corky substance; and even if sound all through, dress badly. It is true that some sorts of potatoes are greatly more disposed to be hollow or core than others; but, as is well known to every housekeeper, the waste on cooking oversized potatoes is considerable, and they are justly regarded with aversion by the public.”

When the disease first makes its appearance, which is on the leaf, we have been accustomed to immediately mow off the potato-haulms and have them burnt. On this head Dr. Lang added, when speaking of the portion of the plant first affected, “It has been ascertained over and over again that the disease originates in the tuber planted, or in the stem that springs from it. That opinion is a delusion. The disease always originates in the leaf, sometimes attacks the stem of the leaf, more rarely still the stem of the plant; and in the tens of thousands of instances in which both I myself and the numerous men whom I have employed in every portion of this county have examined the base of the stem next the portion of the tuber set, no one instance of disease has been discovered. Nay, as good potatoes and as free from disease have been obtained, where proper precautions have been taken, from diseased sets, as from those sets where no taint or disease could be discovered.”

The disease seems to visit different soils with equal severity. I have found no difference in Surrey on the soils resting on the Thanet sand, the gravel, the chalk, or the London clay formations; and in Devonshire, the Doctor remarked, that in reply to all his inquiries, “on the cold and tenacious clay, on the granitic soil, on the new red sandstone, on the greensand formation, on the limestone, and on the clay-slate (locally called, shillity land), the reply uniformly was that farmyard manure was prejudicial, and powerfully contributed to the ravages of the disease. Guano appeared to be equally bad. Wood-ashes appeared to be more favourable, as did tanners' bark and leath-ashes. Fern-ashes caused some disappointment; for, containing so large a proportion of silicea, it did not manifest any superiority over the other ashes. All, however, expressed a very decided opinion as to the great superiority of lime and salt as the best potato manure.”

As then, with such a serious visitation attending our potato crops, it becomes more and more necessary to endeavour to increase their produce; I comment to all my readers the careful study of a recent report by Mr. George May, of Benthall, near Broseley.

The elaborate experiments described in his recently published prize essay (*Jour. Roy. Ag. Soc., N. S.*, vol. iii., p. 552) have all a practical bearing. It was in the year 1865 that on 129 trial-plots he endeavoured to examine the following questions:—

“Firstly: As to the influence of the size of the set on the economic results of the crop, *i. e.*, whether any increase, and to what extent, is obtained over and above the extra weight of the set, in the planting of large in lieu of small sets.

“Secondly: As to the influence on the crop of the distance at which the sets are planted; or the results of close and wide planting of various-sized potatoes.

“Thirdly: As to the comparative results from planting similar weights of large and of small potatoes per acre.

“Fourthly: As to the relative advantages of cut and whole sets.

“Fifthly: As to the influence of thick and thin planting, and of the size of the set on the proportion borne between the weights of the sets and the weight of the crop, and the rate of increase under various conditions.

“Sixthly: As to the relative productiveness of different varieties of potato.

“Much diversity of opinion seems to prevail in these points, which are of economical importance in relation to both the farm and garden cultivation of the crop.

“The selection of the potato-sets appears commonly to be more a matter of present expediency than prospective profit. The general course is to appropriate the largest for use, the very smallest for pig-feeding, the tubers of intermediate size being preserved for replanting; this method of assortment results in the use of sets of from two to three ounces in weight, and a set of less than two ounces is as often planted as one exceeding three or four ounces.

“Our primary question is whether an increase in the size of the set will produce an excess above the extra weight of the sets planted; such extra weight going to increase the strength of the individual sets without increasing their number.

“The unequivocal results in favour of large sets, obtained from my experiments carried out in 1864, as well as from those which form the subject of this report, induce me to describe carefully the conditions under which the experiments were conducted.

“Every precaution was taken to ensure the most perfect uniformity in the conditions under which the various experiments were made. The manure was separately weighed out, and distributed on each twenty superficial feet of ground. The distance (two feet) between the rows was the same throughout the trial ground; and to counteract the influence of any slight variations in the character of the soil, the particular experiment that would be brought into immediate comparison were placed as nearly as possible in juxtaposition. External rows were rejected for the experiments, and planted with part of the ordinary crop; and every individual set was separately weighed and selected to the specified size, and planted to measure, at precise distances.

I will only give, in an abridged form, one or two of the results of Mr. May's trials, and the general conclusions which they tend to prove.

First, then, as to the comparative produce of potatoes, planted of different sizes. Mr. May remarks that “the gross average return per acre of numerous varieties were from—

		Tons.	Cwt.	Qrs.	Lbs.
1 oz. sets	...	10	19	3	17
2 oz. sets	...	12	15	2	15
4 oz. sets	...	13	9	0	2
6 oz. sets	...	16	13	1	16
8 oz. sets	...	18	11	0	16

“The following are the amounts of net profit per acre for each ounce in the increase in the weight of the sets from 1 ounce up to 8 ounces (each ounce in the weight of the set occupying 2 square feet, being equivalent to 12 cwt., 17½ lbs. per acre) of seed:

	Tons.	Cwts.	Qrs.	Lbs.
From 1 to 2 oz. ...	1	13	2	7½
„ 2 to 4 oz. for each extra oz. ...	0	18	3	14
„ 4 to 6 oz. „	1	12	0	21
„ 6 to 8 oz. „	0	18	3	14

“The average of a number of experiments with different varieties planted 9 inches apart in the rows, gave very similar results, as follows :

GROSS RETURNS PER ACRE.				
	Tons.	Cwts.	Qrs.	Lbs.
1 oz. sets ...	10	12	0	23
2 oz. sets ...	15	2	2	11
4 oz. sets ...	17	17	3	12

“After deducting the weight of the sets, the net balances of produce per acre stand thus :

	Tons.	Cwts.	Qrs.	Lbs.	Ozs.
1 oz. sets ...	9	16	0	0	or 13.21 per set.
2 oz. sets ...	13	10	0	21	or 16.45 „
4 oz. sets ...	14	13	0	4	or 17.99 „

“The average produce of a number of varieties planted at intervals of 6 inches in the row, also exhibited similar advantages in favour of the larger sets, viz. :

GROSS AVERAGE RETURNS OF DIFFERENT VARIETIES PER ACRE.					
	Tons.	Cwts.	Qrs.	Lbs.	Ozs.
1 oz. sets ...	13	4	1	20	or 10.85 per set.
2 oz. sets ...	15	19	0	12	or 13.15 „
4 oz. sets ...	22	0	2	3	or 18.11 „

“After deducting the weight of the sets, the net balances of produce per acre stand thus :

	Tons.	Cwts.	Qrs.	Lbs.	Ozs.
1 oz. sets ...	12	0	0	13½	or 9.85 per set.
2 oz. sets ...	13	10	1	27	or 11.15 „
4 oz. sets ...	17	3	1	5	or 14.11 „

“Every step in each of these three series of experiments gives, without an exception, unequivocal evidence that each increase in the weight of the set produces more than a corresponding increase in the weight of the crop. The following statement will, however, show that the advantage in the employment of large sets is much less striking in the early than in the late varieties; out of the examples before given, the average produce of the early varieties, planted one foot apart in the row, exhibit the following result :

	Gross Crop.			Net.		
	tons.	cwts.	qrs.	tons.	cwts.	qrs.
1 oz. sets ...	9	3	3	8	11	3
2 oz. sets ...	10	14	2	9	10	1
4 oz. sets ...	13	19	0	11	10	1
6 oz. sets ...	15	6	0	11	13	1
8 oz. sets ...	7	17	0	2	19	3

“Although there is throughout an increase over and above the extra weight of the sets, the advance between the larger sizes is not very marked, and is much below that wherein the early and late sets are averaged together. There is even a falling-off in the produce of the 8 oz. sets, in comparison with those weighing 6 ounces; but this is partly from accidental circumstances, the 8 oz. sets being much sprouted before planting; indeed, all the larger sets of the early varieties were much more advanced than those of smaller size. After separating the early sorts from the general average results of early and late, the average produce of the late varieties, taken separately, will stand as follows :”

	Gross Crop.			Net.		
	tons.	cwts.	qrs.	tons.	cwts.	qrs.
1 oz. sets ...	12	0	0	11	7	3
2 oz. sets ...	15	3	1	13	19	0
4 oz. sets ...	17	16	0	15	7	2
6 oz. sets ...	30	6	2	26	13	2
8 oz. sets ...	31	3	3	26	6	2

Next, as to the influence on the crop of the distance at

which the sets are planted, or the results of close and wide planting of various sized sets. Mr. May observes : “To establish this point, I shall compare, separately, each series of experiments on potatoes of the same weight, planted at different distances :

AVERAGES OF 1 OZ. SETS.						
Varieties.	Distance apart.	Gross.			Net.	
		tons.	cwts.	qrs.	tons.	cwts.
13	1 foot ...	10	9	3	17	9
11	9 in. ...	10	12	0	23	9
11	6 in. ...	13	4	1	20	12

AVERAGES OF 2 OZ. SETS.						
13	1 foot ...	12	15	2	4	11
12	9 in. ...	15	15	2	11	13
10	6 in. ...	15	19	0	12	13

AVERAGES OF 4 OZ. SETS.						
12	1 foot ...	15	17	2	15½	13
6	9 in. ...	17	17	3	12	14
3	6 in. ...	22	0	2	3	17

“These comparisons all show an advantage in planting the smaller sets at intervals closer than 12 inches in the rows; but the results are not very decided, and in one or two cases the gain in the gross crop does not make up for the extra weight of the sets planted.

“The following comparisons refer to the effect of planting the sets more than a foot apart in the rows :

“Three experiments averaged together, viz. : Eight-ounce Flukes, six-ounce Flukes, and four-ounce Late Red gave a gross crop of 23 tons 16 cwts. 1 qr. 8 lbs., and a net average of 20 tons 3 cwts. 1 qr. 17 lbs. The same sizes and varieties, planted at intervals in the rows of 1 foot 3 inches, produced a gross crop of 18 tons 13 cwts. 1 qr. 2 lbs., and a net crop of 15 tons 14 cwts. 3 qrs. 20 lbs.—a falling-off of 4 tons 8 cwts. 1 qr. 25 lbs. per acre. Indeed, the produce of each set was, as nearly as possible, the same, whether planted a foot apart or 15 inches, so that the additional distance was so much loss to the crop. The average produce of six-ounce and eight-ounce Flukes shows a similar falling-off when planted more than a foot apart in the rows.” The net average produce per acre was :

	Tons. Cwts. Qrs. Lbs.			
Flukes, at 1 foot ...	17	10	1	25
„ at 1 foot 3 in. ...	15	8	2	6½
„ at 1 foot 6 in. ...	12	16	0	5

“This diminution of the crop, through reducing the number of the sets per acre, is remarkably uniform, and as nearly as possible proportionate to the distance at which the sets are planted.

“The general tenor of these experiments points to an interval of ten or twelve inches in the rows, as being the most profitable distance at which to plant large full-sized potatoes, of from 4 to 8 ounces in weight. A moderate increase in the net crop may be expected from still further diminishing the distance when the sets are below 4 ounces in weight.”

The general bearing of the results so laboriously obtained is thus summed up by Mr. May :

“Firstly : Every increase in the size of the set, from one ounce up to eight ounces in weight, produces an increase in the crop much greater than the additional weight of the set planted. The net profit, over and above the extra weight of the sets, in planting four-ounce sets in lieu of one-ounce sets, amounted, on the whole series of experiments, to between three and four tons per acre; and the further profit, on the increase of the size of the set from four ounces to eight ounces, averaged

about five tons an acre; all the intermediate steps partaking proportionately of the increase.

“Secondly: The advantages in favour of the large sets is more marked in the late than in the early varieties.

“Thirdly: In the use of small sets, of from one ounce to three ounces in weight, a larger balance over and above the weight of the sets was obtained by planting from six to nine inches apart in the rows, than at wider intervals.

“Fourthly: Increasing the intervals at which the sets are planted, even of the largest size, in the rows, to more than twelve inches, diminishes the crop; and the wider intervals induce no increase in the weight of the produce of the individual sets.

“Fifthly: It may be broadly stated that the weight of the crop is proportionate to the weight per acre of the sets, and that small sets will produce the same crop as an equal weight per acre of large sets. The fact is, however, of limited application, as a weight of very small sets equal to a weight of full-sized potatoes could not be got into the ground, except by planting them so close as to be prejudicial to the crop. The advantage, therefore, of large sets remains practically unimpaired.

“Sixthly: Weight for weight, cut sets produce as nearly as possible the same weight per acre as whole potatoes; but for the reasons given above, the weight of the sets should not be reduced by subdivision.

“Seventhly: Smaller sets give a larger produce, in proportion to their weight, than the larger sets.

“Eighthly: When the intervals between the sets in the rows are diminished to less than a foot, the produce of each individual set is proportionately diminished. Though this is not necessarily accompanied by a diminution of the weight of the crop, no increase in the produce of each individual set is caused by placing the sets at intervals wider than a foot.

“Ninthly: With reference to the relative produce of different varieties, a late red sort takes the precedence throughout the experiments; and, of the several varieties of Fluke, ‘Spencer’s King of Flukes’ and ‘The Queen of Flukes’ are much more prolific than the ordinary variety.”

Then as to the manure best adapted to the potato: We have seen, by the report of Dr. Lang, that all the nitrogenous dressings tried in Devonshire were rather prejudicial than otherwise, as regards the potato-disease, but that wood-ashes (which abound in potash) and lime and salt were beneficial.

From a recently-published report by Professor Voelcker (*Jour. Roy. Ag. Soc.*, vol. iii., N. S., p. 516), as well as from the experiments of others and my own observations, I am much inclined to believe that the use of the salts of potash, in combination with other manures, such as salt, would be productive of very beneficial results not only to the produce but to the healthiness of the potato-plant.

It is evident, from the analysis of the ashes of the tuber of the potato by Professor Way, that (with the exception of the artichoke and beans) it contains a larger amount of potash than any other of our commonly-cultivated plants. Thus the per-centage of potash found by the Professor in the ash of the

Jerusalem artichoke was .....	55.89
Beans (seed).....	51.72
The tuber of the potato .....	50.88
Peas (seed) .....	41.50
Turnips (bulb) .....	36.16
Wheat (seed).....	32.14
Mangold (root).....	23.54
Barley .....	21.14
Oats .....	13.97

Several other facts tend to indicate the probable good results of further experiments with potash as a dressing for potatoes. In some experiments carried on near Coves its was found that the potatoes grown on soils dressed copiously with only house-ashes (these generally contain about one per cent. of potash) totally escaped the potato-disease. Several experiments of men of a former generation point in a similar direction. In some trials of Arthur Young upon various manures for potatoes (*Annals of Agric.*, vol. ix., p. 652), he found on good sand (per acre)

	Bushels.
The soil simple produced.....	180
With 16 cubic yards of dung .....	240
With 160 bushels of wood-ashes.....	240

And in other plots

	Bushels.
The soil simple produced .....	280
With dung (32 cubic yards) .....	400
With wood-ashes (40 bushels) .....	400
With potash (340 bushels) .....	380

And when the Rev. E. Cartwright, on a very sandy soil, made his numerous trials of different manures, he found (*Com. Board of Agric.*, vol. iv., p. 370) that the produce per acre of

	Bushels.
The soil simple was.....	157
Dressed with 60 bushels of wood-ash it produced.....	187
With 60 bushels of wood-ashes and 8 bushels of common salt it yielded .....	217

The report of the experiments to which I have referred, carried on under the direction of Professor Voelcker by Mr. J. R. Hetherington, at Carleton in Cumberland in 1866 (*Jour. Roy. Ag. Soc.*, vol. iii. N.S., p. 517), well deserve to be carefully studied by the potato-grower. In these experiments the potatoes (rough whites) were planted on the 23rd April, on a piece of light land that had formerly been a beech-plantation, and had only had one previous crop—viz., potatoes. The manures used and the produce per acre will be found in the subjoined table, which gives the weight of large, second, small, and diseased potatoes:

Name of Manure.	Large.		Second.		Small.		Diseased.	
	tons.	cwts. qrs.	cwts. qrs.	cwts. qrs.	tons.	cwts. qrs.	tons.	cwts. qrs.
No manure.....	1	2 1	10 1	15 3	1	1 1		
Dissolved bone-ash, 4 cwt.	2	2 0	18 1	10 1	1	1 1		
Rotten dung, 20 tons.....	2	11 1	16 2	12 2			1	9 2
Dissolved bone-ash, 4 cwt. and crude potash-salts, 4 cwt. ....	2	18 2	18 1	9 0	1	1 0		
No manure.....	1	15 3	15 0	15 0	0	14 2		
Crude potash-salts, 4 cwt.	2	10 1	13 1	15 3	0	7 2		
Common salt, 4 cwt.....	2	1 3	14 1	11 3	0	4 1		
Dissolved bone-ash, 4 cwt. and common salt, 4 cwt.	3	2 1	15 0	14 0	0	3 3		
Rotten dung, 20 tons.....	2	19 1	19 3	3 3	0	13 0		
No manure.....	1	18 3	15 3	19 2	0	3 0		

The reader will remark that the heaviest produce was when 4 cwt. of potash-salts were used—that then only 7½ cwt. per acre were diseased; only 4½ cwt. when salt was employed; and only 3½ cwt. per acre when common salt and dissolved bone-ash were used. It would be well, I think, to try a mixture of these three artificial manures.

In summing up the results of these valuable experiments the professor remarks (*ibid.*, p. 519):

“On looking over the results of these potato experiments, the following points cannot fail to arrest the reader’s attention—

“1. Foremost, he will notice that the heaviest crop was obtained by the used of good rotten dung.



"2. But superphosphate and crude potash-salts—a purely mineral manuring—also gave a nearly equal increase. The mixture of superphosphate and crude potash-salts appears to be specially useful for root-crops on light land.

"3. The efficacy of superphosphate as a manure for potatoes on light land is not only enhanced by potash-salts, but also, though to a minor extent, by common salt.

"4. It is remarkable that whilst the addition of salt to superphosphate had a very beneficial effect, common salt alone slightly diminished the crop.

"5. Potash-salts applied alone, though by no means the most desirable manure for potatoes, nevertheless had a better effect than common salt; for whilst crude potash-

salts gave an increase of nearly 8 cwt. per acre, common salt produced 7 cwt. and 4 lbs. less than the unmanured plots on an average."

Upon a review of the results of the very valuable inquiries to which I have referred, we may fairly be encouraged to conclude that we need not despair of finding a means not only of eradicating the potato-disease, but of otherwise still largely increasing the produce of this great crop. It is idle, indeed, to conclude that we have attained to a knowledge of the best modes of cultivating any of our plants, for the history of agriculture tells us that almost all generations of agriculturists have succeeded in producing larger and better crops than those who preceded them.

### AGRICULTURAL GANGS AND AGRICULTURAL CHILDREN'S EDUCATIONAL BILLS.

The Agricultural Gang Bill has passed the Legislature, and the experiment is about to be tried upon public gangs. We wish to take a fair and dispassionate view of the whole subject and its practical working, because we foresee the same or similar regulations will be brought to bear upon private gangs, or company of weeders and pickers, if not prevented by the timely interference of those opposed to such restrictions. We take the subject up fully entertaining these views. We are quite ready to concede the right of Parliament to enact laws for the protection of any part of the community who may be aggrieved in the slightest degree; but Parliament would of course judge of the necessity for such laws. In dealing with agricultural gangs a fair case for legislative interference has been made out; but it has been magnified extremely. The Commissioners themselves have been far too one-sided. They have only, or but partially, inquired into the evils of the system. All that they can make out is, that these *gangs* exist and meet with employment in some few parts of Lincolnshire, Huntingdonshire, Cambridgeshire, Norfolk, and Suffolk, and one or two parishes in Northamptonshire and Notts.; the total number of children, young persons, and women so employed being 6,399. Of this number 458 are above eighteen years of age, and 922 between the ages of thirteen and eighteen years in Mr. White's district, *i. e.*, Suffolk and Norfolk; and in Mr. Longe's district, Lincolnshire, Huntingdonshire, and Cambridgeshire, 1,244 between the ages of thirteen and eighteen years, and 448 above eighteen years, in all about 3,072 are not children; thus far mitigating the evil to a very considerable extent. Had these Commissioners made as searching an inquiry as to the earnings of these 6,399, and the many comforts and necessities to be obtained by these earnings for family service, the good would far more than counterbalance the evil.

We however acknowledge it is an evil, but necessary, and some slight ground for the salutary regulations is made out, which the Agricultural Gang Bill is intended to give, and so long as the bill is confined to these public gangs, no great harm will accrue, as so few parts of the kingdom know anything about them. But if it is sought, as it unquestionably is—in fact, that is the object of the present commission—to apply the same principle to all employers of *gangs* or *companies* on their respective farms, it will prove one of the greatest hindrances to farm business and injury to the employer, and also one of such hardship to the agricultural labourer, as few can conceive of. Take its practical working. The average number of a family is estimated at five children. The Agricultural

Society of which the writer is a member offers premiums for bringing up large families without parochial relief. The average number of children returned by about twenty yearly applicants exceeds ten. The wages of an agricultural labourer throughout the year, including harvest, will not average above from 14s. to 15s. per week. How is a family of from five to ten children to be fed, clothed, and sheltered at such a rate of wages? It cannot be done. Every facility should therefore be given, so that the children may obtain employment, and that not to be clogged by absurd restrictions, founded upon a false estimate of wickedness and wrongs supposed to arise from promiscuous mixing of sexes in field-work. Baseness and immorality no doubt abound too prominently in the agricultural population, as well as others; but we utterly deny that field-labour, above other things, conduces to foster it; and further, we fearlessly assert that the agricultural population is fully as moral, as religious, and as truly respectable, in the best sense of the word, as any class of the community, high or low. Why, then, is it sought to put upon them hardships they cannot bear? The family must supplement the labourer's—the husband's—earnings. They must take such work as can at any time be found for them to do. Why is not the mother to take her children, boys or girls, with her to field-work? Who can so well look after them? We have been extensively employing women and children of both sexes for nearly half a century, and have yet to learn where these gross evils have been hidden that our sensitive moralists have now so recently discovered. Casual wrongs and misconduct occur, but less in the field than in the village street or town.

It by no means follows from their primitive habits, their confined dwellings, their inevitable personal exposure in crowded dwellings, too shocking for a fine lady, that gross indelicacies or immoralities are more frequent. Statistical facts prove the contrary. Our primitive forefathers dwelt in tents, so did the patriarchs. More roomy cottages would be infinitely better than this pretended separation of sexes, *i. e.*, during the hours of field-work.

Well, but how is this field-work to be accomplished under these restrictions? Within a radius of three miles of the writer's residence are grown about 1,000 acres of potatoes, and from 400 to 500 acres of mangolds and swedes; all these have to be [taken up] and secured for winter service; the population not large proportionately. We begin planting potatoes in the spring; under these absurd regulations women and girls cannot be employed, because of the mixing of the sexes; we must have men to plough; we must have dung-cart fillers, manure-

spreaders, boys to drive. We therefore want the women and girls to prepare the sets and to plant. Oh, no! you mingle the sexes, they must not work in the same field. This is stoppage No. 1. Weeding is the next important farm operation: the weather is fine, corn grows fast, must get on, every hand is required and ready, and be it remembered very glad to aid in the work, but no! Women and girls must not go amongst wet or damp corn: it "is injurious to female delicacy." Stoppage No. 2 (see Report, 1867). If this weeding is to be abandoned, a great injury of course is done to the occupier: he cannot keep his land clean, he must raise fewer crops, the country must suffer great loss; and it is the greatest hardship to the poor, who live by their labour. What thousands of poor women and children are glad to be thus employed to earn a livelihood! Let us say here, that due care is invariably observed by all farmers to provide other work, *i. e.*, twitch-picking, thistle-spreading on grass lands and the like, until the "high wet corn" is dry enough to enter, when the female weeders cheerfully commence, taking care to provide themselves with strong "highloos," namely, waterproof-leggings, and having their dress neatly tied up around and below their knees, more useful than ornamental perhaps, but trust them in taking reasonable care of themselves! Employers could not obtain their services unless attention was paid to these things: they seldom hear of hardship or complaint; the poor women far more frequently showing gratitude for the work provided for them.

Next come hay-time and harvest. Fanev women and girls excluded from the hay-field! or as children are only to work certain hours, they must be sent home just when the hay is "fit for cocking"! How are the women to do all this alone? It is very hard work for the men to get the hay into "cocks;" but the sexes must not be mixed in the hay-field! Suppose you retain the women who are quite willing, under the stimulus of refreshment and a little beer, to continue at work; Mr. Policeman steps into the field to complain that you are working the women over-hours. You incur a penalty thereby of 20s. each, and his duty is to inform: stoppage No. 3. Then comes the corn harvest. Many women can reap almost as well as men; the boys and girls can reap a little, can make bands, and set up stooks; but, no! you must not mix the sexes; no, not even with their own parents: stoppage No. 4. Then the leading of mown corn: women are employed in raking after the carriages; but, no! mixing again: stoppage No. 5. Harvest is followed by taking up all perishable root-crops, one of the greatest improvements in modern agriculture, and the cause of great expenditure in labour, most of which is done by women and children. How can this be accomplished without the mixing of sexes? In the district from whence we write, every man, woman, and child that can be obtained are put into requisition at high wages for about six or seven weeks: the women and children to pick potatoes, strip off mangold and swede leaves, and men throw them into carts; the men also to plough-up, take away, and cover all down safely. Why it will act as a prohibition to the growth of these crops to any extent: stoppage No. 6. In fact, in plain, straightforward farm-work these operations must go on simultaneously. It is the height of absurdity to prevent the mixing of sexes at such times. To carry on farm business without this mixing of sexes is impracticable, nay, impossible. We hope our highly moralising philosophers will cautiously consider, before they go further, the balance of good and evil in their doings.

Suppose the regulations of the Gang Bill are forced upon all farmers, they of course will have to license one of their men as a gang master, or he cannot be permitted to take the superintendence of a lot of boys in the weed-

ing-field or elsewhere; and if women and girls are procured instead for that purpose, as they must not be allowed to work with the boys, the licensed labourer cannot take the direction of this company unless the farmer also licenses one of these women as a "gangmaster" too, and she must be present during the hours of work. Should she be taken ill, or remain at home on "washing-days," as every one of them does at least one day in the week, they must all remain at home too, or the farmer must permit them to work by themselves, without a guide, which every one knows is a direct loss to him. How ridiculous and unnecessary is this stipulation! We urge every farmer to take a clear and comprehensive view of the entire subject. He will find many serious difficulties and injuries to his business arise out of it, and not to be sufficiently counterbalanced by the good that is supposed to be derived from such a revolutionary procedure. We are still inclined to think these alterations "in the long run" will do more harm than good. There is no fair analogy between the women and children of the manufacturing and the agricultural labourer. The former is cooped up in mills at a temperature of about 88 degrees: the bell rings at 6 o'clock a.m.; all must be there. We have seen them wading through wet mud and deep snow. Then they partially undress in the mills, on account of heat. At dinner, how the poor mothers go, in the midst of snow, sleet, or rain, slightly-covered subject to these extreme vicissitudes, their earnings certainly being ample. The women and children of the agricultural labourer are seldom employed during winter, and if not permitted to work freely in summer, they must pine or suffer severely from lack of food during the winter months. Much is said about these young girls being prohibited from field-labour. To me, this seems of all things connected with this question most preposterous. Why, it would be the very thing to drive them to the worst of courses. I must say, in conclusion, that I wish a little more good common-sense was imported into these labour and education subjects, rather than so much fine feeling and such absurd sentimentalism, arising from a total misunderstanding of the actual facts and circumstances. I live in a parish where a larger percentage of women and children are employed in agriculture, *in field-labour*, than in any other parish with which I am acquainted; and, for the satisfaction of our benevolent philanthropists, I tell them that in the last returns of illegitimacy published by our Union, this parish stood considerably at the lowest percentage of cases on the list; and, indeed, so low and so favourable is it to the morals of the parishioners, that I fearlessly challenge the United Kingdom to show another equal to it. So much for the gross immoralities of field-labour and the promiscuous mixing of sexes.

I yield to none in an earnest desire to improve the condition and promote the well-being of the children of the agricultural labourer. The improvement daily progressing in every department of agriculture demands a higher order of education in the labourer, by whom these improvements are to be carried out and finally accomplished. Every intelligent farmer is fully alive to this necessity, and would rejoice to forward any well-arranged and truly practicable scheme for this purpose; but it must not be at the cost of "the poor man's bread-loaf," or the deprivation of the comforts derivable from the labour of members of his family. The poor man's labour and that of his family is his capital, and he requires help rather than hindrance to make the best of it. I take it, then, to be an imperative necessity that whatever scheme is ultimately adopted for the education of children employed in agriculture, it must be based upon the principle that the poor man is not to suffer privations through its adoption. I will take the propositions which have been submitted to

Parliament and the recommendations of the Commissioners, and endeavour to show their practical working. Mr. Fawcett in his Bill proposes "That no child under 13 years of age shall be employed in agriculture unless it can produce a certificate of school attendance on alternate days . . . to be handed to the employer every month. Magistrates in Divisional Petty-Sessions may suspend this necessity for two calendar months in harvest, or when other important agricultural operations are carried on." The great objection is to this alternate system. Every farmer knows the difficulty of accomplishing any important farm operation without a continuous, uninterrupted attention to it, and the employment of all hands engaged upon it. In our fickle climate his losses would occasionally be very serious, either in putting in or in gathering many of his crops, under the alternate system, which would deprive him of the labour of these children on alternate days. What an hindrance to his other hands! It would, in most cases, be impossible to find relays of children when certain branches of business were going on—*i.e.*, weeding, potato planting, potato picking, haymaking, and harvesting. But the certificate! What a hardship to a poor man, to prevent his children earning anything by labour till attaining thirteen years of age, under any circumstances. Compulsion goes against the grain in every one. It is un-English. It may be right, but I don't like it. But the magistrates have power to suspend the production of these certificates. There seems something derogatory to the dignity of the Bench in dealing with these things. The magistrates in Petty Sessions are to give a poor man leave to send out his children to field labour; however, it is a salutary provision in this singular bill. They may also do other wondrous things—*i.e.*, release a poor child from these certificates if his home is three miles from a school, or if a school-inspector declares a school to be in an unsatisfactory state. They may also levy a rate to build a school-house and support a schoolmaster in any parish having 300 inhabitants and no satisfactory school, but they cannot fix the kind of religion to be taught in the school; that is to be decided by a majority of the rate-payers—a nice bone of contention. The Commissioners recommend that no boy under eight years, and no girl under twelve years, be employed in field labour; consequently, they may be at school up to those ages. I have made inquiries relative to the attainments of children at these ages, and learn that, with due attention and industry, a child of eight years can learn to read tolerably, to write legibly, and to "do sums in addition;" at nine years he would have advanced considerably. Girls when properly trained to these things are not a whit behind boys; but they require training also as sempstresses. The great and most important thing, to my mind, is to provide every facility for the education of these poor children, and to offer every inducement to parents to take advantage of it. It is to little purpose to insist upon a poor man sending his children to a school upon his own payment, at a time when he cannot, by every exertion, provide food for them. It is a very difficult subject to deal with, and no royal road can lead us out of it. The circumstances of the agricultural labourer are altogether different from those of the mechanic or manufacturing labourer. Their earnings are much greater, without interruption of weather, and the obligation to provide schooling for their children less burdensome. Their employment is more regular and continuous. The agricultural labourer is subject to many contingencies—the weather, the seasons, the irregular variety in farm-work dependent upon seasons and farm crops. In spring and summer, work is readily obtained; in harvest it is very abundant; in winter, scarcely to be had at the lowest rate of wages. In spring and summer, then, he requires the aid of every member of his family to

provide a supply or sustenance for the winter. This being the case, and no other course being open to him, the question returns—When are his children to be educated? I will endeavour to answer it. In field-labour it is to no purpose to employ little children under eight or nine years of age; they are of so little value in farm-work that but few will employ them; consequently it could be no hardship for the parent to send such to school, where a school was provided and open to receive them. In respect to older children, provision might be made for their attendance at school during the winter months, and at such times when agricultural work was not pressing. School holidays to be given when work was most pressing, instead of the stereotype periods, Midsummer and Christmas. It is by no means requisite that the same regulations shall be forced upon every district or upon every family. The magistrates, or other local authority, might make arrangements for the examination of children taught at home or out of school, so that the labourer might have the advantage of the earnings of his wife and children when work was plentiful and hands were scarce, without the ultimate loss of school-teaching if he desires it. This local authority to decide when it was most desirable to suspend school-teaching, *i.e.*, when any important agricultural operations were going on, and the children's help needed. Thus both employer and employed may be advantaged, and the hardship of the poor greatly mitigated, so that they would readily fall in with such salutary arrangements, glad in this way to have their children educated. In the winter season all the children that can by possibility be spared should be in attendance at school, in order to make up for lost time when in work. By pleasant and satisfactory arrangements of this kind, a fair amount of elementary knowledge may be imparted to the children, while, at the same time, the needy parent is not deprived, to any extent, of their earnings. There could be no objection (except the irksome task to the schoolmaster) for boys who have spent their summer in labour being admitted into the schools during the winter months. We must by every fair and reasonable means promote their education without insisting on the observance of any strict rules for attendance. Great liberty must be given in this respect. We have to induce both parents and children to take advantage of the privileges held out to them. Our legislators must not lose sight of the independent position taken up by the whole labouring population. They will not brook compulsion or anything that looks like it, and they must be shown advantages before they will accept them. They are very sensitive.

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FARMERS' SONS.—The inquiry, "How shall we train our boys so that they will be farmers when they are men?" is answered by a correspondent of one of our exchanges, as follows: Make farm-life attractive to them while young. An existence of mere mechanical drudgery, like that of the treadmill, is ill-fitted to retain an intelligent youth in any occupation which imposes it. Pour around your calling the light of science. Bring to it the refinements of culture, and the excitement of intelligent and practical investigation. Particularly let the mother be interested and informed, and by daily conversation infuse her own enthusiasm into the spirits of her sons. Make the farm-house a place of delight to the senses and an inspiration to the soul. This will assist in encouraging an interest in your noble calling, which will be likely to bring forth fruit in after-life. But if, after all, some of your sons should steadfastly incline to other pursuits, do not attempt to thwart Nature, for she does not mould all minds alike. In the same family may be found a great variety of talent and inclination. If you try to compel a boy to an occupation which he seriously dislikes, you not only discourage or disgust, but perhaps prevent the life of usefulness which he might

lead in another. Lend him a helping hand in whatever calling he may prefer, showing him that his interests are your interests; that although your own favourite pursuit is not his choice, you are yet willing to assist him in attaining usefulness and honour in another. There should be a mutual confidence between parent and son. Let the father listen patiently to the boy's plans and hopes, and encourage him to speak of them. What if they are chimerical? What if a ripe experience sees that they can

never be realized? Let the father be in no haste to dampen the ardour of the boy, but by degrees unfold the subject in its proper light, and by cautiously changing the current of his mind, lead him, not drive him, from his unwise purpose. A son who makes his father his confidant, if that father be wise, will be in much less danger of acting rashly than if he should keep his own counsel or only take counsel with those whose experience has been no more extensive than his own.—*Country Gentleman.*

## THE HERDS OF GREAT BRITAIN.

### CHAPTER LIV.

#### THE GIVENDALE AND THE KILLIOW.

It is anything but delightful to be casting backwards and forwards among that labyrinth of rails just outside Old Ebor. However, our engineer did hit off his line at last; and we were soon over the Ouse, and steaming steadily across the great Vale of York, to which Bancroft could find no parallel save the Vale of Lombardy. It comprises every kind of soil, from stiff clay to sand, and has grown every produce, from white wheat to chicory. The pleasant little town of Pocklington had just been making merry with a flower-show; and a banner flapped lazily, in its honour, from the old church-tower. We passed Theresa Cottage, where Neville the race-horse was foaled, and Dalton the greyhound was buried, and set our face steadily towards Givendale, on the Wolds. It lies about four miles away, on the high-road to Malton. Everingham Park, where Tom Hodgson's old black, of Holderness and Quorn fame, lies buried, was deep in woods on our right. The country was once all open from Water Wood to Mount Farrow; and for sixteen or seventeen miles there was no shelter for a travelling fox. Everything is changed now; and old Singleton, the celebrated jockey, and grandsire of the brothers John and James, would look in vain for the springy turf, along which he could canter his horses gently for miles up the valley, before they put on the sweaters at Thixendale.

"The sylvan slopes with eorn-elad fields  
Are hung, as if with golden shields,  
Bright trophies of the sun;"

and both plains and wolds seemed white unto the harvest. A band of women were picking a crop of teasels, which are sown after bare fallow or green crop, and require at least two years to come to perfection, for the Leeds cloth-makers. Owssethorpe is the last farm on the road before we leave the level and climb the wolds; and our companions did not fail to tell us how a Lincolnshire man had moralised over a brood-mare and foal, which were "gnawing the pasture," and advised bullocks in their stead. The laugh, however, was against him when Cousin Bet—the mare in question—bred by old Sir Tatton, was sold, with her Blair-Athol foal at her foot, for a thousand guineas at York, and the foal brought back all the money to the Sheffield Lane Company, within nine months, at Doncaster.

But the eye-brow of the hill is reached at last, and we find ourselves on a sort of table-land, with a lake on which a widowed swan is sailing in the glen below, hard by a little church. A turn to the left brings us to the hamlet of Givendale, which lies among snug gardens and garths, on a great natural platform overlooking the Vale of York, and its distant Minster towers. There is no mistaking Mr. Singleton's homestead. To the left is the letting yard, where Mr. Boulton's voice is heard in the

land, as each first Wednesday after the 20th of August comes round, and the Leicester rams, and red and red-fleeced Shorthorns in the home meadow make assurance doubly sure.

Their owner was entered to Shorthorns, like many other good men, at the Kirklevington sale, in '50, where he bought Waterloo 1Vth, by Cleveland Lad (3407), in calf to Third Duke of Oxford. The produce was Lady Waterloo, which she supplemented with Miss Waterloo by Surplice (10901). Lady Waterloo bred in her turn Lady Waterloo 2nd, which broke its neck as a calf, and Lady Waterloo 3rd, both of them by Mr. Wiley's George (12941). Lady Waterloo 4th and Count Waterloo were her calves by Mr. Sauday's Ferdinand (12781), (a Royal H. C. at Lincoln, and a 100 guineas purchase by auction), but her finest calf, both in point of substance, size, and skin, was Lady Waterloo 6th by her own son Count Waterloo—another fact for those who won't hear of in-and-in breeding. The latter unfortunately bred nothing but bulls. Vesta's dam was bought about this time, in calf of Bullion (15706), who nicked well with Lady Waterloo 3rd in Lord of Waterloo, whose hocks went from long confinement during a snowstorm, when there was some idea of "going on with him" for shows. Bullion had two crosses of Booth blood in him, and Patriot from Jacinthe by Leonidas (10414), a purchase in the cow at the Dudding sale, two or three more, so that from the very first Mr. Singleton joined in with neither of "the great 'Herd Book' factions." At present, he stands upon four tribes—the Waterloos, of which he has nine, and nearly all of them red; six Floras from Watson of Wandyb's; four Ruths from Emmerson's of Eryholm; and four Medoras, which go back, through the Rev. Mr. Cator's Heeuba and Mr. Fawkes's Fair Maid of Athens, to Booth's Medora. He rears his bull calves for sale, and shows very little, and has, in fact, only come out four times at the Yorkshire, but always been placed or thereabouts. Alice was highly commended in the calf class, which Booth's Queen of the Isles headed at York in '57, and was sold after winning at Driffield to Mr. Emmerson for 70 gs. Prince Tom of the Flora tribe earned the same honour that day behind Lord of the Valley and Great Mogul. Miss Waterloo 4th separated Second Queen of May and Rosedale, and took the second prize; and Mirth was second to a cow of Mr. Ratcliffe's of Brandsby when Pride of Southwicke was disqualified. This cow was by Ferdinand, dam by Surplice, grandam Doris by Belshazzar (1703). She "died well" at Liverpool in '64, after winning the £10 prize in her class, and the special cup as the best beast in the fat yard.

Mr. Singleton's holding comprises 640 acres, all on the wold, and belonging to his mother and himself. It lies from 500 to 800 feet above the sea level, and on the range of the chalk hills, which extend to Langton Wold, and straight across the East Riding to Filey. Oats, barley,

and turnips, all flourish well; but mangolds are rarely tried. The Lincolns do nicely enough in Holderness, but they fail on the chalk of the wolds, which is not strong enough feeding for them. Mr. Singleton began in 1844, by hiring a ram from Sir Tatton, and was pretty constant in his visits to the old baronet at the Eddlethorpe lettings, where he once gave 60½ gs., after a sharp contest with Mr. John Simpson. In 1845 he went to Mr. Wiley—who is now above the age at which Sir Tatton died—for the first time, and for fourteen years never missed drawing on his beloved “union of Buckley and Burgess, with a dash of Stone.” He has also visited the last-named breeder at Barrow, on his own account. His first Sanday essay was in 1854, with a two-shear, which took a first prize in Mr. Sanday’s hands at the Royal Carlisle Show, and in one of his many hirings from Holmpierrepont, he took the shearing which Mr. Creswell bought at the sale. Mr. Edwards, of Market Weighton’s draft ewes of Sledmere-Burgess blood, started him in 1840, and he continued to get a few each year through a friend. In 1854 he bought ten ewes and a ram from Mr. Buckley, and as many more at Mr. Hewitt’s second sale, in the same year; and half-a-dozen at Mr. Sanday’s first sale, in 1860. He generally lambs about 180, and lets from 50 to 60 tups. This year and last they averaged about £10, but none of them have quite touched the Sanday and Wiley Tibthorpe, who was let to Mr. Stavely, of Tibthorpe, for £37 10s., as a two-shear, and for £30 10s. the next year. Firm mutton, thick wool, and purity of blood have been all Mr. Singleton’s aim, and, unlike many flockmasters on the Wolds, he never would have a dash of Lincoln. His first public auction was in 1855, and his customers are almost entirely Yorkshire men, and include six or seven ram-breeders. “Sim Templeman” is a regular customer, and he is pretty generally brought in for a speech when “The Turf” is drunk with all the honours, as is only fitting in a Yorkshire congress. This year, Commander-in-Chief, so called after the celebrated Warlabby bull, stood at the head of the list, and there was no mistaking, when you glanced at his fleece, “the reason why” Mr. George Lane Fox’s agent had given £28 5s. for him.

Second Lord of Waterloo, by Bullion from Lady Waterloo 4th, headed the bull division outside the letting-yard. He is a wide, beef-getting bull, with grand hind-quarters, and, as poor John Thompson of Anlaby (whom every exhibitor loved to see in a sheep or shorthorn ring) said of him, when he put his hand on him at the letting, from which he was rarely absent, “That’s the right sort of flesh!” He is nicely covered on his hips and shoulder-points, and walks well from you; but there is rather a deficiency of breast. Hermit and Lecturer both had namesakes in his sons—the former of the Eryholm and the latter of the Medora families. Both of them were straight and useful young bulls, and the latter good to tell from his fine masculine crest and sweet muzzle. Bridegroom, by Patriot, was in a field farther away, with seventeen black Scotch heifers, which had been bought at two off in the Stewartry. The cows and heifers were in the home-garth, and from their family-likeness and warm Christmas colours, very difficult to tell apart. Old Graceful was there, in the twelfth year of her age; and Lady Waterloo 5th, with her fine waxy horn and deep flesh, spoke up well for her blood. Lady Waterloo 10th had much of old Moss Rose about her, and there was something special to note in the deep and well-fleshed twist of Lady Waterloo 14th, and of her dam Lady Waterloo 11th. Miss Waterloo 4th had a nice top and a beautiful breast; a point upon which Lady Waterloo 12th by Lord of Waterloo (18269) also excelled. Patience, the dam of Lecturer, is a long low cow; and Alice, from old Graceful, the twelve-year matron of the party, very wide and thick. Maud of the Ruth tribe, has caught much of the wealth and massiveness of her sire Patriot,

and Flora 7th and 8th have merely the take-off of a somewhat slovenly tail head.

We had then quite an excursion among the ewes—a wide, short-legged lot full of Buckley and Sir Tatton’s blood—and the drinking-ponds, which are made much after the Sledmere fashion, with lime and sand upon straw and rough chalk. There were some Masham sheep lacking the horns, and a very neat filly foal by The Cure from a Cawston mare, and one of the last he ever got. With these “musings by the way” we reached the far gallop in the plantations. It has been a time-honoured axiom that for every ten acres of wold one should be planted for shelter. The belief has obtained to the full at Giveendale, where the firs have been planted with no sparing hand, and a training gallop of nearly two miles cut through them. It was used for some years after the old man’s death by the present Mr. John Singleton and his father; but the ruts have become deep, and no work is done and no “questions asked” there now. From thence the transition was easy to Ety’s favourite walk down by the church glen. For many years this great Yorkshire painter spent much of his summer here, under the roof of Mr. Singleton’s father. No spot pleased him so well, when he could escape from his easel and the olive-tinted haze of London. “I often in fancy,” he wrote, “fly away to Giveendale, as the most rural and quietest country retreat I know, like the bird that flees to the hill to be at rest.” He would saunter for hours down that glen to his wonted bench beneath the elm near the cottages. There he would sit and sketch, as his fancy took him, the elm, ash, larch, beech, willow, elderberry, or Lombardy poplar, in Pit’s planting, or Beck’s, just across the little brook. His walk seldom extended beyond a mile, to the common below Riddings Plantation, which “Ben” and Lord Middleton’s know so well. It was about a mile there and back, and twice a day he roamed down that Rhymer’s Glen. He mourned over the pulling down of the old church—a very favourite subject; as he did whenever any ancient houses were pulled down in York, and he lost another bit of colour in the tiles. Sometimes he would gather flowers to copy in the house after the tea, which, with all the eccentricity of genius, he would insist upon making for himself; putting cold water in, to preserve the aroma. There are many proud family relics of the past in that parlour—the silver cup with “Success to foxhunting” on it, the goldsmith’s racing cups in their quaint leather cases, and the goblet with horses’ heads for handles which the Marquis of Rockingham gave his jockey Singleton for his riding of Bay Malton—and among them, Ety’s painting of a pheasant and some equally-vigorous heads will always be ranked as a memento of a very happy friendship, which only ended with his life.

We met with a very different student of the philosophy of Nature, as we passed Wigton Station a few days later from “Merrie Carlisle,” on our way to the herd at Killhow. He got into the train, and desired to communicate about the weather. His language was very dark, and, according to our note-book, on this wise:—“Wind’s in sow-west; now it’s gat round t’it sooth, ye’ll see sun—be it dusk ye’ll see stars better—if there’s nobbut fog it’s a job.” We hadn’t found out his meaning when we reached Leegate station. To many the station looks ordinary enough, with a gig in waiting, a man with a collie dog, and a few coal and lime waggons at a siding; but we felt it to be the keystone of a great stock position. Pearson of Langrigg has sent away from it many a good grey Conqueror, and at Howsenrigg is the home of the hackney mare Crafty, almost as invincible as Achievement in their separate lines. The rich pastures of the Abbey Holm are barely three miles away, and Abbey House farm was classic ground for Swedes and Galloways in the days of old “Sammy Rigg,” who was quite a head-centre of

Cumberland "statesmen", in Sir James's and William Blamire's day. Brown of The Height and Watson of Bolton Park have brought many a Royal rosette and Hanover-square cheque for pigs into these parts, and beyond "the silver line of the Solway" we see the birth-place of Pride of Southwicke, in a wooded spur of Criffell. Brayton, the scene of some very dashing bidding by Mr. Saunders, for the Waterloo and Knightley tribes, when the herd was dispersed under Mr. Strafford's time-glass, is a little farther down the line; and there, too, is Blennerhasset, that Sebastapol of the vegetarians, where the engines "Cain" and "Abel" groan on their mry way, where a professor is ever composing manures, and where Christmas is kept with apples and biscuits, potatoes and oil-cake sauce. The sea air sweeps across from the Firth, as we drive the three miles from the station in the direction of Sandale Fell, which looks over the great north-west plain of Cumberland. "This is the old border land, memorable alike for strife and song. The impress of its troubled history may here and there be seen in the massive square towers which yet rear their time-worn walls, telling of many a storm and siege." There is a tradition that Whitehall, once the "Fair Ladies," in the adjacent parish of All Hallows, was the home of the Misses Arthuret, of whose hospitality Allan Fairford speaks in "Redganutlet." But on we go. In front of us is Binsey, tenanted by grouse and Herdwicks, while Skiddaw, which had got the rain tip as usual from Criffnell, looks down in frowning majesty on the one side into the waters of Bassenthwaite lake, and gradually tapers off on the other among the Caldbeck falls. At Mealsgate the road turns, and, leaving Whitehall to the right, we soon reach Quarry Hill.

Mr. Foster, like his neighbour and old schoolfellow Mr. George Moore of Whitehall, comes back to the scenes of his boyhood in summer, and there for a while shakes off the moil and dust of the great city. Quarry Hill, where he is at present residing, has 150 acres attached to it, of which 70 is in a grass park; but the bulk of the estate is at Killhow, where 450 acres is separated from Quarry Hill, by the village of Bolton Gate. The pedigree herd is always kept at Killhow, and Quarry Hill carries the feeding stock. The estate is chiefly limestone land, and grows rare swedes, grass, and oats. Killhow was in the Foster family 30 years ago. It was then sold and was bought back by its present owner in 1860. He took the 600 acres into his own hands the next year, but did not rise in stock ideas beyond feeding Irish cattle. Mr. Drewry, who was born near here, was the tempter, and they went together to the Babraham second sale, in the June of '63. Young Celia (42gs.) seemed a cheap red cow, so Mr. Foster bought her; but, beyond winning a prize at Wigton and Ireby, she did him no good. *White Lily* (36gs.), also of the Celia tribe, came with her, helped her to win the first Killhow victory as a pair against Sir Wilfrid's, and had three heifer calves to boot. *Young Duchess*, from Duchess, by Duke of Richmond (7,996), was added, in October, 1863, from Antony Maynard's sale; and in the next spring three more, *My Lass*, *Cherry Pie* of the *Cherry* by *Loxley* (4,240) sort, and *Turk's Darling*, from the *Sarsden* sale. A visit to the sale at Clifton Pastures was the precursor of better times. Its *Fairlight* (61gs.), from *Telluria*, by *Orontes* (4,632), bred two bull calves, which brought 40gs. each; and *Revelry* (125gs.), by *Second Duke* of *Thorndale* (17,748), from *Red Heart* by *Mayduke* (13,320), not only came in calf with *Revelry* 2nd by *Fifth Grand Duke*, but produced *Revelry* 3rd and 4th, as well as *Lord* of the *Revels*, by Mr. Foster's own bull *Thirteenth Duke* of *Oxford*, for which he had given 220gs. to the *Duke* of *Devonshire*. *Thorndale Howard* (23,064), half-brother to *Revelry* on the sire's side, was, however, nearly as good as 100gs.

in the mud, as he died from diseased kidneys while a yearling.

*Lady Oxford* by *Fourth Duke* of *Oxford* (11,387), from *White Lady* by *Annuity* (9,892), and *Oxford Witch*, by *Imperial Oxford* (18,084), from *Miss O'Neil* by *Miner* (441), came next from Mr. Lawford of *Southcott's* sale; and *Ballad Singer*, in calf to *Mandarin* (18,317), and one of her daughters, *Princess* of *Battersea* by the same bull, followed, from Mr. Edmund Fawcett's. Mr. Bowley's sale brought *Pensive* by *Fourth Duke* of *Oxford* (11,387); and then making his east nearer home, at *Middle Farm* in the *Brampton* district, during the autumn of '66, Mr. Foster lighted on old *Polly Gwynne* by *Flying Dutchman* (10,235) from *Young Dowager Gwynne*, and her daughter *Duchess Gwynne*, of an old-fashioned hardy race to which the *Cumbrians* have always been partial. Many of the calves were by *Duke* of *Cumberland* (21,584), an own brother to *Kentish Moss Rose*; and although Mr. Foster dipped pretty deep when he was once in the waggon, and also took *Second Duchess* of *Oxford* of the *Duchess Nanny* tribe, *Red Rose*, *May Rose*, and *Peony* 2nd: he rather blamed himself for not having gone in for every *Duke* of *Cumberland* calf on the place. *Fantail* and *Fantail* 3rd were his fancy at the *Yardley* sale. At Mr. Bett's, on May morning, he went to work in earnest for *Moss Rose* (230gs.), in calf to *Fourth Grand Duke*; and added *Princess* 2nd by *Third Duke* of *Thorndale* (17,749), and of the *Angelina* tribe, and her daughter *Princess* 3rd by *Fawsley Baronet* (23,920) to his store, at Mr. Macintosh's next day. There is rather a choice of tribes at present, but the "bit of *Bates*" seems likely to expand as time goes on, and the leading ones increase and multiply. Dalesmen do not generally go much for pedigree, but they will have a roan bull if possible; and no men are more particular about "having a luik" at the dam before they declare any preference for a bull calf.

We learnt this much about the antecedents of the herd (which has had some very serious calf losses) as we lingered at Quarry-hill, and looked rather despairingly at the weather prospects. Rain or no rain, the limestone spring at Bolton-gate "flows on for ever." Heard by "The Bow," is that little cottage ruin where "Blackbird Wilson" held his village school five-and-forty years ago, and employed his leisure hours in whistling—and suction, but not at the spring. "Bolton Church was built in a night," and the ghostly masons put the steeple at the wrong end. Nothing so unannie had happened to the handsome and substantial home of white stone which Mr. Foster has just erected. A cheerless fell may rise behind it, and Mr. Lawson may have swept away every hedge from another point of sight, but *Skiddaw* and its *Scottish* rivals stands fast for ever; and there is also that glorious view seawards down the rich *Vale* of the *Ellon*, in whose stream *Frank Buckland* and *Mr. Walpole*, the *Salmon Fishery Commissioners*, were wading like water-dogs that day, and conducting diplomatic negotiations with millers under their very water-wheels.

But, come wind, come rain, we had to leave the snug interior for the farmyard. The *steading* is being rapidly extended from time to time according to more modern rules; but for some years past the liquid-manure tank, through which "a young river" is occasionally turned, has been in full play, and its proceeds are distributed by gravitation over twenty-nine acres of fine meadow land below the house. The turbine-wheel cuts the hay and straw, grinds and threshes the corn, and pulps the turnips; and the big doors are all worked on slides. We began right well in the calf-house with *Princess* 3rd by *Fawsley Baronet*, reminding us much in her crops and neck of what *Maid* of *Athelstane* was at her age, and *Fantail* 4th from *Fantail* 3rd, which was by no means a bad second to her. Near them were *Oxford Belle* by *Thirteenth Duke*

from Oxford Witch, and a good-fleshed white Oxford Lily by the same bull from White Lily. There was also a Roan Lily from White Lily—a useful heifer, but with rather too masculine a head—a fault which may be laid at the door of Kildonan. The Revelrys were together as we entered the meadow, the old one (the dam of three daughters) with that speaking eye, smart, milking neck, shoulders, and gait to match, which marks the Knightley sort. Revelry 2nd holds the champion cup of the district (in which Mr. Foster is about to give prizes for bulls not exceeding 2½ years), and Wigton and Whitehaven know her well. In fact, wherever that dish-faced roan with the deep flesh has shown herself, she has always scored a first for Fifth Grand Duke. The light-red My Lass, with her short legs, wide back, and nice fore-end, does not appear in public, neither does Princess 2nd (dam of Princess 3rd) whose shoulders are far ahead of her colour. Old Ballad-Singer, and her daughter Princess of Battersea, have, like all the tribe, more size than neatness; and Young Duchess was an airy style of beast, with a capital coat, though she might have a nicer horn.

Moss Rose stood as quietly as if she were going to be photographed. Eight years and a-half before, we had seen her the belle of the Marmaduke calves at Cobham, and she is still a beautiful ruin, as she turns breastwards to you. When you have dwelt for a space over that speaking head, you quite forget that her back is up, and that her rumps are gone. Turk's Darling was a darling of ours many years ago, when she came out struggling with the herdboy at Sarsden, and we renewed our acquaintance with her as a cow, not exactly all "light and sweetness," as Matthew Arnold styles Oxford's objects of adoration, but deep and wealthy, and on a short leg, and looking as if she might be made up into a prize Christmas one, if she turned wilful.

And so we work on through the ranks, seeing them at

a sore disadvantage. There were still some to come. Pensive by 4th Duke of Oxford (11,387), a useful, plain-rumped roan, and the dam of Prosperous, Playfellow, and Prelate; and Duchess Gwynne, with grand ribs and a capital dark roan skin. Lady Oxford, who shows her breed in her head and horn, is wonderfully light in her roan for a Bates cow. Old Polly must not be forgotten, with her curved cabbage-stalk horn; Mr. Atherton once showed her as a dairy cow, and she still milks herself almost to a shadow in the cause. Fairlight is a slasher, and "the country side" always like a bull out of her, and will go to a good price for it at eight or ten months. Pantal is a clever cow, and covers a deal of ground, and the broad-backed white heifer calf Meadow Duchess by Thirteenth Duke (21604) from Young Duchess, has well earned her name. Her dam was sent as a hopeless subject to the 29 acres to be fed off, but had another trial and held.

The twelve loose boxes had some rare tenants in them, with Thirteenth Duke of Oxford (21604) by Lord Oxford (20214) from Grand Duchess of Oxford by Third Grand (16182) at the head of them. He was calved April, '63, but he has lost none of his mettle, and his fine head and well-fleshed twist and thighs are right bad to beat. The 200-guinea Royal Cambridge (25,009) by Grand Duke 4th (19874) from Moss Rose had scarcely twenty-two months over his head, but he had made haste, and had made up into a show bull without any extraneous aid. In his chine he beats the Thirteenth, and he kernels so gallantly in his neck vein, and meets you as a bull should. Already his dam Moss Rose has had four bull calves and one heifer, and she is in-calf to Royal Cambridge's sire again. The pair still divide the favours of the herd, and as years go on the Cambridge Rose, the Princess, the Revelry, and the Gwynne family lines will be found with their aid to have planted a very firm hoof on the pastures of Killhow,

H. H. D.

## RECLAMATION OF WOODLANDS IN IRELAND.

Killoughram Wood, the subject of the following sketch, is, or was, part of the natural wood of Monart, situate about four miles from Enniscorthy, county Wexford. It was formerly the property of the Phayre family; and upon part of it Killoughram House stands, still their property, though in the hands of a lessee. That portion of the wood under notice, containing about three hundred Irish acres (nearly five hundred statute), was purchased, with some other property, by Dr. Ireland, of St. Stephen's-green, Dublin, and leased by him to the Messrs. Purdon, his relatives, a few years since. This wood, consisting of oak, birch, ash, and holly, was cut periodically about every thirty-five years, and allowed to cope up again. On its becoming the property of Dr. Ireland, he sold the timber, giving a certain number of years to cut and clear it off; and when he let it to the Messrs. Purdon, much of it had been cut and allowed to go to timber again, which was tolerably well preserved. Other portions, though cut, were not protected, and were therefore greatly injured by grazing cattle, while a large portion of it remained uncut.

In this state it was when the present occupants took it; and a more uninviting subject for conversion into arable and pasture-land could not be presented, being covered with the gnarled roots of ancient copsed oak, birch, and ash, and an under-growth of gorse, briars, and heath, and some of it laden with boulders, land-fast quartz, conglomerate, and other stones, presenting ob-

stacles of a stupendous character to its reclamation, and requiring the most experienced practical skill, cool judgment, and persevering energy to surmount, and produce the most extensive and perfect reclamation of woodland that has ever been effected in Ireland, or probably in England, in so short a time.

After studying the herculean task before him, and considering it in all its bearings and difficulties, Mr. J. Goode, the agricultural engineer employed, decided that it could be reclaimed and made a paying speculation, but that the task was too much for any private purse to encounter, and recommended using the Board of Works, which is empowered to lend money for land improvements. The work of reclamation consisted in raising the roots, by the aid of very strong spades, crow-bars, pick-axes, and hatchets, which turned out a very severe operation for the men. Besides lifting the roots, the specifications insisted on deepening the soil to a depth of sixteen inches, and lifting all stones of a size likely to impede the action of the plough. The large roots were carried off on sledges drawn by bullocks, and served to fence the reclaimed land from cattle grazing at large in the wood. The stones were also removed, by similar means, to lines previously marked out, to be built into walls, as permanent fences, which, with gate-piers, were subsequently erected, dividing the reclaimed land into rectangular fields of a given number of acres, ranging from twelve acres upwards. Thorough drainage, where

required, was executed; and as soon as a sufficient breadth of land was cleared, the ploughs and harrows were set to work to prepare the land for cropping.

The substratum being clay slate, the land required lime, and the engineer recommended its application; but as this could not be included in the original estimate for the Board of Works, the lessees supplied it. He also insisted on the propriety of burning all the roots, large and small, as well as the brushwood, and applying the ashes as manure; and after putting the land under green-crops with such manure as could be procured, either home-made or artificial, to lay it down to grass *without a corn-crop*. In the first breadths reclaimed, this, however, was not attended to; neither lime nor ashes was applied, the roots and brushwood being sold off for fuel, for which there was a demand; and the overseer sowed oats with the clover and grass-seeds. This departure from the plans laid down soon, however, told its tale—the clover came up well, but soon died off, as did also the better sorts of grasses, which entailed a heavy loss. He also meadowed the new grasses, instead of feeding them off with sheep, which helped to banish the new grasses, and by the next year the old natural herbage took possession of the surface, except in a few spots where the fibrous roots brought together on the surface by the harrows were burned, and there the grasses and clovers flourished, dotting the field all over, when seen at a distance, like a leopard's skin. The lesson, however, though expensive, was not lost; and since then lime has been applied with the best results; but the roots and small timber continued to be sold for fuel, to the great loss of the land which produced them. Gorse grew spontaneously through the wood, which, being cut down, produced a plentiful supply of tender shoots, which, when passed through a chaff-cutter, were given to the horses, saving much oats and hay, and keeping the animals in healthy condition. The crops proposed originally to be taken off the reclaimed land were principally swede turnips and rape; in the greater number of instances oats and meadow have also been taken. The swedes and rape have always been most excellent, and the feeding of them off in the house has been the means of producing a large supply of farmyard manure, which, when supplemented with phosphoguan, has in turn produced turnips and rape abundantly the following season. Amongst the numerous wants that had to be supplied in working out such a great undertaking, were labourers' cottages, of which several were erected in various sites in the wood; and also

stables and cattle-houses. There were also temporary hovels erected for store cattle, in sheltered parts of the wood, of hurdles wattled with brushwood, which the natives of the district were accustomed to make at a cheap rate. These hovels were thatched with heath and a little straw, and served the purpose admirably; and the animals, being well littered with heath and fern, the natural produce of the wood, contributed largely to the dung-heap. Along the banks of a rivulet fed by permanent springs much peat was to be had, the accumulation of ages, which was cut, carried, and mixed with the animals' manure, absorbing all the liquid—which also assisted materially in the accumulation of manuring materials—the benefit of all being found in the heavy crops of turnips and rape produced. Thus all things went hand-in-hand: as the area requiring it increases, in like proportion does the manure. So that from a very small beginning the work of reclamation has assumed larger proportions, amounting, to the present time, in the space of a few years, to upwards of 300 statute acres.

It is quite true that expenses have been incurred that might have been avoided. The overseer was enthusiastic, active, energetic, and determined; but he sometimes went off at a tangent, and got works executed that were not in the programme, without consulting his principals. The integrity of the works bore the most rigid inspection, for the roots of the oak went so deep that instead of digging 16 inches deep the greater portion had to be opened 2 feet deep and more, in order to extract the large stools of the oak; and so far the works were perfect. The gate piers were built of solid masonry; the walls built dry, except the top course and rough blocking, which were laid in mortar, and the dry work afterwards pinned and dashed with mortar, the whole being over five feet high, and finished in a workmanlike manner. Numerous young cattle, bred in the district, were bought in, and grazed through the summer in the wood, many of which, by the close of the year, were sold off at a fair profit; but sufficient were kept over for stall-feeding, to consume the roots, rape, and provender, thus making manure, and selling at a profit in the spring; while the younger stock were housed in the temporary wicker hovels erected in the woods. But as the works progressed, and large fields became available, sheep were added in the requisite proportion, to which the land is admirably adapted, and breeding them on the farm commenced; so that now large flocks range on land which, from time immemorial, was possessed by stunted oak, brush-wood, wild animals, and banditti.

## AGRICULTURAL EDUCATION.

At the first monthly meeting of the Kingscote Agricultural Association, on Tuesday, November 12th, Mr. D. Holbrow in the chair, Colonel Kingscote, C.B., M.P., president of the association, delivered a lecture on agricultural education. He said:—"I would divide the subject into two parts: I. The education of those youths who propose to follow agriculture as a profession, and, II. The education of the labourer. As everyone likes to begin with the easiest fence first, I will take the education of the labourer. Of late years very much has been said on agricultural education at the Royal Agricultural Society's meetings and at others; and this society has on previous occasions had it very ably brought before its members. Mr. Wain's lecture in 1865 was very interesting and instructive, and from it emanated the establishment of that most useful chemical class which has given such great satisfaction, and I doubt not will prove very beneficial to those who had the privilege of attending as pupils. Then we had Mr. Morton's lecture in November, 1865, entirely on the education of those who intended to farm. I need not say anything re-

specting that lecture. The name of Mr. Morton on any agricultural subject is a guarantee that it was handled in a most masterly style. But, in our humble way to-night, putting aside all theory, and considering the real practical side of the question, we may be able to advise some plan in the right direction. Now as to the state of the labourer at present. He does not like to do so much hard work as he used to. He has now no objection to see machinery doing the most laborious work on the farm, such as mowing, reaping, and thrashing; but if he is not required to do this hard labour he must leave his head at work; therefore a different system of education is required, for without it, it would be impossible for a man to become what may be called a good practical labourer, able to do whatever may be required of him. As labour is now more scarce, and higher wages have to be paid than formerly, it is the duty of every farmer to encourage education, to fit men to manage those implements which are being brought into use in such a manner as will lessen the number of hands required, that he



may be able to give the wages to those who are deserving of them. It must also be a great advantage to the labourers to have comfortable dwellings situated near their employment, and also to the employer, by having the whole strength of the labourers employed at farm work, instead of having it spent in walking miles to and fro. It would also be a means of preventing anything like what is called trades' unions, and must be of great importance to have them always ready at hand. The agricultural gang system we know but very little of in this neighbourhood, but in other counties where it is practised it is felt as a very great evil, and must be a great drawback to education, it being almost impossible to carry out decency and morality under such a system; but we must live in hopes that when the new act, passed last session, comes into operation, its influence will be that of great improvement. At present it is rather lamentable to see the idle manner in which children are being brought up, girls in particular. Boys are not taught perseverance and carefulness, and the girls seem to know nothing but to dress finely and ape fine ladies long before they know anything that would be of use to them in their future age, or in any way fit them for plain household work. The schools of the present day teach too much of what people call fine or light work, such as crotchet, and no end of flimsy trash. The girls ought to learn washing, ironing, and plain-cooking, indeed all sorts of household economy. The duty of all employers is to see that the children of those they employ be taught what is commonly called the "three R's;" beyond that their own exertions must take them, and in these days literature is cheap, good, and accessible. Boys' muscles should also be brought into work, and that early, or else a boy is useless and never will do hard work. Legislation on agricultural children is all very well, but most difficult to carry out. A boy (constitution being considered) should begin to work on a farm at eleven or even ten years of age. His education commencing from his cradle, as far as morality and character is concerned, goes on through life, and by the time he is ten he should be able to read, write, and do arithmetic. A very important point is that night schools should and can be established in every village. He may then go to farm work and night-schools, and his reading himself will follow on the work. Girls also ought to be taught useful things and brought up to household work. All this must be seen to by the employers of labour. The good work then begun must be left alone, and a man must raise himself from the ranks, and work himself onwards, as many have done and are doing now. Legislation will never make or rear a working man. II. Education of the farmer's son, or one intending to pursue agriculture as a profession: As with the labourer, the child must and does from his cradle commence his education, and in early infancy his religious and moral character to a certain degree is formed. Then follows until the age of twelve or fourteen a plain general education on a good sound general basis. Schools where this education can be got are more numerous and less expensive than formerly; but more may be hoped for and done in this respect. At the age of twelve or fourteen, and onwards, comes the ticklish time to know what to do with boys. Their muscles, like labourers', must be exercised, and it is not too soon for them to learn to hold the plough, in fact to learn everything on the farm and to help in accounts and book-keeping. They cannot yet leave school. Where are they to go? To the agricultural colleges at Cirencester, Suffolk, or Devonshire? From sixteen to twenty-one years of age is the difficult time. What has been done by the Royal Agricultural Society generally to encourage youths of this age to continue their education? What has that society done? what feud has been going on between two sections of that society headed by Mr. Holland on one side, Mr. Acland and Mr. Dent on the other! Here the lecturer detailed the part he had taken in it, and spoke at some considerable length on Mr. Morton's lecture delivered here on examination in general, and on practical agriculture. He showed how Mr. Holland and others' opinions, that examinations in practical agriculture can be made, are gaining ground by what the Royal Agricultural Society had allowed at last. Instead of the Oxford and Cambridge examinations, he could see no difficulty whatever in an examination on practical agriculture. He then read the report of the Examination Committee to show what the Royal Agricultural Society is now doing, and he believed it to be a step in the right direction. But it will be said, Yes, this is all very well; but how

are we to get our sons the education to fit them for this competition at a rate commensurate with our means? That is the difficulty; but the difficulty is being lessened daily; learning increases, and as it increases so must it become cheaper. Boys must be put with farmers who have been highly educated, must attend colleges or schools like Cirencester; but the usefulness of those places of education should be increased, and the pupils thereat taught to work with the hand, as well as with the head. I have often thought that a farm, at the head of which a well-educated practical man should be placed, might have the whole work of that farm conducted by a school (if I may use the term) of pupils who would carry out the entire labour of that farm; and, in addition, by obtaining professors and teachers for a certain number of hours each week, as well as the nightly work at the accounts of the farm, &c., carry on their mental education; and that such an establishment might solve the very difficult question of what a youth of eighteen years of age is to do with himself for the next four or five years. In this scheme many difficulties would crop up; among others the difficulty of obtaining a place within reach of those who could teach the sciences and higher branches of learning. Then, again, more may be done by societies like our own, as has been done by the chemical class. He referred again to rewards held out by the Royal Agricultural Society, and read a paper that was printed for circulation after Mr. Morton's lecture, and stated that this broke down in the opinion of farmers, more from the nature of the awards held out by sums for scholarships being given as the reward, than from the scheme itself. He hoped that they would encourage the Royal Society by sending up candidates. We none of us know what we can do until we try. For instance, think on the Gloucester root show of the previous week, the roots from the highest points of the Cotswold hills holding their own with those grown in the neighbourhood of Ross. In conclusion, he expressed a hope that the discussion would turn on the education of the labourer, chiefly as to night-schools and procuring useful books for him to study with through lending libraries, and on the education of the farmer, general education and practical to go together.

Mr. ROBINSON said the Government grant towards education was liberal; but the system of having certified teachers did not work so well in his opinion as might have been expected. He knew several instances where the teachers considered themselves above being spoken to as regards the tuition and management of the children under their care, the idea being, as they were certificated teachers, no one had any right to interfere in the least with them except those who were appointed by Government. He thought if Government would grant a small amount to rural villages, and give the parishioners the option of choosing whom they pleased as teachers, it would be a better system, and one that would tend more to the improvement of education.

Mr. FORD considered the subject of education one of the greatest importance of the present day. Now the idea has gone abroad that the agricultural labourers may be sent to Parliament to assist in making laws for the management of our nation, it is of the greatest importance that we give them a good education to fill that high and honourable situation in life. And if he had been placed in that enviable position of having a lot of sons, as soon as they were able to go to school there they should go; and when able to work, he would put one with the horses, another with the cows, and a third with the sheep, and so on; for he believed, for their future well-being, it was well to teach them in early life what would make them independent and respected in the future.

Mr. B. DREW was as anxious as any one that labourers' children should have a knowledge of what the respected lecturer called "the three R's," but he was also sure they ought to be early taught the three lines,

"To plough and sow,  
To reap and mow,  
And be a farmer's boy."

Mr. BURNETT agreed that children are not brought up in the manner they ought to be; but where was the remedy? It was no good telling the child that he is poor, ignorant, and wretched, unless we can point out some way by which his miserable state may be improved. Now here was the difficulty. In the common routine of things we would say, put a graft on the stock and the fruit will follow; but looking at this, as far as this generation is concerned, it is impossible to do so. The

twig you may bend, but the old stock will break rather than give way. Therefore, the only thing, he said, that could be done was to teach the young, and the only practical way of doing so was by night-schools. They had been told that it was the duty of every employer to encourage this system of teaching, and he should recommend all giving it a trial, and he would guarantee they would not look upon it as a duty, but feel it to be one of the greatest pleasures. As regards the education of the farmer, of which they had heard so much, it was evident that something more was needed for the improvement of his education. This is also a difficult question to solve how it is to be done. A good sound book-education is come-at-able, but the difficulty seems to be, having gained that education, how a practical and scientific knowledge of agriculture is to be obtained; or, he would say, how that school education is to be retained and improved, at the same time acquiring a knowledge of agriculture. Well, he could not see a better system than that which had been pointed out by the worthy lecturer—say a large farm, rented by a committee of management, who would be responsible for rent and everything

connected with such an occupation, where they would have suitable professors and teachers, and carry out in a similar manner as proposed by the lecturer, or else by such classes as had been adopted by that association, the education of farmers' sons.

The following resolution was put and carried unanimously: "Resolved, that this meeting is of opinion the grant given by Government might be still more usefully applied by allowing grants to schools in small agricultural parishes with uncertificated masters and mistresses, which might be subjected to Government inspection. Also, that it is most desirable that night-schools should be established wherever practicable during the winter months, under the superintendence of the employers of labourers themselves, and that farmers' schools, such as those we have advocated, or similar classes to those adopted by this association, should be set on foot for the improvement of the education of farmers' sons."

A vote of thanks to Colonel Kingscote for his lecture, and a similar vote to Mr. D. Holbrow as chairman, terminated the proceedings.

## GRASS AND HAY.

Grass crops, both for pasturage and hay, do not receive enough of attention. We have evidence of this in the stunted grasses and bare pastures so frequently to be met with. Much depends upon how grasses are laid down; and it is extremely desirable, before doing so, that the land be thoroughly cleansed and brought into condition, and this is ordinarily accomplished by one or two root crops preceding the grass crop. In sowing grass seeds on strong lands or in dry districts, care must always be taken to save the young plant from being dried up or scorched by the sun, or separated from the soil by the cracking up of strong land. Therefore although a more vigorous plant can be secured when grown alone, grass seed is frequently sown with corn, or at all events with a thin seeding of corn, in order to cause the moisture to remain in the ground. Sowing without corn on early braird is of importance, so as to have a strong plant before the heat becomes excessive, therefore it can be done early in March if it is desirable. In seeding down with rape, four or five pounds may be sown broadcast. The value of the combination is, that the rape affords shade from heat and at the same time effectually prevents the sheep from gnawing the grass too close. In the latter end of July or the beginning of August it is desirable to put sheep upon it, in order to consolidate the land, as it must be got firm by some means, as without this rain and frost might cause the tender grasses to be thrown out of the soil. There is also another process of firming the land, namely, that of rolling with a heavy roller. Much attention must be paid to having a good seed-bed and a smooth surface, and above all to secure clean, healthy, and fresh seeds, by going to the best source regardless of first cost, and being satisfied that the seed is genuine, and adapted to the soil. On grazing farms where there is much natural herbage, efforts should always be made to extend and improve the quality of the grasses, and to redeem those upland pastures from comparative barrenness. When clover and ryegrass are cut early, the aftermath, which rises afterwards fresh and palatable, should be eaten uniformly, and this can be done by having recourse to hurdles. Grass lands should if possible be at all times properly manured—cake, corn, and other feeding amply improving the grass. All bad grasses should when practicable be removed by the hoe, and good ones substituted. Utilising sewage and improving grass with it is very important.

In sowing hay seeds a large quantity of seed should be sown, as when the Timothy and clover cover the ground there is less room for weeds. On many English pastures there is an admirable plan, namely, that of removing the sheep at night on to the clover, rape, vetches, cabbage, &c.; for although this moving of the sheep entails considerable labour, the grass receives the dew during the night, and is sweet and fresh in

the morning; and all experience shows that a great deal of grass is trampled down or fouled, and rendered unfit for food, by cattle roaming upon it.

In the making of hay great attention and quickness are required in the operation, in order to secure a good crop, retaining all its nutritive qualities. If grass can be converted into hay with little alteration in its composition, and with little or no loss in its feeding properties—water only being extracted—the hay is of course of far greater value. It should not stand long in the field, but be tedded if possible the second day, and be as expeditiously made as possible. Rain does not injure newly-cut hay, which is frequently believed to be the case; it is turning over or brushing the blades which causes the rain to wash out the sugar, gum, and other soluble properties, or causes fermentation, which produces further loss. In a heavy crop the tedding machine is very apt to do this. Both labour and produce are apt to be lost in turning and otherwise knocking about hay in moist and cloudy weather. To much fermentation in the stack is most injurious to the value of hay—slight fermentation cannot be said to produce this result. Brown dusty hay may be considered more nutritious, because it is consolidated by heating. I am not of that opinion; I consider that it is not only less nutritious, but apt to produce broken wind and other diseases, and all hay should be produced good, as it costs as much to produce a bad crop as it does a bad one; and the difference either from a commercial or feeding point of view is all but incalculable. Clover hay must not be permitted to get too ripe, as it becomes in consequence strong and woody, besides diminishing in quantity. Hay ought not to be turned on overcast days when the atmosphere is saturated with moisture, as it becomes bruised and consequently more liable to be injured by the rain. Care should be taken in cutting grass neither to cut it too early nor too late, as a few days sometimes have a most important effect both on quantity and quality. It is desirable to cut it so soon as it has reached maturity, and before any nutritious qualities have gone. If from weather or other causes hay should happen to be stacked in not a good condition for keeping, the stacks ought to be made as small as possible, and thoroughly ventilated—when there is a chance of it heating, becoming brown, or beginning to spoil—it is a very good practice to sprinkle salt between the layers on the stack, and when there is clear evidence of it heating, the stack should most undoubtedly be rebuilt, the hay being exposed to a dry wind during the operation. The management of hay from the preparation of the land for the growing of the grass, to that of storing it, should be regulated by a thorough practical knowledge, facilities for making it, and correct discrimination of its condition in its various stages.—*L. in North British Agriculturist.*

## ON ROLLING TURNIPS.

SIR,—In the Supplement to the *Mark Lane Express*, of the 14th of October, we see that at the monthly meeting of the Athenry Farmers' Club, Mr. Robert Irvine read a paper on "*The After-Culture of the Turnip*," which he defines as commencing when the plants are well above ground; and in this after-culture the first enemy that Mr. Irvine has to wage war with is the turnip flea-beetle. And of this foe it may well be said that every combatant is mail-clad, having a shield to protect each wing like other beetles, and moreover being armed to the teeth for biting like other fleas; and as for their agility for the flying leap, they are far a-head of either the four-footed horse or the four-handed monkey; and thus accoutred for destruction, their legions take the field, not by thousands only, but, without the least exaggeration, by 10,000 times 10,000. Mr. Irvine, after giving some excellent and practical advice to have plenty of manure close to the seed, so as to run the plant quickly into rough leaf, and then get out of danger from the fly, makes the following startling announcement: "But when it (the flea-beetle) does appear, a roller passed over the plants, especially at night, will destroy vast numbers of them;" and farther on he adds, "I am of opinion that it serves the crop materially to give it a rolling when it has just got well over ground." However strange this doctrine may appear, it is not new; and there is a strange coincidence between the advice here given by Mr. Irvine, from the province of Connaught, in 1867, and that once given to my father by a gardener, in Aberdeenshire, in 1777, "That tumbling upon the turnip plants made them knot." Barren walnut-trees are thrashed into fruitfulness with sticks. The browsing of goats is said to have first suggested to man the pruning of the vine. The ringing of the bark of fruit-trees, and the amputation of their limbs and twigs, under the name of pruning, &c., to make them fruitful, are all well-known to cultivators of the present day; but the idea of bruising a seedling herbaceous plant by passing a roller over it, under the pretext of doing it good, is so very like the Scottish tale of '77, that it looks cropping out afresh on the confines of Connemara, in the sister-isle, after lying dormant for nearly a hundred years.

The town of Athenry, as nearly as I can remember, may be about ten or twelve miles inland from Galway Bay; and although the general form of the greater part of Ireland is like that of a tea-saucer, with the mountains for the rim, and all the cultivated lands, cattle-runs, bogs, and loughs for the bottom of the platter, it is not so to the seaward from Athenry; for at the town of Galway the Atlantic Sea has no mountain barrier to break the force of the gale from the far west; for I observed that the land sloped gently into the bay as we neared Galway Station. I mention this to account, in a great measure, for Mr. Irvine's need of the roller to pulverize the crust that had been made by pelting rain brought from the watery gathering-ground on the wings of merciless winds, but in no wise to palliate or excuse the use of the roller to kill the flea-beetles, which, horn-cased as they are, it could not do, or to save the young turnips, which, in their tender and unprotected state, it could not fail to destroy. A similar idea is afloat among agriculturists in respect of the wireworm, with a coat nearly as hard as a lobster's; and we constantly hear advice given to kill wireworms by crushing them with the roller, although all experience has proved that they are just as safe underground, when the roller has passed over them,

as the drain-tiles in their gutters. The moist climate of Ireland is admirably adapted to the growth of turnips. The finer climate of the southern counties of England admits of various profitable crops being grown there, as orchard fruits, hops, and the like; but in the north of Scotland, and in a great part of Ireland, even the wheat is an uncertain crop; and the farmer has to grow oats, barley, and grass by way of corn and fodder, and turnips, potatoes, and mangolds by way of root crops; and by far the greatest weight is always got from the turnip crop: indeed, the turnip crop has completely revolutionized our agriculture in the three kingdoms; and we now reckon the farmer fairly set on his legs, when he has been able to secure a heavy crop of turnips, since by getting his cattle to eat them on the farm he will have plenty of manure for succeeding crops. It is this consideration, therefore, that makes any suggestion that can benefit the turnip crop of so much importance to the owners and occupiers of land; for, strange to say, every district has its own peculiarities in the culture and management of this crop; and no amount of scientific training could fit a youth to grow turnips, by rule, on the fine farms reclaimed from Chat Moss, near Manchester, who had been *exercised* on the chalk and flint of Kent. Yet there are a great many fixed principles of cultivation common to all cases, and any one wrong in principle will assuredly be wrong in practice; therefore, in regard of bruising the leaves of a delicate plant like the young turnip, from a life-long experience in growing this crop, I unhesitatingly say it should not be done, and if you will bear with me a little I will give you my reasons for so saying. There are two grand divisions of flowering plants, which in few words may be thus described: The one brings forth its young from mother earth with a single seed-leaf—throughout its life it carries its hardest side out, and grows from the inside, and in botanical works this grand division is called Monocotyledonous plants, or endogens; and to this division all the farmer's corn plants belong, and the greater part of what he commonly calls grass; and it is a notorious fact that wheat in autumn and early winter may be nibbled by sheep down to the very ground, and after being trodden upon by their trotters and rolled with heavy iron or stone rollers, the crop will not be injured, and in due time there will be an abundant harvest. I need scarcely remark that the pasture grasses in like manner are bitten off, trod upon, rolled, and yet live; but bear in mind these belong to the grand division above named, and who have the *hard side out*. I come now to the other grand division of flowering plants, with two seed-leaves, and with the soft side out, and that increase their bulk by laying on from the outside: these are dicotyledonous plants or exogens. Now, from what has been said about the wheat the farmer must have come to the conclusion that it will bear wrongs patiently, or that, like the camomile, the more it is trampled upon the more it grows, and might easily infer that other plants on his farm might be treated in like manner, or, as the old proverb has it, that "that which is sauce for the goose might likewise be sauce for the gander." But the turnip belongs to the second grand division, with two seed-leaves, and with the *soft side out*, and its core or collar is all above ground, whereas the wheat plant is hard at the core, and its collar is protected by being under-ground. It takes years of first-class horticulture to get a thorough knowledge of what a leaf is capable of doing. I have

taken a cucumber leaf and a little powdered charcoal carefully moistened, and made that leaf into a perfect plant, producing cucumbers in a moist stove.

If a hundred plant-growers were asked the question whether such a plan as the turnip above-mentioned would grow if its leaves were destroyed, they would to a man say No; and the late Dr. Lindley gave it as his opinion that no plant could survive whose leaves were not allowed to act. Coltsfoot is a very troublesome weed; but I have known it to be eradicated by simply picking out its leaves as they appeared.

Mr. Irvine speaks of rolling the turnips at night; but, whether it is done by day or by night, I cannot conceive any stage of the growth of the turnip, after it is fairly above ground, when it could be rolled with impunity, especially to be rolled so often and so heavily as to pulverize the hard crust of the earth; and the only chance that the crop could have would be in thick sowing, where the one would save the other, or rather where the ten would help to save the one. I quite agree with Mr. Irvine on the subject of helping forward the crop, so as to get it into rough leaf, and out of the way of the fly. I saw and assisted at an experiment tried in the neighbourhood of London, many years ago, with a black

powder-manure, composed of soot and night-soil; and it certainly did that part of the work most effectually.

The water-drill is perhaps the most practical article to give the young turnips a fair start, especially in very dry seed-times or on very dry land. Dusting the young plants, when the dew is on them, with powder-lime, does not harm the plants, and certainly manures the land, if it fails to keep off the fly.

I was very much surprised to see excellent turnips grown in Devonshire, with no other manure than wood-ashes, put through the drill dry as dust. These ashes were kept in a house until wanted, and were reckoned to be worth 6d. a bushel—in short, they were native guano. Now, as burnt clay is such a well-known stimulant to turnips, onions, &c., it would be easy enough to get inferior peat or bog-earth, and burn clay with it, for manure for turnips.

The greater part of Mr. Irvine's valuable paper embraces principles common to all good turnip-growers; but the English cultivator certainly wants some explanation of the very unusual practice above alluded to. If he is in the right, nothing could be easier to adopt than a simple process like rolling, if it would only do the work,

Oct. 22.

ALEX. FORSYTH.

### THE MUCH WENLOCK FARMERS' CLUB.

At a late meeting of the Wenlock Farmers' Club the following paper "On the Progress of Agricultural Knowledge within the Club District since its Formation," was read by Mr. EVAN DAVIES:

Gentlemen, before entering upon the immediate subject for this evening's discussion, I have thought it desirable to give a short outline of the club district, as laid down on its first formation, which will the better enable you and the outside public to more fully realize the arduous task which the original promoters of our club had to contend with in endeavouring to introduce a better system of agriculture among us. A more unmanageable district could hardly be found wherein to introduce the principle of a farmers' club. Drawing an imaginary line through Wenlock from south-east to north-west, we have on the north-east of this line the Benthal lime-rocks, the Coalbrook Dale and Madeley coal and iron fields, the Broseley brick and tile deposits, with here and there a few cultivated farms interspersed in the midst of this mineral and manufacturing locality. On the south-west are the three valleys of Ape's Dale, Hope's Dale, and Corve Dale. The first, commencing with a few good farms at Harley, soon passes into a most unmanageable tract of strong tenacious clay; and at the time I am speaking of was undrained and uncared for. This valley, about a mile-and-a-half wide, is bounded on the north-west by the high ground of the Caradoc sandstone, and on the south-east by the formidable Wenlock Edge. Fortunately, our noble president, the Earl of Bradford, has now turned his attention to this much-neglected district, is thoroughly draining the whole of his estate there, and effecting other improvements. Our late president, Mr. Benson, has done much to improve his portion. A considerable part of his estate there has been drained, but still much remains to be done in this valley; and unless the whole of it is effectually and permanently improved, and a new road driven through it from the Shrewsbury-road at Harley to the Stretton-road at Louville, I fear tenants will not be found to lay out capital freely in this unpromising and inaccessible region. Hope's Dale forms a triangle, as far as the club district is concerned, having its apex at Wenlock, and widening to about a mile at its base at Stauway. It is bounded on the north-west by the Wenlock Edge, and on the south-east by the Ludlow Rock. With the exception of a small portion of tolerable land in the centre of the valley, the greatest part is of an inferior description. On the Wenlock Edge the lime-rock is barely covered with four inches of soil, and produces but very scanty returns. The crop (sainfoin) most suitable for this land is not grown,

There is no doubt, were this plant judiciously cultivated, a good pasturage for sheep might be obtained, the uncertainty and expense of cereals avoided, and a considerable accession to the farmer's pocket be the result. But these continuing crops will not be cultivated unless a good understanding exists between landlord and tenant, and some assurance given that he who sows shall reap. A great portion of the south-east slope is as undesirable as can be. The last valley is the Corve Dale, bounded on the north-west by the Ludlow Rock, with an elevation ranging from 800 to 900 feet, and on the south-east by the high grounds of the old red sandstone, with the Brown Clec Hill in the background towering to a height of 1,800 feet, and, with its snow proclivity, considerably influencing the climate of the surrounding district. The soil upon this slope is composed of a strong red loam, and no doubt, were it in a more genial climate, would produce heavy crops of wheat, beans, and oats. I cannot help thinking it is doubtful policy of the holders of entire strong farms on this formation (where the harvest being late, and the early sowing of wheat urgent, thereby precluding the chance of autumn cultivation) persevering in an attempt to grow roots. Too often the field selected for the purpose occupies the whole energy of the farmer, with the fold-yard severely taxed, and after all, in an average of years, the crop a failure; and, except in very favourable seasons, the chance of getting a proper tilth for the succeeding spring crop a work of very great difficulty, and with the certainty of the wheat fallows being neglected. The soil on the slope of the Ludlow Rock is a rich, friable loam, admirably adapted for the growth of roots and grass, but very uncertain for grain crops, especially wheat; for, owing to the absorbent nature of the substrata, and the generally-humid atmosphere, mildew too frequently blights the hopes of the farmer, and fully bears out the forcible words of the poet—

"But if the branch in pomp of leaf arrayed

Diffuse a vain exuberance of shade;

So fail the promise of the expected year,

And chaff and straw defraud the golden ear."

One peculiarity of this formation is the absence of springs; and the docks and herds depastured upon it have to be supplied with water by means of the water-cart, which entails a very heavy expense on some of our farmers. If the landlords, individually or conjointly, could supply the farmsteads and pastures on this formation with a constant supply of water, by rams or otherwise, it would be a great boon; and I have no doubt that the tenants would gladly pay a little additional

rent for the outlay, as cattle and sheep suffer much for the want of water in dry seasons. Again, the want of streams prevents irrigation being carried out—a heavy drawback in this stock-producing locality. There are only two in this part of our district available, the first passing out of Ilpedale, through a deep ravine, from Presthope to Burton, which is used to a small extent on some of the meadows below the latter village; but there is no doubt, by a judicious outlay, a valuable chain of meadows might be made along the banks of this stream to its influx with the Corve. When it becomes mingled with the latter stream with its tributaries from the red clay it is not only useless, but injurious for irrigating purposes, from its containing oxide of iron. The other stream also rises out of Hopes Dale, and passes through a ravine leading from Easthope to Brocton, and receiving the entire sewage from the two villages becomes very valuable for irrigation. Mr. Acton, of Brocton, having the entire control of this stream, and occupying all the land that can be influenced by its waters, has not been slack in availing himself of this great advantage, and has formed some of the best water-meadows in the county, and that, too, where once the rush and alder grew. And here I must be pardoned for a slight digression. Some of our judges, in reporting on the farms in the district, have blamed our farmers for not following Mr. Acton's example, quite ignoring the fact that without water irrigation cannot be practised. In thus entering slightly into the geological account of this district, I have been stimulated by a desire to induce my young farming friends to make a knowledge of some of the sciences connected with agriculture part of their education, more particularly as regards that science which will give them an insight into the nature of the immediate strata that underlaps the cultivated soil, because it is an undoubted fact that the generative quality of all soils is in a great measure governed by immediate substrata. A knowledge of the component parts of the soil and the nature of the base upon which it rests will give the farmer an insight of what kind of manure to use, and what sort of seed will be most likely to propagate to his advantage; while the evil arising from ignorance in this particular can only be obviated by a long and tedious series of practical experience. I hope I have not wearied you with this part of my subject. I have given you an outline of the original district of the club; and a more unlikely spot for the development of a farmers' club could not be found in the county—population very scant, the residences of the landowners few and far between, and, a few years antecedent to the formation of our society, such was the state of the roads that intercourse with the more favoured parts of the county was almost impracticable; consequently, the system and the appliances in use elsewhere were unknown and unheard-of in this neighbourhood. In entering upon a resumé of the system of cultivation in our district, as then existing, I must claim the indulgence of my hearers, should any be present whose advanced age would bring them within the scope of my criticism. But, fortunately, the many years of the club's existence will confine my observations on this part of my subject more to the generation that is past than the present, particularly as my remarks will have reference to some years previous to the formation of our club. Certainly, nothing could be more unsatisfactory than the state of farming existing at that period. The cultivation of the root-crop was little known, and less cared for; and bare fallows for wheat occupied the space now covered with the magnificent root-crops so uniformly seen in the neighbourhood. The cattle stock was systematically sent into the Ryland district to be wintered—a heavy drain upon the pockets of our farmers, and a still more severe drain on the manurial supply of our farms. The few roots that were attempted to be grown were sown broadcast, interculture unknown and impracticable, and the idea of harvesting the crop a matter of ridicule. They were merely raised as wanted, which in severe frost was a matter of considerable difficulty, and a great discomfort to the famishing stock. As Bloomfield so forcibly describes it:

“Deep goes the frost till every root is found  
A frozen mass of ice upon the ground;  
No tender ewe can break her nightly fast,  
Nor heifer strong begin the cold repast,  
Till Giles with ponderous beetle foremost go,  
And scattering splinters fly at every blow.”

Such was the knowledge in the growth of this valuable adjunct to farm provender that a general impression prevailed

that unless they were sown on one particular day there was little chance of a crop, and Thomas à Becket was the day of all days; and as drills were unknown, and but few men that could scatter the seed evenly upon the ground, these men's services were much sought after, and, in order to please all, the seedsman was obliged to stipulate to sow for two hours upon one farm, and then move on to the next, and so on throughout the day, that all might have a few sown on this magic day. This is no idle tale, as there are those now listening to me who well remember the practice. The entire district was undrained, fences several yards wide and unneared for, the meadow and pasture land covered with rushes, alders, and every aquatic plant; the arable land filled with couch-grass, and all description of obnoxious weeds, the burning of which was considered a regular holiday by the young scions of the farming race. The homesteads and the accommodation for the wintering of stock was on a par with this deplorable state of cultivation, nor were the labourers' cottages an exception to this universal rule of neglect. Some few years previous to the time of which I am now speaking an attempt was made to alter this unsatisfactory state of things. The late Sir Robert Lawley took one of his farms into his own hands, and sent a person out of Leicestershire to set an example of better things, and soon this farm became an oasis in the surrounding wilderness. Drills and other useful implements were introduced, the arable land was brought into due course, bones and other manures were freely supplied, a first-class flock of Leicester sheep was established, and the annual ram sales were attended by most of the lovers of this description of stock. These and other improvements showed a determination to proceed; but instead of others endeavouring to avail themselves of the good example set before them, they refused to “listen to the voice of the charmer, charm he never so wisely,” and declared that nothing but a landlord's authority could justify such a departure from the stereotyped principles, and that nothing but a landlord's purse would enable the operator to continue his innovations. Unfortunately the sequence tended to strengthen these opinions, for on Sir Robert Lawley giving up the occupation of the farm, and letting it to his manager, the want of capital and moral courage to resist the prevailing opinions of his neighbours caused an abandonment of the better way. Drills were thrown aside, weeds took possession of the heretofore well-managed fallows, the valuable flock of Leicesters was neglected, and descended from bad to worse until the annual sales were finally abandoned, and all things returned to their original state. About this time my family came into the neighbourhood, and were soundly twitted by our relatives and friends for fixing ourselves in the fog-end of the world. One other illustration of this part of my subject, and I have done with the condemnatory theme. When the late Sir Francis Lawley came into possession of the Burton estate, on the death of his brother, the first Lord Wenlock, he came over to make an inspection, accompanied by his constant friend and counsellor. After viewing the whole, he turned to his companion, and said, “I will have nothing to do with this miserable estate: I will give it my brother, and let him do as he likes with it.” But his friend convinced him that it was his duty to put it into thorough repair before he did so, and for the first twelve years double the amount of the rent was expended in the permanent improvement of the estate. A few years antecedent to this event it entered into the minds of the late George Pritchard, Esq., the late W. William Downes, of the New House, W. Wood, of Allscott, and myself, to make an attempt to introduce a better system of agriculture into the district. For twelve months several private consultations were held, to decide as to the *modus operandi*, and it was finally agreed to endeavour to establish a farmers' club at Wenlock. These societies, although quite unknown in this part of the kingdom, were at that time much pressed upon the consideration of the lauded interest by the agricultural press. In the commencement of 1842 all things were ready for the announcement, and that banner was unfurled which now for a quarter of a century has held its own in no mean degree. At a very large meeting, held on the 23rd of May, the proposition to establish a farmers' club was carried by acclamation, and the rules as previously arranged being passed, and the proper officers and a committee of management being appointed, the society was considered in working trim. It was arranged that monthly meetings should be held for discussion. The committee, in arranging the subjects, decided upon those

of most pressing necessity, and the increase of forage for wintering stock was first and foremost on the list, the cultivation and storing of the root crop, the growing and harvesting of hay, the economising and better application of straw, and the most economical mode of feeding the stock. These and similar subjects occupied our first attention. Proceeding onwards, the economising of labour, both manual and horse, was freely discussed; but the abandonment of the long team was strenuously resisted, and the farmer who first introduced the two-horse plough into the district was ridiculed in no measured terms, and it was prophesied that his horses would soon find their way to the dog-kennel; but happily these are reminiscences of the past, and a long team at work is not found among the members of our club. Even on our strongest clay farms the two-horse plough prevails, and the success which followed its adoption by our members was evidenced at the meeting of the Royal at Shrewsbury in 1845. Only three years after the formation of our club, four out of the five prizes for ploughing, open to all England, given by the Royal, were won by servants of the members of the Wenlock Farmers' Club. The improvement in other farm implements followed in rapid succession, one establishment in Wenlock having sold to our members in a very short time implements to the value of several hundred pounds. With these improved appliances and willing minds on the part of our farmers, coupled with the assistance of the landlords in draining, &c., the improvement in the management and cultivation of the arable land made most rapid progress, and in a short time became all that could be desired. Instead of bare fallows magnificent root crops covered the district, in some instances reaching 40 tons of swedes to the acre. These being all well and systematically stored, made stock-keepers almost independent of the pitiless pelting of the storm in the winter months. But this large increase of winter forage suggested and necessitated the increase and improvement of live stock; and these questions occupied the attention of our club, and in no part of our proceedings were our discussions fraught with more signal success. The young cattle stock, instead of being sent away in the winter to enrich other farms, are now cared for at home; and whereas, heretofore, the steers were sold at three years old, in store condition, at prices varying from £12 to £15 each, are now fattened by the breeder, and sold, a little over two years old, at prices varying from £20 to £25 each, and some of our crack farmers considerably exceeding the latter sum. But in no description of stock has the improvement been more satisfactory than in that of sheep. Shearings that were formerly sold out of this district in October, at from 20s. to 30s. each, to be fattened by farmers in the more favoured part of the county, are now fattened at home for the London and Manchester markets, realising in May and June £2 to £3 each. And this fact is not to be wondered at, when our list of members is referred to. First and foremost in this line stands the venerated Sam Meire, to whose skill and perseverance Shropshire is indebted for its world-wide fame for sheep. The breeder and owner of "Buckskin" and "Patentee" was, during his lifetime, a constant attendant at our meetings, with Henry Smith, Thomas Horton, and others whose names have ever been conspicuous in the prize-list at all agricultural shows; and the committee of the Wenlock Farmers' Club take credit to themselves for having succeeded in collecting such men around them, who were ever ready to impart to our members the information necessary to ensure the improvement and good management of their flocks. These questions having been discussed, and the objects of the discussions fully realised, the increased value and quantity of stock required increased care and appliances. Consequently the Club took up the question of enlarged and improved farmsteads, and—to their honour be it spoken—the landlords were not slack in complying with the result of our discussions. Assuredly in no part of the county did the improvements in the home of the farmer and his stock make more rapid strides than in the club district, and that, too, long before the necessity for these things was acknowledged by others. The next object of the Club was to inquire into the condition of the agricultural labourer. A discussion took place as to the number of labourers required on a farm. It was decided to be an average of two, and that our advanced farmers would require three, per 100 acres. The question of housing these men became a matter of serious consideration. The cottages then in existence were very few, and of miserable construction, and an earnest appeal was made to the landlords on this question, and not made

in vain. The late Sir Francis Lawley (ever a most kind patron of our club) took the lead in this movement; and being followed, as it had been, by Lord Wenlock, the Burton Estate cottage accommodation is now such as would satisfy the most uncompromising philanthropist; and if others have not followed so rapidly in this matter, it is because peculiar circumstances prevail. One extensive estate in the neighbourhood has had a large amount of cottage property thrown upon it by the decline of the mining and manufacturing trade of former days; and although these cottages, from being congregated together on one portion of the estate, are not exactly suitable for the home of the agricultural labourer, still it must be a work of time before they can be scattered and placed in positions suitable for the tiller of the soil. All these questions of domestic policy having been disposed of, matters of higher import were attended to. A prize of £10 was given for the best Essay on Tenant-Right—a question then much agitating the minds of agriculturists; and Mr. Corbet's prize-essay is a standard work with all those who wish to pursue this subject. £10 was then offered for the best farm agreement; but this was not so successful as the former; still the discussions which took place on these questions without doubt tended to greater liberality in farm covenants. Our discussions on the equalization to weights and measures called forth some complimentary correspondence from the then chairman of quarter sessions; and such was the position of the club that the committee were, on several occasions, solicited to send some of our members to give evidence before committees of the House of Commons on questions of agriculture. But were I to enter into all the proceedings of our club I should far exceed the limits of my paper: suffice it to say that, in addition to the discussions of our own members, several eminent gentlemen have honoured our proceedings by reading papers before us—Nesbit, Voelcker, Newham, Whitmore, Mechi, Coleman. These and several others brought before our members their mature knowledge upon questions which, had it not been for the Wenlock Farmers' Club, in all probability would not have been heard of by the generality of the farmers in our isolated district; but which, like the silent leaven in the meal, has worked changes amongst us which, but for the means used, must have been a work of considerable time, if ever accomplished. Nor was our attention confined to our discussions. We were stimulated to act upon the imparted knowledge by a judicious list of prizes for the best-managed farms, the best-cultivated root crops, the best-preserved fences, &c. Nor were the labourers forgotten. Prizes were given to encourage domestic virtue, home comforts, fidelity, parental duties, and increased skill in the several departments of their labour. In thus recapitulating the advantages which have been wrought in this particular district by the discussions and systematic proceedings of the Wenlock Farmers' Club, it is from no vain idea of adulation, but principally to point out to other localities the great advantage they would possess in following the example of our society. The intelligence of the present race of young farmers, the advantages of education, and the practical experience of those who have spent a long life in agricultural pursuits, are all most important adjuncts to a diffusion of knowledge in practical and theoretical matters, such as could by no possibility be obtained a few short years ago under any circumstances; and if greater progress has not been made in agricultural improvements, the fault is not altogether to be attributed to the occupying farmer, but frequently to causes over which he has no control. And as the Wenlock Farmers' Club was originally formed for free discussion on all subjects connected with agriculture, it will, perhaps, not be out of place, or be deemed presumptuous on my part, if I point out a few of the obstacles to the realization of more enlarged views on the part of the farmer, or of more rapid improvement in the cultivation of the soil. The necessity for more liberal covenants and a better security for the investment of capital has been so often dilated upon by men far more competent than myself, that I will not here enter upon that question. One of the primary causes for checking inquiry and increased intelligence in the cultivation of the soil is the rigid, uniform system which is so generally laid down for their guidance. Nothing can have a greater tendency to put a stop to all inquiry or observation on the part of the tenant than the confining him to an unalterable system in all seasons and under every circumstance. It is folly—may, hypocritical—to complain of a want of intelligence in the farming community, when you put into the tenant's

hand instructions as to the crop to be grown on every field during his tenancy. And, again, in the carrying out of any permanent improvement, the tenant is not allowed to have the smallest voice in the matter, even when the greatest share of the expense comes out of his pocket. There are plenty of tenant-farmers, and their number is daily increasing, who see in the present system of draining grass-land a sure, certain, and permanent falling-off in the quantity of herbage produced. Those who have studied the nature and habit of the grasses are thoroughly convinced in their own minds that the true principle of draining grass-land is to keep the water level, as near the roots of the grass as possible, providing that you make the surface sufficiently dry to destroy the aquatic plants, and a very slight drainage will effect that. I am willing to admit that you make a very pretty surface with your four-foot drainage: by destroying the vigour of the strong-growing grasses, you make room for the small insignificant bottom grasses, thereby making a nice velvet carpet fit for ladies to play croquet upon, but to depasture stock useless. But I have little hopes that any words of mine will affect this question, notwithstanding they are opinions founded on a practical experience of forty years, and those years, I hope, not spent without observation. I know when those in authority have propounded a theory, to undeviatingly adhere to it is called "firmness" on your part, but on the part of the tenant-farmer "obstinate prejudice"; but the time will come when the folly of your proceedings will be too apparent to be tolerated. Nature in this, as well as in most other things, ought to be our guide. Traverse, then, the kingdom from John o' Groat's house to the Land's-end, and you will find all our rich feeding-pastures in the locality of shallow-running rivers. But look at our noble Severn, running deep through a rich alluvial deposit, but cannot boast of a single good feeding-pasture upon its banks. With this I have done, and, in the words of the sage of old, "here I will make an end; and if I have done well, and as is fitting the story, it is that which I desired; but if slenderly and meanly, it is that which I could attain to."

The CHAIRMAN said he should like to hear some gentleman express his opinion as to Mr. Davies's paper, and the suggestions advanced in it. For himself, he could endorse what Mr. Davies had said regarding the drainage of grass-land. He entirely coincided with him in his opinion that it was very easy to over-drain such land. Cattle required not only that the quality of the grass should be good, but that the quantity also should be good. It was the same with them as with horses. They may feed a horse upon corn and beans till they reduced him to nothing. It was over-forcing, and, therefore, a bad mode of feeding. By very deep draining they may improve, perhaps, the quality of the grass; but there would be no quantity of it, and he thought it very possible, therefore, to over-drain such land.

Mr. BIGGE said: With regard to grass-land, he agreed with Mr. Davies that it was possible to over-drain. It was, however, a difficult point to decide as to the exact depth and number of the drains. His own opinion was, that although it was possible to over-drain, still they oftener erred upon the other side, especially in stiff clay soils. He had had instances in his own experience. There was a field on the Burton estate which had been drained with four-foot drains, sixteen yards apart. These did not answer, and more were made, also four feet deep, which left only eight yards between each drain, and the field was now improving every year. The result of his experience was deep drainage in preference to shallow, but 6 or 20 as wide apart as they liked. There were isolated cases, he was aware, where shallow drainage might answer best, but he believed what he had stated to be the general rule. The best preventive to over-drainage was, he thought, to put the drains wider apart, and not to make them shallower. In conclusion, Mr. Bigge spoke in eulogistic terms of what that club had been the means of doing for the district since it was originated. He said he had never been in any district where agriculture had made such rapid strides as it had done in that district during the last few years; and he believed the credit for it, or for a good deal of it, must be given to the Wenlock Farmers' Club.

The CHAIRMAN said Mr. Davies's suggestion was to keep the water as near to the roots of the grass as possible, but still to keep the surface drained so as to destroy aquatic plants.

Mr. BIGGE said there were some aquatic plants which they must drain three, five, or even six feet to get rid of. He be-

lieved, however, that too much was expected from draining. It was expected to do everything. Land which had been under water for years was necessarily poor land; and before they could get a crop off it they must do something more to it than drain it. The depth of the drain too was no doubt a matter for serious consideration; and he was glad Mr. Davies had drawn their attention to the question. As regarded the restrictions of landlords, he thought they should make no restrictions except one or two, such as that two straw crops should not be grown in succession, and that old pastures should not be ploughed up. As to leases, he should not say much. He was not in favour of them. He believed that the best arrangement was a good agreement with a landlord. Of course the tenant should be protected when he went to great expense with his farm; and on a farmer dying, if his widow did not continue in the farm she should be allowed something for manure, &c., say for the three previous years.

Mr. BLAKEWAY said with regard to the question of drainage he could not quite agree with that gentleman. Drains were put down for two purposes, first to get rid of the surface water, and, secondly, to get rid of spring water. As to the carrying away of the latter, they could hardly get deep enough. He had seen instances of the root of a "seg" growing at the bottom of a four feet drain. Mr. Blakeway instanced the Wenlock Cricket-ground as a proof of the advantage of plenty of drainage. As to covenants, he thought they were of all subjects the most difficult. He believed the best thing of any was a kindly and fair-dealing landlord and as kindly and fair-dealing tenant. They could have no better covenant than an agreement between two such men as they.

The CHAIRMAN said as a landlord himself he felt particularly interested in that question. He was not himself in favour of leases; and if tenants were fully aware of the stringency of leases they would not wish for them. When a lease was entered into between a landlord and his tenant the agreement became a matter of law, and there was no sympathy between them. If the tenant was unfortunate, the landlord would hold him responsible so long as he had a shilling. For his own part, he had no objection to let any man have a lease upon any of his farms if he could show that he could carry the lease out. No landlord, however, would think of letting a man have a lease who could only pay his rent when all went on prosperously—the landlord must be insured, to some extent, for bad years as well as good. He was sure no landlord ever wished to get rid of a good tenant—it would be like committing suicide. It was as much benefit to a landlord to have a good tenant as it was for a good tenant to have a good landlord. Leases, therefore, were unnecessary with good tenants; indeed, they were worse than useless. The stringent clauses introduced into leases were not intended to press upon the good tenant, but to protect the landlord against the bad tenant, but they pressed equally upon both, and so were most objectionable. To show that he had no personal objection to leases, he would grant a lease to any man who would show him that he was able to carry it out.

Mr. T. INSTONE said he had seen his farm drained two or three times over, and therefore he had had some little experience in the matter. The first time it was drained 2 feet or 2 feet 6 inches deep, and it had to be done again. At present the drains were 4 and 5 feet deep, and the land seemed better than ever.

Mr. RODEN coincided with the remarks of Mr. Davies as to leases.

Mr. ALSOP was of a similar opinion, and added that he believed there never was a lease drawn out yet that a landlord or tenant could not get out of if he liked.

The Rev. W. H. WAYNE said he also was of opinion that there was nothing like a kindly feeling between landlord and tenant—he was not in favour of leases. He regretted, however, that some short form of agreement could not be devised instead of the long and wearisome forms which were now in vogue, and the substance of which neither landlord nor tenant could understand.

Mr. DAVIES, in reply, said Mr. Bigge had remarked that he was anxious to base what he said upon experience, and he (the speaker) was most anxious to do so too. Now he had a farm which had been drained with a "mole-plough," some fourteen inches deep, many years ago. There were rushes upon it then: now it was in fine order, and he believed kept double the amount of stock which it would have done drained

four feet deep. He had one field, one part of which was drained by a shallow drain, and the other part by a deep drain. That with the shallow drain had a fine aftermath, while that with the deep drain was very poor.

Mr. BRICE said it might be different soil. Mr. DAVIES said it was not, and gave other instances of the advantages of shallow drainage. The meeting broke up with a vote of thanks to Mr. Davies.

## PLANTING AND MANAGEMENT OF THORN FENCES.

Fences being considered indispensable for the successful carrying out of the system of mixed husbandry, it is very important that they should be well adapted for the purposes for which they are intended. Fences should be a sufficient barrier to stock, otherwise one of the most essential conditions of a good fence is not secured. The boundary fences of a farm should be strong, and kept in the most complete state, otherwise disputes, ending occasionally in the estrangement of neighbours, will be one of the results. The intersectioned fences of a farm should be straight, limited in number, and where the land is unequal, so laid off as to be divisions between soils of different qualities, as regards friability. This latter condition is very important where tenacious clays are adjacent to friable loams suitable for green crops. On farms where open ditches are required to carry off surface and drainage water, the line of the ditches may be taken advantage of to form a thorn fence, as by this arrangement land can be economised where a ditch and a fence are found to be necessary. As numerous lines of fences, by intersecting and dividing a farm into small fields, prove a hindrance to the economical cultivation of the soil, it is advisable to remove several of the fences, so that the fields may be enlarged. In many parts of England the land occupied by crooked and straggling thorn fences and hedge-row trees operates most prejudicially against the interests of the cultivator. In such cases the greater proportion of the existing fences should be uprooted, the trees removed, and where they are considered necessary, new lines of thorn fences should be planted.

In forming a thorn fence, several conditions should be strictly attended to. The land where the thorns are to be planted should be free of the roots of such weeds as couch-grass and knot-grass. If the land is not entirely free of the roots of these weeds, it may be advisable to delay forming the fence for one year, the land along the line of the proposed fence being stirred deeply, and the root weeds collected. By the exposure of the moved subsoil to the action of the atmosphere, the thorns will grow more vigorously. If the soil is poor, it will be advisable to apply a portion of farm-yard dung at the time the thorns are planted. Much diversity of opinion exists as to the best methods of planting. At one time a raised mound of earth, generally obtained by the formation of a ditch, was deemed the best preparation for the planting of thorns, the plants being placed with their roots inward, the tops of the branches or stems being cut off—the line of plants being from six, twelve, or eighteen inches above the level of the ground. Previous to thorough draining, the raising of a mound or bank of earth to keep the roots of the thorns above the stagnant water present during wet weather in retentive retentive soils was deemed necessary for the thriving of the plants. As drainage operations have extended, planting the thorns upright and at the level of the ground has become more general. Where the land is naturally porous, planting at the level of the ground is necessary for the vigorous growth of the thorns. During the occurrence of dry weather the thorns sometimes sustain injury from the deficient supply of moisture. In several of the best grazing districts in England it is considered that however well the thorns may be grown and the fence trimmed, a single row of plants is not sufficient to form a fence to keep back cattle; consequently, a double row is preferred, the double row being afterwards carefully trained. In Scotland a double row of thorns is rarely planted. There are circumstances and conditions which render this method of forming a fence preferable to a single row—boundary fences between estates, railway fences, and highway fences, where the traffic is considerable.

Experience proves that unless the thorns are sufficiently

stout and uniformly grown gaps occur, rendering it requisite to put up stobs and rails to render the fence complete. An imperfect thorn fence, whether owing to the stunted growth of the plants, or from their being injured by the trespassing of stock, is a source of much annoyance, and occasionally of loss; therefore, it is most important to prepare the land thoroughly for planting, to put in the soil the sufficient number of plants to form a stout fence, and to so train and protect them as to ensure a uniform and healthy growth. Secure healthy and well grown plants. If a double row is determined upon, the rows may be 9, 12, or 15 inches apart. The plants should be set so that those in the one row do not check the early lateral growth of the plants on the opposite row. As the plants grow up, the branches of the plants will interlace, and thus form a close and stout fence. The distance between the plants in the rows may vary from 9 to 14 inches. Good fences can only eventually be obtained by attention to three or four directions. The planting being completed, protect the thorns from hares and rabbits. Unless the plants are protected from such destructive animals, it is hopeless to expect a good fence. The thorns must also be protected from sheep, cattle, and horses. A three-barred paling will secure the fence from these, but a wire net put up on each side of the fence is essential to keep hares and rabbits from gnawing at the bark of the thorns, or eating the tops of the side branches. When snowstorms occur the depredations of these vermin are often such as to destroy the fence. Weeds require to be kept under during the season of growth. To effect this, stir the soil on each side of the fence by a steel grape or fork—commencing in spring, and continuing the stirring during summer. Any weeds growing close to the thorns may be pulled by hand. With attention, the growth of weeds will be so kept under that the thorns will cover the surface. Allow the fence to run up to the height of six or eight feet before it is cut over—the side branches, from the time of planting to the time the thorns are cut across at the height the fence is to be kept, being annually trimmed. This trimming will induce a vigorous growth of the stems, while the lateral branches will grow closer at the bottom of the fence. The stems will ultimately become so strong as to resist the pressure of the strongest cattle.

As regards the time for pruning and trimming thorn fences, it has become a common saying "cut when the knife is sharp." As a rule, autumn is the best time to cut, and winter, during the occurrence of frost, the worst time. Damage is sometimes caused by the too close pruning of the fence. With attention to the side growth of branches from the time the plants are put in the ground to the time the fence has attained the desired height, the width considered the most desirable can be secured without cutting in the sides. Close-trimmed fences growing in exposed situations seldom become complete fences, and when once complete fail; therefore some attention should be bestowed on the situation and exposure. Stock eat off the points of the side and top branches, therefore hedges should not be switched the season previous to stock being grazed in a field. After the stock is removed, the fence should be carefully trimmed, and the grass at the roots of the thorns cut down.

The practice of cutting down of thorn fences close to the ground has little to recommend it. The study should be to train up the thorns to form a close fence at the bottom. This once secured with ordinary care, the fence should continue to grow so regularly as that no after-cutting should be requisite beyond annual switching of the sides, and the insertion of thorn or beech plants in any of the gaps which may appear in the fence.—*North British Agriculturist.*



## THE IMPORTATION OF FOREIGN CATTLE.

A general meeting of the members of the Staffordshire Chamber of Agriculture was held at Stafford on Saturday, Nov. 2, to consider the question of the importation of foreign cattle. The Earl of Lichfield presided.

The noble CHAIRMAN said that while he thought the restrictions as to the removal of stock in this country should be removed, still he was strongly of opinion that there was a necessity for stringent regulations as to the importation of foreign cattle, in order that animals coming from abroad should not be allowed to go over the country spreading the disease again. He thought the present mode of inspection most unsatisfactory. In some cases it was certain from the time that elapsed from the landing of the animals till their appearance at market that they must have been examined at night, if they were examined at all, which was most improper and most absurd. The attention of the Government had been called to the subject, and the Duke of Marlborough stated that there should not be a repetition of the inspection of animals at night; but he (Lord Lichfield) had been informed that the same irregularity was continued. He thought it would be as well to pass a resolution on the subject. An act of Parliament had been passed during the last session which empowered the Privy Council to make such regulations as they thought proper in reference to the importation of foreign cattle. A great deal had been said as to the necessity of slaughtering foreign cattle at the ports, but the Privy Council had not thought proper to issue such an order; but whether it was possible to prevent the importation of the disease without such a regulation being carried out was a question for chambers of agriculture to discuss, and if the meeting on Tuesday were of such opinion, then the responsibility of adopting it would be thrown upon the Government. He was aware that great difficulty existed in the way of carrying out such a regulation, and he thought it might be possible to carry out such a system of quarantine as would secure the country from the reintroduction of the disease. Their first business would be to impress on the Privy Council the necessity of taking every precaution under the powers given them by the Act of Parliament. After they had expressed their opinion as to the injury done by the importation of foreign cattle, they would also be asked to give an opinion on the subject of admitting foreign cattle into market with home-bred cattle; on these points the Central Chamber of Agriculture wished to obtain the opinions of the local Chambers.

Mr. MASFEN said if they decided that it was desirable that animals should be slaughtered on being landed, it would do away with the necessity of passing more than one resolution. He strongly objected to animals being inspected at night, and contended that such inspection was a farce. He believed a great amount of the injury which had been sustained in that county had been caused by the removal of animals at night.

Mr. MAY said it was the opinion of persons connected with the London market that there would not be much inconvenience in having the animals slaughtered at port. The Royal Commission had recommended such a course, and it seemed strange that so important a part of their recommendation should have been overlooked. He believed there was more danger from foreign store cattle than from fat, because they were not killed, and they were therefore much more likely to spread the disease.

The CHAIRMAN said if they carried out the system of slaughtering at the port, it would be tantamount to a prohibition of the importation of store stock.

Lord SANDON suggested that store stock should be subjected to a long quarantine.

After some further discussion,

Mr. NEVILLE moved: "That in the opinion of this meeting no sufficient security can be found against the re-introduction of the cattle disease, and other infectious diseases, into this country, unless all foreign fat animals are slaughtered at the ports of landing, and store stock required to undergo a long period of quarantine; and further, they are of opinion that no foreign

store stock should be admitted into the same market with home-bred animals."

Viscount SANDON seconded the motion.

Mr. MASFEN questioned the desirability of admitting store stock at all. Since the prohibition there had been an absence of pleuro-pneumonia and foot-and-mouth disease.

Mr. BROWN did not see any value in the latter part of the resolution, and moved as an amendment, "That in the opinion of this meeting no sufficient security can be found against the re-introduction of the cattle plague and other infectious diseases into this country unless all foreign fat animals are slaughtered at the port of landing, and the importation of foreign store stock prohibited." He believed there would be greater danger from the importation of store cattle than from fat animals, as the latter were killed soon after their arrival.

Mr. MASFEN seconded the amendment, which was carried.

## THE GOLDEN SHORTHORNS.

"Eight out of the nine Shorthorns of English blood, which 'Our American Cousins' and Mr. STRAFFORD have just sold back to us in a Windsor hotel, averaged nearly £110 a-piece." —*Morning Paper.*

Mr. STRAFFORD raised his time-glass,  
And THORNTON held the pen,  
When to a Windsor coffee-room  
Flocked scores of Shorthorn men.

They crowded round the table,  
They fairly blocked the door;—  
He stood Champagne did SHELDON,  
Of Geneva, Illinois.

They talked of Oxford heifers,  
Duchess bulls, and how the States  
Had come into the market  
With another "Bit of Bates."

Their expression is so solemn,  
And so earnest is their tone,  
That nought would seem worth living for  
But "Red and White and Roan."

All ready for the contest,  
I view a dauntless three—  
The MACINTOSH from Essex,  
A canny chiel is he.

There's LENEY from the hop yards;  
'Twill be strange if he knoeks under,  
When once the chords are wakened  
Of that Kentish "Son of Thunder."

The Talleyrand of "trainers"  
Is their 'cute but modest foe,  
Him whom the Gods call "CULSHAW,"  
And men on earth call "JOE."

He loves them "points all over,"  
With bright dew on the nose;  
And in his heart of hearts is writ,  
"A touch of Barnpton Rose."

And sure, it well might puzzle  
"The Gentleman in Black,"  
When the three nod on "by twenties,"  
To know which you should back.

And sure, the laws of Nature  
Must have burst each ancient bound,  
When a yearling heifer fetches  
More than seven hundred pound!

Bulls bring their weight in bullion,  
And I guess we'll hear of more,  
Arriving from the pastures  
Of Geneva, Illinois.

—*Punch.*

## MILLS AND MILLING.

## ON THE NATURE OF THE CENTRIFUGAL AND FANNING ACTION OF THE RUNNER.

To the remarks made in former papers on the centrifugal and fanning action of the runner, the function of dress, and the principles and practice of blast and exhaust fans in aerating the stones and in removing the stive from the millstone case, there are many counter opinions amongst millers and engineers; and in this paper, and the two subsequent ones, we propose discussing these several topics by way of answering such objections, and confirming the soundness of our preceding observations. In doing so we shall bring up the arrears of numerous details reserved to this place for the want of space in the previous papers above alluded to.

Centrifugal action and fanning action are in this case, to a certain extent, owing to the air being confined, but two different ways of expressing one and the same thing. Thus, when applied to atmospheric air, it is termed fanning action; but applied to the flour it is termed centrifugal action. The air and flour acted upon by the runner are, however, both material substances, each being subject to the physical laws of gravitation and force; but the physical properties of the two substances are so widely different, as to justify the use and currency of the two modes of expression in the science and practice of milling as above.

The centrifugal action of the runner upon the wheat (broken grain and flour) is manifest to the eye from the continuous discharge of flour from between the grinding surfaces; hence, there is no denying of the fact either amongst millers, millwrights, or engineers. They see the wheat flowing in at the eye of the runner, and the flour being thrown out between the lips of the millstones into the millstone case; and the manner the whole grain is thus worked outwards from the eye to the periphery of the millstone in its being ground into fine flour leaves no alternative question to that of centrifugal action, for without this action the flour would remain between the stones.

The fanning action of the runner is not so perceptible to the senses; hence the erroneous notion entertained by some opinionative minds that it does not exist at all; and, in point of fact, it is hardly perceptible even to those accustomed to the experimental investigation and determination of the details of the subject. Thus, when soft wheat is fed too rapidly so as to overcome the grinding power of the millstones, thereby inducing heating to excess, with all its consequences, there is often a slight reaction of the influent current of air—a small portion of that which was taken in at the eye of the runner along with the grain being returned backwards and discharged outwards from the eye of the runner; while under ordinary conditions of grinding there is hardly any perceptible influent current of air at the side of the feed-pipe or flow of grain from the mouth of the old shoe-feeding apparatus. Millers have made experiments, and so have opinionative engineers, expressly for the purpose of ascertaining whether there was any perceptible influent current drawn in at the eye of the upper millstone by the fanning action of the runner; and in these experiments (reported in evidence given in patent-infringement law cases) they affirm the flame of a burning candle indicates no perceptible influent current of air. They further calculate and account for the whole of the “hot-breath” in the millstone case, and discharge of the same from the shute, condensation, pasting, and so forth, from the evaporation of the moisture of the wheat in process of grinding. The wheat and flour have been analyzed to determine the per-centage of moisture in each, and the difference between the two has been shown to be amply sufficient to produce all the “hot-breath,” &c., in question; and from such superficial data they have hastily concluded that the very idea of “the fanning action of the runner is absurd,” the furrows and all asperities of the grinding surface of the runner being so filled up with flour as to leave no equivalent for a vane to produce a fanning action. And, besides the grinding surface being thus smoothed down by the flour, when the upper stone is the runner (as is com-

mon), its concavity is still further against the possibility of fanning action, fanning action being confined to the upper surface of the runner. Such is a general outline of the nature of the objection thus raised to the fanning action of the runner.

The bigger the bubble on the stream or mill-lead, the more fragile and easily is it broken; and such is the character of the above conclusions, for they all vanish into thin air almost the moment the eye is turned towards them. Thus, from the greater elasticity of the air, it is more easily acted upon by the furrows and asperities of the grinding surfaces than is the wheat, broken grain, and flour; so that what produces the centrifugal action upon the latter will produce a greater amount of centrifugal action upon the former. By granting the possibility of the one, millers concede the possibility of the other. The latter objection, relative to the smoothness and concavity of the grinding surfaces of the runner, therefore, falls the ground, by virtue of a “felo-de-se,” as it were.

The experiment with the flame of the candle at the eye of the upper mill-stone, and the analysis of the wheat and flour, to determine the per-centage of moisture in each, and the source of the hot breath in the mill-stone case, are not much better fortified by fact. Thus, as the influent current of air is always, along with the influent current of wheat, at the eye of the upper mill-stone, it follows that, whatever effect the former—the influent current of air—might have had upon the flame of the candle, the latter—the influent current of wheat—would evidently be practically an extinguisher. At the side of the influent currents of wheat and air there would be no perceptible influent current of air, under ordinary circumstances; and when the mill-stones are grinding lively and fast, so as to increase the influent stream of wheat and air to a degree faster than it could be passed through between the grinding surfaces, there might possibly be an effluent current of air around the edge of the eye of the upper stone: hence the modern pioneering theory of “closing the eye of the runner”—i. e., the open ring-space between the feed-pipe and the eye of the stone and casing, so as to prevent the upward escape of air, and thus produce inward pressure equivalent to more than that of one atmosphere. In short, if the flame of the candle was placed anywhere in the eye of the runner, where it would not be extinguished by the influent current of grain, the experiment falls to the ground as a stultifying mistake; for, not to enter on the fine-spun philosophy of the two opposing forces—the upward flame of the candle, and the downward current of air, if any—the plain, practical matter of fact is that, if there was no upward current of air to feed the flame of the candle, as it were, that of itself was experimental evidence sufficient to warrant the conclusion that there was an influent current of air produced by the exhaust and fanning action of the runner.

With regard to the other, the chemical experiment to prove that the hot breath in the millstone case is wholly composed of vapour—i. e., there is nothing but flour and vapour discharged from the stones—is perhaps more stultifying than that of the candle above.

Passing over the impossibility of giving rotation to the runner without the presence of air between the grinding surfaces, or an equivalent, the proposition assumes that the grinding is either performed in vacuo, or else that the air is retained between the stones; and as the latter is too absurd to be entertained, the former becomes of course the rule. How the millstone case is exhausted of air at the commencement of the process of grinding, or driven out by the hot breath by degrees, we need not stop to inquire, as the contrary is fact, air being always present both in the millstone case and between the stones. But to work out the idea of vapour being formed in vacuo between the stones, and forced out into the millstone case along with the stive, &c., then the boiling point between stones—assuming, of course, that there is no pressure, although the contrary is again the fact—would be 88 degs. Fahrenheit. By an increase of pressure above that of the atmosphere due to 212 degrees Fahrenheit as the boiling point, “water,” says Henry, in his *Practical Chemistry*, “may be heated to above

400 degrees Fahrenheit without being changed into vapour." The idea of pressure between the stones must therefore be given up, with every thing else that stands in the way of this pure-vapour hot-breath theory—if theory it can be called. Moreover if vapour is readily formed at a low temperature in vacuo, it is just as readily condensed into water by pressure, or, practically speaking, confinement in the millstone case. Indeed this is part of the pure vapour theory, condensation being necessary to account for the pasting that takes place. Hence the counter theory of exhausting the vapour and stive from the millstone case to remove pressure, and thus obviate condensation, pasting, and wasting of fine flour. Soft wheats of course produce more vapour than hard dry samples. Cape and African samples, containing only some six or seven per cent. of moisture, would yield less hot breath than newly harvested English qualities, containing from 17 to 20 per cent.; while parched and thoroughly kiln-dried corn, wholly deprived of its moisture, would produce no hot breath at all in the millstone case—nothing in which stive can float—*i. e.*, no stive in the mill. To this latter some practical miller may ejaculate the emphatic interrogatory, "Eh?" But it would be a wanton waste of time and space to draw upon the general readers' patience further with optimistic dogmas that never had existence save in the minds of those who gave them credence and utterance, to cloak, as it were, their inability to account for the facts of the case by sound scientific data.

In the remainder of this paper we shall endeavour to bring up some of the arrears of details in the aëration of the stones, &c., which could not be given in former papers for the want of space under their respective headings, and which will be better understood here.

Without any inductive pressure by blast fans or other pneumatic devices of a kindred character, the quantity of air commonly used and worked-out through between the stones in grinding may be estimated at about one-seventh the bulk of the wheat ground. Thus, according to the experiments of Dr. Hales, the interstices between the grains of wheat lying on the granary floor, or in a bushel, or between the millstones before the grains are broken, occupy a space equal to one-seventh of that of the whole bulk of wheat. In the example of unbroken wheat between the millstones immediately inside the eye of the upper stone the interstices between the grains occupied by the air would rather exceed one-seventh of the whole space, owing to its being spread-out thinly between hard and uneven surfaces, while the in-fluent current of wheat and air would produce less or more pressure, so that the air in the interstices would be compressed in a corresponding degree.

When the wheat first enters in between the stones at the commencement of the milling six-sevenths of the air is displaced, chiefly at the periphery of the stones, but partly at the eye of the upper stone, when the grinding commences, before the space near the eye is completely filled up; and if the feed stops during the process of grinding, so as to leave an open space between the grinding surfaces at the eye, then when the feed is again put on, the wheat as it flows into this open space will displace six-sevenths of the air which it contains, forcing it back out at the open eye of the upper stone; hence the assiduous attention which millers pay to the uniformity of feed.

In the two extremes of grinding, *i. e.*, of grinding fine dry samples in frosty weather and of "heavy grinding" soft wheat in moist muggy weather, an increase of air will be drawn in at the eye of the upper stone, to supply the demands of the grinding surfaces in the former case, and a decrease in the latter, as compared with the normal estimate of one-seventh of the bulk of the wheat ground. In very bad examples of soft wheat there is sometimes an occasional efflux of air—not unfrequently hot air—at the eye of the upper stone, as explained in a former paper.

In each of these three examples, the mean of two extremes, as they may individually and conjunctly be termed, the air is drawn in and passed through between the grinding surfaces of the millstones, partly by the fanning or centrifugal action of the runner, and partly by the wheat being ground as it moves from the eye to the periphery. The former, the fanning and centrifugal action, has already been sufficiently explained to be generally understood, and as we shall have further to go into its details, under the principles and functions of dress and the principles and practice of blast and exhaust, in two subsequent papers, the remaining details under this head will, to avoid repetition, be deferred. The general principles of the latter

were noticed in a previous paper. Thus it was shown that from time immemorial philosophers have been familiar with the fact that flowing water in a stream gives motion to the air on its surface, and that for a similar reason a continuous in-fluent current of wheat draws the air along with it in at the eye of the upper millstone. But the inward movement of the wheat does not stop here, for between the eye and the periphery the same physical law continues in force and in operation—a corresponding subdivision of the air taking place as the wheat is broken down into fine meal under "ordinarily good grinding" and "lively grinding." Under the third example of soft grinding, when the broken grain gets out to what is termed "the flouring surface," the liquefaction of the moisture of the meal takes the place of a portion of the air; hence the consequences that follow—consequences more easily imagined than described; consequences too familiar to our milling readers to require a single word of comment.

In the different plans now in operation of supplying an excess of air to the grinding surfaces of millstones, three principles are involved whose details require special notice:—

(1) When a current of air is forced in at the eye of the upper stone along with the wheat, the air in the interstices between the grains of wheat is then compressed air; and this compressed air, in its progress outwards to the periphery, is uniformly distributed throughout the whole of the unbroken and broken grain, coarse meal, and fine flour. The increase in the quantity of air thus consumed in the process of grinding will be directly as the inductive pressure and distribution; and, from the great elasticity of this extra supply of air, it makes samples of wheat grind lively which would otherwise mill heavily, thereby greatly facilitating the process of grinding—the miller being able to turn out more flour of a better quality in a given time, as will be shown more in detail under article, "Function of Dress."

(2) When the air is forced in between the eye and the periphery, thus forming a circular stream, as formerly explained, its distribution and action are somewhat different in principle from the first example, the degree of difference depending upon the point in at which the air is forced: thus, if forced in amongst the unbroken grain, it will be equally distributed, as in the first case; if amongst the broken grain, it will be less equally distributed; and if at the flouring portion of the stones, a greater inductive pressure will be required to force in a given quantity in a given time; while the action of the air thus forced in will be more violent in forcing out the flour, and hence less calculated to produce equally fine grinding. Some farther details belonging to this head will be noticed in a subsequent paper, under the definition of "Blast and Exhaust."

(3) The third and last method is by drawing-in air on the exhaust principle; and this will be more conveniently discussed under the article above referred to, relative to the principles and practices of blast and exhaust fans, &c.

#### ON THE CONSTRUCTION AND FUNCTION OF MILLSTONE-DRESS.

In grinding wheaten-flour there are three kinds of dress that call for special notice, and these will form the subject of this paper, *viz.*: *First*, the plain-dress of the old hand mills; *second*, the right line furrow-dress, in common use in this country; and *third*, the curved line furrow-dress, or simple curved dress of some parts of the continent of Europe and of the United States of America. Besides these three there are many peculiar forms in the dress of kibbling, decorticating, and hulling mills, of mills for the manufacture of groats, split-peas, &c.; but into the principles of these latter our limits will not permit us to enter at present, owing to their multitudinous and almost endless diversity of mechanism and function.

1. **PLAIN-DRESS.**—The two or three querns which we ourselves have seen had a plain-dress without anything in the form of furrows from the eye of the millstone to the periphery, but we have seen them represented as having star-like furrows, radiating from the eye half-way to the circumference. We have also seen a slight star-like radiation on the grinding-surfaces of millstones for making oatmeal; but the generality of millstone-grit stones used for oatmeal have a plain-dress without anything approaching the style of furrows used in grinding fine flour; at the same time the dress of millstone-

grit and other stones which are common in our oatmeal-grinding and oatmeal-consuming provinces have a sort of furrowed style, which performs a somewhat similar function in the process of grinding, more especially when used in grinding fine flour, either of oats, peas, barley, or wheat.

So far as can be learned from history, sacred or profane, a plain-dress was the common rule amongst the ancient Chaldeans, Hebrews, Egyptians, Phœnicians, Greeks, and Romans. Pliny mentions star-like radiations on the grinding-surface of the pestle of the ancient Etruscans; but, as already stated, this was evidently for the purpose of decorticating or hulling spelt wheat, and not for grinding fine flour; and even for such the Romans, Pliny says, only used a plain rough-dress.

In principle there are two modes of grinding, as already shown—the one involving the action of the old hand-mill and ass-mill, which, in former papers, is termed the cool-grinding system; and the other, the action of the millstones now in common use, denominated the hot-grinding system; and, in this place, it will be necessary to bring up numerous details of both these systems, not yet discussed, in order to understand the construction and function of dress in each, and wherein they respectively differ from each other.

The principle of action of the first—the cool-grinding system above—may not inaptly be said to be, popularly speaking, that of *pressure without velocity*; and the principle of action of the second—the hot-grinding system—*velocity without pressure*. Neither of these definitions are scientifically correct; but they nevertheless express certain physical characteristics peculiar to each, sufficient to distinguish the one from the other. Thus, in the case of the hand-mill, the slower the runner is turned, and the greater the pressure of the hand upon the handle, the finer the quality of the flour; whereas, in the latter case, the modern runner, revolving with a high velocity, moves in its path without a hairbreadth's deviation from it, the greatest pains being taken to have it equally balanced, so as to obviate vibration, &c.; consequently the wheat has to be pressed against the grinding surfaces by various devices, which will be noted further on, under the next head. In other words, the runner of the quern is wholly supported by the wheat being ground, the pressure of the hand of the person at the mill being added to that of its own weight; while its velocity in grinding very fine flour was not probably much over three or four revolutions per minute, *i. e.*, the speed of the runner of the ass-mill; so that the grinding was chiefly performed by pressure or pounding. On the other hand, the modern runner is truthfully balanced upon, and wholly supported by, the spindle, its action being in a horizontal plane, without any downward vertical pressure when working freely, or "lively," in craft phrase. Its weight, if increased, increases its momentum and the force of its cutting action in this horizontal path by any given velocity at which it may be driven; but, before the revolving surface will cut, the wheat must be pressed against it, upwards as well as downwards, on the flouring portion of the stones.

Such being the principles of action of the runner in each of the two systems of grinding, the reader will have no difficulty in comprehending the peculiar function of dress of that of the hand-mill. As to the style of construction of dress, much depends upon the quality of the stone, there being a perceptible difference between that of millstone grit, French burrs, and other kinds, which need not be enumerated; for, granting that in each case different millers aim at one and the same style of dress, the difference in the qualities of the stones only permits of a less or more distant approximation to any common pattern. The ancient Chaldeans, Hebrews, and other nations already mentioned have left behind them sufficient evidence to prove that they had attained to a very high degree of perfection in the art of stone-cutting; and there is every reason to believe that this advancement applies to the dressing of millstones; and therefore, generally speaking, the style of dress may be said to have a close resemblance to that of the "lands" of the modern millstone of our own times: in other words, the ancient style of dress has come down to the present day—with the exception of the furrows—which brings us to the second head of our paper, *viz.*:

2. RIGHT-LINE FURROW DRESS.—So long as the runner rode upon the grain, there was no need of furrows to expedite the operation of grinding. But no sooner was the runner lifted off the wheat, and balanced upon a rind and spindle, than Neces-

sity, the mother of Invention, gave birth to the discovery of furrows crossing each other on the grinding surfaces of millstones. The inquiry, therefore, becomes an interesting one, as to what difficulties the miller experienced when he invented a furrow to help him out of such a position? In possession of the invention and its daily use, modern millers may have lost sight of the difficulty in question, which their ancestors experienced when they first lifted the runner off the grain, balanced it upon the spindle, as above, and began to drive at an increased velocity, and so forth, as the adoption of the new system demanded. But, in tracing the progress of the art of milling, when we come to the change from the one system of grinding to the other, the difficulties in question cannot be so easily disposed of; for the construction and formation of the furrows obviously involve the question at issue, and also the key to its practical solution.

The difficulty of the ancient millers was, doubtless, How best to effect the required pressure of the grain being ground upwards, against the surface of the upper mill-stone, then generally the runner, more especially at the flouring portion of the stones, when the two surfaces are nearly parallel to each other. So long as it rode upon the grain, this difficulty was not felt; but when once lifted off the grain, it was then experienced; for the runner not only required to be driven at a greater velocity, in order to cut, but the grain had also to be pressed upwards to the grinding surface, before the mill-stone dress would act; and the nearer the periphery (as upon the flouring surface of the stones), the greater the difficulty thus experienced, as above stated.

*Function of Furrows.*—The practical question may then be thus put for solution: How do the furrows solve the problem at issue—*i. e.*, press up the meal upon the flouring surface of the upper stone? It is a well-known fact to millers that "the smaller the furrows, the less the draught;" and, *vice versa*, the deeper and wider the furrows, the greater the draught. It is usual to attribute this to centrifugal action; but the conclusion is erroneous, for the furrows are full of corn and flour, and have possibly less centrifugal action than the surface of the lands between them. The furrows of the bed-stone can have no central action, while the dishing, or concavity, of the surface of the upper stone is not in favour of the centrifugal theory, when it is the runner, as it generally is. And, besides these objections, this centrifugal doctrine does not agree with the difference of draught between furrows of different dimensions, the centrifugal action of the edge of the shallow furrow being as great as that of the edge of the deep furrow, if not the greatest of the two, while the edge of the furrows is sometimes rounded off. The current craft-notions of the mill must therefore be thrown into the stream, before a satisfactory answer is given to the question thus raised for solution—*i. e.*, The function of the furrows?

It is the elastic force of the compressed air amongst the broken grain in the furrows that presses it upwards to the surface of the runner. In the preceding article, it was shown that the interstices between the wheat is full of air; that under the ordinary pressure of the atmosphere this amounts to about one-seventh of the whole bulk—*i. e.*, for every seven bushels of wheat ground, one bushel of air is used in the process of grinding. As the wheat is broken up, the air in the interstices between the grains becomes more and more subdivided. But, as the wheat is converted into flour, it occupies more space, while a slight increase of temperature takes place, and both these causes, the rarifying action of an increase of temperature and the subdivision of the wheat, tend to compress the air in the interstices between the particles of meal in the furrows. If we next assume the upper millstone to be the runner, which is the common rule, then as the furrows of the runner cross those of the bedstone, there will be an immediate expansion of the compressed air, downwards and upwards, as the two furrows pass each other—*i. e.*, as each furrow of the runner passes the corresponding furrow of the bedstone, and this expansion of the highly-elastic air forces out the flour beyond the plane of the edge of the furrows, so that the edges of the furrows, as they pass over, *strike off* at each crossing the small quantity thus raised to supply the milling action of the lands or grinding surfaces between the furrows, a process something analogous to striking the bushel in measuring corn. It is from this peculiar elastic and expansive action of the air that the craft phrase "grinding lively" is derived. The quantity of meal thus raised by the expansive action of the air at

each crossing of a pair of furrows, is very small, even when the millstones are grinding lively; but if this small quantity be multiplied by the number of crossings in one revolution of the runner, and then by the number of revolutions per minute and hour, it will be found amply sufficient to account for the whole product of grinding. It will also be found to harmonise with all the other phenomena developed in the manufacture of flour, such as the increase or decrease of draught of the furrows, according to their greater or lesser dimensions; for the smaller the furrows are, the less the quantity of compressed air they contain, and, consequently, the less the expansion and supply of meal to the lands; and *vice versa*, the larger the furrows, the greater the quantity of air and expansive force, when liberated at the crossings of the furrows, and the greater the supply of broken grain to the grinding surfaces.

The lands between the furrows form the true grinding surface of the millstones, and not the clipping action of the edge of the furrows in crossing. This is manifest for the following three reasons: First, millstones ground flour before the invention and use of a furrow; *second*, the continual necessity of redressing the lands, so as to keep them sharp and in good grinding order upon the flouring surface; and, *third*, the furrows have a different and special function to perform, as stated in the preceding paragraph.

As to the peculiar style of dress of the lands, although there exists considerable diversity of construction and also of opinion as to what is the best, taking the *wide wide world as a whole*, there is no misunderstanding amongst millers as to matters of fact, and therefore it would be superfluous to enter upon a detailed criticism of such differences, with a view to reconcile them to any general law. "A fine sharp surface" may be enunciated as a common rule; but applied to different qualities of millstones, this involves much more diversity of construction than some may be imagine. Even confined to any individual species of stone, as French burr, what some English millers would consider a fine sharp surface many French millers would pronounce coarse, and so on. Moreover, the finer the surface the sooner it is worn out, and requires to be redressed; hence the practical argument, for the style that will do the most work and remain the longest in working order has many things to commend it to the miller.

The direction of the furrows is another topic which, at one time and another, has involved much controversy. In this country the master-furrows are now placed nearly tangentially from the eye of the millstone, those of the runner being backward in the opposite direction of its motion, the land furrows of each quarter being parallel to their master-furrow. The master-furrows thus divide the surface of each stone into quarters, each master furrow making a quarter. The number of quarters into which a stone is divided varies from six to sixteen. Those of our readers who are not practically versant with such *datta*, we may refer to the illustrated weekly advertisements of the Messrs. J. Hughes and Sons, and of Bryan Corcoran and Co., in the advertising columns of the *Mark Lane Express*, where they will perceive that the "*Improved dress*" of the former firm has fourteen master-furrows, thus making as many quarters, each master-furrow having two parallel land-furrows. The dress of the latter firm has only nine master-furrows, with an equal number of quarters; but in this example each master-furrow has three parallel land furrows. In both examples the main lands are not crossed. In thus drawing special attention to the advertised dress of these two large London firms, it is but right to state that they both supply any other style of dress that may be required either by millers or farmers. Referring to the wood-cuts of the above firms for illustration, the land-furrows that are parallel to one master-furrow sometimes open out across the main-quarter-land into the master-furrow a-head, which involves a different style of quartering from that shown in the wood-cuts. This is done with a view of improving the draught of the furrows; but as the deficiency of draught is mainly at the flouring surface, many millers call in question the soundness of this rationale, although it is warmly espoused by others. The former object to the decrease of grinding surface at the flouring portion of the stones, which the crossing of the main lands involves, deeming the more advisable course to increase the draught by an increase in the depth and angularity of the furrows; the latter are generally hot grinders, at a killing speed of driving, and to obviate heating to excess, advocate more draught between the stones, at any sacrifice of grinding surface.

3. CURVED DRESS.—Theory is in favour of the furrows being in the form of an hyperbolic curve, as adopted by the ancient Etruscans, and still in use in modern Tuscany; but although it has been partially adopted in this country, and more extensively in the United States of America, it has never been able to establish itself. Whether this is owing to any imperfection in the reduction of the theory to practice, or in the theory itself as regards the crossing of the furrows of the upper and nether-millstones relative to the expansive action of the air in the furrows, or as regards the depth of the furrows, and style of quartering, are questions which we shall not presume to answer. On the one hand we can comprehend the superiority of the proper curved furrow; but on the other, we can perceive with equal clearness, from scientific as well as practical grounds, when the above questions of imperfection can be legitimately raised. It must be borne in mind, however, that such questions of imperfections in the reduction of the hyperbolic theory to practice cannot be raised against the theory itself, so that the progressive problem at issue must be left an open one for the solution of a more advanced state of improvement in the art of millstone dress.

#### ON THE PRINCIPLES AND FUNCTIONS OF BLAST AND EXHAUST APPARATUS.

The term "exhaust" has of late years become a technical milling phrase of no ordinary significance. Like most other technicalities in the mill it is wonderfully brief, but its comprehensiveness is none the less on that account, the contrary in point of fact being the case. As, according to the common saying, "the best proof of the pudding is in the eating," so the rule involved in this old culinary maxim appears to apply very plainly to "the exhaust;" for, as when the pudding agrees with the palate the cook's recipe for its making goes for very little in the estimation of the vast majority of consumers, just so it is with the modern exhaust, for because the effect produced is favourable, that means everything in the mill.

What between the craftiness of purpose of patent-mongering, the labyrinthine windings of the patent laws, and the sheer force of progress in the mill, the practical meaning of the miller as to the terms "exhaust," "plenum exhaust," "super-added blast," &c., has of late been placed in the balance, and found wanting in many respects, something more than this being needed to unravel the very peculiar arguments of the Chancery suit of *PLENUM EXHAUST v. THE MILLERS* (if we may be permitted to personify "the great grinding case" thus), the battle-ground of the plaintiff evidently being for the remaining term of his patent. Very good battle-ground, too, seeing he has been seventeen years in possession out of a nineteen years' lease. In other words, both parties, patentees and millers, of whom there are numbers of both, are labouring under many disadvantages, from the science of the practice of blast and exhaust being improperly understood, and even erroneously explained by a few would-be leaders in this branch of experimental philosophy, so that in this and the next paper we propose bringing up the remainder of details under this head not discussed in previous papers, with the view of setting millers to rights with themselves and their opponents, or setting opposing parties to rights with each other.

Science and practice are always in perfect harmony with each other. This is an incontrovertible fact; so that when interested opinionative people differ on either the one or the other, it is easily solving the question as to who is in the wrong. In the cases before us it were difficult to say which of the opposing parties is the farthest astray, so that such being their respective positions, we shall point out the facts and shortcomings on both sides, without further reference to either—this being the course pursued under the two preceding papers—in refuting fallacy and bringing up arrears of detail on "Mills and Milling."

From the erroneous experiments with the candle at the eye of the upper millstone and mouth of the meal-spout formerly pointed out, some civil engineers in their affidavits in Chancery suits, and in their evidence before jury cases, have of late been endeavouring to lay down the experimental doctrine that there is no influent and effluent current of air between the grinding surfaces of millstones, and not a few nullers have adopted this erroneous teaching as established science, *i. e.*, "practice with science!" The vast body of millers, however, maintain unchanged their former opinions relative to the influent and effluent currents of air in the aeration of millstones.

Having in a former paper refuted the candle and between-stone-vacuum theories, we have at present to confine our observations to the influent and effluent currents of air, and to the effects produced by the various plans of blast and exhaust.

When the millstones are "grinding freely" but not "lively," the influent current of air is imperceptibly small to the senses, being only one bushel of air to every seven bushels of wheat, as formerly explained. We do not recollect ever seeing a miller so silly as to try the experiment of a candle to detect it, even after the candles were lighted in the mill. But it may always be easily detected by shaking a small quantity of the finest stive from the point of a feather, so as to make it float amongst the influent grains of wheat. By removing a part of the millstone-case, or by performing the experiment with millstones without a case, or with the case removed, the same delicate test of stive will show distinctly the effluent current from the lips of the millstones. Such being the facts of the case as to the two extremes of the current of air, its progress through between the grinding surfaces requires very little proof to satisfy millers as to its existence; the technical terms of "lively grinding," "free grinding," and "clogging of the flouring surfaces," being sufficiently expressive to indicate the facts of the case, and also to warrant the use of the language common in the mill, and further, to toss to the winds the *dicta* now being so confidently taught by the few civil engineers in question, who are making a mighty fuss to serve the purposes of those who employ them as scientific witnesses in patent law suits.

A current of one bushel of air to every seven bushels of wheat is the practical rule, when "grinding freely" (but not lively), at the common state of the atmosphere. When a blast is superadded to this, so to speak, the air then is compressed air; so that if the superadded blast is equivalent to the pressure due to half our atmosphere, there will be a current of a bushel and a-half of air to every seven bushels of wheat; if a pressure of two atmospheres is superadded, then it will be two bushels of air, at the common atmospheric state, to every seven bushels of wheat, or one bushel of air to three and a-half bushels of wheat, and so on.

The times and velocities of the influent and effluent currents of air, and the time and velocity of the air in passing through between the grinding surfaces, are questions that involve much diversity of scientific data; so that the three examples will require to be discussed separately, viz., (1) the influent current, (2) the intervening current, and (3) the effluent current.

(1). The velocity of the influent current of air is the same as that of the grain. Compressed air will not increase the velocity of the influent current, but the contrary, unless it facilitates the speed of grinding; for the grain will fall faster through the air in the feed-pipe at the common density of the atmosphere than it will through air at one and a-half, twice, or three that density; but if the rate of speed in grinding is increased by a superadded blast, or by an exhaust, or by any other cause, then the velocity of the influent current will also be increased, along with that of the wheat, the feed being, of course, increased to supply the demands of the grinding surfaces.

(2). If we assume three degrees of speed and conditions of grinding, viz., "grinding lively," "grinding freely," and "grinding heavily," with partial clogging of the flouring surfaces, then in the first example the influent current of air will be greater, both in quantity and velocity, than in the second—and in the second than in the third—under the ordinary pressure of the atmosphere; because, in the first example, there is a slight compression of the air after it enters between the millstones; and in the third example, because there is a slight reaction of the aerial current, less or more of it being returned back and forced out at the eye of the millstone, generally with a sufficient quantity of floating stive in it to make it visible to the watchful eye of the miller under such conditions. In other words, when "grinding freely," one bushel of air for every seven bushel of wheat would be used up in the process, the wheat and air travelling in a spiral path around the grinding surface from the eye to the periphery, the quantity of air passing the furrows being *nil*, or nearly so. In the first example of grinding lively there is less adhesion to the grinding surfaces, *i.e.*, more air on the "lands," and consequently a corresponding increase of centrifugal and fanning effect produced,

even when the runner is revolving at the same velocity as in grinding freely. The spiral path from the eye to the periphery would thus be shortened, while there would at the same time be a slight compression of the air. Hence there would be rather more than one bushel of air used up in the process of grinding seven bushels of wheat; so that the velocity, measured from the eye to the periphery along the furrows, would be increased, but the time decreased. In grinding heavily with a partial clogging of the runner, by the vapour condensed and liquified taking the place of a portion of the air between the interstices of the particles of flour, the adhesion to the grinding surfaces would be greatly increased, centrifugal effect reduced, the length of the spiral path from the eye of the millstones to their periphery would be increased, while the air, from heating, would be rarified so as to produce compression and reaction amongst the ground meal at and towards the flouring surface, thereby forcing a portion of it backwards out at the eye of the upper stone, so that the velocity measured from the eye to the periphery, as above, would be decreased, but the times greatly increased.

As compressed air has a tendency to increase the liveness of grinding, it follows that the velocities would be increased, measured as above, and the times decreased accordingly. But when partial clogging is not prevented by compressed air, *i.e.*, when clogging of the flouring surfaces is actually experienced, then the compressed air would do harm, as stated in a previous paper, because it would increase heating and the condensation of vapour and liquification of moisture, thereby increasing adhesion—the length of the spiral path travelled by the grain being ground, and the air with which it is mixed—the length of time a particle of air remains between the grinding surfaces; while the velocity of the current measured from the eye to the periphery would be decreased. But measured along the spiral path—which is the correct rule, as will be shown under Exhaust—the velocity in this and in all the preceding examples would be directly as the times, *i.e.*, the greater the length of the spiral path the greater the velocity and the greater the length of time, the runner moving at a given rate of speed and work done; and *per contra*, the less the length of the spiral path the less the velocity and times, which is contrary to the common rule—that "*the times are inversely as the velocity.*" But of this more after.

Before proceeding to notice the effluent current, &c., we may here apprise our milling and professional readers that the remainder of the details under the above two heads will be brought up and discussed in a subsequent article, viz., "The efficiency and economy of blast and exhaust apparatus, &c." it being beyond our compass to dispose of the whole within the limited space of this paper.

(3). The revolving millstone has both a blast and exhaust action; and this blast and exhaust action applies to the grinding surface, to the periphery, and to the back of the runner. In other words, the blast action of the runner is synonymous with its centrifugal and fanning action; while exhaust action is simply supplying the former with the means of its existence, *i.e.*, feeding the grinding surfaces with wheat and air, or feeding a common blast-fan with air to produce a blast.

This blast and exhaust action of the runner arises partly from the asperities upon its grinding and upper surface and periphery, and partly upon the pressure of the atmosphere and materials being ground against such asperities; consequently, from this latter cause, the revolving stone, although polished as smooth as glass, would retain its blast and exhaust action, *i.e.*, a finely polished revolving disc generates a current of air tangentially from its periphery, which current is fed in from the centre. Hence also the practical conclusion that a newly-dressed sharp stone has a greater centrifugal action than the comparatively smooth surface when the dress has been wholly worn off.

The millstone-case less or more, according to its peculiar construction and form, affects the blast and exhaust action of the runner. So does the concave and convex form of the face of the millstones, the placing of vanes and brushes upon the periphery and top of the runner; so also do the position and dimensions of the meal-spout, the combination of conveying and elevating apparatus therewith; and lastly, so does the use of detached exhausting apparatus, or what may be termed superadded exhaust, as compared with the opposite expression of "superadded blast."

The peculiar blast and exhaust action of the face of the

rotating millstone, and of vanes and brushes upon its edge and upper surface, or under-surface when the bedstone is uppermost, and of the position of the meal-spout, has already been notified in previous papers, so that we have only to bring up the remainder of details not there discussed, but, purposely to avoid repetition and abridge space, postponed to this place.

Many, if not the majority, of the old millstone-cases were open at the top for about half-way to the periphery, radially measured from the eye. And in order "to regulate the ventilation of the stones" or millstone-case, as it was termed in the mill, and to prevent the stive from issuing out of this opening when grinding soft wheat, &c., a cloth was suspended all round from the case down to the stone, and as the pores of this cloth soon became filled chokeful with stive, it comparatively excluded the ingress of atmospheric air over the top of the upper stone when allowed to rest upon its upper surface. Hence, according to modern phraseology, it was both in principle and fact a device for "closing the eye of the runner." It was also in principle and fact a device for regulating the blast and exhaust actions of the runner, whether furnished with vanes upon the periphery or not, or whether these vanes were exhausting the millstone-case, in combination with the exhaust action of conveying and elevating apparatus, or with any other exhausting apparatus, as the American flour pump of 1813, or bellowses and fans of 1831.

When the ingress of atmospheric air over the top of the stone is excluded by this old device of a suspended-cloth, or by the more artistic means of patent No. 11,084, 1846, or No. 11,342, 1846, or of any of the older patents and unpatented plans where the upper stone was the bedstone, when the casing was fixed close to its edge so as to prevent the egress of stive or the ingress of air beyond what the miller deemed requisite by the opening of peg-holes or stive-valves to regulate the ventilation of the casing around the runner below, through the current of air down the meal-spout. We repeat, when the ingress of atmospheric air is thus shut off, then the effluent current of air at the meal-spout from between the millstones will be equal to the influent current at the feed-pipe along with the grain. An increase of temperature will have a tendency to increase its volume, so will the vapour disengaged during the process of grinding. The flow of meal down the meal-spout creates a draught or exhaust. But owing to the smallness of the quantity of air that issues from between the stones, *i. e.*, one bushel of air for every seven bushels of wheat ground, or one sack of air for every seven sacks of flour, the downward draught produced by the meal is greater than this supply from the stones; hence there is a partial vacuum produced, with an influent upward current of air at the meal-spout to restore the equilibrium. This influent current of air up the sides of the meal-spout has always been felt objectionable in consequence of its preventing the efflux of stive, hot air, and vapour; for the presence of these in the millstone-case give rise to the condensation of the vapour, pasting, &c.; while stagnant heated air in the millstone-case has a great tendency to increase the temperature of the stones, especially towards the periphery or flouring surface.

The evils thus produced by the runner revolving rapidly in a heated, pent-up atmosphere, within the millstone-case, are many and soon told; First, the flouring portion of the stones absorb heat; second, this increase of temperature of the flouring surfaces produces more heat and vapour; third, more heat and vapour when condensed still adds to the temperature of the stones, and so on, until either the feed is reduced or grinding ceases.

To obviate this ruinous state of things have arisen from time to time the various plans of exhaust, under different technical craft-terms—such as "ventilating the millstone-case," "cooling the stones," and "exhausting the stive;" but all producing a kindred effect for the express purpose of obviating the objectionable state of things at issue.

The former of these old plans, the ventilation of the millstone-case, was effected by various simple contrivances of a two-fold character—the first by letting in fresh air to supply the draught of the downward current of flour at the meal-spout, as by the suspended cloth, slide valves and peg-holes already mentioned; and the second by reducing the downward draught of the meal by "check-falls," "meal-stops"—*i. e.*, "break-falls"—a series of short, inclined planes placed in the meal-spout so as to break the fall of the meal by making it glide slowly off one incline on to another: these inclines

having a further function to perform, *viz.*, check the upward current of air formerly noticed.

In all these plans the scientific reader will readily perceive that the principle of exhaust is involved; for in the first three the air of the atmosphere would not flow in at the suspended cloth-slide valve or peg-hole unless the interior of the millstone-case was less or more exhausted—*i. e.*, the effluent current of meal exhausts the millstone-case, so that the pressure of the atmosphere is greater, otherwise it would not flow in; and the second class, the breakfalls, perform a similar effect.

## ON THE EFFICIENCY AND ECONOMY OF BLAST APPARATUS.

Millers very justly complain that the use of blast and exhaust fans consume more motive-power (wind, water, or steam) than they are worth. From a practical point of view, the complaint thus raised is not without a broad foundation to stand upon; for whether there are one-and-a-half atmospheres, two atmospheres, or three or four atmospheres forced in at the eye of the upper millstone by a blast-fan, and exhausted from the millstone-case by an exhaust-fan, it were difficult to imagine devices more calculated to consume the greatest possible amount of motive-power for the least effect produced, than those now in use; and this applies with almost equal force to exhaust-fans as to blast-fans (the subject of our present paper), although, for special reasons, the latter are the least efficient. It is not at all surprising therefore that blast-fans have, for the most part, been given up by many millers, and questions raised as to the economy of using any of the exhaust apparatus now in use, great as the boon may be of getting rid of the floating stive in the mill. This latter, the getting rid of the stive, together with the reduction of the temperature in the millstone-case, is, however, a desideratum in the march of improvement which, we believe, no intelligent miller would like to give up, if it could be used without the vexatious trammels of patent-law. The economical questions thus raised have reference, not to the principle of exhaust, but the means at present in use in carrying it out into practice—such as the separation of the stive from the flour, and the character of the exhausting apparatus.

In a previous paper, under "Closing the eye of the runner and bedstone," it was shown that this was an improper expression, and that the efficiency of blast-fans was, in consequence, a very problematical question, as they could only effect a very slight compression of the air between the stones, owing to its having free egress up the feed-pipe. We have now to bring up some of the arrears of details under this head.

Experiment is wanting to determine the actual quantity of air forced in between millstones by blast fans, "horns," and other devices which have been patented for that purpose, or the degree of compression of the air which takes place; but from the fact of the feed-pipe being open for the escape of air up through the interstices of the grain, so as to check the influent current of air, the natural supply along with the grain, it must necessarily be very small. Thus, if we suppose the sectional area of the feed-pipe to be 7 inches, which would be 3 inches in diameter, then the interstices between the grains of wheat, according to Dr. Hale's experiments, would be, supposing the pipe full of grain, equivalent to one square inch, or a round pipe of rather more than 1½-inch in diameter, open for the air to escape upwards. A feed-pipe whose diameter is 4½-inches would be equivalent to an open circular of 1½-inch in diameter for the air to escape upwards through the grain. Such being the sectional area of the open spaces between the grains of wheat in the feed-pipe, supposing it either fall at the bottom where it discharges itself into the cup or the mill eye, or "throat" or "swallow," of the stones, or at the hopper at the top, and such the means of escape upwards, the degree of compression of the air between the stones must be very small, if anything at all. A cylinder or screw-fan, or a pair of Yankee bellowses working at a certain degree of speed, ought, doubtless, to force in air with a certain degree of compression; but when brought to the test of experiment the pressure per square inch is very small. Thus, according to experiments made by Mr. Buckles, as reported in "Appleton's Mechanics," the pressure of the blast produced by cylinder fans in smithies was found to be only from 4 to 5 ounces per square inch. But as

experiments of this kind are only applicable each to its own peculiar case—smithy-fans to smithy-fires and mill-fans to mills—it follows that experimental data deduced from the former are not trustworthy in cases of the latter. As for the candle experiments already disposed of, they are worth nothing and something less than nothing; for if a blast of air is forced in by a two-feet diameter cylinder-fan making 1,200 revolutions per minute! the current thus forced in must either have egress somewhere, or else be counteracted. When formerly discussing the question in general terms, we stated that the effluent blast must be at the hopper in the miller's face; and now that we have brought up the details and shown the area of the open interstices between the grains of wheat in the hopper, feed-pipe, and between the stones at the "swallow," and also the small quantity of air used in grinding freely, without a blast, we may safely leave our milling readers to judge for themselves as to the truth of the general conclusion, in the absence of express experiment to determine the question at issue. If the effluent current of air from the blast-fan is equal to, but not greater, than the influent current of air in the feed-pipe along with the wheat, then the two forces will balance each other if they meet in opposite directions, thus producing an equilibrium, or of only the pressure of one atmosphere between the stones; so that under such conditions there would be nothing to disturb the flame of the experimental candle so often alluded to and quoted as decisive authority. But the two aerial forces do not thus meet (at least, when the artificial blast is forced in at the eye of the upper stone) at a certain angle; and, as that angle is not a definite-given measure, we must leave millers who are using blast-fans each to drawn his own diagonal of forces, bearing in mind that air is an elastic body, and diffuses accordingly from non-elastic bodies in questions of the revolution of forces. Thus, flour may be packed into a barrel very close; but it is otherwise with air when there is a hole out of which it can flow as fast as it is blown in. At the same time, there would obviously be a small degree of compression of the air in the barrel, and so there is of the air between the millstones; but the degree is so very small, as almost to render it difficult of measurement by the most delicate apparatus and carefully-performed experiment. In the proposition for introducing currents of air through pipes opening into the master-furrows, some half-way between the eye and the periphery (as in patent 12,636, 1849), the two forces, if equal, would neutralise each other's effects. And even were the influent current from the fan greater than that with the grain, the effect produced would not be favourable to the proper aeration of the flouring surfaces of the stones. In short, there are only two ways of it; for, under the hypothesis of the two influent currents forming two atmospheres, one from the blast-fan and the other from the feed-pipe, along with the grain, then a current of two atmospheres must pass through between the stones, or the latter must be more or less stopped. But this is under the hypothesis that no increase of grinding takes place, which is contrary to the pretensions of the generality of patentees, experiments in some cases, as at Deptford, proving an increase in the quantity of corn ground, this increase being double with blast and exhaust fans, which would give an influent current of twice the quantity of air in a given time, under the latter case. Now the increase of grinding at Deptford was four bushels per hour, being rather more than half-a-bushel of air. This increase, however, was never attained with the superadded blast alone, but with the blast and exhaust working conjointly; and, as this increase has been attained with exhaust alone, the conclusion is not favourable to the action of the blast-fan, but the contrary. The Deptford experiments with the blast only are very conflicting. Still, taking the most favourable view of them, some increase in the grinding must be granted, with a corresponding increase in the quantity of air per hour supplied at the feed-pipe along with the wheat.

There remains for solution the quantity of air blown in by the fan, to produce this increase; and probably one bushel of air per hour will be sufficient for this, supposing the speed of grinding to be seven bushels of wheat per hour as the maximum, the whole current of air per hour being thus two bushels—one from the feed-pipe, and the other from the fan—this being about twice the quantity of air used when grinding freely, without a blast—*i. e.*, two bushels of air of the ordinary density of the atmosphere, but only one bushel of air

when compressed with a force of two atmospheres, or one bushel of air of twice the density of one atmosphere.

According to the above hypothetical data, the working efficiency of a blast-fan would only be one bushel of air per hour to the millstones! at an expenditure of motive power altogether incompatible with the effect thus produced. And this, too, is obviously the most that is passed through between the stones, according to the theory of inventors. If, for the sake of argument, it be admitted that two bushels of air are forced in by the blast-fan per hour, that will not much improve the efficiency and economy of the process; for the extra bushel of air thus forced in would counterbalance, so to speak, the influent current of one bushel of air at the feed-pipe, so that the supply to the stones would remain the same as before—*viz.*, two bushels of air per hour in grinding seven bushels of wheat. If three bushels of air per hour are supplied by the blast-fan, and only two passes through between the stones, then one bushel of air will pass up through the feed-pipe out at the hopper, and so on.

According to the other alternation of no increase in the grinding by the use of a blast-fan, the consumption of air being the same as without a blast—*i. e.*, one bushel of air to every seven bushels of wheat ground, when grinding freely, but not lively—the only effect produced by the super-added blast would be to counteract the natural supply of air at the feed-pipe along with the grain. In other words, the artificial supply of air to the stones would take the place of the natural by the feed-pipe, at a considerable expenditure of motive-power tear-and-wear upon the blast apparatus, &c. Many practical millers are of the opinion that this is the real anomalous state of things, and, therefore, it is not surprising that they have given them up as something worse than a sacrifice of time and capital.

From these observations one or two conclusions must be arrived at, *viz.*, either the science or the practice of a super-added blast to millstones is at fault, and of the two alternatives there cannot be a doubt but that the present mode of carrying out the proposition of an artificial supply of air to the grinding-surfaces of millstones is very defective, and that this arises from the very exaggerated notions entertained relative to the additional quantity of air required to make millstones grind lively so as to obviate heating, with its long ruinous train of consequences. Such being the facts of the case, the cause of progress in the mill demands a closer examination of popular error on the subject of blast, together with the more objectionable mechanical features of the blast apparatus now in use, with the view of determining what is required to solve the problem of efficiency and economy.

With regard to the first of these, the exaggerated notions relative to the quantity of air required to be forced in between the millstones, in order to produce the desired effect, it appears to be very general, both amongst patentees and millers. And besides error as to quantity of air, the pioneers of progress are obviously equally astray as to the function of air in grinding—a very common idea being that currents of air are, by the use of a blast-fan, air-pump, or bellows, blown along the furrows across the path which the grain traverses in being ground—than which scarcely anything can be more imaginary. But of this more after, when we come to examine the effects of blast and exhaust upon the grinding surfaces. At present we must confine our observations to the influent current as much as possible, and the popular mind imagines that this influent current is vastly greater than it really is, or is required to be. The small quantity of air used without blast appears never to have entered the minds of any of our patentees. Their specifications indicating the contrary. Thus, taking the ordinary rate of grinding at seven bushels per hour, which considerably exceeds the mark under free grinding; then, according to former data, this would give one bushel of air per hour, or 2218.192 cubic inches, which would pass through an inch and one-eighth ( $1\frac{1}{8}$  in.) pipe in an hour, moving at the velocity of 2219 inches per hour, which would not be perceptible to the senses. According to Mr. Rouse and other pneumatic authorities, wind requires to move at a velocity of two to three miles an hour before it becomes perceptible; four to five miles an hour, "gentle pleasant wind;" ten to fifteen, "pleasant brisk gale;" twenty to twenty-five, "very brisk;" and thirty to thirty-five, "high winds." We quote these in order that our readers may compare them with any previous ideas which they may have entertained on the subject. A velocity of 2219



inches per hour through 1½-inch pipe being the common supply, and as this is by hypothesis too small, the question then for solution is the additional quantity required. What that additional quantity of air is, we ourselves shall not take upon us to decipher. The question is one of those practical ones which millers themselves should solve; but the difference between the quantity of air used when "grinding lively" and that when grinding freely is not much. But as a plain question of fact, we have no hesitation in saying, that any miller with a pair of "brau-new" kitchen bellows could easily supply air to half-a-dozen pair of millstones without over-exerting himself.

And with regard to the actual quantity of air supplied to millstones by the various kinds of blast apparatus now in use, it may not inaptly be said to be in the opposite extreme of the above theories entertained as to what is required. In other words, the pioneers of progress assume that a large quantity of air is required to keep the millstones and flour cool; but when they reduce their theories to practice, the actual quantity of air which they do supply is infinitely small. Indeed, not a few blast-fans have been thrown aside on the grounds of their being something worse than useless, *i.e.*, blowing air up the feed-pipe into the miller's face, besides counteracting the natural supply of air, without adding any increase above the natural supply—the common pressure of the atmosphere to the grinding surfaces. Such being the

anomalous state of things, any attempt to reconcile them with efficiency and economy would be beside the question.

The facts of the case embraced in the preceding paragraph warrant the conclusion that the various plans of blast apparatus now in use are not well adapted for the purpose to which they are applied. And it is equally manifest that the defective mechanism involves a question of principle. In other words, there is obviously something defective in principle with the blast apparatus now in use in supplying air to millstones. Although cylinder and screw-fans, for example, are successfully used in winnowing machines for dressing corn, in blowing machines for smithy fires, and the like, these are purposes totally different from that of supplying millstones; for in both these fans the pressure of air is kept up, by means of velocity, on the fanning principle, *i.e.*—the current of air follows the vanes of the fans, as will subsequently be explained when discussing certain details of fanning action left in arrears in a former paper; whereas, the millstones require a very small degree of pressure over or superadded to that of the atmosphere, and that too without any perceptible velocity. The bellowses and air-pumps, or flour-pumps, of the American and French pioneers supply air by pressure with comparatively no velocity, or at any imperceptibly small degree of velocity required; so that the defect in these is, in the conveying and application of the air. But to this we must return, as our present limits are fully reached.

ENGINEER.

HUNGARIAN WHEAT.

[TRANSLATED FROM THE "L'ECHO DE L'AGRICULTURE."]

The legislation of 1861 has completely transformed the grain and flour trade. Previously, each centre of consumption was supplied by a very limited district, which varied very little, and especially before the establishment of railways. The corn-merchants and millers easily obtained a knowledge of the produce of the crops in their environs, they might hope, almost with certainty. Now, this thing is no longer so easy: it has become indispensable constantly to make oneself acquainted with the production and the wants of every country on the globe. This is certainly a very difficult matter; for, if the French statistics are established upon principles which inspire but little confidence, it is perhaps more dangerous to leave the decision to the direction of foreigners.

Besides, the hesitation of French commerce is manifest, being sustained by the recollection of the enormous losses of the importers in 1861. At that period all had calculated upon very high prices and large remuneration, and purchases had been completed upon a very extensive scale; but the arrivals, instead of being brought forward gradually, were thrown upon the market simultaneously. Those who were covered by sales experienced also difficulties on the part of their buyers. All these motions, and others to which it is unnecessary now to refer, have produced an unexpected decline, and inflicted on the trade an immense injury, the effects of which necessarily react upon the present situation. We cannot, therefore, throw too much light upon the trade, in order to assist in familiarising ourselves with the new order of things. It is imperative upon us to furnish the merchants with the means of operating wisely, and to abstain from purely speculative transactions—true games of hazard, which hold the speculators under the influence of fear, and induce them to act upon the quotations by ruinous sudden efforts.

It is with this view that we shall publish the mean production of all the points with which France has occasion to establish commercial relations. For this purpose we shall make use of the valuable facts that have been communicated to us, with the greatest promptness, by our colleagues of the International Jury of the Exhibition of 1867; this information being derived from documents furnished by the governments themselves.

Hungary, being the country from which our French commerce has obtained most since the last harvest, is that with which we shall begin our inquiry.

The kingdom of Hungary comprises Slavonia, Croatia, the Hungarian coast, and the great Principality of Transylvania,

comprehending a superficies of 5,872 geographical leagues, and constitutes therefore 54 per cent. of the total superficies of the Austrian empire. The population of the kingdom is 15,200,000 souls, forming 49 per cent. of that of the empire. The cultivated surface of the kingdom is occupied as follows:

	Hectares.	Acres.
Arable lands .....	9,960,631,275	or 24,590,308,459
Meadows .....	4,112,440,825	" 10,152,588,285
Pasturage .....	4,976,533,575	" 12,285,817,263
Wood .....	8,816,859,100	" 21,766,620,901
Vineyards.....	442,904,100	" 1,093,419,496
Totals.....	28,309,368,875	or 69,888,754,404

Which represents 53 per cent. of the cultivated surface of the empire. The annual product of the cultivation of cereals and other grain is as follows:

	Hectolitres.	Bushels.
Wheat .....	17,500,000	or 48,146,000
Meslin .....	10,100,000	" 27,787,120
Rye .....	17,500,000	" 48,146,000
Maize .....	23,400,000	" 64,378,080
Barley .....	12,300,000	" 33,839,760
Oats .....	22,200,000	" 61,076,640
Colza .....	620,000	" 1,705,744
Beans and peas .....	1,230,000	" 3,383,976
Totals.....	104,850,000	or 288,463,320

The annual product of flour is 25,000,000 quintals of two cwt. each, or 20,000,000 sacks of 280lbs.

The grain arrives on the market at Pesth both by the rail and by the Danube. From thence it reaches Vienna by the rail on the left bank or by the Danube. From Vienna it enters France at Strasburgh, always by rail, passing Salsburg and Munich.

In the South grain is conveyed from Pesth and the countries situated on the right bank of the Danube to the port of Trieste by railway, and are forwarded from thence to the coast of La Manche. The price of transport from Pesth to Paris is from 5f. 50c. per 50 kilog. A reduction is allowed to the extent of 25 per cent. for complete and important cargoes.

The Hungarian wheats are generally hard, without being glossy like those of the Black Sea, Africa, and other southern countries. Some are mixed with fine yellow and semi-tender

wheat. The best are those from the Banat, the countries of Baes and Fehir and the plains bordering on the Tibiscus. The great entrepôts are the markets of Pesth, Monsony (Wieselburg), Gyoor (Raab), Toeroebese, Szeged, Nagy, Kanasa, &c.; but Pesth is the most important market.

In other countries the price of wheat has not risen progressively so much as in Hungary. Thus, what in 1824 was worth 3*l.* sold in 1845 at 4*l.* 50*c.*, in 1851 9*l.* 15*c.*, from 1854 to 1861 10*l.* 90*c.*, and in 1862 11*l.* 75*c.* We may, therefore, easily understand that the produce of that country is not likely to enter into a long and formidable competition with that of France, especially with so expensive a transit. This super-elevation has become very manifest since the abolition of seigniorial duties in 1848. Hand-labour became all at once considerably dearer, which has increased in spite of the increasing employment of agricultural steam engines by the large landholders. On the other hand, the use of wheat has become general in Hungary, where, the same as in Prussia and Russia, there is a marked tendency to abandon the use of rye, barley, and maize for human food. Milling also is improved; and the number of mills erected on the new principle and moving power, whether by steam or water, daily increases. The Hungarian millers generally grind groats, which are best suited for the quality of their wheats. It has not been possible for us yet completely to appreciate the state of perfection of their work by the samples they have sent to the Exhibition. They make eight kinds of flour, the prices of

which are exceedingly near each other. The following shows what they were on the 5th September, 1867, per sack of 100 kilos. net (220*lbs.*), sinking the sack, at the Paris railway-station:—

Fr. c.		Fr. c.	
No. 0.....	57 00	No. 4.....	51 00
„ 1.....	55 50	„ 5.....	47 50
„ 2.....	54 00	„ 6.....	43 50
„ 3.....	52 50	„ 6½.....	40 50

now we have not been able to ascertain in what proportion each number is obtained. Number 0, which alone represents most frequently the manufacture of the exhibitors of that country, form, they say, scarcely one-tenth of the entire grinding. In France, such a result would entail a loss to the millers, whose profits are very small. In the meantime, the exportation of flour from Hungary increases; for, in 1850, it scarcely reached 200,000 quintals; it now exceeds a million quintals.

The purchasers of wheat and flour in Hungary, must not calculate upon their arrival so quickly as the railways might lead them to expect. Grain is a very cumbersome article, which requires a *matériel* which the railways do not possess and cannot provide; for the directors know perfectly well that they must not reckon upon a continuance of these exceptional charges. It is therefore prudent of them to confine themselves to a machinery large enough for the average deliveries.

CH. TOUAILLON, Jun.

## NIGHT AND DAY AT THE CATTLE MARKET.

There is no part of the outskirts of London more thoroughly metamorphosed than old Copenhagen-fields. The Manor House Tavern, and the paddocks and pastures and grounds, where a few years ago Londoners sought semi-rural diversion, have all disappeared, and the Metropolitan Cattle Market and its adjuncts and approaches flourish instead. Smithfield, belonging to the past, and grown *effete*, has given way to the Islington site, where there is ample room and verge enough to supply twice a week the animal food-wants of the capital. Than this elevated plateau of many acres there is no finer position round London. The air is salubrious, and the scenery towards the north and the east is unsurpassed for picturesque, quiet beauty. The clock-tower in the centre, and the four lofty taverns, one at each corner of the market, define its position from a distance. The extensive iron railing, ornamented with horned heads of oxen, are in admirable taste. All the gates are thrown open at half-past ten on Sunday night, and from that time until half-past eleven groups of drovers with their dogs may be seen lounging about the doors of the taverns. The drover is a rough-looking, uncomely individual. The dress in vogue amongst the class is a cap, a coloured necktie, a close-fitting, buttoned-up coat, and sometimes an apron, tight corduroy trousers, and thick-soled shoes. His metal badge is buckled on his left arm, and he carries a long, stout, ash-stick, with a knob or a short iron spike at the end. The activity of the drover's dog is equal to its extraordinary intelligence, if we may judge from the readiness with which it will at all times rush in upon a flock and seize a sheep. It is Sunday night, starlight and fine, and the crescent moon is low down in the eastern sky. The lights glimmer around and far off; and away in the distance, on the crests of Hampstead, and Highgate, and Muswell-hill, clusters of lamps shine like watch-towers, breaking the nocturnal gloom of the horizon. The air is crisp and rather keen, and feels as bracing as it would be twenty miles from a town. Up to twelve o'clock the stillness of the night is broken only by the rumbling noise of trains on the adjacent lines of railway, the shrill whistle of the guards, the quarter-hour chimes of the clock, and the bellowing of cattle in the long line of "lairs" on the south side of the market. The clock no sooner strikes twelve than a sensible change begins, grows, deepens, and intensifies until the dawn. The gas throughout the market is being lit up; now and then a horse-and-cart full of coiled pieces of rope is led in by a man, who distributes his load at the corners of "alleys," where oxen are to be driven and secured. Men also with similar

burdens on their backs wend their steps to various points and lay down more coils of rope. Nearly all the cattle, British and foreign, have been housed in the lairs during the night, and now that they are disturbed in their rest, the lowing grows louder, more general, and wide-spread. The alleys are numbered and have been allotted to the several sellers beforehand. The required pen-space for the sheep is also known to those in charge of the flocks, so that, night as it is, the drovers know the exact spot in this tortuous wilderness of "stalls" to drive to and occupy.

The first lot of cattle now trot up the avenue from the lairs, and, guided by three or four drovers, hallooing and shouting, are driven into an alley, where, after some manœuvring they are ranged in order. Each is then tied round the neck, with the thick ropes lying on the pavement, to the topmost beam. In quick succession more cattle come in, are driven to their alleys, and secured in a similar manner. Large flocks of sheep also make their appearance. By this time the whole air is filled with noise—with the most discordant sounds that can break the solemn stillness of night, or that can be conceived as the most striking antitheses to touches of harmony. The lowing of the oxen, sounding at intervals so mournful and sad as to make one believe they knew that their doom was at hand; the bleating of the sheep in a variety of cadences and keys; the baying and the barking of dogs, large and small; the shouting, the yelling, and the whistling of the drovers, men and boys—all produce an acoustic tumult which is enough to amaze and confound a new-comer, and make an impression that never can be erased. Yet out of all this noise and confusion of tongues come regularity and order. Some drovers, with lanterns, flit about through the gloom like will-o'-th'-wisps, while others carry torches of tarred rope, and thus give themselves light to "place" the sheep in the pens. This seems a very tedious piece of work.

In the midst of the din and uproar, one circumstance is most remarkable and striking—the wonderful activity and spirit of both men and boys during the whole time that the oxen and sheep are pouring in through the gates. In driving those flocks and herds in the dark, great skill and quickness and vigilance are constantly brought into play. And when the cattle and sheep of different owners happen to get intermixed, the adroitness with which they are separated and "sorted" is matter of surprise. It sometimes happens that in driving the beasts into the alleys, a refractory ox breaks away from its fellows, and scampers off in the dark. An exciting

chase then takes place, and the stentorian voice of the drover, raised to the highest pitch, is distinctly heard above the general din, until the truant is overtaken, turned back, and secured.

The four taverns open at two o'clock for the accommodation of drovers, but no one else. "Very sorry I can't accommodate you, sir; but as you're not a drover 'twould be against the rules to serve you. Four o'clock is the time for the general public, sir." And one of the "general public" returns to the market and continues his wanderings and wonderings amidst the turbulent scene.

More cattle, more sheep, with their usual accompaniments of drovers and dogs, still continue to be driven in, and on to the places assigned them. Now the voices of the night receive fresh elements of strength, if not of sweetness, by the arrival of some red-and-milk white calves, and piebald, black, and black-and-white pigs. These members of the animal kingdom complete the natural concert; unless, indeed, a few of the most uproarious denizens of the Zoological Gardens were to be added, nothing could improve upon this latest addition. Is black the fashionable colour of the pig? Very few of any other hue are this morning to be seen; but whatever the prevailing dye of the skin may be, the "voice" of the hog is always the same. How the chorus of a congeries of swine resounds under the roof of their shed! The sharp squeak of the young and the deep guttural grunt of the old ones are given with wonderful gusto and power. Large as is the market, a spectator soon becomes observed by those who are occupied there, and all of whom seem to know each other. They look with evident suspicion on a lounge, but are not uncivil, and answer all questions in a bluff, rapid way. The only audible remark made was, "We've got something fresh this morning, Bill." "Aye," says William; "I wonder what's up, Jim."

The stars are paling their ineffectual fires, the moon is sunk under a rift cloud, streaks of daylight appear in the east, and the sky looks murky and moist. By-and-by, the lights within the orbit of the eye are put out one-by-one, and the glorious night, with its spacious firmament, its blue ethereal sky, and its spangled heavens, is succeeded by a morning of rain. The beasts and sheep have all come, the uproar which had been kept up for some hours has diminished by degrees, and the area of the market is comparatively still. And now, in the broad daylight, a curious spectacle is seen; on one side, the long files of oxen, various in colour and size, many looking fierce under restraint, and their horns ranging like lines of *chevaux-de-frise*, with the salesmen in charge; and on the other side, thousands of sheep, with men here and there filling hundreds of pens. After seven o'clock, no dog is allowed to wander at large; and dozens of them are fastened under one of the sheds, where they seem ill at ease, and growl, bark, and howl until they're released. Now the buyers (the butchers) are coming thick and fast. A few roll up in cabs; but the great bulk of them ride in their own snug traps, which they leave in rank and close order in the road outside the railings, each vehicle being backed close up to the pavement. According to the addresses on these traps, London and all the districts around are well represented by buyers. Blue and white coats are now in the ascendant, scattered over the market, mingling with the salesmen; the jolly-looking farmers, old, middle-aged, and young, many of them wearing broad-brimmed hats, drab coats, and great leather boots, and some with huge umbrellas, which, opened, remind one of the dome of St. Paul's. The farmer or salesman, and the butcher or buyer, look very grave. Indeed, their serious demeanour seems incapable of suffering jocosity and fun. Pleasantry appears to be excluded from the precincts of the market. Business sways the sceptre, and her votaries seem loyal and true to her cause. Astute-looking men are some of those buyers. To touch an ox with a finger seems to determine many of them as to whether the beast will suit them or not. There is not much haggling about price. All seem men of few words and decision. Sales are taking place all over the market—thousands of pounds changing hands. Drovers and others are hurrying in and out of the office of the clerk of the market, getting the necessary papers which must be produced to a constable before the stock can be taken away. Oxen and sheep are now quickly making their exit; and a faint resemblance of the din of the night and the morning is heard all around as the drovers and the dogs, and the flocks and the herds traverse the several roads branching

to and from town. The taverns, outside of which are rows of formidable drovers' sticks for sale, have been doing a brisk trade all the while. Great is the demand for coffee and tea and piles of hot rolls soon vanish from the bar. How characteristic it was of that butcher who, whilst eating his chop and drinking his tea, never once let the knife out of his hand until he had finished his meal! 'Tis four o'clock, and nearly all the bipeds and quadrupeds are gone. Throughout the alleys men are gathering up the ropes, and the remains of an army of shoeblacks are on the alert. It is to be hoped they get more than the standard penny per pair; for boots and shoes which have trod a "rainy" market for some hours become so encrusted with soil that, before a polish can be brought to the surface, the necessary scraping and brushing must be terrible work. The gates are now closed; and the recent tempest of tongues is succeeded by the stillness and calm of a country churchyard. The last sheep has come to grief, and lies panting on the road unable to move. With great activity the drover takes it up, throws it across his shoulder, and runs with it into a shed hard by. What slaughter will take place on the morrow! What blood will be shed! The magnificent ox, the gentle sheep, the helpless calf, the unlovely pig—slain, cut up, and sold as beef, mutton, veal, pork, for the food of insatiate man.

[We take the above from *The City Press*, omitting a vast deal of superfine commiseration.]

MR. KEKEWICH ON THE DEVONSHIRE LABOURERS' QUESTION, AND THE PAYMENT OF THEIR WAGES.—At the Sidmouth meeting Mr. Kekewich, M.P., said he had read in the public journals of a French Archbishop presiding at the meeting of an agricultural society in the south of France. For what purpose? did they think. Why simply for this. In our own country a good deal was said at these meetings about the destruction of birds. The Archbishop stated that it was quite impossible that he could grow cabbage in his garden as long as the French people persisted in the destruction of birds—which destroyed the numerous caterpillars in the gardens. These societies did good by promoting good feeling between landlord and tenant—a proper understanding now existed between them. The tenant now said boldly, if necessary, to his landlord, "If you don't give us more convenient buildings in which to rear our cattle it will be impossible to pay you the rent." What had been done through the aid of these societies? In the whole county during the last ten, fifteen, or twenty years farm-houses had been erected—they had been rising on every side. They must not take into consideration what had been done in this matter during the last year, but during the last ten or twenty years. And what was the condition of the agricultural labourer? It had been improving to a great degree. Cottages and other buildings were much improved. Perhaps in the matter of education he had been progressing but slowly. There never was a time in the history of Devonshire when the labourer received better wages for the work which he performed than at present. Regarding this labour question, then, he believed there was a great deal, as in most cases, to be said on both sides. No one was more desirous than himself that the labourer should have fair wages for the work which he performed. There was one thing he had a great objection to, viz., the publication of those works which told men what wages they would receive in other counties, and thus induce them to migrate from their own homes. That mode of procedure was, if not a great evil, certainly a great mistake. He had recently seen a paragraph in the paper stating that the labourer could receive 14s. weekly in some distant county, whereas his regular rate of wages in this county was only 10s. But he would warn the labourer to consider well before he accepted the 14s. In this county the rent of a cottage was only from 1s. per week or 50s. a-year, but in other places it was as much as £5 a-year. Here there was a large allotment of ground allowed the labourer; it was not so in other places; so that in reality the 14s. was reduced to 12s. He was told that in Devonshire the farmers paid the men in cider. Well, he believed nothing was so acceptable to the labourer as his cider—nothing more induced him to perform his work better. The Devonshire labourer was not like a man from another county who had never tasted cider: the habit of drinking cider he had derived from his very

cradle; he drank cider not only when he was a child, but when he was ill and declining his great comfort was a glass of cider. He saw an instance of this only the other day in his own parish. A poor woman told him that her husband was very ill, and that he did nothing but crave for a drap o' cider. "Well, but what does the doctor say to that?" To this she replied that the doctor would give no opinion on it. She then went to a neighbour and asked her what she would do in

the case; whether she thought cider would hurt her husband or not? "Oh!" replied the neighbour, "if he is to live he will live; if he is to die he will die—*give him a drap o' cider.*" All that he (Mr. Kekewich) had to say was, cider was the drink of the county; and say what they liked, the system of giving men cider must not be included in payment of labour on the truck system. Giving the labourer cider was but really giving him what he wished to have.

## CENTRAL CHAMBER OF AGRICULTURE, THE CATTLE-PLAGUE AND THE MALT-TAX.

On Tuesday, Nov. 5, a general meeting of the council and members of the Central Chamber of Agriculture was held at the Salisbury Hotel, Salisbury-square, to consider the injury to the home cattle-trade caused by the operation of the Order in Council of the 20th of August last, and the impolicy of admitting foreign animals into the same market with home-bred animals, and the past legislation thereon. And further, to consider the steps to be taken by the council with regard to the malt-tax. Mr. Clare Sewell Read, M.P., was called to the chair. There was a considerable attendance, comprising representatives of the local Chambers and others.

Mr. ALGERNON CLARK (the Secretary) having read the minutes of the last meetings, made a statement relative to the financial position of the chamber, from which it appeared that after the liabilities have been discharged there will remain at the end of the year a surplus of income over expenditure amounting to about £100. He further announced that the Worcestershire Chamber had increased its subscription to the Central body from £5 to £10.

The Earl of Clarendon, Lord Berners, Mr. G. Andrews, Mr. T. Willson, Mr. J. Webb, and Mr. G. W. Clarke, were elected members; and two vacancies in the council were filled up by the appointment of Mr. W. Gardner (Bekesbourne, Canterbury), and Mr. T. Willson (Leicestershire).

On the motion of Mr. DUCKHAM, seconded by Mr. T. WILLSON, it was agreed that the Chamber should reassemble on Tuesday, the 10th of December, at eleven in the forenoon, preliminary to which a meeting of the Council will be held at ten o'clock. It was determined that at the general meeting the business should be of a routine character, no special subject being named for discussion on that day.

Mr. DUCKHAM proposed that the next two subjects for discussion should be "The Unequal Pressure of Local Taxation" and "National Rating for the Relief of the Poor."

Mr. MASFEN moved, as an amendment, that, as Parliament was about to take legislative action on the question of educating the agricultural labourer, that and the working of the Highway Act should be considered at an early day.

Mr. HODSOLL, in seconding the amendment observed that in his neighbourhood (Maidstone) the act had just come into operation, and his parish and an adjoining one had had thrown upon them the maintenance of a portion of the turnpike-roads. The result showed that it was desirable to come to some understanding with the Legislature as to how turnpike-roads were to be managed hereafter. In such cases as that he referred to, the pressure upon particular parishes would be excessive. For example, in his own parish, where they took only a mile and a-half of turnpike-road under their management, they would be put to an expense of £200 by reason of the converging of traffic from different directions thereto, and the fact that it took five times the quantity of metal to keep the same extent of road in repair there than it did ten or twelve miles off. That, therefore, was a subject to which the Chamber would do well to give its attention. As to education, it was a matter of primary importance. He himself was an advocate for the compulsory system (Hear, hear); but he was convinced that before the motion came to that, education must be secularised, and until that was done they would not be in a position to entertain the question. First secularise education, then make it compulsory (Hear, hear).

The CHAIRMAN said these subjects were undoubtedly of immediate importance, whilst the two mentioned by Mr. Duckham would well bear postponement.

Mr. DUCKHAM reminded the Chamber that a strong movement was in progress in London with the view of organising an agitation in the large towns in favour of national rating. It was proposed to place 50 per cent. of the poor-rate on the Consolidated Fund, and to raise the remaining moiety by rating; and he felt that any such scheme should be guarded against, as its effects would be, in all probability, to increase the burden of taxation borne by the rural districts. Under the circumstances, however, he would not press his motion.

The amendment of Mr. MASFEN was then adopted.

The SECRETARY reported that resolutions had been forwarded to him from various local Chambers on the Cattle Plague and the Orders in Council. The Devon and Cornwall and the Hertfordshire Chambers had resolved to adhere to the resolutions passed by them in the spring of the year. The Leicestershire Chamber requested the Central to reconsider the regulations under which foreign animals were admitted, and the advisability of having separate markets for them. The Midland Farmers' Club were of opinion that it was absolutely necessary that all foreign fat stock should be slaughtered at the ports of landing, and that all foreign store stock should be subjected to quarantine at the ports before proceeding inland. The North of England Society considered that no less stringent measures regulating the importation of foreign cattle into English ports should be adopted than were at present ordered by the Privy Council, and that the existing arrangements for immediate slaughter should not be relaxed further than by the extension of the time for slaughter from four to seven days. The Staffordshire Chamber declared that no sufficient security could be found against the introduction of cattle plague and other infectious diseases into the country, unless all foreign fat animals were slaughtered at the port of landing, and the importation of foreign store stock prohibited. The Warwickshire Chamber resolved that the licensing system for the movement of cattle in England might be safely suspended by Order in Council, and that no foreign cattle should be allowed to mix with the cattle of this country in the public markets. The Worcestershire Chamber requested the Central Chamber to urge upon the Privy Council the necessity of all imported fat stock being slaughtered at the port of debarkation; and that a short quarantine of not less than 14 days should be imposed on all store stock imported. The North-Riding Chamber was of opinion that the injury to the home cattle trade caused by the operation of the Orders of the 20th August should be brought under the immediate notice of the Government, also the impolicy of admitting foreign animals into the same market with home-bred animals; and the Banbury Chamber, that all foreign animals should be slaughtered at the port of entry.

The CHAIRMAN felt sure that if the sense of the whole agricultural community could be taken on this matter, it would be, "Slaughter all foreign fat cattle at the port of debarkation, and send us no foreign store stock unless after an effectual quarantine" (cheers).

Mr. WILLSON (Leicestershire) said that his county had suffered more than any other district from the order of the 20th of August, and that when the Leicestershire Chamber met, on the 12th of October, it expressed the utmost indignation of that order.

Mr. HARRISON (a salesman of Leicester), speaking in the name of the many producers of stock sent to London at this season of the year, remarked that when once the animals

entered the Metropolitan Market they were like mice in a trap; they could not move anywhere else. The best customers of the Leicestershire breeders in the autumn were the southern counties; and the stock was purchased to be conveyed to Brighton and other places on the south coast, in which process great hardship was inflicted on cattle and their owners through the existing arrangements. It was only a week ago that Mr. Lintoll, of Brighton, visited Leicestershire, and bought twelve beasts, which he transmitted by the Great Western Railway. They left on Monday, but did not arrive at Brighton until the Thursday; and throughout the journey they were never unloaded. It might easily be imagined, therefore, that they were not in a very fit state for the butcher; and if cattle must be moved in that way it was certainly a very serious thing. This afforded one reason why a separate market for English cattle should be established. Instead of three or four days being occupied by the journey from Leicester to Brighton, he held that there ought not to be more than six or seven hours, and that there would be no increased danger if the beasts were carried on trucks through London. If the Chamber would take upon itself the duty of pressing upon the Government the necessity of establishing a market exclusively for English cattle, it appeared to him that the time had arrived for doing so. The Corporation of London were already acting; and on the preceding day they tried, for the first time, the scheme of having a separate market for English and for foreign cattle. But the lairs in the market in Copenhagen-fields were open to all cattle. They came in on Friday and Saturday nights, and were all mingled together, and next day went into the market. The Markets Committee determined upon dividing the English and foreign stock; and the regular attendants at the market had been all turned out of their old places to stand wherever the Committee chose to put them. Nineteen out of every twenty butchers who came to London attended the Metropolitan Market; but they had to walk through all the foreign animals—the beasts and sheep—before they could reach the English; and he contended that, as the market was an English market, the English dealers ought to have had the choice given them of saying which side of the market they would take, and should not be placed in the back slums. Why, they might as well be sent to Barnet as be put on the Barnet side. He referred to this matter in order to show how the producers of stock were treated by the Corporation. This was not all the evil; for the moment the stock was removed from the market the separation ceased. Foreign and home-bred sheep were mixed up together; and the sheep that had come over with the bullocks might enter any town in England without the least restriction. He had spoken of the delay which took place in the conveyance of cattle by railway; but in the case of the beasts which died in Norfolk last week, as was reported, from cattle-plague, though it was not so, the complaint was even more serious; for these animals, which were brought from Ireland, never tasted a morsel of food throughout the whole journey until they reached Norwich. Under such circumstances, no one could wonder at whatever happened to the animals when they arrived at their destination. One other point which he wished to impress upon the Chamber was, that beasts ought not to stand so many hours in the market as they were now allowed to do. This, combined with the length of time they were kept without food, was the cause of a considerable deterioration in their quality and value.

Mr. BRAWN believed that the separation of stock in the English markets as a means of preventing contagion was utterly useless. It might answer very well as far as the individual cases of the Wiltshire graziers and some others were concerned; but with regard to English and foreign cattle, if they were exposed in separate markets only for a very short time until sold, and were afterwards dispersed indiscriminately all through the country, there was no saying what disastrous consequences might arise (Hear, hear). As to putting foreign store-stock in quarantine, that consisted of placing the imported animals in sheds or lairs for a certain time, and operated in some degree as a prohibition on imports. Nevertheless, it would not be a prohibition to such an extent as to ensure protection against danger from the infectious diseases to which the country was recently subjected. Suppose that a lot of healthy cattle were placed in these lairs, and that there was one among them which had within it the seeds of disease, that one animal might infect the entire herd, and thus the very lairs would become the hot-beds of contagion, and be

the means of spreading disease throughout the country, and thus a worse state of things than that hitherto would follow. It was not a question of cattle-plague alone, but of pleuro-pneumonia, foot-and-mouth disease, and everything else. Having long been convinced that the only argument which could be used with effect was the knock-down argument of the poleaxe, he should move "That, in the opinion of this Chamber, the introduction of the cattle plague and other infectious diseases into this country through the unrestricted importation of foreign live-stock has been the cause of serious loss to the owners of home-bred animals, and has diminished the supply of wholesome animal food; and that no sufficient security against such visitations will be found until all imported stock are slaughtered at the licensed parts of the port of landing."

Mr. DUCKHAM seconded the motion; and, after advertising in grateful terms to the services rendered by the Chairman and by Mr. Corrance, one of the members for East Suffolk, in the cattle-plague discussions of the House of Commons, observed that on this occasion there were two points for consideration. The first and principal one was the question, What was the value of the free importation of cattle to the nation—was it the production of animal food at a cheaper rate than we could produce it if the country were altogether dependent on its own resources? Now that most unstatesman-like speech which was made by Lord Robert Montagu in the House of Commons showed that ever since the free importation of foreign cattle was legalized, instead of reducing, it had had a tendency to increase the price of animal food. In his view, the free importation of animal or indeed of any other food should be looked upon as auxiliary to our home production; but, if through importations and an imported disease we lost in the value of our home-bred stock, which was one so greatly superior to the imported, more than the value of the latter, then it became a serious matter for the consideration of the consumer as well as the producer (Hear, hear). Now Lord Robert Montagu showed clearly that this was what had taken place. It was well known before, however, and the discussions in the Chamber of Agriculture had brought it out, that foot-and-mouth disease and pleuro-pneumonia were strangers here prior to the importation of foreign cattle, and that, owing to the regulations adopted since the cattle plague visited us, the country itself had become healthier, whilst the stock was more healthy than it had been for 30 years past (Hear, hear). So that there was not only wholesome food for the consumer, but we were enabled to go on with certainty in the production of home-bred animals. Both consumer and producer then were deeply interested in obtaining some measure to protect our herds and flocks from the diseases to which they had been subjected of late years.

The CHAIRMAN suggested that the resolution should be amended by substituting the words "waterside markets at the port of landing" for "licensed parts of the port of landing;" and added, that, though a Norfolk man, he should be glad if foreign store stock never came into the country (cheers).

Mr. BRAWN believed that England was not dependent upon the introduction of foreign store stock, and that the statement of Mr. Duckham, that we were now very much freer from disease than we had been, was perfectly correct. Breeders of cattle were also rapidly recovering from the losses they had sustained through the cattle plague; but that was a result which could not be ascribed to the importation of foreign stock, and he was inclined to think that we were likely to be overstocked rather than understocked a twelvemonth hence.

Mr. R. L. EVERETT considered that the resolution proposed was hardly consistent with the one passed at the Bury St. Edmund's meeting in July, which laid down that fat stock should be killed, and lean quarantined.

Mr. OSBORNE agreed with Mr. Brawn in the opinion, that through the efforts of the farming community in breeding more cattle, in a very few months the country would recover its losses, and that it was for the interest of producers and consumers that the resolution moved by that gentleman should be adopted.

Mr. SIMMONS (Banbury) said that that town was the centre of a large grazing district, and that at a numerous meeting of the local chamber on the previous day this question was fully discussed, and it was the unanimous feeling that markets ought to be established at the port of landing, and that all foreign stock, not only cattle but sheep, should be killed there.

The question being asked whether it was probable that this country could raise sufficient stock for its consumption, he took upon himself to reply, and he thought he showed clearly that with the help of Ireland we were totally independent of any foreign supply. No better proof could be adduced that farmers were doing their utmost to raise sufficient stock than the fact that in Banbury market calves from their mothers' feet were bringing from £3 to £3 10s. a-piece. The same was the case with sheep in that neighbourhood, the quantity being greater during the last year and a-half than at any time in his experience. He might add, that in the views he now expressed, he was supported by the general sense of the meeting.

Mr. MASEN said that the Staffordshire Chamber passed the resolution read that day by the Secretary without any opposition, although two or three gentlemen did not vote in consequence, as it seemed, of not clearly apprehending the point at issue. He would be the last man to do anything injurious to his countrymen in the way of imposing restrictions on the importation of stock or anything else; but the agricultural portion of the community had had a desperate disease to deal with, and experienced a terrible visitation, and it was their duty to do all in their power to prevent the recurrence of such a calamity. He was glad to find that others were in agreement with him as to the non-necessity of admitting foreign lean stock in large numbers to graze upon our English pastures. In his opinion it was quite superfluous, and there was not the slightest need for it. With regard to a system of quarantine, which some clubs recommended, he would thank any gentleman who would sketch out to him a system of quarantine which would be completely effective to prevent the spread of disease, and render it safe for imported to mix with home-bred cattle and to go inland through the country. When beasts were landed from the vessels after a sea voyage they were naturally in a very heated state, and he feared lest in quarantine they would not receive the attention and care requisite to effect their restoration within a reasonable time; and it was not the cattle disease, but pleuro-pneumonia, foot-and-mouth disease, and small-pox they would have to guard against. On the whole, therefore, it might be best to strike at the root of the evil by slaughtering foreign fat stock at the port of entry and prohibiting the import of foreign store stock. He had been told that the gentlemen of Norfolk required the foreign store animals for grazing; but it appeared from what the Chairman said that he would be glad to see the trade in them stopped altogether; and no doubt he had arrived at that conclusion because he considered that the amount of profit to be derived from grazing these animals was more than counterbalanced by the fearful ravages of the disease which they brought in their train. Two years and a-half ago Professor Gamgee wrote to him to inquire how the foreign stock in his county had turned out; and upon inquiry he found that four lots had been introduced into the county, and that in every case from one-fifth to one-half of the number had died of pleuro-pneumonia before they had been in the district more than a very few months.

Mr. WILLSON suggested that the drovers employed in removing animals from vessels should be compelled to wear badges, and not be permitted to take cattle to the dairies inland; for it was well known that contagion had been carried from place to place in the clothes of individuals.

Mr. T. HORLEY thought that, if they asked for the entire prohibition of foreign store stock, it might be an obstacle to getting separate markets. Moreover, it would not be consistent with the resolution passed at the Bury meeting, in favour of quarantine.

The CHAIRMAN believed that quarantine would operate as a prohibition to a great extent (Hear, hear).

Mr. SMYTHIES concurred in this view.

Mr. R. L. EVERETT moved, as an amendment to Mr. BROWN'S motion, the appointment of a deputation to wait on the proper authorities, and submit to them the resolutions of the Bury meeting.

Mr. WILLSON seconded the proposal, on the ground that pressure was absolutely necessary to be brought to bear on the Government, and that lukewarmness in the cause would certainly tend to failure. As to quarantine, twenty-eight days would suffice to prevent any more store stock coming in; for the expense of one pound a head would absorb the profit.

Mr. BROWN knew that quarantine would be prohibitory in a great measure; but it was attended with danger, for the

quarantine sheds themselves might become the hotbeds of disease.

The CHAIRMAN having asked to whom Mr. Everett wished the deputation should go, that gentleman replied the Privy Council; whilst other members suggested Mr. Disraeli, and some the Home Secretary.

The CHAIRMAN intimated that he had had enough of the Privy Council, and that, as to going to the leader of the House of Commons, he considered that the Government had broken faith with the agriculturists, because, in answering a question put by him (Mr. Read), Lord Robert Montagu, as the agent of the Government, assured him that Thames Haven should be closed against the import of foreign beasts; but, instead of that, Thames Haven had been positively licensed (Hear, hear).

Mr. WILLSON: Instead of going with a deputation then, let Mr. Read himself bring the matter before the House of Commons when they meet in the course of the next fortnight.

Mr. F. M. WILSON (West Suffolk) thought the meeting would be stultifying itself if, after the Bury resolution, it adopted that of Mr. BROWN. The old taunt that they were raising the cry of Protection would be repeated. They would be cutting their own throats, and, in fact, would do much injury. He recommended, therefore, that the resolution proposed should be restricted to "fat" cattle.

To this suggestion Mr. BROWN assented, and thereupon Mr. Everett's amendment was withdrawn.

The CHAIRMAN said they grazed large numbers of cattle in Norfolk, but bred comparatively few or none. He believed, however, that the opinion generally prevailed there that they would be much better without foreign store stock. Still, the question was one of policy, and it would be very injurious to their interests and to the interests of agriculturists throughout the kingdom if the Chamber were to attempt to exclude foreign store stock entirely. What he wanted to keep out was not so much the store stock as the cattle disease, and if that could be accomplished by means of quarantine, so much the better (Hear, hear). In his younger days he went in very extensively for foreign store stock, because they were so very cheap, and the result was that on one occasion in less than eighteen months he lost 44 head of cattle by the lung disease. He then found that the reason that the cattle had come in so cheap was that those blessed Dutchmen had very little hay, but plenty of pleuro-pneumonia (Hear, hear).

Eventually Mr. BROWN'S motion was put, and adopted in the following amended form: "That in the opinion of this Chamber the introduction of the cattle plague and other infectious diseases into this country through the unrestricted importation of foreign live stock has been the cause of serious loss to the owners of home-bred animals, and diminished the supply of wholesome animal food; and that no sufficient security against such visitations will be found until all imported fat stock are slaughtered at the waterside market of the ports of landing."

Mr. HARRISON remarked that probably the objection would be raised that killing at the waterside market would cause the meat to deteriorate; but in answer to that he had merely to say that meat killed in Holland and in Scotland, four hundred miles off, came into the London market as good as could be desired. No harm was likely to ensue, therefore, from slaughtering at a distance of only five or six miles.

The CHAIRMAN presumed that no one had a resolution to propose relative to foreign store beasts, which even now could not come into the market until after 28 days' quarantine; but he thought it advisable that some step should be taken with respect to foreign sheep, which at that moment were being imported, for one place, at Great Yarmouth, without any restriction whatever. In fact, they had only to pass inspection by the veterinary surgeon, and might then be driven over the whole country.

On the motion of Mr. DUCKHAM, seconded by Mr. OSBORNE (Tamworth), it was then resolved "That it was desirable that similar regulations should be enforced for the importation of sheep to those now in operation for foreign store cattle; and that a deputation be appointed to submit the resolutions of the Chamber to the Secretary of State in the first week of the approaching Parliament."

Mr. WALLER, who represented the Home Cattle Defence Association, said that its action would depend very much upon the result of the consultation of the Chamber that

day. The association had hitherto principally relied upon petitioning Parliament, and bringing the subject of the cattle trade generally before the country through the press. He was in communication with several London and provincial papers, and he thought that to a certain extent the association was influencing public opinion. The question had not been made a party or political one, and he was glad to know that some of the liberal members of the House of Commons would give it their support. The Association was quite convinced that the sooner the matter was brought to an issue the better, for the Privy Council was trifling with the trade of the port of London. For example, as they all remembered, six or seven weeks ago a serious outbreak of small-pox in sheep occurred at "Brown's Wharf, Poplar." That wharf was situated in a densely populated neighbourhood. The area was about one acre, and it had no railway communication with the Metropolitan Market. Under the operation of the Order in Council which took effect the previous day, that wharf would be closed; but he was informed that in consequence of a deputation to the Privy Council their Lordships had decided upon publishing an order in the *Gazette* to postpone the operation of the previous order and to allow the reopening of Brown's Wharf until such time as the proprietors of that wharf could make a railway to the Poplar Station.

Mr. ODAMS said that during the six weeks or two months that he had landed cattle at his premises near the Victoria Docks for the General Steam Navigation Company, he had made it his business on several occasions to see the cattle as they came from the boats, and he could assure the Chamber that the state in which the beasts were brought ashore, the inflammatory appearance of their eyes, and other symptoms, must convince any man of ordinary intelligence that they were not fit, under any circumstances, to come in contact with English cattle. It could not be wondered at that such was their condition, considering the stench which prevailed in the vessels, and the fact that animals had been kept confined for 36 hours inhaling the noxious gases that arose from their own excrement. He was certain that nine-tenths of the diseases of cattle in this country was brought on board the boats in which they were conveyed hither.

The CHAIRMAN having inquired whether it would be convenient to the Home Cattle Defence Association to join in the deputation to the Home-Office,

Mr. WALLER replied in the affirmative; and added that that association included in its ranks many persons who were not connected with the Metropolitan Market. One of its principal supporters, indeed, was a large importer of foreign cattle, and he held the opinion that without the establishment of a waterside market for foreign stock, the home cattle trade could never be conducted with safety. It would be desirable, if possible, to have an expression of the views of the Chamber with reference to the ideas of Mr. Ruskin, Chairman of the Markets' Committee of the City Corporation, on the arrangements for separating stock.

The CHAIRMAN believed he spoke the sentiments of all present when he said the scheme was altogether visionary and delusive. The butchers would have to tramp through the foreign cattle before they reached the home-bred; so that if there were any infection in one part of the market it would certainly be conveyed to the other.

The SECRETARY read several communications from local Chambers on the present position of the Malt Tax. The Leicestershire Chamber approved of the appointment of the Select Committee of the House of Commons in the last Session, and of the Central Chamber's taking up the subject, and hoped that it would never discontinue its efforts until it had succeeded in obtaining the total repeal of the impost. The Banbury Chamber condemned the tax as injurious to the farming interest generally, and pledged itself to use every means in its power to aid in achieving the same object. The North of England Chamber declared curtly and emphatically, and without any circumlocution, that the tax should be "abolished forthwith." The Staffordshire Chamber called upon the Central Chamber to move an early discussion on the subject of the tax. The Worcestershire Chamber, which pronounced the tax "in its present form" oppressive and unjust, requested the Central Chamber to call for legislation, and use all possible exertions in the cause of repeal.

Mr. T. ARKELL said that the Swindon Chamber had come

to the resolution that it was unnecessary to take any further steps until the Select Committee had made their report.

Mr. R. L. EVERETT complained of the manner in which the question had been treated by a certain section of the House of Commons, and pretty broadly intimated that it had been used for the purpose of accomplishing party and political objects, and the statement elicited a cheer.

The CHAIRMAN recommended patience during the progress of enquiry.

Mr. EVERETT moved that a deputation from the Chamber should wait on the Chancellor of the Exchequer to press the claim for abolition.

The CHAIRMAN said he did not think such a deputation would have much influence on the minister. He was of opinion that Mr. Disraeli would never be the man to repeal the malt-tax (Hear, hear). That he said as one of the right-hon. gentleman's supporters. The only man who would do it was Mr. Gladstone (Hear, hear).

Mr. KIRKHAM also reminded the meeting that when last in office Mr. Gladstone frankly admitted to a deputation from the Anti-Malt-tax Association that he did not like the impost.

Ultimately Mr. Everett's motion for the appointment of a deputation to Mr. Disraeli was negatived by a large majority; and a resolution was adopted, at the instance of Mr. Brandram, seconded by Mr. Smyth, pledging the Central Chamber to use its best endeavours to secure the abolition of the tax.

It was further resolved, on the proposal of Mr. Willson, seconded by Mr. Dnckham, that the secretary request the provincial chambers to recommend witnesses for examination by the Select Committee of the House of Commons, and forward their names to the Central Chamber for the council thereof to select six who might be considered the best.

The CHAIRMAN stated that ten gentlemen connected with agriculture had been examined by the Committee, and he did not suppose they would be inclined to receive the evidence of many more; judgment must, therefore, be exercised in selecting the additional witnesses.

Mr. MAFEN said that if he appeared before the Committee he should speak to such points only as he was thoroughly acquainted with; these were two, viz., the brewing of beer by the labourer, and malt as food for cattle.

The CHAIRMAN wished to impress upon the local associations that they should nominate as witnesses only those persons who could give evidence of what they knew instead of what they thought, and supply facts in lieu of theory.

On the motion of Mr. Osborne, seconded by Mr. Horley, a vote of thanks to the chairman was passed by acclamation.

Mr. Jasper More, M.P., who was unable to be present, had intended calling the attention of the meeting to the constitution of the County Financial Boards, a subject which, it is said, will come before the next Session of Parliament.

PROPOSED AGRICULTURAL ASSOCIATION FOR THE COUNTIES OF SALOP AND MONTGOMERY.—The committee appointed to foster this project reports that "in the first instance a circular was sent to all landowners and tenant farmers whose addresses could be ascertained, requesting their opinion as to the desirability of such an association. In answer to this appeal many of the tenant farmers expressed themselves strongly in favour of the movement, promising personally and materially to aid our endeavours in every possible way; but the great landowners having been silent in the matter, your committee did not think it desirable to proceed further. Having, however, been requested by you to suspend our final report for awhile, owing to the prevalence of the cattle plague in one of the counties, we have done so for a full twelve months after the cattle plague has disappeared. No disposition to favour our scheme has, however, been evinced on the part of landowners; and your committee are therefore of opinion that they should now resign into your hands the trust reposed in them. But we cannot do this without expressing our deep regret at the great apathy displayed in two counties possessing in wealth, intelligence, and practical knowledge such special qualifications for the formation of an Agricultural Association."

## THE INDEPENDENCE OF THE LABOURER.

If the satirist read his mission aright, the public Company must still be his target. On every side are these once-popular agencies fast falling away. The promising speculation, the steady business ensured, the bond of good-fellowship, the very cause of charity, when thus organised in a combined movement, one and all are too often powerless against general management and current expenses. The capitalist sees his shares unsaleable, the annuitant his means of subsistence gone, and the philanthropist his pet project a bankrupt. Whether it be lending money at 20 per cent., laying out railways, or building hotels, nothing seems exactly to answer in the hands of a Company. As with the heathen deities, the monster requires continual sacrifice, and the high priest seeks to appease him with promoters' charges, directors' fees, official salaries, and so forth, until everything is swallowed up, and the blind believers awoken to the ruin and desolation that they themselves have unwittingly tended to bring about.

It is really remarkable to notice how this same principle has pervaded every class of society. From the great City concern, floated at a premium on the Stock-exchange, to the very village hand-in-hand association, there are the like difficulties to guard against. The undertaking is over-weighted at starting; its conduct is careless, and the consequences more or less inevitable. The public loses its money and its confidence, and refuses to invest any further. At this very moment there are common-sense people who think seriously of putting by their savings in the foot of a stocking, and drawing these out again on the approach of the much-dreaded rainy day. In fact, the chief sufferers during the past panic or crisis have been the hard-working shopkeeper and professional man who have been led to trust in what has turned out a bad security; and now even the labourer's turn has come. His insurance office can go on no longer, his shares are at a discount, and his investments valueless. And all from precisely the same cause—a waste of the means so painfully economised, when once he is tempted to trust these to any other hands than his own. Benefit Societies in the rural districts—that is to say the working man's bank, his Company, and his insurance office—cannot continue unless under more efficient control, and unless introduced with more business-like premises. Here, however, a very marked difference is observable to that which is more commonly the case with such associated schemes for mutual advantage. In other grades of life people are accused of not looking sufficiently to their own interests, as they part with their money, and think no more about it; whereas the labourer has his funds too much under his own direction. He pays in at his favourite public-house, he frames his own rules, he dissolves when he so chooses; and eventually he is tolerably certain to come to grief all the same. On the face of it, the remedy for this state of things is obvious enough: He must not have the management of his own funds; he must not meet at the public-house, and he must have little or no voice in framing his own rules and regulations. The squire, the clergyman, and the employer are to take care of his money for him; the operation of his society to be successful must be enlarged, and in so many words he must consent to lose all identity and influence—all the pleasure, as it were, of either saving or investing. Human nature rather rebels at this; and amongst none would such a feeling of dissa-

tisfaction be found stronger, could we only probe down to it, than with the labouring-classes. Everyone who has ever come in contact with him must know how "irrepressible" is the parish clergyman; how sure he is to take a lead whenever he is called upon to take a part, whether it be on the Bench or at the Board, in the Vestry-room or the Market-place. He would be, as indeed we know he is, equally active in such a matter as this, continually improving the occasion, and not unfrequently dampening the spirit of the workman who has come with a certain honest pride to pay in his trifle. Anything like patronage at such season is especially out of place; but if the committee, the chairman, the secretary, the treasurer, and so on, be all of his "betters," the poor fellow may feel that he is out of place also.

The paying in at public-houses may be obnoxious enough, as is still more so the condition that so much money must be spent. Mr. Charles Howard showed up these abuses with much force in the excellent paper he read on Monday at the Farmers' Club, including, as this address did, what may be fairly termed the sense of the country. Still, in the anxiety to see the labourer's savings more securely invested, it is doubtful whether the man's own feelings on the subject have been sufficiently consulted; though this branch of the question was touched on appropriately enough in the subsequent discussion. Thus Mr. Williams said: "Labourers loved to regulate their own affairs themselves. There was great difficulty in breaking through their ideas; and that was one cause of their adherence to many of the old societies which were not properly conducted." There can be no question as to the truth of this, or as to the reluctance with which the man submits to such interference. If Friendly Societies can only be properly established through the direct agency of the squires and masters, as much delicacy will be required in dealing with the matter as there should be in visiting the cottage and inquiring into its domestic arrangements; and it is well known how offensive a business this may become. Another speaker went so far as to say that the poor man might take the advantage of meeting for a little social enjoyment, just as they themselves did at the Club, though such a notion was met with laughter; while Mr. Masfen, in referring to a Bill that Lord Lichfield proposed bringing in next Session, quoted a remark of his lordship's referring to the independence of the labourer "and the difficulties which arose from that source." It is because these difficulties were not sufficiently dwelt upon the other evening that we call attention to them here. The question was otherwise pretty well exhausted; but it still remains to be seen how kindly the workman would take to the more efficiently-organised Association, where his sole duty would be to pay in his subscription, and leave the care of this to others. It must be remembered that no other class in the State submits—if we may make use of the word—to so thorough an abnegation of self; and we are much inclined to agree with Mr. Howard, that it would be "preferable to see the Government grapple with the question of Friendly Societies, either by the Post Office or some other agency." The Post Office Savings' Banks are answering admirably already, and there would really seem to be no reason why their uses should not be extended. Through such a channel the labourer would steer clear alike of his own mismanagement and that patronage and



interference which, as we believe, he holds to be still more objectionable.

It has been our duty frequently of late to show the increasing interest which is taken in the condition of the labourer; and never, perhaps, have we been able to give in the same number two such capital addresses as the one delivered by Mr. Charles Howard in London, and another by Mr. Sewell Read in Norfolk on the very same day. Mr. Howard spoke to the employer and Mr. Read to the labourer himself, in an almost perfect little essay, very happily worded, as dictated in the best possible taste, and enlivened here and there by a spice of rough humour that must have told well upon his audience. The two papers should be read side by side, as indeed the Tunstead speech may serve in some measure to correct statements made during the discussion at the Club. Thus Mr. Sewell

Read, anticipating as it were the outside arguments which would be advanced, says emphatically, "I have often heard it remarked, 'What has an agricultural labourer to look forward to when he is sixty? Nothing but the workhouse!' This I deny. A man's arms may not be so strong and active at sixty as they were at thirty; but by perfecting himself in the knowledge of all farm-work (especially in the value of piece-work), by noticing the wants and habits of stock, by knowing how to manage machinery and implements, by being able to instruct young hands and direct them at work—to say nothing of what trustworthiness and general good conduct are sure to secure for him—I say a man of sixty can in many ways be worth more to a farmer than the strongest, most active, and most willing of his younger labourers." There is an encouraging hopeful spirit in this, well warranted by the change of circumstances that has been and is still occurring.

## ROSS AGRICULTURAL SOCIETY.

The Annual Meeting was held on Tuesday, Oct. 22, and was a great success. There were 115 head of horned stock exhibited, and amongst them were some good specimens of various breeds of cattle.

The Judges were: Cattle—Mr. Thomas Morris, Maisemore Court; Mr. Warren Evans, Llandowlais, Usk. Sheep—Mr. William Garne, Bibury, Gloucestershire; Mr. Roger Keene, Peneraig, Usk; Mr. Rogers, Altrynnais, Abergavenny. Grain—Mr. H. T. Bussell, Ross. Roots—Mr. R. Loveridge, The Callow; Mr. Samuel Stone, Treadow.

The following were the Prizes:

### HEREFORDS.

Best bull, more than two years old, £3, Thomas Duckham, Baysham Court.

Two best breeding cows and their calves, over three years old, £2, John Wigmore, Bickerton Court; 2nd, £1, James Bennett, Ingestone.

Best pair of heifers, under three years old, £2, T. Duckham, Baysham Court; 2nd, £1, John Wigmore, Bickerton Court.

Best pair of heifers, under two years old, £2, John Cadle, jun., Ballingham; 2nd, £1, John Wigmore, Bickerton Court.

### SHORTHORNS.

Best bull, irrespective of age, £3, Rev. W. Holt Beever, Peneraig Court.

Two best breeding cows and their calves, over three years old, £2, Rev. W. Holt Beever.

Best pair of heifers in calf, under three years old, £2, Rev. W. Holt Beever.

### CATTLE OF ANY BREED.

Best lot of breeding cattle, in proportion to the acreage of land in the occupation of the exhibitor, occupiers up to 100 acres to show two breeding cows or heifers, above 100 acres and up to 200 acres four, and so on in proportion, £5 5s., John Wigmore, Bickerton Court; second, £2 2s., Thomas P. Brown, Weir End.

### LONG-WOOL SHEEP.

Best pen of ten breeding ewes, £3, Richard Loveridge, The Callow; second, £2, Thomas P. Brown; third, £1, James Hartland, Biddlestone.

Best pen of ten yearling ewes, £3, Thomas P. Brown; second, £2, Richard Loveridge; third, £1, John E. Jones, The Flann.

Best pen of ten ewe lambs, £2, Richard Loveridge; second, £1, Francis W. Herbert, Hartleton.

Best pen of ten wether lambs, £2, Richard Loveridge; second, £1, James Hartland; third, 10s., Thomas P. Brown.

Best ram lamb (the gift of Mr. H. Bowle), £2, Thomas S. Bradstock, Cobrey Park; second (by the society), £1, John Wigmore, Bickerton Court.

Best yearling ram, £3, James Hartland; second, Thomas S. Bradstock.

Best pen of breeding ewes; occupiers up to 100 acres to show ten; above 100 and up to 200 acres, twenty; above 200 and up to 300 acres, thirty; above 300 acres, forty; £5 5s., John Wigmore; second (the gift of Mr. Walter Morris), £2 2s., Richard Loveridge.

### SHORT-WOOL SHEEP.

Best pen of ten breeding ewes, £2; best pen of ten yearling ewes, £2; best pen of ten ewe lambs, £2; and the best pen of ten wether lambs, £2, Arthur Armitage, Dadnor.

Best pen of breeding ewes; occupiers up to 100 acres to show ten; above 100 and up to 200 acres, twenty; above 200 and up to 300 acres, thirty; above 300 acres, forty; (by the society) £5 5s., Arthur Armitage; second (the gift of Mr. Walter Morris), £2 2s., H. Fisher, Michaelchurch.

### PIGS.

Best boar pig, £2, the Rev. W. Holt Beever, Peneraig Court; second, £1, John Wigmore, Bickerton Court.

Best sow in farrow or with pigs, £2, Arthur Armitage, Dadnor; second, £1, John Wigmore.

Best pig belonging to an agricultural labourer, £1 5s., Edward Castré, in the employ of Capt. Power; second, £1, James Morgan, in the employ of Mrs. Rudge, Colabro'; third, 15s., J. Worgan, in the employ of the Rev. W. Holt Beever.

### EXTRA STOCK.

£15 (the gift of Messrs. A. Armitage and J. Wigmore), to be left to the discretion of the judges to award for extra stock: £1, Arthur Armitage, Dadnor, 50 Shropshire ewe lambs; £1, ditto ditto, 50 ditto wether lambs; £1, ditto ditto, 50 ditto ewes; 30s., Rev. W. Holt Beever, Peneraig Court, 1 Shorthorn steer; £1, ditto ditto, 2 black Suffolk boars; 10s., ditto ditto, Shorthorn yearling bull; 10s., ditto, Shorthorn yearling bull; 10s., ditto, sow, improved Suffolk breed; £1, James Bennett, Ingestone, 2 Hereford cows; 5s., William Harsent, Rudhall Mill, two-years-old cart colt; £1, Henry Burgum, Kingston Court, 70 breeding ewes; 10s., Richard Loveridge, The Callow, 10 Cotswold ewes; 10s., John Wigmore, Bickerton Court, 10 Cotswold ram lambs; 10s., ditto ditto, 4 Hereford breeding cows (prize for one only); £1, ditto ditto, 50 Cotswold ewes; 10s., ditto ditto, Cotswold yearling ram; £1 10s., ditto ditto, 1 Hereford fat cow; £1, James Hartland, Biddlestone, 20 long-wool ewe lambs and 20 ditto wether lambs; 5s., Charles Kearsay, Gleveston, Berkshire hill.

### GRAIN.

For the best four-bushel sack of red wheat (the gift of Messrs. Spiller and Co.), £2 2s., John Cadle, Over-Ross; second (the gift of Mr. Thomas Day), £1 1s., Thos. P. Brown, Weir End.

Best four-bushel sack of malting barley, a fair sample from a bulk of not less than 100 bushels, grown within a radius of 10 miles of Ross (the gift of the Alton Court Brewery Company), £3 3s., John Wigmore; second (the gift of Mr. Joseph Turnock), £2 2s., Isaac Thayer, Walford Court.

### ROOTS.

Twelve best long red mangolds, 10s. (the gift of Messrs. Wheeler and Son, Gloucester), James Hartland, Biddlestone.

Twelve best yellow globe mangolds, 10s. (the gift of Messrs. Wheeler and Son), Rev. W. Holt Beever (12 Sutton's yellow globe).

Twelve best swedes (the gift of Messrs. Wheeler and Son), £1, John Wigmore; second (by the Society), 10s., Richard Scudamore, Pengethley.

## THE AGRICULTURAL LABOURER.—HIS EDUCATION AND VOCATION.

The following address was delivered to the prize-takers of the Tunstead and Happing Agricultural Labourers' Association, at North Walsham, on Monday, November 4, by Mr. C. S. READ, M.P. :—

Instead of talking to you about the good of these societies, and making that the ground-work of my address, I propose to enlarge upon two subjects of very great importance, that may at first appear quite different and entirely distinct, but which are in reality strongly connected now, and will be more so hereafter—I mean *education* and *wages*. You are aware that education is now permissive—that a man may or may not educate his children; but it may be compulsory before very long. All other industries have been interfered with, and we are told our turn is to come next. There are the Factory Acts, which have just been extended to other trades. By these Acts, no child can be employed under eight; and from eight to thirteen, the child must spend a portion of its time at school if employed at any work. But the heat, dust, and smell of a factory, and the close confinement, render most of these employments somewhat unhealthy, particularly for children. This cannot be said of farm-work, for there the child has plenty of pure air, with exercise that is not often laborious; so that the restrictions which are likely to be imposed will be directed rather to improving education than limiting the amount or the hours of labour. Any restriction upon juvenile labour will fall heavily upon the man with five or six children under twelve years of age; but as the chief restriction will doubtless refer to the badly-educated children, I hope the fear of it will act as an additional inducement to send your children to school early and regularly, so that they may read by eight or nine years old. I contend that the present system of education is generally ample, if made the most of; our schools are increasing everywhere (thanks especially to the clergy), and there is now hardly a large district in which there is not a good school within reach of the agricultural labourer—a school at which his children can be educated at the cost of one penny a week, though the cost to those who provide it is often as much as ninespence and is seldom under sixpence for each scholar. There is a complaint, and there is good ground for it, that children are not sent regularly to school, and that they leave it too young. There is little excuse for removing a girl from school till she is eleven or twelve years old; she is seldom wanted for home domestic duties before that age, and is hardly of any use upon a farm when she is so young. With the boys it is different—they must bend their backs to labour and develop their muscles while they are of tender years; they must become accustomed to horses and stock, and know what farm-work really is. A boy that can handle a spud well will more easily learn the proper use of the spade and the draining-tool; if he is handy with a hoe, that prepares him afterwards for the scythe and pitchfork; while, if he is skilful with the turnip-knife, he will the more readily learn how to handle the axe and the bill-hook, and even if he can ride the fore-horse, will more easily learn to drive horses in the waggon or at plough. I contend if a boy can read at the age of nine, that is the age at which he should go to field labour, and by attending Sunday school and night-schools, he can retain and, if he will try, improve his education. A great many stupid things have been said against night-schools—that the hard-worked boys fall asleep over their books, and they are too tired, too wet, or too dirty to attend in the evening or make any progress with their studies. The total change from the labour of the field to the work of the school-room for an hour or two twice a week during the winter months—when the hours of farm-work are short and the labour light—cannot be otherwise than advantageous, and ought to be pleasant. I believe that night-schools, when properly managed, have done, and will do, much good. I have in my young days taught in them myself; and as to the over-fatigue of the lads, why, in the summer, when boys work hard for ten hours or more on the farm, you see them in the evening playing cricket, or some other game, most heartily, and the men are busily employed in their allotments or gardens.

So much for general education: to my mind it is on the whole satisfactory, but I wish it could be more practical and special. Any education no doubt tends to make a better man, but not necessarily a better labourer. We must on no account undervalue education. You should always remember that without it, it is almost impossible to sensibly better your condition in life; but we must not expect too much from it. The childhood of the labourer is too short and the struggle to earn his bread is too keen for him to hope to develop a good general education. I always say that farmers' sons who leave school at 14 or 15 had better learn some science that will be useful on the farm than attempt Latin and Greek. Even we of the middle-classes can't afford to our boys the time which is necessary for a first-rate education. Take my own case. If, instead of leaving school very early and learning the practical work of the farm, I had been sent to a university and studied till I was 21, I doubtless should have made a better M.P., and delivered a better speech to you to-day; but I question if I should have made so good a farmer. And I am one of those singular instances in which a man is promoted to a higher station for no deserts or even any desire of his own, but simply by the kindness of his friends and the wish of a large constituency. If anything more than reading, writing, and doing a sum are attempted in our village schools, I should like the biggest boys, instead of learning history and geography, to be taught the first principles of mechanics—not the construction of machines, but the proper, and consequently the easiest, way to use farm tools and implements. Something of this sort might do good, for we have few means of instructing boys in the skilled work of the field. Take, for instance, ploughing. In days of yore, the boys lived in the farmhouse, and were often taught to plough; but now, I fear that we seldom attend to the training of our ploughboys, though we do perhaps encourage a willing lad to handle a plough in turning over our stubbles and turnip-land under the superintendence of the team-man. It may be that a smart boy will soon master the art of ploughing, and excellent societies like these step in and offer rewards for such juvenile energy and skill. An ignorant, plodding lad may by perseverance also overcome the difficulties of cutting a straight furrow; but surely a little thought and knowledge to assist his eye and hand will make him master it all the sooner. It is, however, more than probable, without the thought and observation, that lad may for years only muddle his work, shoving and crowding the plough about and doing half the work of the horses, while the other fellow who uses his head will lay a first-rate furrow though he seems hardly to touch his plough, and walks behind it as upright as a drill-sergeant. Again, we see a "bramble" hand-cutting off a fence, slaving and chopping away, using a hook as if it were a mattock, while another man will do the work much better with half the expenditure of strength. Once more, you have some wooden fellow cutting an under-drain as crooked as a dog's hind-leg, and heaving out double the quantity of soil that is needed, while the skilled workman cuts the clay as if it were butter, does not trouble himself to remove a single ounce more soil than is required, and cuts the drain evenly and straight. Now, you will say all this requires great skill, and can only be learned by long experience, and can never be accomplished without a strong and steady arm and a keen sharp eye. Granted; but if a boy learns something at school that he can carry into the field, any lesson that will induce him to think over his work, to make his mind help and save his hands, that is the sort of education that is more likely to interest him, and is sure to expand his mind, increase his natural intelligence, and will help to make him a skilled labourer. As to the actual wages now paid to the agricultural labourer, it is certainly increased considerably during the past fifteen or twenty years. As a boy I can remember that the range of weekly wages never exceeded *one-third of a coomb of wheat*; so that three years ago, instead of having 9s. or 10s. a week, you would have been receiving 7s. or 8s., and now, instead of being 12s. and 13s.,

wages would not in these short days have exceeded 11s. And not only are wages raised, but the men are all employed winter and summer too. There is no difference now between the wages of the single and married men, and you certainly work less hours in the day than you did, and I am equally sure that much of your labour is not so severe as formerly. But the rise in the rate of weekly wages is much less than the increase in the pay of piece-work. I can remember when mowing hay was 1s. 6d. and 2s. an acre, and now it is 3s. and even 4s. Draining, ditching, and hoeing are fully 30 per cent. dearer, and harvest wages, which seldom were above 4s. are now rarely under £6. And you must remember that task-work is the only test of cheap labour. In some counties we hear the pay of the farm-labourer is 1s. 6d., and in others 2s. 6d. a day, and yet we find that the price of piece-work is about the same. Rely upon it that where wages are so very cheap, that besides less work being done, there are some privileges—beer, cider, house-rent, garden-ground, firing, constant employment, &c., &c.; while, on the other hand, high wages are universally coupled with dear house-rent, increased cost of living, more work, and longer hours. You know how many of your neighbours who have migrated to London, and earn perhaps double your wages, at the end of the year are no richer than you are, while numbers of them are now returning to their native county, which makes labourers just at the present time unusually abundant. On the stoppage of the Millwall and other ship-building yards last year, a large number of ship-wrights and skilled artisans were thrown suddenly out of work, and though they had been earning one and two pounds a-week, we are told that at the end of a fortnight the great majority of them had nothing to live upon. A year or two ago, when labourers were so scarce in the north and wages were so high, some gentlemen came round to Wymondham and took away twelve families that were very badly employed as weavers there, paid all their railway expenses, and found them with plenty of suitable work, and yet at the end of twelve months, five out of those families returned, the men preferring 12s. a-week in Norfolk to the 20s. they had earned in the north of England. And I once took a young fellow from this county into Oxfordshire, where he received much better pay; but he soon returned to Norfolk, assigning as a reason for his departure, "that he did not like baker's bread and could get no light dumplings!" Pray, don't misunderstand me: I rejoice in your higher wages, and trust they will increase more rapidly than they have hitherto done; not that I wish all should be paid more for doing as little as a man can in a day, but that the best hands should earn more, especially at task work. I believe that the daily wages that are current in Norfolk are about the average of the agricultural wages in England. If you take the weekly wages at 12s., they amount, with extra earnings at piece-work, to at least 14s. a-week, or £36 a-year; for the additional pay of harvest alone will be 1s. 6d. a-week if spread over the twelve months. Now, the average income of all the working-classes, including artisans and mechanics, is 17s. per week per family, or £44 a-year. Mind, not 17s. a-week for the man, but his wife's and children's earnings as well; and there are very few of you, I apprehend, whose family does not bring you in 3s. a-week, and so raise your income to the average wages of the working-classes generally. No doubt a certain amount of day-work must be done on all farms. It is easiest for both master and man; it requires less thought and judgment, and there is no bother about measurement; but it has precisely the same effect of trades' unions with the artisan classes, for instead of allowing the best or most skilled labourers to earn 2s. 6d. or 3s. a-day, it brings him down to an average hand, and at the same time elevates some stupid lout, whom the farmer employs through charity or necessity, to his level. We farmers are told that the chief difficulty we shall have to contend with in future years is the labour question—that you labourers don't know your own strength, and when you combine like trades' unionists, you will dictate your own terms to your employers. Suppose you do—which I don't believe, for you are like us farmers, and, from being scattered over the country, have not the means to congregate yourselves and form associations; but if you did form unions for the protection of the agricultural labourer, I believe you would find that for common ordinary labour—I mean strength without skill—you are paid as much as labourers of a similar class. Compare your wages with those of the labourers in her Ma-

esty's dock-yard, with the labourers about the quays, wharfs, and docks of our great ports, the bricklayers' labourers all over the kingdom, the hand-loom weaver, even the ordinary factory hand, and the common shoemakers of Norwich—when you consider the uncertainty of employment, you will find (and some of you, no doubt, can confirm what I say) that for the same amount of the same kind of work, you are paid as well by the farmers as you would be by some other employers of labour. You must look for increased earnings to more skill and dexterity in your calling, and earn more wages by the care and interest you take in what is confided to your working and keeping. I have often heard it remarked, "What has an agricultural labourer to look forward to when he is sixty? Nothing but the workhouse!" This I deny. A man's arms may not be so strong and active at sixty as they were at thirty, but by perfecting himself in the knowledge of all farm work (especially in the value of piece work), by noticing the wants and habits of stock, by knowing how to manage machinery and implements, by being able to instruct young hands and direct them at work—to say nothing of what trustworthiness and general good conduct are sure to secure for him—I say a man of sixty can in many ways be worth more to a farmer than the strongest, most active, and most willing of his younger labourers. You cannot be too thankful that the labourer is free. A week's wages will carry a young man to any part of England, and a few pounds to America and most of our colonies. But, remember, the parish is free, and the farmer also. There is now no necessity for the farmer to employ a man because he has a large family, or because he is a stupid worthless fellow that the parish must support if he is out of work, and, consequently there is the greater necessity for the labourer to be a smart active hand: for if you can find another master when you please, so is the farmer justified in finding a better labourer where he can. It is a matter of congratulation that the aversion to machinery, which has been so common, and which at one time produced riot and bloodshed in this county, has considerably diminished, and will, I believe, in a few years, entirely die out. Be sure of this, that farm machinery has done the hardest work, and will always ease the labourers' excessive toil. What was such hard work as thrashing by the flail, and how could the corn now be thrashed if we had no steam-engines? England would have been half-starved this harvest if the farmers had to depend on manual labour to supply the market with his new wheat. And what takes more out of a man than mowing grass or corn? So you ought to look upon the reaping and mowing machines as your best friends. For instance, you are now paid as much for hoeing turnips after the horse-hoe had done chief part of the work, as you formerly received for doing it all by hand. There is not a sufficient supply of labour to do all the work, and as machinery becomes more general, manual labour will become lighter, though what is left for you will require more skill and more judgment to perform it. There are many things in agriculture that machinery never has and never will do well, and "willing hands and lissome fingers" will always be needed so long as seed-time and harvest follow each other. And you should remember that with all the machinery employed on the farm, there is no diminution of manual labour on arable land. On the contrary, I can remember when the farmer who expended 20s. to 25s. an acre in labour was considered a good employer; but now, 30s., 35s., and even more, is the common expenditure by good farmers. There must be a limit to the increase of this expenditure. In some districts, the cost of labour and the low price of wheat which has ranged for some years have made the farmers keep their land in grass; and with us, although we grow good corn and poor pasturage, if the expenses of working arable land exceed the value of the crops produced, we shall cease to grow corn, and it will be imported from abroad. I don't say this is at all likely. I hope not; but it is no idle threat, for already the high-priced labour is being seriously felt in other trades, notwithstanding our great capital, cheap coals, and other advantages. Engines and other iron goods come in from Belgium; while doors, window-frames, and all the wood-work of our houses, come ready-made from Sweden and Norway. I beg pardon for having dwelt so long and exclusively upon the men, as if this society did not recognise or try to reward female industry. I will for the present pass by the education of the girls, for girls are kept longer at school than boys, and so have an opportunity of becoming better scholars. I am not one of those who

think that education has spoiled our domestic servants. A girl who can read well and write to her mother, and to her sweetheart too, ought to make a better servant than one who can't. But schools have innocently lent a helping hand to the deterioration of our domestic servants. Too many mothers send their children to school simply to get rid of them, and then think they have done all that is required, and imagine that the schoolmistress and the parson do what is needed for the discipline and management of their children. Nay, more: very many foolish mothers consider the restraint of school so irksome and tiresome, that it is positively necessary for the health and well-being of the child that it should run wild all the rest of the day. This lack of parental authority, of course, produces disobedient and undutiful children. With the boys, the discipline, such as it was, when they lived in the house of the farmer, is done away with; and if an employer chastises the most obstinate and wilful of boys, the silly parents reward him by summoning him before the magistrates. As so many parents neither correct their children, nor allow others to keep them in some sort of order, we can't wonder at the uppishness, the insolence, and the lawlessness of some of the young men in our agricultural villages; nor should it create surprise that girls, when they go to service, cannot bear the restraint of a well-ordered household, and prefer the small wage and freedom of field-labour to the better pay and more suitable employment of domestic service. In my station of life, I know that children are brought a great deal too forward; and if they were not made so much of, they would be happier in themselves, and less of a nuisance to those around them; but I maintain that the restraint and discipline—keeping them from evil company, and from going just where they please, and doing just what they like—are much more severe and exacting with us than it is with the lower order. What father, for instance, in the middle-class of life would think of allowing his girls of fourteen and fifteen to run about the village street at all hours of the night, or allow his boys of the same age to stay as long as they liked at the ale-house? Rely upon it, no great improvement will result from better cottages and better education, unless the parents will take some more decided steps “in keeping their children from wickedness.” I have been somewhat misunderstood as to what I have said on other occasions about the employment of young girls in agriculture. If I were a farm labourer, nothing would give me greater pain than being compelled to send my girls to field-labour. For very much the same reason, nothing should induce me, if I had now half-a-dozen sons, and wished them to be rich and prosperous, to make one of them a farmer. No man gets so little interest for the money he employs as the farmer, or is so unfit for other business should he fail as a farmer; and as the agricultural labour of women is of the lowest type, their wages are consequently very small, and it often spoils them for more delicate and confined employments. But if I had a son whose health would not bear the close confinement of an office, or whose ability would not enable him to stand a fair chance in the race for wealth, I should not hesitate to put in force the old saying, that “any fool can make a farmer.” And so with a labouring man: if he has a girl that is not fit for, or could not obtain domestic service or other indoor work, I would rather have her employed in the field than kept doing nothing, or worse than nothing, at home. I well remember an orphan boy who was taken into our house with the idea of training him for an indoor servant. On being well lectured for his stupidity and dulness, and being told that he would never be fit for anything but a labourer, the boy replied, “He s'posed there must be such people.” No doubt, there are many “such people,” girls as well as boys, who have no ability and no desire to be anything beyond field-labourers; and when we consider the miserable pittance paid to milliners, dressmakers, and sewing virgins generally, the difficulty there is obtaining suitable in-door work for very wretched females, I am not surprised that some of them prefer farm-work—especially when they contrast the eight hours in the field with the sixteen that is the usual length of the day with our domestic servants. I repeat, as there are so very many women and girls who are fit for nothing better than the plain and sturdy labour of the field, it is far preferable that they should work on the farm than have silly notions put into their heads that field-labour is not fitted for females; still less that they should be kept in idleness or vice at home. By all means reduce the number of these females, improve them,

enlighten them, educate them, make them better members of society, and then you will have no reason to restrict juvenile female labour in the fields, for the best of all reasons, that young girls won't go out to such work if they can find better and more suitable employment. In the meantime—till that improvement has taken place—it is foolish to say that the employment engenders immorality or bad habits, simply because all sorts of women and girls, who can find nothing better to do, gain an honest livelihood at such work. But to return to the education of the girls; even as to them I could wish that their instruction was more useful and more practical. Let me illustrate what I mean. You all know that this year a great Reform Act has been passed. Don't suppose I am going to talk politics, but I wish to place before you one of the main reasons that was assigned by the ministerial leader in the House of Commons for bringing in a Reform Bill. Mr. Disraeli said it was the great advancement and increased intelligence of the working-classes that rendered it necessary to extend the franchise; but he seemed to think that intelligence was confined chiefly to towns. And he said the main cause of this progress was “the application of science to social life”—*i.e.*, applying the useful knowledge and wonderful discoveries of the great and clever men to increase the comforts of our homes. But there is a great social duty of our hearths—the duty of cooking—that has at present received precious little assistance from science. I am one of those who think that a kind Providence gives us food, and that if the Evil One did not send cooks, he certainly has kept women singularly ignorant of one of the foremost of domestic duties. We hardly know how much of the happiness of a poor man depends on the preparation of his food. His capacity for labour, his health, and consequently his comfort and good temper, are mainly dependent upon it. Generally speaking, the economy of the farm-kitchen in cooking is much greater than that of the cottage. Therefore, all things being equal, if I were a young labourer, I should always make love, not to black eyes or blue, but to a good plain cook—though it might suit all the better if the plain cook was a nice-looking girl. I shall be told that there is plenty of materials in a farm-kitchen to make a good dinner; but it generally happens that the knowledge of how to make the most of an abundance, will also furnish the best and readiest means to make the best use of a little. Knowledge of even the first principles of cooking is often entirely absent in a cottage; and plain fare, that might be made palatable and digestible by good management, is too often rendered distasteful and indigestible, and consequently the hard-earned wages of the husband are well-nigh wasted. You will laugh at my offering you a cooking receipt, but I happened many years since to give a few peas away in a severe winter for making soup. On going into one cottage I tasted some that was decidedly nice, and in a neighbour's, the same sort of soup, that was essentially nasty. Now, the only difference, I was assured, was that one was made from snow and the other from hard-water. No doubt the virtues of soft-water in making soup are well known to all cooks, but they may not be to every labourer's wife, and I would remark that I think we have strong prejudice against soups and broths, in which the Scotch so much excel, which may possibly arise from our inferior method of preparing them. But it may be some consolation for you to know that other counties are still more behindhand in the mysteries of cottage cookery. I believe that the table of a poor man in Norfolk is much better supplied, and at a less cost, than in many parts of England. I look upon our despised Norfolk dumplings as a great and glorious institution. Surely a snow-white dumpling, so light that it almost knocks the lid of the boiler, if not a “dish to set before a king,” is enough, with a little dripping and a few vegetables, to furnish a hungry man with a jolly good meal, and is certainly preferable to the never-ending dinner of bread and cheese that one sees in the midland counties. Then in those parts you find a poor woman buying a pound of dry bacon; she cuts it into slices, and frizzles it before the fire till the chief part of the goodness is gone; while a Norfolk woman would buy the fresh bacon, chop it up, and put it into a good thick crust (if of meal, so much the better), and instead of having a little mouthful of meat, produces a thumping big dumpling enough for her husband, self, and children. I am glad that the custom which is general elsewhere—*viz.*, buying baker's bread—is not common in Norfolk. This may be very well in towns; but if it finds fa-

your in the country, where firing is to be had and ovens are common, it is really owing to the desire of housewives to get rid of every household trouble and all the hard work they can. It is not because girls go to work in the field that when they become wives they know nothing about cooking. In some cottages all the cooking consists in making a cup of tea and boiling a potato, and that is generally spoiled because it isn't boiled with its jacket on. And this desire to be rid of trouble is by no means confined to the cottages of the labourer; for there are many farm-houses where the washing, baking bread, and brewing are not done at home. It may be that tradesmen with large establishments can brew and bake better than cottager's wives. The bread may be whiter and the beer may be clearer; but how about the profit and the nourishment? I hope to live to see the day when malt will be almost as cheap as barley, when every cottager will brew, not only as he does now, at haysel and harvest, but all the year round, and drink his mug of beer with his wife and family, and not go to the "public" for every drop of beer he needs, where the stuff he buys, instead of refreshing and strengthening him, makes him thirsty and makes him stupid. Just one word as to the price of flour: it has not been so dear for many years, and there seems no prospect of its being cheaper—at least, during the winter. Flour, good sound households, such as you buy, is now, I suppose, 2s. 9d. per stone, white wheat is hardly 2s. per stone. If you buy two bushels of wheat from your waster for, say, 17s. 6d., and take it to the miller, he will, for the coarse pollard, grind it for you, and you will have your meal at a little over 2s. 2d. per stone. I can assure you that meal contains as much, and perhaps more, nourishment than the finest flour; and though you may not like it so well, or find it so palatable, as there is now such need of the greatest economy, I would strongly advise your trying it—at least, on a small scale. There is one subject that I have hardly touched upon—it should be the foundation and mainstay of all we say and all we do. I mean the religion of our education and the Christianity of our lives. Without it our learning is useless, and all our labour vain. What I might say upon such high and holy duties would apply more to me than to you, and equally to the employer of labourers as to the employed. The Almighty Ruler of the world has allotted us our various stations, and appointed to each of us our work in life: some to labour with the sweat of brows, and others with the sweat of their brains; but I trust we are all servants of the great Householder, and all fellow-labourers in His vineyard. Let us therefore labour diligently to get our living, and strive earnestly to do our duty in that station of life in which Providence has placed us; and then, when our work and toil are ended, we may hope to hear the good Master himself say to each one of us, "Well done, good and faithful servant, enter thou into the joy of thy Lord."

## LANDLORD, TENANT, AND LABOURER IN DEVONSHIRE.

At the dinner, after the Burrington Ploughing Match, the Chairman, Mr. E. S. Drew, of The Grange, said: With regard to the landlord, it was his duty to give his tenant a good term in his estate, on a good tenure as between man and man; a tenant had then some encouragement to do his best when he had a chance of compensation for his skill and labour. But better even than a good lease was a good feeling between the landlord and his tenant. A lease might be drawn up on the most liberal terms and by the cleverest lawyer in the land, yet it would not stand in the place of that mutual confidence and good will so desirable between those who signed it. But while it was the duty of the landlord to see that there were suitable houses and conveniences on the farm, and that the land was properly drained, he should not be speaking candidly if he did not also add that the tenant would not be acting honestly if he took a farm without sufficient capital to work it to advantage. He should not like to let a farm to a man short of capital, for without capital the tenant would soon ruin the estate. Now while the landlord should do all that was necessary on his part for successfully working his farm, it was equally the duty of the farmer to pay up every farthing of his rent. The Chairman here remarked on the silence of his audience in not responding to that sentiment, and insisted that the duty to pay his rent was equally stringent on the tenant as

were the duties of the landlord on him. With regard to the labourer, the tenant ought to see that he was properly taken care of. The labour question was now becoming one of a very critical kind throughout the land. It was not by Legislation, by Acts of Parliament, that the duties between employers and employed could be regulated. There must be that good feeling which would lead the employer to see that his labourers were properly lodged, and in possession of the necessaries and comforts of life. They must feel and act towards him as a necessary part of the machinery.

Mr. SNEEL (one of the judges) said he was very glad to hear the Chairman introduce the consideration of practical subjects to the meeting. The question of long and improved leases had his entire approval. Leases had their evils as well as their benefits: what he contended for was that there should be some arrangement by which, if a tenant were turned out of a farm, he should be able to claim compensation for the outlay he had made thereon. If a farm were let for fourteen years say, and any difference arose on account of which he would have to quit, his first thought would be after the first seven years to take out of it by impoverishing the land what he had put into it at the commencement of his occupation. This resulted in a great injury to all parties, but there would be no temptation to such a course if the tenant were assured of a fair remuneration for his outlay at the end of his term. Conditions of this sort in all leases would be for the benefit of landlord, tenant, and public. The labourers' wages question had been introduced. He believed Canon Girdlestone was neither doing himself, the farmers, or the labourers, any good. The labourer was now better educated than he used to be—his wits were as sharp as the farmer's, and he must be treated accordingly. He would himself like to see the system of paying a certain amount in wages and the rest in privileges abandoned. He would like to see all cash payments, and instead of day-work let work be done by contract. It would be for the advantage of the employer and the employed: the labourer would do twice as much work, earn twice as much money, and live twice as well. He had a man now at work for him on that plan, and he was earning from 2s. 6d. to 2s. 9d. a-day, and he was glad to see him do it. In the ordinary way it would have taken him two days to do what he now did in one. With improved earnings the labourer would be able to educate his children, and it would in every way benefit his condition. If the farmers would resort to cash payments and let their work by contract, they need not care for Canon Girdlestone or any of his doings.

MANGOLD WURZEL.—Mr. Church, the Professor of Chemistry at the Agricultural College at Cirencester, has lately published an account of the experiments which he made to ascertain how it was that food usually thought so thoroughly wholesome should sometimes produce serious illness and even death. He was asked by an owner of young pigs if he could account for the death of several inmates of a sty, which had been fed upon a mash of bean-meal and mangold tops. On examining the mixture he found it intensely acid; and suspecting oxalic acid, he applied the usual tests, and found it. Of course his first idea was that oxalic acid had been introduced into the mixture; but on trying the experiment with fresh mangold leaves from the field, he found in them large quantities of the same acid. Finally, he made fresh and careful experiments to ascertain the exact quantity of the acid present in a given weight of the leaves, and the result was not a little surprising. He discovered that in 100 lbs. weight of the fresh leaves there was rather more than four ounces of the oxalate of potassium, commonly known as salt of sorrel, a poison too well known in most households as a powerful agent for cleansing metal work, boot tops, and other articles wanting frequent polish. He also says that in very dry weather the quantity of the poison would be largely increased, and that it would vary with the maturity of the plant. All this, of course, by no means goes to prove that the leaves in small quantities are not a most wholesome food for cattle come to full age, but it should serve the double purpose of making everybody cautious in their use. Young pigs might have died by the thousand, and their premature decease have been attributed to the presence of some mysterious substance in the "wash" which forms their dainty diet. But the chemist's laboratory clears up the mystery.—*Pall Mall Gazette*.

## DAIRY FARMING IN MUNSTER.

A considerable amount of discussion having lately been evoked with reference to the quality of butter forwarded to the Cork Butter Exchange, to be there sold and classed for exportation, it occurs to us that a short review of the subject may not prove uninteresting. We shall notice the breeds of cattle, the quality of the pastures on which they are fed, their treatment during winter; give also a short sketch of the farmers themselves, their modes of living and general habits, the quality of produce manufactured by them, and the excellent market they have for its disposal.

The province of Munster, embracing as it does six counties, necessarily presents a wide diversity of soils, and also to some extent of climate, and the breeds of cattle to be found in the different districts vary accordingly.

In the mountainous districts of Kerry there exists an exceedingly small breed of cattle, colour black, and when pure-bred wonderfully handsome, sprightly in their movements, and of very picturesque appearance. Like the Highland cattle of Scotland, this breed can not only sustain life, but keep themselves in good condition, and give a comparatively large amount of produce, on the inferior pastures, of which a great portion of the district which forms their natural *habitat* is composed. The pure-bred Kerry is rather scarce; the greater number of cattle which are known by this name being crosses, and considerably larger in bone and carcass than the true Kerry. In general too little provision is made for winter and spring; and, accordingly, they often have to suffer great hardships during storms of long-continued severity; many of them, indeed, dying when the growth in spring happens to be at all protracted. The spring of the present year was an exceedingly severe one on out-lying cattle for which a suitable provision of hay had not been laid up, and many were lost from sheer hunger in consequence. Many of the survivors were so much reduced in condition as to have their constitutions permanently injured, and were thus rendered comparatively worthless. In the dairy districts there is seldom any attempt made to fatten this breed; and large numbers of cast cows and bulls are yearly shipped during the months of September, October, and November, principally for the London and Bristol markets. This class of cattle when they come into the dealers' hands are very appropriately styled "soupers," as they are scarcely fit for any other purpose than that of boiling down for soup.

There is another breed of dairy-cattle very generally distributed over the entire province, called the "common cow." She is apparently a descendant of the long-horn, for which the county of Limerick was at one time so famous; but so much crossed as to have lost many of the distinctive features of that breed. The horns are long, and the hide much thicker than that of well-bred animals. Good specimens of this description of cattle feed well when young, and are much prized by butchers, the fat and lean being well mixed, and the amount of internal fat large in proportion to the weight of the carcass; when old, however, they are very difficult to feed, an immense amount of food being consumed in the process of fattening; and on this account, when no longer considered useful for dairy purposes, they are mostly sold off the farm about the end of autumn, and help considerably to swell the number of lean cattle, as already described, which crowd the Channel-going steamers at that season. When in her prime, a cow of this breed makes an excellent dairy-cow, as she is a capital feeder, and, if she has

a chance at all of doing so, keeps herself in good condition; she is also a good and deep milker, and the milk is very productive of butter. The extensive introduction, and subsequent diffusion of short-horn blood, is gradually causing this breed of dairy-cattle to disappear, from the better class of pasture more particularly.

The improvement in the feeding qualities of this class of cattle was much slower than might have been anticipated from the introduction of short-horn blood, principally through thorough-bred bulls being too seldom used, and crosses with merely a good dash of the improved blood used instead. Such policy is very shortsighted, and fatal to profitable return; as, where a large number of calves are reared, and in this province this is almost invariably the case, the increased value of even one year's calves, by the time they are a year old, would of itself cover the first-cost of a pure-bred bull. It is surprising that men of ordinary intelligence and business capacity should have used cross-bred bulls so long, and even so much as they are still doing, as the offspring of such sires are but profitless animals, being large food-consumers, and take a long time in getting ripe for the butcher. The most common cow, on the contrary, even the diminutive Kerry, when crossed with a pedigree bull, becomes the parent of a useful animal in every sense of the term, and can be profitably turned over to the stall when no longer useful for the dairy. Possessing good bone and a hardy constitution, and inheriting from the sire an aptitude to fatten, the cross between a common cow and a pure Shorthorn bull can be brought by liberal treatment to heavy weights, and are profitable alike to the breeder, grazier, and butcher. On light land the Ayrshire begins to take an acknowledged position, the peculiar qualities of the breed eminently fitting it for such land. Where turnip-growing is extensively carried out, and stall-feeding in conjunction with the dairy, the Ayrshire is not looked upon as profitable, the carcass being too light, and the male calves not worth rearing for feeding purposes. By using a Shorthorn sire, lightness of carcass can of course be got rid of, and the cross becomes an exceedingly useful one, as does almost every cross with these sires; but in this case the pure breed is lost, and the stock of milkers must be kept up by fresh blood, imported either from the West of Scotland direct, or from breeders in the province who possess pure stocks. On really prime land in the South of Ireland this is not a breed of cattle from which the full profit of the land can be extracted, as the rich pasture does not improve the milking quality, but rather the contrary, the animal having a tendency to increase in size and lay on flesh—so much so, as in a comparatively short period to lose the distinguishing characteristics which on her native pastures have made her so prized as a milk cow. In the Bandon and Clonakilty districts in the county of Cork this breed is to be found in very considerable numbers; in fact, few dairies exist there without more or less admixture of this blood. On the moderate pastures of these localities the Ayrshire suits the dairy remarkably well; but dealers and graziers, who resort to these districts in great numbers for the purpose of picking up store cattle, complain that the young animals are too light in the bone for feeding purposes, and that the deterioration has resulted wholly from too great admixture of Ayrshire blood. The Dutch cow was greatly in vogue some years ago for dairy purposes, but is fast getting out of favour, mostly on account of the thinness of the milk and consequent deficiency of cream and butter. Even

this very sufficient reason might not have put this breed out of fashion quite so soon had they been better butchers' cattle; but they are hard feeders, when once they have passed the period of extreme youth. In some districts a small herd of them is still to be found pure, and crosses (easily recognised by the black-and-white patches over the back) may be met with pretty frequently; but this breed, the native breeds, and most of the others which have been from time to time introduced, are fast being displaced by the regal Shorthorn. On the valley of the Lee, and the magnificent pastures on the valley of the Black-water, the Rhine of Ireland, and on the almost unsurpassable grazings of the Golden Vein, the Shorthorn and its crosses reign almost supreme. Nearly all the extensive breeders in these districts make it their business to procure a bull from a pure stock; and the good results of such selections are shown in the splendid herds which adorn the pastures in the districts indicated, and which well repay their owners, in the shape of an abundant supply of the current coin of the realm, for whatever trouble and outlay they may have incurred in laying the foundation of such a stock. There is at the present day no difficulty in getting sires of the very best and purest blood of either Booth or Bates, thanks to the spirited manner in which some of the leading country gentlemen have taken up the matter; and the yearly sales of young bulls held by the most famed breeders, not only do much to instil a taste for good blood into the minds of those who do not possess their means and opportunities, but are the means of diffusing the most fashionable blood into the remotest corners of the province.

Amongst other names of sterling merit, those of Messrs. Crosbie of Ardfert, Welstead of Bally-Walter, Wallis of Drishane, and the late Mr. Coppinger, of Barry's Court, shine very prominently. These men are real patriots, and, moreover, the kind of patriots required in Ireland, and have done, and are still quietly doing, more substantial good to their country than ever can, or probably will, be done by political agitation. There are few finer sights to the eye of the trained agriculturist than a herd of dairy cattle composed of half or three-quarter-bred Shorthorns, and certainly in the localities we have named they are to be seen to perfection. It does not follow as a matter of course that the richest and most extensive farmers have the finest stock and that the common breeds are confined to the small and struggling farmer. Large farmers, and even some who may with great propriety be styled gentlemen-farmers, are to be met with, who do not seem to have the taste for keeping handsome animals of the best breeds, and their herds, accordingly, often contain animals of very indifferent quality. On the other hand, men whose herd numbers perhaps only a score have them of superb quality, and take a laudable pride in keeping them in blooming condition at every season of the year. Shorthorns and their Crosses are eminently suited for the climate and soil of the South of Ireland, and when not over-crowded on the pastures, nor permitted to feel the pinchings of hunger during winter and spring, grow to an immense size, are deep milkers, and the young stock reared from them come early to maturity, and, being heavy weight, make a deal of money. The east cows are much easier finished for the butcher than any of the other breeds, a quality for which they are highly and deservedly prized by dairymen. A valuable cow lost to the dairy through loss of teats, or other misfortune, would, if sold as a store, in many instances lose in value as many pounds as her season's produce realized; whereas, when of an easily-fattening breed, a comparatively short period on good keep brings her up to her original value. The quality of land on which the grandest herds of this breed are to be found is first class. So luxuriant are the pastures in portions of Cork, Lime-

rick, and Tipperary that they support these heavy animals in splendid health and condition all through the winter, with, in numerous instances, only the assistance of a little hay thrown on the grass during a portion of winter and early spring. Many of the most prosperous and independent farmers grow very little green crops, when the extent of their farms and the number of stock they possess are taken into consideration. They emphatically declare that growing turnips and mangolds in great quantity is little else than the picking of one's own pocket; and, further, that by having too much land under the plough, the farmer makes himself the slave of his own men, as he must be continually at their heels, or nothing will be done. It will readily be seen that this mode of farming may do very well on prime land, but can never succeed on land of only ordinary quality. Remove a valuable shorthorn cow from such land, and try to sustain her with the same treatment, and if she does not absolutely wither and die, she speedily becomes a gaunt, ugly, and profitless animal, a burden to herself and a disgrace to her owner. The very men themselves, when they happen to remove from a district in which Nature does almost everything, to one in which she requires a considerable amount of assistance in the shape of sustained energy and constant personal supervision, seldom get on well, mostly getting dispirited, and end by breaking down altogether.

It is however due to this class to say, that on the soil on which they were born and bred they manage capitably, keep their stock up to the paying point, make a good appearance, and occupy an acknowledged and respectable position in society, keep a good table, and are by no means shy in asking a neighbour of their own rank to share their hospitality. There are degrees of rank here as well as elsewhere, and the men who hold a large tract of land such as has now been described are the very aristocracy of the farming community. Many of them little else to do but to amuse themselves; the land being mostly in grass they have but few servants or labourers, and the system of letting the cows to dairymen, which is very much practised, still further reduces the active duties of the farmer himself, and narrows them to a very small compass indeed. The dairyman paying mostly in produce, the farmer makes an occasional visit to the butter market to convert it into cash; he frequents the neighbouring fairs for the purpose of making himself acquainted with the value of stock, and during the season varies the round of his duties and amusements by taking a run with the hounds. When at home his newspaper or a volume of Scott, Byron, or Moore whiles away the time pleasantly, and is, by-the-by, a far more sensible mode of passing the time than was almost invariably the custom thirty years ago, when punch-drinking was as nearly as possible the sole evening's employment of the well-to-do farmer. Very far different is the life of the successful dairy-farmer, who holds land of inferior quality, and on which the pasture must be supplemented by a liberal use of house-food during the winter. Not but that many men on such land have tried to imitate the easy-going farmers of the Golden Vein and other rich districts, and have tried to winter their dairy cattle on the pastures with but very little other assistance. This has been the case more particularly of late years, when it has been so much the fashion to lay down land to grass, and have the smallest possible amount in tillage, so as to save labour and the inevitable expenses consequent thereon. Such farming is, however, a very miserable affair, and he who pursues it is unworthy the name of a farmer, as he not only keeps his animals in a state of semi-starvation during half the year, but himself, and necessarily those dependent on him, in a state bordering upon extreme poverty. Unless on the very best land, stock however well bred soon decline when not properly sheltered and fed during winter and

spring, becoming stunted in size, small in the bone, and extremely difficult to fatten when it becomes desirable to do so. The year's produce sinks on such treatment very low indeed, and the most careful management, combined with the greatest possible facility for its disposal, will scarcely suffice to force it beyond or even up to the paying point.

The only exceptions to this rule are the dairy farmers near large towns, who, whatever the nature or quality of their soil, seldom grow a large breadth of green crop, preferring to have farms as much as possible under grass. They are liberal feeders nevertheless, and during the winter season draw enormous quantities of grains and wash from the breweries and distilleries for the support of their stock. Many of this class are in independent circumstances; men, too, who hold farms of but very moderate extent, their peculiar line, the supplying of public institutions with milk, being extremely profitable.

A few years ago pleuro-pneumonia was very prevalent in the province, and particularly deadly amongst stock fed on brewers' grains, &c., many dairymen having lost their entire stock, worth in not a few instances over £1,000. Cattle have now had a lengthened exemption from this scourge, and stocks are wonderfully healthy, passing so much of their time in the fields, and the softness of the climate conducing very considerably to keep them healthy. Cleanliness in the stalls, better drainage, and proper circulation of air being now better understood, will probably for the future tend much to ward off epizootic disease, or at least lessen its ravages should it unfortunately set in. Favoured so highly with regard to mildness and moisture of climate, the farmers of the South of Ireland have abundant opportunity for keeping up a succession of green crops to be used as horse-food at every season of the year. Tares, rye, and trifolium incarnatum, when sown on well-prepared and well-manured land in autumn, succeed admirably, and come in early in May, thus enabling the farmer, if he has had the foresight to put in the crop, to have an abundant supply of succulent and nourishing food for his cattle at a period of the year when in less-favoured districts of the kingdom there is often great scarcity. This valuable climatic feature is scarcely so much taken advantage of as it ought, and in too many instances, even when the crops are put-in in sufficient breadth and in good season, no beneficial results follow, on account of the seeds being sown on poor and badly-prepared soil. When the treatment is miserable the crop is equally so, and, instead of being fit to cut early in May, can scarcely be caught by the scythe even towards the end of June. It is with these forage crops as with all others: however favourable and conducive to growth every other attendant circumstance may be, unless sown on land in high manurial condition, or well-manured at seed-time, it is absolute folly to expend money on seed and labour.

Progress is undoubtedly being made in the right direction, and most light-land farmers endeavour to have as much breadth as possible under what are generally known as stolen crops. An instance of this has very forcibly come under our own notice during the past month, a neighbour, who owns a large dairy, having put in ten or twelve acres of tares on his potato-land, so as to make up in spring for an anticipated shortness of green-crop. Such management is unusual, the corn-crop being lost, and the rotation interfered with—a matter which, however, is looked upon as of little moment in Ireland; but the tares, if the spring is an early one, may be fit to cut in April, and the turnip-crop following may in the end make it quite as profitable as if the usual course had been followed.

A few years ago an excellent example in the way of raising stolen and special-crops for dairy-cows was shown

to the practical farmers of the South at the Munster Model-farm. It was just such an example as every one who had a mind to do so could copy, and which scarcely anyone could see without picking up some hint which he could turn to practical use at home. Although a Government institution, there was nothing expensively done at that time (new buildings have been erected since); the cows standing in a simple shed, the stakes to which they were fastened being merely larch spars quite in the rough, the fastening being the ordinary chain with ring and staple. The cows were by no means well-bred, but just the ordinary kind of animals that could be picked-up at the usual country fairs or the Cork cattle market; whilst at all appearance—they were at the very height of the milking-season—every animal in the herd was fit for the butcher, some of them, from the long-continued high-feeding which they had enjoyed, being immensely big animals. The crops grown expressly for the dairy-cows were principally winter tares, cabbages, Italian ryegrass, and the usual green-crops—turnips and mangolds. The supply was so admirably timed as to leave no period of the year without abundance, and the result was a magnificent herd of dairy cattle, which were an ornament to the establishment to which they belonged, and reflected much credit on the able-management of the then curator Mr. David Cunningham. As a profitable mode of disposing of the refuse of the dairy, pigs are largely kept in the province of Munster. Extensive inland farmers, who from their isolated position have no other method of disposing of the thick milk, as the coagulated-milk is here called, than by rearing calves and pigs, keep the latter in large numbers, and when they treat this portion of their live stock at all liberally, they make a large addition to their annual receipts from this source alone. The pig stock is seldom shut up in yards or houses, except at night, having the run of the pastures during the day, on which, when regularly supplied with milk, they keep very healthy and do remarkably well. Although they thrive, and keep in condition too, with milk alone, it is most profitable, when fattening is the object, to mix a little bran or meal with the milk, when they grow and fatten at the same time, and the bacon is of superior quality. Many farmers do not fatten at all, but sell them (as bon-hives) from the mother, or (as slips) when pretty well grown. This is probably the best paying way of all, as the demand is generally so great for young pigs as to put a fictitious value on them, and of course puts so much more money in the way of the farmer. A sow, when in young, running on the grass, and getting a little milk once or twice a day, costs exceedingly little, and keeps herself in capital condition; and the litter, when got rid of early, cost not much more than it takes to feed the mother a little more liberally when suckling her young. Great attention is paid to having pigs well bred; and justly, too, as good breeding means easy feeding.

A well-bred Yorkshire sow will often make £30 to her owner in a year, from the sale of young pigs, kept only until they are worth about 30s. each. The Berkshire is a very popular breed, easily kept in condition, and have one merit peculiar to themselves, which they owe to their colour—and that is, they stand the sun much better than the white; a property of some value, where the animals have to spend so much of their time during summer in the open fields.

We now proceed to notice the quality of the produce manufactured by the farmers of this province, and the mode of its disposal. We consider this cannot be better done than by taking the published return of one day's transactions at the Cork Butter Exchange, taking up the first of a file of papers that comes to hand, which bears date 11th October, and consequently gives the number of firkins inspected and classed on the previous



day. The total number of firkins sent to that day's market reaches to the enormous number of 3,509: a portion of this being what is now known to the trade as mild-cured, but by far the greater part being heavily salted. Of these 3,509 firkins,

781	were	1st	quality
1,922	"	2nd	"
729	"	3rd	"
69	"	4th	"
4	"	5th	"
1	"	6th	"

A glance at the day's transactions, as here tabulated, shows that the number of first-quality firkins is astonishingly low, and only to be accounted for by some mismanagement on the part of the farmer, or those whom he entrusts with the manufacture of his butter. The prices for the day are 105s. for 1st, 96s. for 2nd, 85s. for 3rd, showing a difference of 9s. per cwt. on 2nd, and 20s. on 3rd. With lower qualities we need institute no comparison, as the quantities are small; and it may readily be supposed such low qualities are more accidental than habitual with any individual maker. Taking 72lbs. as the average weight of a firkin, we find that each loses 6s., amounting, in round numbers, on the whole to nearly £600. Thirds lose about 14s. each firkin on the top price, making, say, £500; and thus £1,100 is lost to the butter producers, on only one day's transaction, through inferior quality. It may be considered by some to be an impossibility to have all firsts; and so it is, as there are many influences at work which tend to injure the quality of butter. Yet, notwithstanding this, it is so much in the power of the maker, and depends so much on correct manipulation, that if proper attention was paid the amount of inferior qualities ought to be very small indeed.

There are many large makers disposing of their butter at the Cork market, who get scarcely anything but firsts; and this simple fact shows how much is in the power of the farmer, as what one man does another may also do, if he would but give it the same attention. The leading objections to Cork butter are supposed to be over-salting, over-holding, and packing in dirty water-soaked casks. With regard to over-salting, no one can plead ignorance of the proper quantity required, as the merchants are most particular in informing all and sundry who deal with them the exact proportions required for a firkin of butter, so as to enable it to keep sweet and good for any reasonable period. It can therefore only be supposed that the extra quantity is put in to get the price of butter for the salt, which costs comparatively little. If this is the object of anyone, it is almost invariably defeated, as it must be an otherwise unexceptionable firkin that over-salting will not condemn. Over-holding having no connection with the manufacture of the butter has but little effect on the general average; and if a farmer can afford to speculate, and chooses to do so, he must necessarily stand the same risk of loss from deterioration of quality as the merchant himself does. By speculating, however, the farmer gets out of his legitimate business; and stale butter passed through the market is not liked by the buyers, its keeping properties being often very materially impaired by the time it is brought in. Steeping the firkins in water until they are black and filthy-looking is another prolific source of injury to Cork butter, and is so much practised as to call forth, almost daily, the serious remonstrance of the merchants. The reason given by the country people for steeping at all is, that but few of the casks weigh the full amount marked upon them; and therefore, in pure self-defence, they are compelled to place them in water for some time previous to using them, so as to bring them up to the

weight. To some extent this is true; but it is also true—may, in fact, patent to the most casual observer—that it is more frequently over than under-done, many firkins that reach the Exchange being disgustingly dirty. The merchants do their utmost to obviate this serious injury to their trade by washing the casks previous to shipment, and rendering them as clean-looking as possible; but it is utterly impossible to recover the beautiful and invitingly clean look which they had when first purchased by the farmer. There is still another difficulty in the way, and one even more fatal to the manufacture of prime butter than any of the reasons already noticed, viz., the practice of allowing the cream to stand too long in the pans after the milk has become thick or sour, according to the season. From long acquaintance with the butter-makers of the south, we believe this to be the most fruitful cause of low qualities being manufactured, it being utterly impossible, by the most skilful management, to make sweet butter of good keeping properties after the cream has begun to decompose. It is a most mistaken idea to imagine that any profit can accrue in the way of additional cream after the milk has become thick; and it is surprising so many makers of butter fall into this mistake. To use a favourite expression of the inspectors, when a good firkin comes before them, cream that would produce butter fit for "her Majesty's table," if only taken off in time, produces an article, when allowed to stand twenty-four hours longer, fit only for kitchen purposes, and sometimes scarcely even for that. The Cork Butter Exchange is a market admirably adapted for the disposal of dairy produce, its space being immense, and the rules and regulations by which the busy traffickers in this branch of native manufacture are guided being founded on the teachings of reason and experience. Although there is a large amount of opposition to the mode in which this market is worked, from a quarter too where it might be least expected, it would be a very difficult matter for its opponents to show the slightest improvement, even if their suggestions and wishes were carried out. The merchants or buyers who receive the butter from the farmer are a most gentlemanly body of men—courteous and condescending to the most humble, and attend as faithfully to the interests of the customer who brings only one firkin as to him who brings twenty. Let a man be ever so poor, if he has a character for honesty and probity in his dealings, and has a prospect of being able to send forward his produce in payment, the merchant is always ready to make him cash advances to any reasonable amount. This advantage to most farmers is of far more importance than being able to save the very small commission charged by the agent; and few of them see the slightest profit to be gained by being able to sell direct to the exporter.

J. S.

PRIZES AT WINCHESTER FAIR. — Mr. Budd, of Hatch Warren, Basingstoke, acted as the sole judge, and gave great satisfaction in his decisions. For the best 100 Hampshire Down wether lambs, bred by the exhibitor, a piece of plate, value £15—Mr. Geo. Fern, Crawley. For the second best ditto, a piece of plate, value £8—Mr. W. Cordery, Hazely. For the best 100 full-mouth Hampshire Down ewes, which have been in the possession of the exhibitor twelve months, a piece of plate, value £12—Mr. W. E. Fitt, Littleton. For the second best ditto, a piece of plate, value £8—Mr. Cordery, Hazely. For the best 50 lambs of any breed, the exhibitor's farm not exceeding 300 acres, a piece of plate, value £5—Mr. Vokes, Worthy. For the best 50 ewes of any breed, the exhibitor's farm not exceeding 300 acres, a piece of plate, value £5—Mr. Bowker, Harestock. The judge highly commended Mr. Best's and Mr. Smith's lambs, and Mr. Fitt's (Westley) pen of ewes. Mr. Fitt's ewes were sold to a Winchester butcher at 4s. 8d. per stone (8lbs.), dead-weight. Mr. Cordery obtained 46s. per head.

## THE CATTLE PLAGUE AND THE PROPOSED ABATTOIRS AT THE NEW CATTLE MARKET.

SIR,—May I beg your indulgence for a space in your excellent journal? as I learn from the *Times*, of Wednesday last, that Mr. Rudkin, the Chairman of the Markets Committee, has shadowed forth a plan to be laid before the Court of Common Council of the City of London, for erecting, at the expense of £36,500, an additional number of slaughter-houses at the Metropolitan Cattle Markets. This is to be done under the pretence of relieving the present system of driving cattle through the streets of London, and to endeavour to supply the new meat market, erecting at Smithfield, with dead meat; but scarcely anything is mentioned respecting the stay of the cattle plague, which from the loss it has entailed on the country has been the cause of the extravagantly high prices of meat for the last two years. While it has proved a great loss to the consumers, it has not been less so to the producers of meat; for, astounding as it may appear, as great a number of cattle have been lost as we have imported.

Lord Robert Montagu has told us, in his speech on the Cattle Diseases Bill, of the great advantage received even from the restrictions imposed in consequence of the cattle plague. And if these restrictions would do this, what would not perfect isolation do? He said, "He referred especially to the foot-and-mouth disease imported from Holland in 1839, and pleuro-pneumonia, imported from Holland in 1842. In the latter year, and before the disease was imported, the average mortality among cattle in England was from  $1\frac{1}{2}$  to  $2\frac{1}{2}$  per cent. From that time the percentage rose steadily, till it appeared from the reports of the Cattle Insurance Company, in 1848, that three-fourths of all the losses were due to pleuro-pneumonia. In 1860, 374,000 horned cattle died of disease in England, of which more than one-half was due to pleuro-pneumonia; and from 1854 to 1860 the average loss annually from that cause amounted to 160,000 head of cattle."

Thus we see from pleuro-pneumonia imported with foreign cattle this immense loss had occurred, and now within the last two years from cattle plague even this large amount is augmented to the number of 355,825: of this immense amount 56,901 were slaughtered to prevent the spread of disease, to say nothing of those that have died through other diseases.

To have a certain and constant supply of dead meat to the market is no doubt all-important to the Corporation; but are they the only parties to be considered? Does not common sense say, that if abattoirs are necessary (and no one can possibly doubt they are necessary), the place for them is not at the present market, but at the place of debarkation, and there only, where there is a sufficiency of space, with rail and water communication easy of access in the first place to the purchasers of animals, and secondly, convenient for conveying away to a dead-market the food of the people? Is it not the very height of madness, seeing the immense distance from which cattle are brought by railway, and the manner in which those coming from different countries are mixed in their transit (some of them very probably being brought from districts where the fatal disease constantly rages), to allow them to be put in the same market and mixed with our English breeds? This step acts unfavourably upon supply. Fear prevents a large supply of English beasts, and then being once mixed together makes it (very properly) imperative that they should not be removed alive from beyond the

metropolitan district. It also has a double effect, in the first place preventing a supply, and then limiting competition amongst the purchasers, they being almost exclusively confined to that district, while others from many of our large county towns and watering-places are entirely excluded, which they ever will be unless they are allowed to remove their cattle into the country for slaughter. And this it will never be safe to do under the existing system, so long as both are brought into the same market and exposed for sale together, as they are liable every moment to spread the insidious, disastrous, and fatal disease, from the ravages of which the country has so deeply suffered.

The present Metropolitan Cattle Market has hitherto in no way repaid the Corporation of London their outlay; and I trust they will pause before they entail upon themselves an additional one, to end in further disappointment.

Why should they be allowed to recoup themselves, and enhance, by a most monstrous monopoly (the days of which must be nearly numbered), the price of the food of the working-classes? But, however infatuated the Corporation may be, is it not the duty of a Government, after all the experience they have had, and the constant trouble, annoyance, and expense they have been put to, to stop the Corporation in their reckless and—to the public at large—injurious course, and to say they shall go no further, but that they themselves will adopt the only safe course for saving the future herds of England from such fearful scourges as they have lately suffered, by the establishment of a suitable spot for a market for the sale and slaughter of all foreign fat animals, and for placing in quarantine those intended for stores?

This, and this alone, will leave the present cattle market free for the exposure for sale of all British animals, from which place they could be moved with safety to any part of Great Britain.

It may be said that the Corporation of London has vested rights, and that this would entail upon them a greater loss than they have hitherto sustained. But this I believe is in a great degree imaginary, as we know that in all cases want of competition decreases supply; and that this is so in the London market no one can doubt. An open market would attract a greater supply, and with the supply greater competition, proving, at the same time, a great boon to all members in the trade residing south of the metropolis, as no animal now brought north or east, north-west or west, of London, can be admitted to the south of it, where it is so much required. But even should the loss to the Corporation occur, are both producers and consumers to suffer, that this body may be enriched? I am sure all sensible men will spurn such an idea, and say, if a considerable sum has been spent by the civic authorities, under the sanction and authority of this or any preceding Government, and that they have the least claim to compensation, let it be at once ascertained, and it would be immediately cheerfully paid by the nation.

The present dallying system has now been going on for two years; and I trust that on the meeting of Parliament some one of our country members will immediately move for a return of the whole expenses incurred with regard thereto—including the professional staff retained, the consulting officers and their travelling expenses, the printing of the various acts of Parliament, orders and

counter-orders, the employment of police, advertising, telegrams, &c.—to say nothing of the almost endless expense incurred in carrying those orders out in the various counties and boroughs of England. I feel sure this return, if properly made, would disclose such an amount as would be perfectly astounding, and that the Government would at once see that it could not any longer delay taking this most important step.

It is no "leap in the dark," but the sum and substance of all the evidence given and taken from men of common-sense and also by our most eminent scientific men. Let the most approved and convenient spot be found, and let

it be adopted without hesitation. The result would prove the preservation from disease of the herds and flocks of England, and promote their rapid development. These increased numbers would speedily give food to the people at moderate prices, and save to the country the immense outlay to which I have alluded—sufficient, I believe, to more than indemnify the Corporation of London, should they be able to establish their claim for compensation.

I am, sir, yours respectfully,

JOHN CLAYDEN,

Chairman of the Cattle Defence Association.

*Littlebury, Suffron Walden, Nov. 5.*

## FEEDING POULTRY FOR THE LONDON MARKET.

BY HENRY H. DIXON.

The eastern counties may be said to have pretty nearly a monopoly of our English turkey raising and feeding. Hen-wives are generally "afraid to meddle with them" on the score of delicacy; but if the requisite food and attendance are not found to be thrown away in Norfolk and Cambridgeshire, &c., why should they be elsewhere, except in an essentially damp climate? They must be tenderly reared, and not "dragged up," as the saying is. The Norfolk turkey is black, with a few white spots on its wings; and in no part of the county is the breed preserved in higher purity than in Sir William Pfolkes's. The Cambridgeshire turkey is of a bronze gray, and rather longer in the leg and bigger in the bone. Very few white ones are to be seen, as they are supposed, like a white long-horn cow, to be more delicate. The adherents of the Norfolk blacks consider that they lay on more flesh and that it is whiter and finer in texture than that of the Cambridgeshire bronze; but as a rule the latter sort predominates in the East Anglian stables, and comes to the greatest weight. A good April-hatched cock at Christmas should average about 18 lbs. in his feathers, and the hen-bird about 10 lb. or 11 lbs. in November, with ordinary feeding; but if they have been "sent along" with Indian-corn, barley-meal, rice, and potatoes, they will make up to nearly 2 lbs. heavier. The small Norfolk farmers generally keep a cock and three or four hens, and consider fifteen an excellent brood. The best broods are always hatched in April, and the second brood, which never comes to the same maturity, and is eaten at poult estate, follows in June or July. A September hatch too often realizes the rustic prophecy, "they'll never be fit, they won't live long enough." Cramp in the legs is very fatal to the broods; but it only kills them by lingering stages, and a disease in the head very often affects "a highly successful elimination." Wet is the young turkey's greatest foe. They are not let out of the coop till they have been hatched two or three days, and they should then be carefully watched and driven in from a shower.

On the smaller farms they are seldom finished off for market, and middle-men go round about the end of August and buy them up at an average of £4 10s. per score. They are then sold at a small profit, of sometimes only 6d. per head, to the larger farmers to "shack" upon the barley or oat stubbles, while the "swine well ringled" are put upon the wheat ones. By the terms of some leases the pigs and poultry are the only live stock which may be depastured on the young grass-seeds layer. A turkey-boy is placed in daily attendance on the flock, to drive them home if it is wet, and keep them away from the trees, to which, true to their American forest origin, they are very partial. Nice, bright plumage and wattles like red sealing-wax are capital symptoms, and if the cocks gobble, they are said to "talk healthy." Fighting is also a true sign of

vigour, and so is fly-catching, when they are young. Besides what they get on the stubbles, they have abundance of in-door relief. The system of cramming them at night with foec-balls is very much abandoned, and they are generally well kept on potatoes, barley-tailings, and light wheat, ground and mixed with milk. Common white turnips, which they eat greedily without slicing, tend to make their flesh white, and "cool their coppers;" brickdust to scour their maw is never neglected.

They are killed simply by breaking their necks, and the breast-bone is also broken before they are sent off to the poultry-salesman, in order to give the breast a plumper appearance. The cocks, if sold out of their feathers to the neighbouring gentry, will fetch 1s. 2d. per lb., and the hens 1s. or sometimes only 9d., when a very plentiful season has knocked down prices, or they are not fed up to the mark. The bigger they are, the higher their value per pound, on the same principle that salmon of 20 lbs. and upwards fetch 6d. more in the spring and early summer months for the large West-end dinner parties. The great bulk of them go in their feathers to the London salesmen; but the wives of the small farmers take them picked to Norwich and sell them in the market, where very large ones, trussed and ready for the spit, have made 1s. 6d. at Christmas. Hen-birds, which get fat sooner, and are generally killed-off before the end of November, are thought to be a daintier morsel than the "gobblers." Some two-year-old cocks (beyond which age they are very seldom kept) have been killed at 30 lbs., when a heavy weight is wanted, for an audit dinner; but with very high-feeding, in one or two rare instances, prize birds have turned the scale at 40 lbs.

It is to Norfolk and Suffolk that we look for goose-management on the largest and most economical scale. The goose trade of the great Norfolk dealers resolves itself into two branches—the green geese, and the Michaelmas. In March and April they begin to get in their gosling supplies from farmers or cottagers near the commons, in both those counties. Most of these goslings are about five weeks old, and many of them in very poor plight; but six or seven weeks of feeding under stages, on barley-meal, maize, wheat-tailings, and brewers' grams, mixed, make them all ripe for the green-goose market. The Michaelmas geese take their places under the stages in August; and Norfolk and Suffolk are pretty well scoured before the dealers fall back upon the Irish and the Dutch supplies. The Dutch, which are principally grey, come from Rotterdam; and one of the largest Norwich dealers imported seventeen tons' weight of live birds last year. They come over by steamers and sailing vessels, packed in big flat baskets, but not to any great extent after the 1st of October. In the dealers' hands they are fed on the same principle as ducks—low fair to begin with, and then on a gradually ascending scale. On turnips they are capital substitutes for sheep; and when a dealer has a turnip-field, he not unfrequently hurdles off a portion of it, and eats it off with them. They first clear the tops and the bulbs of the softer turnips; but when they have a field of swedes to deal with, the man in attendance gives each turnip a chop. With this aid, they eat far cleaner

than sheep, and, in fact, leave nothing but their "taith," which answers admirably as a preparation for the next wheat-crop. Mangels are not so much to their taste as turnips; but they eat the tops with a special relish. While they are busy with these green crops, they require nothing but large troughs of water; and the finishing process consists in putting them under stages for a month, and feeding them on brewers' grains and meal.

On the western moors of Cornwall every one keeps geese; and they are bought up by jobbers in thousands, for the stubbers. Summer Court, on September 25th, is the "goose-fair" of the county; but they are only eaten there, and bargains are struck under their savoury influence for draft ewes and wethers. Farmers all over England are supplied very largely both from Holland and Ireland. Geese are extensively bred in Moravia; and the hilly districts in Germany and Holland are peopled by a lot of goose-farmers, who get their living entirely by them. The Hussenheim goose-market is a very large one, and of great antiquity; and, according to local tradition, the town owes its name to the bird of its choice. The Dutch hucksters buy goslings from the cotters—who, like the burghers, are remarkable for turning the penny the right way—at prices varying from 1s. 6d. to 2s. They are driven to Rotterdam, where they are packed up in crates, which are capable of holding about fifty or sixty each. Their voyage to Hull by the steamers is charged at 18s. per cwt., or

about £5 for 300 or 400 birds; and they are not fed until they are landed, and then with oats. From Hull they are forwarded to central market-towns in railway-trucks, each of which is capable of holding 230 birds. A small per-centage of the more weakly ones die from being trampled on; and these casualties, with the expense of transit and sale, bring up the price to about 3s. 9d., when they are pitched in the market during August and September. The Irish collections are managed on a similar principle. If the goslings are purchased within reasonable distance of Dublin or Dundalk, they are driven to those ports; and if not, they are sent by rail. Liverpool, like Hull, is quite a "board of supply" for English dealers during the season.

Considerable supplies of ducks are also brought from Holland, and some Turkeys as well; but the Norwich dealers' duck-supplies are mostly gathered in, through the hucksters, from the small cottagers in the county. Rouens and Aylesburies have not been much used for crossing; and the supplies are generally of the small mixed-brown-and-cinnamon sort, which has subsisted since the Flood. The cottagers do not force their ducklings, but sell them to the dealers, one of whom takes 30,000 a year, principally in the duck-and-green-pea season. They come to him about 3lbs. in weight; and, after a week in the lean and three in the fat yard, they are turned out in prime condition, and fully 11lb. gain in flesh.—*Journal of the Royal Agricultural Society.*

## CENTRAL FARMERS' CLUB.

### BENEFIT SOCIETIES IN RURAL DISTRICTS.

The first monthly meeting of the members of the Club, after the recess, took place on Monday evening, November 4, at the Club House, Salisbury Square, the Chairman of the year, Mr. E. LITTLE, of Lanhill, Chippenham, presiding. The attendance was numerous. The subject appointed for discussion was "The Management of Benefit Societies in Rural Districts," the introducer being Mr. Charles Howard, of Biddenham, Bedford.

THE CHAIRMAN said: Gentlemen, before proceeding to the immediate business of the evening, you will, perhaps, allow me to say, in accordance with what is usually expected from the chairman of this Club after the long vacation, a few words more particularly relating to our own prospects as farmers. I must first congratulate you on the cessation of the cattle plague, and on the freedom with which our animals can now be removed (Hear, hear). Since we last met we have had a very eventful season; very great changes have taken place in the prices of meat and corn, and sudden and extraordinary changes in the weather has been the character of the season. I am sorry to say that we cannot congratulate ourselves on a very successful harvest as respects the quantity of wheat produced in this country. The prospect was, perhaps, at one time as cheering as in ordinary seasons, and, for my own part, I believe it was the frost which occurred on the 22nd and 23rd of May that disappointed all our hopes (Hear, hear). As regards the four or five counties with which I am more immediately connected, I think we have not reaped a smaller quantity of corn since 1861 (Hear, hear). Notwithstanding the reports made by gentlemen who write for notoriety in the newspapers, after having travelled through England, as they state, from north to south, and from west to east (laughter), taking long sights from a railway-carriage in an express train, through a dim pair of spectacles—(great laughter)—notwithstanding, I say, the reports in which such gentlemen have declared that there was an excellent crop, my experience, gentlemen, and yours, I believe, proves the contrary (Hear, hear). I believe that in four counties with which I

am especially connected, namely, Gloucestershire, Berkshire, Wilts, and Somerset, the average yield will not exceed 2½ quarters per acre (Hear, hear). I think I shall be borne out in that view by several gentlemen now in this room (Hear, hear). But, although we have obtained such a small quantity I am happy to say that the crop was got together under very advantageous circumstances (Hear, hear), and except in a few cases, when the weather was unpropitious, corn of very good quality has been harvested (Hear, hear). Judging from present prospects I do not myself think we shall have anything like famine prices, but bearing in mind the low average of the crop and the short quantity of old corn on hand, I think we may expect a high range of prices throughout the year (Hear, hear). A great change has, as I have before remarked, taken place recently in the price of our animals, and particularly in sheep. I suppose I may truly say that sheep have, on the average, fallen since we last met from 14s. to 15s. per head; though it would appear from letters published of late in some of the newspapers that consumers have not reaped advantages commensurate with our loss (Hear, hear). I do not know that it is necessary for me to enter any further into that point: I will now call upon our friend Mr. Charles Howard to introduce the subject for this evening's discussion, viz., "The Management of Benefit Societies in Rural Districts." I have no doubt that that gentleman has prepared a very excellent paper, and that great interest will be felt in the account which he will give of various societies in this country. I know that he has taken a very wide range, I am sure the subject is in very good hands, and I will not myself enter into the subject at all until I have heard the paper which he will be good enough to read to us (cheers).

Mr. HOWARD said: Mr. Chairman and gentlemen, the subjects discussed at this Club are, as a rule, those which concern the interest of the farmer: to-night we meet for the consideration of one bearing upon the welfare of the labourer. In order that a country may enjoy all the blessings of a high state of civilization, it is necessary there should be a sympathy of feeling

between the various classes of society. Among the leading characteristics of the present age there are two which are conspicuous—viz., the interest which is now so happily manifested by the upper and middle classes in the welfare of the working population, or in that portion which Lord Derby has lately so well described as the “wage-paid” class; this feature has doubtless been more strongly developed in the agricultural than in any other portion of the community. The other characteristic is the facility of combination which now distinguishes these working people—a facility which, if properly directed, may lead to beneficial results, such as the formation of charitable associations for the support of each other when thrown out of work, or of benefit societies for relief when disease or old age overtakes them. Combination, under such circumstances, is not only unobjectionable, but it is highly meritorious. Had there been more of this kindly feeling evinced by the employers of labour towards the employed in the manufacturing districts, and proper assistance rendered in the early formation of the benefit societies of their men, it is a question whether such societies would have been so prosituted as the revelations of the last few weeks, in connexion with the trades-unions, have shown them to be. With this brief allusion I shall dismiss the subject of trades-unions, as it forms no part of this evening’s business. It is sometimes difficult for those who are well-to-do in the world, and who feel certain that “their bread shall be given them and their water sure,” to form an estimate of the feeling with which the man who gets his bread “by the sweat of his brow” views the prospect of old age. The fear, “when the keepers of the house begin to tremble, and the strong men shall bow themselves,” that the slender means of subsistence shall be replaced by want, is a bitterness which is difficult for those who live in comfort to understand. In former days the more far-seeing of the labouring classes, looking forward with dread to the evening of life, when they would have to rely on the workhouse, or, in other words, public charity, led them to make provision for the necessities of old age: hence the origin of benefit societies. It is highly creditable to the working classes to find, from a recent return, that one out of every nine of the population is a member of such a society. In France the proportion is one in seventy-six, and in Belgium one in sixty-six. No record, as far as I am aware, exists of the foundation of the first of these societies; the first Act of Parliament, however, relating to friendly societies was passed in the year 1793. Since that time about 36,000 have had their rules enrolled and certified, more than 13,000 of which have since been dissolved or broken up: besides these, it is estimated that there are some hundred thousand “Brummagem, or sharing-out clubs,” as they are termed, which are not recognised by the Registrar-General. It is in these where the greatest mismanagement and fraud have prevailed. They appear to be established for the good of the publican, who is in most cases chief manager. Their doings have been very properly exposed in an excellent paper in the *Leisure Hour* of March last, by the Rev. I. Y. Stratton, of Ditton Rectory, Maidstone, who takes great interest in friendly societies, and to whom I am indebted for some valuable information. The object of this paper is to suggest methods, and to invite discussion as to the best means of placing benefit societies for our rural districts upon the soundest and most advantageous footing. It is now nearly three years since I first promised the Club to introduce the subject on the card for this evening; the sudden appearance, however, of the cattle-plague among our herds led the Committee to request me to substitute for it a paper upon that all-absorbing topic. In my own village we have a friendly society, which has been

established for many years, and which hitherto has held its ground, but, like many other similar institutions, although managed far better than the majority of such societies, symptoms of decay, which might have been foreseen at its formation, already begin to appear. To remedy the defects of friendly societies, and to gain information upon clubs generally, I corresponded with some sixty gentlemen connected with agriculture in various parts of the country. I put to them the following questions: 1, Have you any benefit clubs to which your men do or may belong? 2, How long established? 3, What are the weekly or other payments? 4, What advantages do they offer to the members? 5, Have they been in pecuniary difficulties? 6, What is their present financial position? 7, Where are the meetings held? 8, Can you suggest any improvement in the principle or mode of management? The correspondence which ensued would be far too voluminous to give in this paper. I will therefore give you some extracts which I deem to be valuable. I will take the counties alphabetically. Mr. G. Battams, of Carlton, Beds, writes: “In the parishes in which I have occupied land, most of the labourers were members of benefit clubs. One club got into pecuniary difficulties, arising from the members spending 20 per cent. of their subscriptions at the monthly meeting in beer, and this brings me to the only suggestion that I can make, *that benefit club meetings should not be at public-houses*. I do not wish to deprive a poor man of his beer or his holiday, and I hope ere long he will get more of both, when he ceases to labour for the payment of the malt-tax.” Mr. W. Pike, of Castle Thorpe, Bucks, writes: “I am sorry to say the club meetings are held at public-houses. I cannot help thinking there are too many clubs—‘Unity is strength.’ A mistake is made in taking too young members. So soon as a lad can earn 6s. per week, he goes into a club, and, after paying in for twelve months, many of them in case of slight illness go on the club, and get 8s. per week. I think if they were allowed to pay 6d. per month for two years before they derived any benefit, they would get in the clubs much easier, and would not be so likely to impose on them. But what I should like to see is, that all clubs should be on the same footing as the life assurances, remove them from public-houses, and not let them have 3d. to pay for a pint of beer for every shilling they pay to the club, one penny of which goes to Government in the shape of malt-tax.” Mr. H. Fookes, of Whitechurch, Dorset writes: “Our club works well, and we find most of our best labourers are in friendly societies: it gives them an independence, and they do not come to their parishes for relief.” Mr. J. A. Piggot, of Beekingham Hall, Essex, writes: “I send you the rules and report of the ‘Essex Provident Society,’ which is a first-rate institution; it allows the agricultural labourer 8s. 3d. per week on payment of 1s. per month, and the tradesman or mechanic up to 15s., but no person is allowed to enter in a class above his earnings. I cannot say anything in praise of the smaller clubs in this district; they are all except one kept at public-houses, and pay 1s. 6d. per month, 6d. of which is spent at the monthly meeting.” Mr. H. Butt, of Bredon, Gloucestershire, writes: “Many benefit clubs have from time to time been established in our towns and villages, but are not so numerous as formerly, many having ‘come to grief’ from bad management or dishonesty on the part of some of the officials, consequently the confidence of the working-men has been much weakened, and some declare ‘they will never again join any club.’ Some four years ago a club was established at Beekford, a village near here, and many working-men joined it, but two years since it received a heavy blow by the absconding of the secretary with it was said, part of the funds. I enclose a

letter from Dr. R. S. Martin, our village surgeon, who has taken much interest in clubs for many years, and whose remarks and suggestions are entitled to serious consideration. I also enclose a characteristic letter from 'John Bassett,' our district postman, who, as you will see, approves of clubs, but blames boards of guardians for refusing relief to men in distress, because they have pay out of a club, while as he thinks these are the very persons who ought to be relieved and encouraged. Now, as a guardian of many years' standing, I fear there is some ground for Bassett's complaint, and I entirely agree with his conclusions. As a proof of the value of clubs and the comfort they afford to members in cases of illness or accident, I may mention two cases which came under my own observation some time since in my own parish. Two labourers had each a hand injured by agricultural machinery in the same week; one had been for some years a member of the Tewkesbury Club, and immediately on being disabled got his 10s. per week and the free services of the club surgeon. The other man had been less provident and had never joined any club, consequently he at once became chargeable to the Union, and being a single man got 2s. 6d. per week, and the assistance of the Union surgeon." Dr. R. S. Martin, of Kemerton, in his letter referred to by Mr. Butt, states that clubs have not done well here as a rule. There has been gross mismanagement, and the want of a sustained interest in them by their own immediate supporters. The accounts have been badly kept, badly audited, and the money often badly invested. No club or business of any kind could succeed under the management I have seen. I feel confident benefit clubs would succeed if the rules and tables and book-keeping, published by Mr. Tidd Pratt, in 1860, were faithfully carried out by efficient and energetic officers; if they were not held at public-houses; if members entered young, under 20 years of age; if the gentry, and especially large employers of labour, took sufficient interest in the subject, not only to subscribe to the fund, but also to see for themselves from time to time that the business was being properly conducted." The following is the letter of John Bassett, the postman alluded to by Mr. Butt; I give it because I think it worthy the attention of poor law guardians. He writes: "Sick clubs are very good things; they keep men and their families off the parish; but I think one thing is not right, and that is, after a man has paid into a club for 20 or 30 years, and never received any benefit from it nor relief from his parish, and when he is obliged to give up work, and goes to the club for his allowance, it does very well when he gets full pay; but when he comes to half-pay, which is after he has been on the box for six months, it is not so well for him. But that is not the worst, for when a man has been on the box for nine months he only gets quarter-pay, amounting to 2s. 6d. or 3s. per week; it is then the parish ought to help him, but they refuse to do so. I think, after a man has done as I have said, the parish ought to be proud to help him. After a man has done his best it is hard to be half-starved. What is 2s. 6d. or 3s. in a house to find everything for a man, and perhaps a wife and family to live on? then is the time when more is wanting, and for the parish to help." I am bound to say that I think that the conduct of Guardians as related by John Bassett is exceptional; my experience is, that men in clubs have always been liberally treated. Mr. Morris, of Maisemore Court, Gloucestershire: "I am glad to find the Farmers' Club is about to take into consideration the management of friendly societies. I think it is a subject well worth the attention of farmers. We have an Odd Fellows' club in this parish, to which many of my labourers belong. I have joined it myself as a regular member (not honorary), and, therefore, take part in the management. I think, if farmers

generally would join clubs in the same manner, and take their share of the management, we should see them in a more prosperous condition, and made truly *benefit* societies. As it now is, many, I may say most, of the clubs are started more for the benefit of a public-house than its members." The next letter is from Mr. Henry Humphreys, of Beau Manor, Leicestershire, giving an account of a club based upon principles very different to the generality of clubs. He says: "I would especially direct your attention to the Beau Manor and Woodhouse Provident Benefit Society. It was enrolled in 1858, and combines the principle of savings' bank and benefit society. It receives monthly any amount greater, but not less, than 3d. from any member, irrespective of age, and allows at the rate of five per cent. interest on sums not exceeding £50; above £50, four per cent. This is a decided advantage over benefit clubs generally, where the monthly payments of a member, who has never troubled the club for sick pay, go to the general fund for ever. Compared with others, as a benefit club, it possesses greater advantages. There are four classes in which members are entered by certificates from the medical officers, according to bodily strength. This classification directs the sick allowance the member is to receive, of which an equal amount weekly will be drawn from his own deposit. The society provides this sum so long as the depositor's own funds can hold out an equal sum. There are 131 depositing members of all classes, from two years and upwards; £700 are invested, £250 of which belong to the club. It is supported by a few honorary members. No sick pay is allowed to any member under thirteen years of age." Mr. Charles Newman, of Hayes, Middlesex, writes: "I have for fifty years taken a great interest in benefit societies, and have witnessed their beneficial effect in securing for labourers an independence from parochial relief. When guardian, I always endeavoured to obtain for applicants, being members of clubs, some relief by way of encouragement; I regret that this is not the general feeling. I have long been of opinion that it would be an excellent system, if parishes were empowered to advance parochial benefit societies a certain sum annually, according to the number of members. This would benefit them much better than the reluctant subscriptions of honorary members." Mr. C. S. Read, M.P., of Hovingham, Norfolk, writes: "That the meetings should not be held at public-houses, and that farmers and others of the middle-classes should become honorary members, take an interest in the clubs, and see that they are based on sound principles." Mr. T. Hawkins, of Bentley Hall, Suffolk, writes: "I herewith send you the rules, &c., of our Sandford Hundred Benefit Club, which has worked exceedingly well, and is yearly increasing in numbers. Many of the local clubs have become insolvent, arising from bad management and spending part of the funds in drink at monthly meetings. The prosperity of these societies depends very much upon the medical certificates to prevent fraud, as there will always be some continue on the sick-list after they get well, particularly men who are rather too old to earn full wages and don't like to take less. I find there is an increasing inclination amongst the members to go on the club if they are only slightly indisposed, such as a pain in the stomach, which a little medicine would put right in a few hours. And notwithstanding they can call on the club for half-a-week's pay, they invariably take a week. If any of my men are absent, and I hear they are not 'vastly well,' I am sure not to have them for a week; and if remonstrated with, for calling upon the club upon such slight occasions, they tell me 'it is their rights!' I think it bad policy to allow a boy of fifteen, whose wages do not exceed a shilling a-day, to insure on a 10s. table until he can earn that sum weekly. He

ought to begin at 8s. for three years, and then allowed to enter the 10s. table at the same rate as if he began at fifteen years. The young men rarely come on the club, but 10s. per week has kept several 6s.-lads on weeks after they get well! I believe we shall shortly have one thousand insuring members; but I am sorry to say our honorary members do not increase as fast as the old ones drop off." The next letter is from Mr. Herman Biddell, of Playford, Suffolk. I regret I cannot give you the whole of it. He says: "We have many so-called benefit societies in this neighbourhood. They are styled 'clubs' among the labourers. There are two sorts: the first is under the management of the clergy and gentry of the neighbourhood. I enclose you the rules of one: it is called 'The East Suffolk Hand-in-hand Benefit Society and Sickness Club.' Such a club as this has no meetings except for business, and that only for the committee of management. I have, however, before me a copy of the rules of one of the common labourers' clubs in this locality. It goes under the title of 'The Society of Brotherly Love,' and a more prolific source of evil does not exist—the malt-tax excepted! It is only a fair sample of perhaps ten others of a like nature within the radius of six miles. They are established, so it is to be supposed at least, for the mutual help of one another in time of sickness and an allowance to widows or other relatives after death. They are, in truth, however, the creation of the more active minds in the lower orders, who have a predilection for drink and beer-house society. The monthly subscription is 1s. 6d., 3d. of which goes for drink at the monthly meeting and 3d. for the annual feast, the remaining shilling being put to the regular fund. It does not matter whether the member goes or not, he must pay the 1s. 6d. a month; and supposing there are thirty members in the society and only five attend the meeting, these five must take the thirty threepences out *in drink!* Men have been known to stop and drink till they are helpless, rather than leave the 'liquor' on the publican's table. These societies are under no control but of the members, and are under no obligation to each other than as they are bound by the articles they agree upon themselves, and it has frequently occurred, when there has been considerable funds in hand, and one member has what looks like a case requiring long-continued relief, the others have agreed to break up the club and divide the funds. I have a man in my employ to whom, after many years subscribing, such a case happened." Mr. T. W. Outhwaite, of Goldsboro', Yorkshire, writes: "I send you rules of our club; we find it answer very well for our labouring men. We have only two old men, that were too old to enter when the society was formed, who are receiving relief from the union. After a man has once had relief from the union his pride vanishes, and he cares little how soon he makes application again." The last letters I shall trouble you with are from two gentlemen who have lately closed useful careers; I allude to Mr. Charles Stokes, of Kingston, an old and respected member of this club, and the well-known Rev. S. Smith, vicar of Lois Weedon, with whom some members of this club a few years ago spent a very pleasant day to inspect his "triple row" plan of growing wheat. Mr. Stokes wrote: "I am glad to hear the subject of benefit societies is to be brought forward or discussion at the Farmers' Club, and I sincerely hope great good will result from it. Under the new Poor Law it is absolutely necessary able-bodied men should have some fund provided in case of accident or sickness, and in this district the best effects have been produced by making the men feel independent of parish relief, and this principle should be encouraged by the support of all those who are placed in a situation of life who, by their pecuniary support and example, can afford to do it.

The best effect is produced by the farmers and other classes dining with them at their anniversary meetings, by this means making them much more respectable and orderly, and uniting all classes in a bond of union and good-feeling which is most desirable. Benefit clubs do not receive the support from the middle and upper classes they ought to do." The Rev. S. Smith wrote: "I am delighted to reply to your inquiries upon a subject which has occupied my close attention for many years. The grand point with reference to farm-labourers is to make them self-reliant, and only to help those (as a rule) who will help themselves. In 1850 we had no club, and all the clubs about us were breaking-up from misdirection and mismanagement. I studied the subject well, and then went to Mr. Neison, paid him (most willingly) £5 for his advice, and got him to draw up rules which, humanly speaking, would make a new society safe. In the papers and rules I send you, you will see that they have made us safe and successful, and I have no reason to wish for any change." I trust I have not wearied you with these letters; but as the subject is likely very shortly to command more attention, I considered them too valuable to be omitted. I think many of them contain evidence which will be valuable to all who are desirous of bringing about a better state of things in their respective neighbourhoods. It will be seen that my correspondents are unanimous and very strong in their condemnation of club-meetings being held at public-houses. Mr. Tidd Pratt, who has kindly sent me his last report, and who would have been here this evening but for official engagements, confirms this view in his remarks upon parochial friendly societies. He says that he found in Herefordshire since 1793, the number of societies enrolled and certified were 136, of this number 123 were held at public-houses and 13 at schools or private rooms. Of those held at public-houses no less than 42 had broken-up, but of those held at schools or private rooms *only one had been dissolved*. Some also of my correspondents consider that there are far too many small clubs; doubtless this is a great drawback to their success. I find in our small county, and I believe it is only a sample of the rest, that there are 260 clubs, or nearly two to a parish. Others condemn, and rightly too, the "sharing-out clubs" previously alluded to. Since the establishment by Mr. Gladstone of the Post-office Savings' Bank, which appears to work so well, it has occurred to some that there is an agency might be employed in the management of friendly societies. It is not generally known that an Act has recently come into operation by which two branches of the friendly society are engrafted upon the Post-office, whereby persons can insure their lives for sums payable at death and also for annuities. It may perhaps be interesting to some to know that there are now open some 3,507 postal banks, and that during the past year there were received 1,525,871 deposits, amounting to £4,400,657, the average amount of each deposit being £2 17s. 8d. The cost of management amounted to nearly 7d. for each transaction, while that of the older Savings'-Banks amounted from 10d. to 1s. At the end of 1866 a sum of £3,256,968 was standing to the credit of the Post-office Savings'-Banks in the books of the National Debt Commissioners, and in cash in the hands of the Postmaster-General, to meet a liability of £8,121,175, leaving an excess of assets amounting to £135,793, after providing for the liabilities, and exclusive of the dividends, to be received five days after the close of the account. As this matter is so closely connected with my subject, I thought it well to notice it, considering it a good opportunity of drawing the attention of our agricultural population to such a safe and useful depository for their savings. The Rev. J. Y. Stratton strongly advocates the Post-office agency for friendly societies in a cleverly-written

article in *All the Year Round* of April, 1866. The matter is so well put, that I give you a few extracts. He says: "Ten years ago it would have been thought preposterous to talk of a Post-office Friendly Society. The notion of a Post-office Savings-Bank, entertained by a few, was an ideal as unpractical among practical men as a Post-office Friendly Society is at this moment—indeed, more so, for we have in the Post-office made some steps in the direction of the friendly society. They have been just those steps for which the rural classes, and, indeed, the industrial classes, care the least; but will, it is fair to anticipate, be found of great importance before many years elapse. But the poor man's sheet-anchor, maintenance during illness, coupled with a sum at death, is not yet permitted to secure him in the storms of this life by its hold on the Post-office. Such permission might, and, it will not be difficult to show, ought, if beneficial legislation is persisted in, to be given. Farm-labourers should have the opportunity afforded them of investing their club payments in securing sums during sickness, payable weekly for a term of months, of about three-fourths of their ordinary wages when they are able to work. We may safely leave it to his own option to insure as much as he likes in the way of burial-money and annuity, both these last classes being already offered to the public—and not, I fear, meeting with the attention they deserve—by means of the Post-office. Now, every country postmaster knows the common run of farm-labourers' earnings in his neighbourhood, and would thus assist the authorities to fix the maximum sickness provision given at his office. To this, I add that, from knowledge of agency management in a large friendly society, the ordinary village postmaster will soon make a most efficient and trustworthy agent. The advantages of such a system of friendly societies throughout the country it would seem difficult to overrate. Every able-bodied farm-labourer would slowly but surely discover that, *if he pleased*, he might go to the nearest Post-office instead of the nearest public-house, and, *at a somewhat less cost in money, obtain a better provision* than the combined resources of the sharing-out club and poor-rates put together can give him." Mr. Stratton is sanguine as to the success of the measure, and has, for some time past, pressed it upon the attention of the Post-office authorities. It is thought that if some pressure is used, the Government will be disposed to undertake the other branch of a friendly society—viz., the sickness pay. But whether the Government will adopt the suggestion remains to be seen. The success, however, of the Post-office banks speaks volumes in favour of a trial. Just as I had finished my paper on Saturday night, I took up the *Saturday Review*. The first article which attracted my notice was upon friendly societies. I was glad to find this influential Journal had devoted a portion of its space to this subject; and, in an article written in its usual forcible style, which is worthy your perusal, had laid bare the evils of the present system, and advocated the more general adoption of the Post-office arrangement. In all probability there will shortly be some legislation upon Friendly Societies, for on the 17th of August last the Earl of Lichfield laid on the table of the House of Lords a Bill to amend the laws relating to the same, and on the 19th the following order was made by the House, and to which Mr. Tidd Pratt has lately called public attention. Ordered by the Lords Spiritual and Temporal in Parliament assembled, that there be laid before this House "Returns from the trustees or secretary of every Friendly Society legally established in England, Scotland, and Ireland, having paid collectors or agents, of the names, residences, title, business, or occupation of the patrons, presidents, trustees, committee, directors, collectors, and agents of every such society on January 1, 1867, with the name of

the place at which, by the rules, such society is established, and the places at which the several collectors and agents reside, together with the salaries, allowances, and emoluments of each paid officer, collector, and agent for the year ending December 31, 1866, with the number of members of each such society and the amount of the funds on January 1, 1867, and also the amount of contributions received and the expenses of management, under distinct heads, in the year ending December 31, 1866.—Ordered to be laid before the House." It appears that under the last Act there was no legal obligation for the rates of such societies to be certified by an actuary: there can be no doubt that the want of this has been the cause of failure of hundreds of clubs. Lord Lichfield proposes to amend this. In the discussion in the House of Lords it was stated that *the Registrar-General could not satisfy himself of the soundness of 20 out of 25,000 societies*. If such be the case legislation will not be commenced too soon. The permanent success of a friendly society upon the principle that union is strength and the many can help the few depends upon the number of its members. If a society be few in numbers, it is clear that when a large proportion have to throw themselves upon the funds, as is invariably the case when the members become advanced in life, the failure of that club is inevitable; especially so is it when the sickness pay is out of proportion to the monthly payments. Those present who happen to be members of boards of guardians can bear testimony to the many pitiable cases which come before them, of men who have subscribed for 30 and even 40 years to a club, and after all the club has failed, and in their time of need have had to throw themselves upon parish bounty. From a recent return I find that *there are nearly 4,000 papers in Union Workhouses* who have been members of Friendly Societies, which have been dissolved or broken up. I confess after giving the subject some consideration, that I shall prefer to see the Government grapple with the question of Friendly Societies, either by the Post-office or some other agency. Until, however, such is the case, and as it may be years about, I incline to the principle of County or District Associations, such as I shall shortly allude to. I would suggest Union Associations, but I know how unpopular anything which might be thought to appertain to the Poor-law is among the labouring classes; at the same time such an arrangement would perhaps be convenient. For my own county, however, being a small one, I would propose one society divided into districts corresponding with the Petty-Sessional divisions. By an organisation of this kind, or a union of surrounding or adjoining parishes, with owners and occupiers as honorary members taking an interest in the management of the affairs of such societies, not only would the permanent success of such institutions be ensured, but that kindly feeling alluded to in the opening of my paper would ensue from such co-operation. I do not propose to abolish the existing Local Clubs, but to absorb them into a County or District Society. Another advantage of farmers uniting with the labourers in the management of the Friendly Societies would probably be found in remedying an evil bitterly and perhaps justly complained of by many of our poor: I allude to the neglect to which their sick are subjected by the club doctor. I am aware their stipend is often very small, but on this account I cannot excuse their shortcomings; they know their salary; and they have no right (nor is it honest) to undertake the duties, unless they intend efficiently to discharge them. I would, however, advocate a more liberal payment, by which the poor might reasonably expect greater attention, and by which the funds of the club would be conserved. This would be accomplished by the union of the separate parish clubs into district or county clubs—a medical



appointment to a single village club, with an emolument attaching to it of some £10 or £15 a-year, to retain which, although glad of it at first, is not of a great moment to a man who has acquired a fair practice; but should the appointment combine a larger area, with an emolument of ten times the amount, this income would be a matter of far greater importance, and, as I think, would ensure a more complete fulfilment of the duties; it would also lead to a more rapid cure of real cases, and the speedy exposure of sham invalids. I will relate a circumstance bearing upon the latter point which came under my immediate notice some few years ago. A labouring man had been often ailing, and a constant recipient for some years of the club's funds, much to the annoyance of many of his brother-members. At length a member of his family waited upon the club doctor, and informed him that many of the members were dissatisfied with the treatment of this relative—a complaint which naturally aroused his anger; and, being a plain, outspoken man, he said, "I tell you what, if the members of the club think as I do about your relative, they think he can do some work." It was marvellous what an effect this had; for, upon inquiry being made a few days after, his wife replied that he was a good deal better, "the doctor had changed his medicine," and that he would be out to work in a day or two; and, sure enough, he was. This is a prescription I would commend to the attention of club doctors. From the rules and reports of various clubs which have been kindly sent me by gentlemen throughout the country, to whom I here tender my best thanks, I find those to be the most prosperous where a whole district or county is embraced. I would name a few as worthy of the attention of those who feel interested in such matters; and, in order that those who desire further information upon these societies, I have given, in an appendix to this paper, a list of those whose rules I deem worthy of being adopted by other districts; I also give the name and address of the secretary, as I wish to avoid the necessity of answering letters from, perhaps, a number of correspondents who might write to me for information: 1st. The Essex Provident Society, which has upwards of 9,000 members, and a capital of more than £70,000, with its honorary members and committees for every district of the county. 2nd. The Hampshire Friendly Society, which has upwards of 3,000 members, and a capital of some £35,000, with honorary members and committees as in Essex. There are also prosperous societies in the counties of Hereford, Salop, Wilts, and Rutland. That of Wilts has been under the fostering care of Mr. Sotheron-Estcourt, who has, both in and out of Parliament, taken a deep interest in friendly societies. For a local or parish club, the one established by our lamented friend, the Rev. S. Smith, of Lois Weedon, appears to be as well managed, and on as sound a footing, as any that have come under my notice. In the last communication I had from Mr. Smith, in his usual happy style, he said, speaking of his club, "It really works so well and easily, and without noise, that the machinery scarcely requires oiling." The principle and rules of the Beau Manor Club are worthy of great consideration. It was only established in 1858; yet, with only 130 members, it holds securities in stock for £700. The rules were drawn up by the incumbent, who is well known for his great ability in such matters. I must now leave the subject in your hands, trusting we may have a good discussion, and that this Club may be the means of securing a better management of friendly societies throughout the rural districts. That happy result will, I am convinced, be mainly brought about by the increased help and more hearty co-operation of those who own and occupy the land. Such services will be a blessing to that portion of our population which is instrumental in raising the necessary supply of our daily bread, and is so well described, as

"The sinews of Old England,  
The bulwarks of the soil,  
How much you owe each manly hand  
Thus fearless of its toil.  
Oh, he who loves the harvest free  
Will sing where'er he roams—  
God bless the English peasantry,  
And grant them happy homes."

## APPENDIX.

NAME OF SOCIETY.	NAME OF SECRETARY AND ADDRESS.
Essex Provident Society.....	Mr. Julius Mark, Chelmsford.
Hants Friendly Society.....	Mr. J. H. Todd, Solicitor, Winchester.
Herefordshire Friendly Society	Mr. Edwin Day, 9, Bye-st., Hereford.
Shropshire Friendly Society...	Mr. Henry Bevan, St. Mary-street, Shrewsbury.
Wiltshire Friendly Society ...	Mr. F. V. Holloway, Devizes.
Rutlandshire Friendly Society	Mr. Alfred Frisby, Cottess- more.
Lois Weedon Friendly Society	Mr. H. Jones, Lois Weedon, Towcester.
Beau Manor and Woodhouse...	The Secretary, Beau Manor, Loughborough.

Mr. J. CLAVDEN (Littlebury, Saffron Walden) wished to observe with regard to the Essex Provident Society, that there was a branch in his neighbourhood which worked exceedingly well. All the best labourers were members of it, and he had not heard of any case of disappointment. There was, as they had been told in Mr. Howard's paper, a very large fund in hand, amounting to £73,547 15s. 7d., and 9,474 subscribers, who felt exceedingly satisfied with its working. There were no public-house meetings, but there was an annual dinner in the county town which was very well attended. That society was extending every day. The village clubs, whose meetings were held at public-houses, were fast going to decay, and the Society to which he alluded was taking their place. Mr. Howard's paper was a very excellent one, and left scarcely any room for debate.

Mr. T. CONGREVE (Peter Hall, Brinklow Coventry) said Mr. Howard in the introductory part of his paper made one observation to which he felt bound to reply: it was, in effect, that there was an idea abroad that the Boards of Guardians in the different counties of England did not pay that attention to the claims of club-men which they ought to pay. As chairman of the board at Rugby, and as one who knew something about adjoining unions, he totally denied the correctness of that statement. In his district, at all events, assistance was always given to a man who belonged to a club.

Mr. C. HOWARD remarked that what Mr. Congreve alluded to was quoted from a correspondent, and that he himself qualified it.

Mr. T. CONGREVE continued: As a rule, the guardians of his union always went in such cases to the utmost extent of the law. There was indeed a limit beyond which they could not go. He regretted that the law was so stringent and so unpleasant to guardians; but, as a rule, his own board always assisted an applicant who had joined a club in youth and carried on his subscriptions during vigorous manhood. They all knew that, as benefit societies generally were conducted, the payments from members were too small. The difficulty of increasing the pay arose from the fact that the labourers found it hard to make their payments. Most of the societies ultimately came to grief. So long as young men were coming in, and nothing scarcely was being drawn out, all went on well as regarded the funds; but as soon as young men declined to join and old ones to draw out, the existence of the club was ordinarily only a question of time (Hear, hear). He was happy to say that in his neighbourhood the clubs were well supported, almost every farmer being a member of some club (Hear, hear). Mr. Howard had omitted to allude to one very large and important body, of which he (Mr. Congreve) had

been a member for some years—he meant the Odd Fellows (Hear, hear). He believed that that society rested on a firmer basis than benefit societies generally. The number of members was enormous, amounting in the whole of England at the present moment to about 400,000. The payments were much larger than in most other societies, and there was not so much spent on tom-foolery, though there was perhaps room for retrenchment in that respect. In conclusion, he would express a hope that benefit societies would ere long be placed more under Government control and rest on a surer foundation (Hear, hear).

Mr. S. SIDNEY (Islington) thought they were greatly indebted to Mr. Howard for calling attention to the real condition of the labourers' friendly societies, because they appeared to be almost the only means which that remarkably helpless creature the agricultural labourer had of helping himself. (A voice: "No.") He heard some gentleman near him intimate that in his opinion agricultural labourers were not helpless. Well, if he had not thought they were helpless before, he should have become convinced of it that evening. It was the remark of a great statesman that no reform ever came from within. It was plain to him, and he thought it must be clear to all present, that no reform of agricultural labourers' friendly societies would ever come from the agricultural labourers themselves; that until the farmers who were the employers of the labourers, and the resident gentry of the district in which these societies existed thought it worth their while to take an earnest, active interest in them, there was not the least likelihood that uneducated men would change from the agreeable and ruinous principle which was commonly adopted at present, to the sounder and more useful though duller, system on which some of the newer friendly societies were founded. What he wished to impress upon the Club in his humble way was, that those who stood on the outside took a very different view from those who stood on the inside—that those who were not farmers, and not employers of labour, and not representatives of those who knew labourers in old times, could not see things quite in the same light as those who seemed to consider it quite natural that the labourer should work as long as he had sufficient strength, and should become a pauper towards the end of his life. It was very painful to him to say that in the presence of the gentlemen who said "No!" because he was an inside gentleman, and could not see the thing in the same way as an outside one (laughter). But he hoped that before he finished he would be able to convince such persons, if they believed what they themselves stated, that his view was perfectly correct. What was it to which Mr. Howard had called their attention? Why, the necessity of founding benefit societies on such principles of finance that the men who paid into them would, when they came to require assistance, be able to get something equivalent to what they had paid in. Mr. Howard had told them, too, that by far the larger number of societies were so conducted that when the agricultural labourer came to want assistance he was put for a short time on what was called whole-pay, then on half-pay, then on quarter-pay, and that he afterwards became a parish pauper. Now, he (Mr. Sidney) wanted to know whether that was a wholesome or healthy state of things. He did not wish to blame any one for it, but it was a notorious fact that the most that could happen at present to the great body of agricultural labourers who belonged to friendly societies was that when they needed help they would get a dole of five or six shillings a week, to be reduced after a time to 2s. 6d. If they got such an allowance, they thought themselves remarkably well off; and if they did not get it, they went to the parish. This was so natural a course of things,

that it was made a charge against the Board of Guardians that they did not assist those who were members of friendly societies.

Mr. C. HOWARD observed that only a single instance had been mentioned.

Mr. S. SIDNEY: Well, if it were only a single instance, it appeared that, as a general rule, guardians gave relief to those who had subscribed to these societies; and, if that were so it proved his case, which was that those who subscribed ultimately went to the parish (Hear, hear). Surely, it was a most unsatisfactory state of things that one of the most numerous classes of labourers in this kingdom should have to go to the workhouse at the close of their lives. They must all admit that anything which would tend to put an end to such a state of things was well worthy of attention. He was not one of those who imagined that that state of things could be altered by Act of Parliament; but Mr. Charles Howard had sketched good friendly societies in such a way as to afford good reasons for believing that, if societies generally held their meetings at schoolrooms instead of public-houses, and were supported by different classes of society connected with agriculture, the labourer, instead of getting hardly enough to keep body and soul together, would be entitled at the end of his days to such a sum as would be sufficient to support him comfortably (Hear, hear). He knew that he might place himself in an unpleasant position by suggesting that something more might be done for the agricultural labourer than had been done (laughter). He did not, indeed, expect the evil to be remedied this year or next year; but of this he felt certain, that if the employers of labour would interest themselves in efforts to put friendly societies on a better footing, they could be put on a better footing; and he would add that if they were not placed on a better footing, it might be an exceedingly dangerous thing that men who had learnt to read and write should read that they had nothing to look forward to in old age but the workhouse. It was the interest of every man who had a shilling invested that the labourers generally should be raised to a position in which they would be enabled to help themselves; for without that, they might depend upon it labourers would prove very dangerous to society (Hear, hear).

Mr. JOHN EVERITT (Kingswood Lodge, Norwood) said the importance of this question in relation to agriculture had, in his opinion, been too long overlooked, and he regretted that the room was not crowded to hear the valuable information gleaned from quarters which admitted of no dispute. The highest compliment, he thought, which could be paid to Mr. Howard in return for his valuable paper, would be to found upon it some practical suggestion, and he trusted it was the unanimous opinion of the meeting that something should be done to give a practical bearing to the discussion (Hear, hear). It was quite clear that public-houses were the bane of the working man. The holding of club meetings at such places was a farce—nay, it was worse, it was a deception; and he thought a declaration should go forth from that Club, that agricultural labourers were entitled to the countenance, assistance, and co-operation of the farmers and landowners, for their protection and benefit in reference to these matters. They must all be delighted if something effectual could be done for the poorer homes of their beloved land. Although he had been Chairman of a Board of Guardians for many years, and felt deeply interested in the condition of the labourers around him; yet he must confess that up to that evening he had no idea of the amount of good which might be done by means of properly-managed benefit societies. His mind had never before been so much stirred up on this sub-

ject. The facts laid before them were, however, undeniable, and he thought they would all incur a deep responsibility if they did not endeavour to turn them to good account in their respective localities. He thought, indeed, it would be well to pass a resolution—short, pithy, and to the point—impressing upon farmers and landowners generally the desirableness of their energetically endeavouring to bring about, by means of benefit societies, a state of things which would tend to make labourers and their families happy and comfortable, and to secure, what all must desire to see, an improved state of things for the labourer in old age (Hear, hear).

Mr. C. WESCOMB (Exeter) entirely concurred with the last speaker, that the paper read by Mr. Charles Howard was one of great interest, especially to the landowners and agriculturists of this country. It was notorious that in almost every parish a club existed ostensibly for the benefit of the members. It was generally established at a time anterior to the period when proper tables were framed, and when the attention of the Government was directed to the subject. It was not surprising that, under such circumstances, very crude notions existed as to how much must be paid to secure the benefits which were promised but had seldom been realized. The grand question was how these subscriptions were to be increased so as to secure the object. And here he begged to remark that he did not include in the subscriptions what he could not but regard as a gross imposition upon the members, namely, the payment of threepence out of a shilling for the benefit of the public-house. What he contended was that the amount paid in a club was inadequate to secure the amount which was to be received. Mr. Sidney was mistaken, he would observe in passing, in supposing that the promised club-benefits extended only to twenty-six weeks on full-pay, thirteen weeks on half-pay, and the same number on a quarter-pay; that applied to the case of sickness or accident, but it did not apply to the case of an old man who was past labour, and was obliged to apply to the union. The old-fashioned societies provided, indeed, for sickness and accident, but that arrangement must not be confounded with the four or five shillings a-week promised to those who were past labour. It was to this latter case that the remark applied that in many societies the first old members received all the benefits, and, young men refusing to join in consequence, the club came to a disastrous end. That was the great evil to be encountered in benefit societies (Hear, hear). There was no use in disguising the nature of the evil; and the question was how to remedy it. It was not desirable, indeed, that the old labourer should receive the full amount of his wages, for that would encourage deception; but if he were desirous, while in the full possession of bodily vigour, of making himself independent of the parish for life, let him be taught to contribute a sufficient amount out of what he earned, and let him be assured that the landowner, the farmer, and the manufacturer would help him to support the club to which he looked for future subsistence; that would be far preferable to encouraging him to join societies which were based upon improvident estimates, and in the end disappointed the hopes of the poor man. If they were going to send out, as suggested by the last speaker, some suggestions from that club in reference to the working of benefit societies in rural districts, let them not forget to afford proper information as to the amount which should be contributed in order to ensure the desired result, and he felt sure that those to whom he had just alluded would not fail to aid the labourer in raising what was requisite for this object. It was very important that the members of these clubs should not be compelled in their old age to come upon the union, and he hoped that the discussion would be attended with a practical result.

Mr. J. BRADSHAW (Knowle, Guildford) thought that Mr. Howard, in the valuable paper which he read, had laid before them sufficient practical information for their guidance on this important subject. He had been a chairman of a Board of Guardians for nine years; and in that capacity he had always recommended that labourers who had been so provident as to make provision for cases of sickness or other emergencies of that kind, should be tenderly and liberally treated (Hear, hear). He did not know whether it was the law, or a regulation of the Board on which he sat, but his feeling and conviction had always been, that those who providentially made such a provision should have the full allowance (Hear, hear). And let him add this, that whenever such parties were placed in such a position that they were obliged to apply to the Board of Guardians for relief, they were, in his opinion, entitled even to extra indulgence, on account of the providence which they had manifested. He quite concurred with the writers of the letters read by Mr. Howard, that benefit societies were, in principle, essentially good for the community; but the misfortune was, that for a long series of years such societies had been abused. He could bear testimony to the large amount which had been expended at annual dinners. Within the last few years he had become a member of a benefit society in a parish adjoining his own, in consequence of all the meetings of that society being held in the school-room, so that no money was expended extravagantly; and he would certainly advise all the farmers and gentry to support such societies as that, by becoming honorary members. The question on the card opened a very wide field for discussion; but he did not know how far it would be prudent in him to make any observations upon what was passing at the present moment. Unfortunately a great number of these provident societies had been converted into dangerous societies. Though he was a strong advocate for benefit societies, he did hope that wherever combinations had been directed into an improper channel, means would be adopted to arrest the evil; but he was satisfied that it was for the benefit of all parties that there should be combinations, and that it was for the interest of both masters and men that the best arrangements should be made.

Mr. J. A. WILLIAMS (Baydon, Hungerford) observed that there was one evil connected with public-house clubs which he did not think Mr. Howard had mentioned, and that was that many societies wound up at the end of seven years, divided the funds among the members, and began again. Of all the evils which were attached to such clubs, that was perhaps the greatest, because in such cases the old members were not re-admitted, and thus those who had contributed from youth to manhood were entirely deprived of that resource in old age to which they had a right to look forward. The last speaker, after saying that these clubs were beneficial in themselves, proceeded to remark that it was mismanagement which brought so many of them to grief. If they wanted to see how such societies might be made really useful, they must go beyond the village clubs and look to the county ones (Hear, hear). Their chairman would be able to tell them more about a county club in Wiltshire than he could do. He (Mr. Williams) must plead guilty of not belonging to one of the best societies that existed; but the reason was that in that case, as in almost every other, he found that labourers liked to be independent. Labourers loved to regulate their own affairs themselves. There was great difficulty in breaking through their ideas; and that was one cause of their adherence to many of the old societies which were not properly conducted. In the Wilts county society the members, by paying a certain sum monthly, could certainly secure the object in view. If they came into that county they would find Mr. Sotheron Escourt,

who could never be sufficiently praised for the good which he had conferred, filling the capacity of father of the club. It had taken years to establish that club, but it now extended throughout the county; and he thought he might safely say that with a fund of £26,000 in hand, and proper management, there was that to which every member might look, to be secured against want to the end of his days. There was no pauperism attached to that society. It was the bringing everything under proper management, and the getting the farmers and the gentry to unite with the labourers, which had made the society so successful. Tent meetings were held in the several parishes throughout the summer; there were branch parochial societies throughout the county, and the greatest benefit was conferred at the least possible expense. The clergy, the gentry, the farmers, and the labourers met one day in the year, and after a good dinner of roast beef and plum pudding, all went forth for the evening to enjoy themselves. That society united all classes together, and there was no danger of the labourer being pauperised by it (Hear, hear), as the fund was sufficient to meet every demand. But the farmers had to beat down against the prejudices of the labourers. Many labourers liked to spend the threepence, and they did not mind spending sixpence (laughter); and Mr. Howard justly described them as drinking till they did not know what they were doing. He hoped that the Chairman, who lived in the very centre of one of the best societies in the kingdom, would not fail to make some remarks on this subject (Hear, hear).

Mr. H. CHEFFINS (Easton Manor, Dunmow) said that, having had a little to do with a large society in his own neighbourhood, he would just state what was the result there. They had a friendly society, as it was called, with something like 1,000 members and about £17,000 invested. The magistrates, gentry, clergy, and the farmers all took an interest in it as honorary members. Their subscriptions paid the expenses, and the money of the working men was all put into Government securities for their ultimate benefit. Some remarks had been made as to what was the state of the labourer when he was worn out and could do no more work. That was a matter to which he had paid particular attention. They had, as he said, 1,000 members, yet they found few instances in which members who had attained the age of 65 (the age at which annuities for old age commenced) had sought to become annuitants.

Mr. C. HOWARD: What is the name of your society?

Mr. H. CHEFFINS said it was called the Dunmow Friendly Society. It was managed by the magistrates, clergy, and farmers of the neighbourhood. It was not a branch of the Essex Friendly Society; and he must say that what he had heard from Mr. Clayden respecting the funds of that society had surprised him. He was one of the auditors, and all the accounts therefore passed through his hands. Of the old members, never, he believed, had there been more than six who had become annuitants at the age of 65. The lowest amount paid after that age had been reached was 6s. a week. The payments were in proportion to the amounts which had been paid in. One man paid 1s. a month, another 16d., another 20d.; and according to the amount which they had paid in was the amount to which they were entitled at the age of 65. The society was of course under the authority of Mr. Tidd Pratt.

Mr. T. H. MUREIN (Great Staughton, Huntingdon) said it appeared that in all friendly societies of which they had heard that evening, notwithstanding the provision therein thus made for the labourer, he was almost always compelled to go to the workhouse in old age ("No, no!"). He must add that no one except the last speaker had stated what amounts were paid monthly by the members. As to public-houses, he did not

think gentlemen who had enjoyed themselves there so well that evening ought to grudge the poor man a little enjoyment at places of that kind (laughter). He had himself paid some attention to two or three clubs in his own parish; and, though no doubt too much money in proportion was often spent in beer, he did not find that in any club with which he was connected more than 2d. was spent out of the 14d. subscribed—so that 1s. went to the society. In one society 1d. a month was contributed for the annual dinner. The men could not afford to pay in more than 1s. per month; neither could they, according to their own statement, live on less than 7s. a week when they were sick. There was the great difficulty, where men received only 10s. or 12s. a week; and the object should be to induce them either to live on less or to pay in more. As regarded management, his experience, like that of Mr. Williams's, was that the members generally liked to have it in their own hands.

Mr. T. HORLEY (The Fosse, Leamington) said there was one observation of Mr. Sidney's which he could not allow to pass unnoticed; it related to the pauperism connected with agriculture. He believed that England would never be without pauperism; but, so far as he could judge, there was not more pauperism in connection with agriculture than with the trading and commercial interests of this country (Hear, hear). It would be almost impossible to organize benefit societies which would always be able to maintain the agricultural labourer, or the labourer in any class of society, during old age without the assistance of parochial relief; and he believed the time would never come when farmers would like to see their labourers devoid of the actual necessities of life (Hear, hear.)

Mr. MASEN (Pendeford, Staffordshire) said he had recently conversed on this subject with the Lord-Lieutenant of his county, the Earl of Lichfield, who had given notice of a bill which he intended to bring before the House of Lords next session. His lordship gave him a copy of the bill which Lord Shelburn introduced in 1862, for the better regulation of friendly societies generally. A bill with the same object was brought under the consideration of the House of Commons in 1818, and read a second time, but a dissolution taking place immediately afterwards it was not proceeded with. He (Mr. Masen) held a copy of that bill in his hand. Lord Lichfield made remarks to him similar to those which had been made by a gentleman that evening, in reference to the independence of the labourer and the difficulties which arose from that source. There was, in fact, a spirit of independence in the mind of the labourer which would not chime in very well with some of the provisions of the bill; for the labourer might refuse to have anything to do with a society the deficiencies of which were to be supplied out of the poor rates. One provision of this bill was as follows: "Clause 4. If any parish or parishes shall determine to adopt this act and to establish a friendly society, then the vestry or vestries thereof shall forthwith establish in the parish or any of the parishes a friendly society under the laws for the time being in force relating to such societies, to be called a 'parochial friendly society' for the parish or parishes, and shall direct to be paid to such society, out of the poor-rates of such parish or parishes, such an annual sum of money, not exceeding a sum equal to 25 per cent. on the amount of the yearly contributions of the members for the time being thereof, as the vestry or vestries, at any meeting thereof to be specially called for the purpose, shall determine." Clubs established on that basis might not be entirely satisfactory to the labourer, but they would be sound in themselves. Mr. Howard had told them in his paper that Mr. Tidd Pratt had stated that of 25,000 benefit societies in England, not more than 20 were, in his opinion, in a sound

condition. No doubt that was owing in a great degree to mismanagement.

Mr. C. HOWARD observed that the statement as to what Mr. Tidd Pratt said was made in the House of Lords.

Mr. MASEN continued: He had heard that since that statement was made in the House of Lords, Mr. Tidd Pratt had been questioned as to its truth, and his reply was that he believed there were very few sound societies in the kingdom. One of the correspondents quoted by Mr. Howard said he thought one great evil of friendly societies was that members entered them too young. He did not concur in that; on the contrary, he thought that the younger a man entered the better. He had been a member of a society in his neighbourhood for twenty-six years. Five years ago it was in a very tottering condition, but that was not surprising. An examination of the books showed that from the period of its establishment—viz., 1780—no less than £1,000 had been spent in liquor! How much better would it have been had the meetings been held in a schoolroom! One great evil that he had found in the management of such societies was that fathers allowed their sons to join whatever society they pleased; the result being that the sons often joined a new society, and left the fathers only in the old one—a state of things which must of course tend to destroy any society. He denied that guardians were generally indisposed to assist needy members of clubs, and he hoped that for the credit of Englishmen that would never be the case.

The CHAIRMAN, in closing the discussion, congratulated the meeting that Mr. Howard's paper had elicited so many useful remarks in reference to friendly societies. They were much indebted to that gentleman for the attention which he had bestowed on the subject, and the ability with which he had treated it. In the course of his remarks he alluded to a society to which he (the Chairman) himself belonged. That society was fast superseding nearly all the old public-house societies in the county—societies of that class which all present, unless, indeed, the speaker, who was, he believed, a brewer, formed an exception (laughter), must feel had not been managed at all as they ought to be (Hear, hear). He held in his hand the report of that society for the last year. It was entitled the "Report of the Wiltshire Friendly Society for the year 1866;" and the Society was stated to have been established in 1828, "for the purpose of relieving and maintaining such of its members as may be disabled from work by sickness, accident, or old age; for providing a sum to be paid on the death of a member, and endowing or apprenticing young persons." The Society was instituted and presided over by that excellent man Mr. Sotheron-Esteourt, who was obliged to retire from its management, as well as the representation of North Wiltshire, in Parliament, in consequence of ill-health. The number of members at the time when the report was issued was 6,394, and the amount of capital invested £27,726 19s. 3d. There were ninety-six branches scattered over the county, and they were supported by the clergy, gentry, and agriculturists of their respective districts. Once a year, as Mr. Williams had intimated, there was a day spent in a happy gathering of the respective branches, and of all who were interested in the object, under the auspices of the president, or, in his unavoidable absence, of some gentleman of influence in the locality, who represented him. He would not enter into any details now, but he must add that the contributions of the benefit members for the last year amounted to £4,650 13s., and the subscriptions of honorary members to £340. Thus, it would be seen, something like 15 per cent. of the total income was paid by honorary members—a fact which showed the great interest taken in the Society by farmers, the clergy,

and the gentry. There was no benefit society in the county so well managed. It had its auditors and its local committees throughout the county; the meetings were not held like those of the old societies, in public-houses, and he hoped that ere long no meetings of societies of that kind would be held in public-houses (Hear, hear). The Society was, he believed, founded on true principles, and if any member of that Club wished for a copy of the rules, he should be happy to supply him with one. They all agreed that it was desirable that the poor man should have some assistance from a benefit society, in sickness or in old age, and that without proper management the object could not be secured. The Society to which he alluded formed a good precedent for other societies; the scale of allowance had been well studied and prepared by actuaries; and the Society was now in a most satisfactory condition (Hear, hear).

Mr. C. HOWARD, in replying, said he felt amply compensated for his trouble in preparing the paper by the very excellent discussion which had taken place. Mr. Congreve seemed rather to have misunderstood him on one point. He (Mr. Howard) read a letter of John Bassett, complaining that boards of guardians did not treat members of clubs liberally, but he said that his own experience was altogether different; though, of course, the conduct of boards of guardians in different counties was not always alike in that respect. Notwithstanding what fell from his friend Mr. Murfin, who doubtless derived far greater gains from the favourite beverage of the working man than did the farmer by the growth of barley, he still considered beer-shops the bane of the labourer; and the testimony of his correspondents, among whom were some of the best men in their respective neighbourhoods, on the subject, ought to be conclusive. In conclusion he would express a hope that the "bread cast upon the waters" that evening would be "seen after many days." (Cheers.)

On the motion of Mr. S. Skelton, seconded by Mr. G. H. Ramsay, a vote of thanks was given to Mr. C. Howard for the able manner in which he had introduced the subject.

The proceedings terminated with a vote of thanks to the Chairman, on the motion of Mr. T. Horley, seconded by Mr. T. Congreve.

At the Meeting of the Committee Mr. Clare Sewell Read, M.P., was elected Chairman of the Club for 1868.

AVERAGE PRICES OF GRAIN FOR THE YEAR.

Following the course pursued by my predecessor, the late Mr. Willich, I take the opportunity at this season, being the close of the farmers' year, to send you, for the information of your agricultural readers, and more especially for those who have adopted the system of corn rents, based on the average price of wheat, barley, and oats, a statement of the average prices, founded on the returns as published weekly in the *London Gazette*. Average prices for the year ending Michaelmas, 1867:—

	s.	d.
Wheat, per imperial quarter	61	7½
Barley	40	7¼
Oats	25	7

The highest and lowest prices for the same period were:—

Highest.	s.	d.	Lowest.	s.	d.
Wheat, Aug. 20	68	4	Wheat, Oct. 2	51	5
Barley, Dec. 11	46	2	Barley, July 16	34	9
Oats, Aug. 20	29	7	Oats, Oct. 29	22	10

It may be interesting to show the fluctuation in the average price of wheat which has taken place during the last 10 years:

	s.	d.		s.	d.
1858	46	10	1863	46	8
1859	43	6	1864	40	9
1860	49	9	1865	40	3
1861	54	9	1866	46	10
1862	58	3	1867	61	7½

CHARLES M'CABE,  
Secretary University Life Assurance Society,  
24, Suffolk-street, Pall-mall.

## OUR STORE CATTLE.

At the usual monthly meeting of the Athy Farmers' Club, Mr. JAMES ALEXANDER, sen., said: On looking back at our late cattle show at Athy, I think that we have reason to believe that we are making some progress in the improvement of our stock—in breeding as well as in condition—and there is little doubt but that all the cattle which were shown there will be well cared for during the coming winter and spring. I wish I could say as much for all the young cattle in the county of Kildare; for they are generally in fair condition at this season of the year; and, although there is not much of this county very celebrated for its fattening qualities, still we rear as good young cattle as in any county in Ireland, from having so many fine shorthorn bulls now kept in different parts of it; but, gentlemen, we must bear in mind that as we improve our stock by breeding, they require more care and attention in both housing and feeding to keep them in a thriving condition, especially in winter and spring; for shorthorn cattle can bear neither cold nor hunger so well as our own breeds of stock, and that the better they are fed and well cared for they will pay us more for our trouble. In this district young cattle are generally housed at night, and turned out through the day, to feed on what they can pick up in the fields, which we all know is but very little in the neighbourhood of Athy, and even what they do get is often not of the best quality, perhaps only a little sour bottom grass, with a feed of straw or bottom hay at night and morning in the house, but very seldom any turnips. This treatment will not keep young stock in a growing condition, and by the end of April they are only skeletons of what they were in the autumn, and, of course, the winter's keep is lost, as well as six months' growth of the cattle, and it will take some months of the summer's grass to bring them into fair condition again; whereas if they had been kept in the house, with a good supply of fresh-thrashed oat-straw and some hay, if it could be spared, with two feeds of turnips daily, it would keep them in a thriving state over the winter and spring. They might be turned out for a couple of hours on a fine day; but little need be calculated on what they can gather in the way of food in the fields. Our main object should be to have them worth as much as possible by the time that they reach two years or two and a-half years old, and fit for the butcher; and those who cannot fatten off all that they may have got should have them in a forward condition for those to finish who may have the means to do so; for there is a great deal of land in this county that will bring a beast to that age in pretty good condition; but there are but few farmers in this district who can keep a three-year-old profitably, and to have our stock away early would enable us to keep considerably more than we can at present. Another system is to let them run in the fields all the winter, without housing them at all. Strong two and three-year-olds may do very well in a dry, sheltered situation, where the grass is naturally of good quality, with a liberal supply of good hay, but even then they would do much better if they had a comfortable house to sleep in at night; for I have often gone into a herd of outlayers in November and December, and heard one here and another there coughing, with the water running from their eyes, and the hair standing on their backs, which told plainly that they were suffering from cold and wet, and by the first of May they were not worth more than they were in the autumn, only that the prices of stock are rather higher in the spring, when graziers must have cattle for their grass, and the only way that they can make a selection in our spring fairs is a beast with a good hide and plenty of hair; for as to condition they have but little or no choice in that respect; but if they could get stock in good condition, they could afford to give a much higher price for them, as they would have them fit for Smithfield market before they can have the stock which they can get at present into good store condition. This is a great loss to both farmer and grazier, and the sooner that we improve in the management of our young cattle, it will be better for our poor animals, and also for our pockets. I will give you a very striking example of what has been done in a county which is

not more favoured by nature than the county of Kildare, and in some respects not so much, especially for growing green crops. You have all heard of the high prices which the Aberdeenshire cross-bred cattle bring in the London markets, which is always a  $\frac{1}{4}$ d. per lb. above the prices of beef from any part of England, or from abroad, and perhaps more than a penny higher than any beef that we send from Ireland, which, on a beast of 9 cwt. or 10 cwt., amounts to a very considerable sum. At the present time Aberdeenshire is the most prosperous county in the United Kingdom, which principally arises from the management of their stock. I recollect when all their two and three year olds were annually bought up and driven to the south of Scotland, and into England, to be fattened on their fine pastures for the London and other markets, and now I believe that many of our fine one and a-half year old bullocks find their way to Aberdeenshire to be fattened there; it being a tillage county, and farmed on the five-course rotation. The farmers have no old pastures, and when Sir Robert Peel passed his free-trade-in-corn measure, they turned their attention to the improvement of their cattle, and purchased many of the purest Shorthorn bulls which they could get. Their native breeds of cattle are not very large, but easily fattened, and from them and the Shorthorn bull originated the Aberdeen crosses, which are now so celebrated for the fine quality of their beef in London; but I consider that it is more from the treatment of the cattle than anything that is in the breed that brings so high a price for their beef, as from the day that the little cross is dropped until it is taken to be slaughtered, it is daily making progress in both growing and fattening. There is no cheek or falling off during winter and spring, as all cattle are tied up early in October, in houses or in straw-yards, with houses or sheds for them to sleep in, and are fed principally with fresh-thrashed oat-straw, and two or three feeds of turnips daily during winter and spring, and up to the beginning of May, when they are turned out upon first or second year's clover and rye-grass; and by not over-stocking the grass, by the 1st of October they are good beef, when those which they want to finish off for the London market get oilcake, bruised oats, or meal, with swedes and straw, which only takes a short time to have them in the prime condition, and bring the highest price in London. Gentlemen, I would not have said so much about the Aberdeen crosses, only that I thought that most farmers would like to know how the best beef in the world is obtained for London. On this part of my subject I have received the following letter from an Aberdeenshire farmer:—"In answer to your request that I would send you an account of our management of young cattle, I suppose I will commence at the beginning. We rear all here from the pail; each calf gets from five to seven Scotch pints of new milk for four months. After the first three weeks they get, amongst their milk, of oilcake about three-quarters of a pound daily; by the time they are three months old they have learned to eat straw and turnips sliced, perhaps three or four turnips a day, or generally as many as will not purge them. If it is summer they are put upon good grass, but taken in if cold or wet weather at night. They get no oilcake after they are weaned; but I think this is a mistake, and that they should get a pound of oilcake daily till they are a year old; during winter they get an unlimited supply of straw, whether in a loose open court or in stalls; they get turnips twice a day, a good barrowful among four, or as much as keeps them loose in their bowels—not to purge them; by the first of May they are generally turned out to grass. I should have said they are generally turned out to water every day, and in fresh weather get leave to pick about in the fields for an hour or two. By about the middle of October, or sometimes earlier, they are taken in for the winter, and put up in stalls. They then get an unlimited supply of straw, and say a barrow-full of turnips twice a day, between each two. Those who intend having them fat at two years old give them turnips three times a day. No oilcake is generally used, unless you intend forcing them on early; but I don't think it pays to force young cattle too much. They

must have time to grow as well as to fatten. As soon as they begin to shed their teeth, they get their turnips siled to them, especially if it is swedes they are getting. I prefer giving them a mixture of turnips—say yellow in the morning, and swedes in the afternoon. There is an opinion getting to be common here that yellow are better for young stock than swedes, even though both are siled. I generally sell my young stock at two years old; but on large farms it is three that is the common age. I must also tell you that we don't milk so high as some others do; nor do my cattle at two years old reach the size that many do, as we do a good deal with the dairy here, so we cannot have it at both ends at once. You recollect seeing my one-year-olds when here. They were nothing to speak of, but just fair one-year-olds, and treated as above; and on the 1st of April I sold four of them to a farmer. When they left me they were in capital condition, had got no oilcake the second year, but just straw and turnips, and might be called second quality of beef. The price I got was £15 a head. He put them immediately upon swedes and straw to the latter end of May. They were then turned upon fine new grass to the middle of September. They were then bound up, and for some time got yellow turnips, and then swedes and straw—as much as they could take—with two pounds of oilcake and a feed of bruised oats daily, until the 1st of April, when they were worth £35 a head, and measured, on an average, 7 feet 10½ inches in girth. I should have said that these four spoken of were all after a pure Short-horn bull, and out of cross cows, with the exception of the best one, which was out of a small Ayrshire cow." I will now say a few words on their dead-meat trade, which commenced about twenty years ago, when the Great North of Scotland Railway was opened through the country. A few enterprising butchers thought that they might turn it to some account, and began by sending only the hind-quarters of beef, each wrapped up in a clean linen cloth, which reached London—a distance of over five hundred miles—in about thirty hours, without having to change from one train to another, which was greatly in favour of the meat. At that time the fore-quarters were sent to the large manufacturing towns in Scotland and England; but now a great deal of the cattle are forwarded alive to the London market. When this country was threatened with the rinderpest, at some meetings which were held in this country, several gentlemen advocated a dead-meat trade for this country, and brought forward the Aberdeen trade as an example; but that would have soon ruined the farmers here, as a great deal of our beef is not prepared for a dead-meat market; and, from the long time it would take in the transit, owing to so many delays and handlings from one conveyance to another, by the time it would have reached Liverpool or Manchester market, it would be almost unsaleable; and we need not think of a London dead-meat trade until we keep our young cattle better in winter; for, although there is much good beef fattened in Ireland, yet beef which is hastily made up will not bring so high a price as beef which has been fattening during the life of the animal; consequently, our beef seldom brings more than a second or third-rate price in England. Our exporters know that well, and buy from us with that prospect before them; for by the time that much of our stock reach Liverpool or even Smithfield market, we would hardly know our own cattle, from the collapse which had taken place in their appearance after a few hours' hardship upon the road. This is not so much the case in well made-up cattle, and I cannot see why we should not be able to bring our stock to as great perfection and finish our fat cattle as well as in any country; for, as we have to compete with all the world in the grain market, so is all Europe looking to England for a market for their beef, and we will very soon have our friends from the utmost parts of the earth supplying our markets in abundance with preserved meat. This will tell against the farmers, who have only their stock and grain to depend upon for their rents, labour, and other expenses, and there is nothing that deserves our best attention more than our young cattle; and as turnips are said to be the foundation of all good farming, so are they the best crop that we can grow for rearing our young stock, as well as the principal food for fattening them off for the butcher; and as this is an age of progress, I am sure that the county of Kildare will not lag behind, but rather take the lead, and improve our agriculture, and grow more turnips, which would enable us to keep more cattle, and make

more manure, which will make our land produce heavier crops of grain. Consider that only twenty years ago there were a million of bull-calves slaughtered annually in Ireland when they were newly dropped, as only heifer-calves were considered worth rearing at that period; and at that time we could not have got a dozen of bullocks to stall-feed in any of our Athy autumn fairs. Now, bullocks are taking the lead in all our great fairs, which shows the changes which are taking place in the way of stock, and of course the vast increase of cattle in this country; and as this district is only adapted for tillage, we cannot make an acre larger; but we should try to make two blades of grass grow where only one grew before, to meet the increased demand for summer keep. But winter, and especially spring, is the hardest time for young stock; but, with a good supply of turnips and fresh thrashed oat-straw, they can be kept in a growing and thriving condition over the winter. I consider oat-straw preferable to either wheat or barley straw for young cattle. But, gentlemen, although we are all anxious to get a turn of our friends' steam thrashing machines, I am afraid that they will tell against our cattle in the way of fodder, for a great deal of our grain is now thrashed out in the autumn, and however careful we may be in stacking our straw, cattle will not eat it so well as when newly thrashed; and if it is allowed to get wet or musty, they will scarcely eat it at all, neither will they do so well upon it when it gets stale. But experience is the best schoolmaster, and, although oilcake and other feeding substances are necessary for rearing calves, as well as for fattening off our cattle for the butcher; still, farmers should be as independent of them as possible by more and better tillage, and especially green crops. But many farmers have some obstacles in the way of improved farming; for no crop will come to perfection in wet land, and some system, or rather the means of draining, is very much wanted, as there is so much of this country lying almost on a dead level. Our small stream runs so sluggish and shallow that in place of carrying off our heavy falls of rain in winter, they only overflow much of our land, and saturate the soil, where it often lies until the spring and summer sun and winds dry it up, when it is too late to get in our crops in proper season. Whereas, if many of those streams were deepened, they would carry off the water from our fields and ditches, and would in some measure prevent so much fogs and mildew, which do so much injury to our growing crops; and farmers would find it an easy matter to drain many an acre themselves, which at present are of little or no value to them. We have an excellent example of this in this neighbourhood, where his Grace the Duke of Leinster has deepened the stream from the River Barrow to Ballindrum, a distance of several miles, and I am sure it will be an outlet for the drainage of some hundreds of acres. Another great advantage to farmers would be if landlords would plant more larch trees upon their estates, for there are but few farms where there is not some out-of-the-way corner or poor field which could be planted, both for ornament and profit, and could be planted for little more than a pound per acre, which would pay the proprietors at the rate of about £30 in as many years, as larch poles can hardly be got to make paling or to repair cattle-houses, or to erect new ones, as they are so scarce and dear; which often prevents farmers from making many improvements about their farms, which they would do if they could get timber convenient at a reasonable price. Gentlemen, I make these remarks in advocating the cause of our store cattle, which are at present much neglected in winter; but the time will come when they will be better cared for, and many more of them kept upon our respective farms. For some weeks past the average number of store cattle exported from this country may be set down at 10,000 head; and if these cattle were properly wintered, they would have been worth at least £2 a head more than they were sold for. At this rough calculation, Ireland has suffered the enormous weekly loss of £20,000 during the period computed for. And that is all, gentlemen, that I have got to say on the subject.

Mr. ANDERSON said: I am inclined to agree with all Mr. Alexander has stated in his paper; and he has stated everything in a way that I am accustomed to hear it.

Mr. DAVIDSON said he also agreed with Mr. Alexander's paper, and there was nothing whatever to find fault with in his description of Aberdeenshire stock. He thought this county (Kildare) was a dry county. However, he did not think that landlords planted enough to afford shelter for

cattle; but he could not see why tenants could not do so if landlords would allow them. A small plantation in the corners of fields would not cost very much, and it would afford great shelter.

Mr. REDMOND: How do they act in your part of the country? Do they give long leases to enable the tenants to put down plantations? Does Mr. Bland do it?

Mr. DAVIDSON: I don't know, for I am not his agent.

Mr. WYNNE: I think hedgerows are as good, if not better, and more available, than plantations.

CHAIRMAN: They are the greatest nuisance in the country.

Mr. ROBERTSON said the gist of Mr. Alexander's paper lay in the treatment of young stock. He had wintered animals out in the fields, and they did better than some of the same breed which had been wintered in the yard. Even in the young two-year-olds he had experienced the same, and in the market they had turned out better than the house-fed animals. Last winter they fetched from £1 to £1 10s. more than the others.

Mr. DAVIDSON: No doubt, they are always the best; but Mr. Alexander's system was that suited to a grazing farm, and Mr. Robertson's was adapted to a tillage farm.

Mr. ROBERTSON said the real question was, how could they manage so as to make stock pay—how to economise, and have as little labour as possible, for stock feeding on pasture does not pay. Then the way to make stock pay on tillage is to give them plenty of oilcake, when the profits will be had out of the succeeding corn crops.

Mr. ANDERSON said, in reference to an observation as to the good feeding qualities of straw, that a great deal depends on where it is grown; for it was his experience that the straw which grew in two fields adjoining each other was often quite different in quality. And he could say the same of turnips.

Mr. O'NEILL mentioned instances of what he should say was great waste in part of the Queen's County, where hay was actually thrown on the grass for the cattle.

Mr. ALEXANDER, in reply to Mr. Robertson, said if he wintered his cattle in a good, sheltered yard, he would prefer giving them turnips and straw.

Mr. ROBERTSON said he saw by the last *Farmers' Gazette* that a very eminent professor differed from what Dr. Cameron had stated on that subject.

Mr. ANDERSON had twenty years' farming experience in Ireland, and he tried cattle on Mr. Robertson's plan, when he found they got very weak. He then treated them according to Mr. Alexander's system, and they thrive every day.

Mr. DOUGLAS thought the gist of Mr. Alexander's paper had been lost sight of altogether. His paper referred to Aberdeenshire stock, and his great argument was that prime Scots—the pure Aberdeenshire—bring a great deal more money in the market than their own. This was *prima facie* evidence that their system in Aberdeenshire was the best. Their cattle arrived early at maturity, were well finished, and fetched the top prices in the London market. It remains then to be accounted for why the cattle here, being so large and magnificent—notwithstanding all the favourable circumstances of climate and other natural advantages—do not bring the same prices. It was well known that cattle, whatever the reason may be, do not put on beef so well when fed on grass. They had the best shorthorn blood in the world, and how was it then accounted for that the Aberdeenshire cattle, which were like their own Keries, were more looked after; for they had the fact staring them in the face that they fetch higher prices, as seen in the quotations than Irish cattle. But there they had a defect in the climate. The great mistake was to depend too much on tillage; and, instead, they should adopt a mixed system of husbandry, which would prevent the exportation of half our cattle, which, as Mr. Alexander had stated, brought a loss to Ireland of £20,000 a week, and this owing to not having a proper system. That was a great sacrifice; but the remedy for it was to extend, as he had said, the mixed system of husbandry. There were farms in the neighbourhood of Athy—in fact, not five miles away—and there were no better in England or Scotland, and why could they not produce as good cattle as in Aberdeenshire?

The Rev. Mr. BAGOT referred to the *Mark Lane Express* for last quotations; by which it appeared there were three qualities of cattle quoted, the difference being only about 6d.

Mr. GREENE said these figures also represented the continental market.

Mr. DOUGLAS: But you will invariably find that the Aberdeenshire cattle topped the market. Having the best Shorthorns in the world they had shown in good blood; but if in the climate there was not some great defect, the prices would not be inferior. The Aberdeenshire was always taken as a type.

Mr. BULWER: You should first ascertain the quality of the animals. They may come from Aberdeenshire, but can you be certain that they don't come from any other part of Scotland?

Mr. DOUGLAS: I still assert that the Aberdeenshire is what is meant by prime Scots. There must be some mismanagement. I don't mean to assert that the Irish are at all inferior; but with all the favourable circumstances of soil and climate, they are far behind.

Mr. ALEXANDER alluded to portions of his lecture bearing on the system which he followed.

Mr. ROBERTSON said they should first of all look to the rearing of stock, as it was a question of profit and loss to the farmer. Their profit is not from the price which they bring, but, when they are fed on cake, from the succeeding crops.

Mr. DOUGLAS said that was a very important remark. But they could not depend on profit arising out of succeeding corn crops; for while this year barley was very good in the neighbourhood of Athy, last year it was miserable. No doubt there was as good barley grown here as in any part of England or Scotland.

Some remarks followed on the quantity of barley which could be got per acre, as stated by Mr. Mechi, in which divers opinions were offered.

Mr. DAVIDSON alluded to the excellent quality of the animals, and the large prices they brought when reared for the first couple of years on the mountains of Scotland and then finished off in the valleys.

Mr. DOUGLAS said Mr. Davidson had confirmed his statement, and all they had to do was to improve their mountain pasture, as well as the pastures in the valleys.

Mr. BULWER knew a gentleman in England who imported cattle from Ireland, and, after a month or two fattening, he sent them to market and got the top price.

Mr. O'NEILL: Yes; and sent them in as Aberdeenshire cattle.

Mr. BULWER: No doubt about it.

A vote of thanks was passed to Mr. Alexander for his lecture, and the proceedings terminated.

#### THE FRAMLINGHAM POULTRY AND ROOT SHOW.

—At the dinner on 13th of Nov., Captain Barthropp, in returning thanks, regretted, as one of them, that the labours of the judges had not been more onerous, and that there was not a larger number of entries. They had only one pen of old Dorkings in the poultry show, where they had been accustomed to see a great many, but he could speak to the quality of those which were shown being excellent. The game fowls shown were very fine, but it appears as if Mr. Matthew and Mr. Frost's names had frightened other exhibitors away, and Mr. Matthew spoke of retiring from contests for fear of injuring the show. There was only one pen of Hamburgs, and he feared that they would not have stood much chance in a good show, as they were not correctly marked. The turkeys were very nice birds, and the geese shown were remarkably good. With regard to the ducks having been rather a successful exhibition in former years, he would venture to give the gentleman who exhibited them a hint. If they wished to exhibit Rouen ducks they must pay some little attention to the breed, Mr. Garneys had a pen that would have been excluded if they had been exhibited as Rouen ducks, but they were allowed to compete, because the class in which they were shown was open.—Mr. S. G. Stearn returned thanks for the first time as a successful exhibitor, but said he had gained three out of four competitions that he had exhibited in. The four acres of beet he exhibited he had been told were very bad, and also that they were very good. The largest root that he had weighed was 20lbs. He considered the prizes were not sufficient to draw a good competition, and they ought to manage if they could to get rather more money.



MALT AND BEER.

The following is a return of the amount of foreign barley imported in each month during 1866; and of the average prices of imported and British barley during the same period:

Months.	Foreign barley imported.	Average Prices per Quarter of Imported barley (exclusive of duty.)		British barley.	
		s. d.	.....	s. d.	.....
January ...	117,555	26	6	32	9
February ..	135,595	28	10	33	8
March ...	235,275	32	6	35	11
April .....	241,605	32	2	36	10
May .....	195,500	29	1	36	3
June .....	181,521	26	11	35	1
July .....	115,715	26	7	34	5
August ...	116,093	26	5	34	1
September.	117,956	31	10	37	2
October ...	235,092	35	4	42	0
November.	282,692	34	5	44	10
December.	386,523	35	11	45	2
	2,361,482	31	9	37	4

The total number of bushels of malt made in 1866 was 52,281,222, and the amount of duty charged was £7,089,247. The quantity for Scotland and Ireland, included in the above, was respectively 2,554,288 bushels and 2,463,269 bushels. From October 1st, 1865, to September 30th, 1866, the consumption of malt for brewing by each class was as follows in London and the country Excise collections:—

	London.	Country.
Brewers, bushels .....	9,216,132	24,018,180
Victuallers .....	3,839	8,286,095

BEERSSELLERS.

To be drunk on premises .....	240,930	3,360,098
Not to be drunk on premises .....	11,657	365,631

Railway facilities, the employment of larger capital by country brewers, and the perfection which the brewers have attained in their art have given a great impetus to the business. In 1837, out of 51,354 licenced victuallers in the country collections of England, 26,841 brewed their own beer, and used 8,786,426 bushels of malt. In 1866 the number of victuallers had increased to 62,678, but only 21,204 brewed, the quantity of malt they used being 8,266,695 bushels. In the same period the brewers have more than doubled their consumption of malt:—

	1837.	1866.
Malt used by London brewers .....	5,641,470	9,216,132
Ditto used by country brewers .....	11,123,483	24,078,180

The number of maltsters has decreased, while the brewers in the course of thirty years have become almost stationary in number, and each brewery has on an average become twice as large a concern. In 1837 there were 107 brewers in London, and in 1866 only 68; and in the country collections the number of brewers has increased only, from 2,262 to 2,318. In 1832 the country brewers used only 9,598,303 bushels of malt, the country victuallers 8,869,255 bushels, and the beer-sellers 3,557,959 bushels—together, 12,427,214. This will show the great change which has taken place. Victuallers and beersellers have alike found it more profitable and convenient to become customers of the wholesale brewers, and the latter have also largely increased their ownership of licensed houses. The three country collections in which the consumption of malt by brewers is largest are—

Lichfield .....	3,506,662 bushels.
Manchester .....	1,602,891 „
Liverpool .....	1,054,984 „

Lichfield stands at the head, because Burton-upon-Trent is in that collection. The largest quantity of malt ever charged with duty in this country was last year—upwards of 52½ million bushels. In 1860 the quantity was below 39 millions, and in 1835 below 34 million bushels. About 4½ million bushels of malt are now annually exempt from duty when used for distilling spirits for exportation, or for feeding cattle, and the drawback is allowed on about two million bushels used in the brewing of beer that is exported. The gross revenue from malt in 1866 was £9,514,855. The consumption increases more rapidly than the growth of population. In

1856-7 the consumption was 1,355 bushels per head, and in 1865-6 as much as 1.623 bushels per head. According to the agricultural returns of 1866, there were in England 1,877,387 acres under barley, and the produce was estimated at a little over 71½ million bushels. Above two-thirds of the crops are malted in average season. In Norfolk more barley is grown than wheat. Occasionally, in the height of the malting season, more barley is sold than wheat in the 120 markets which make official returns. The extremes since last Michaelmas were: November 17th, 78,677 quarters barley sold, July 6th only 464 quarters sold in the week.—*Doncaster Gazette.*

THE MALT-TAX.

The following is the annual amount produced by the tax during the sixteen years ended with the 31st of March last, with the average price of barley for those years:

	Average price of Barley.	Malt Tax.
	s. d.	£
1852 .....	28 6	5,035,560
1853 .....	33 2	5,323,935
1854 .....	36 0	5,418,418
1855 .....	34 0	6,183,055
1856 .....	36 1	6,676,349
1857 .....	43 2	5,690,950
1858 .....	40 1	5,326,023
1859 .....	34 0	5,412,777
1860 .....	33 11	6,648,881
1861 .....	37 7	6,208,813
1862 .....	35 4	5,866,302
1863 .....	35 0	5,389,908
1864 .....	32 10	6,062,736
1865 .....	29 3	6,394,553
1866 .....	31 7	6,421,260
1867 .....	39 7	6,816,385

Last year the amount was £1,800,000 more than in 1852—an increase of 35 per cent.—yet barley in 1867 was 11s. 1d. higher than in 1852.

The three highest priced years yielded nearly as much as the three lowest, thus:

Highest priced years.			Lowest priced years.		
	s. d.	£		s. d.	£
1857 ...	43 2	5,690,950	1852 ...	28 6	5,035,560
1858 ...	40 1	5,326,023	1865 ...	29 3	6,394,553
1867 ...	39 7	6,816,385	1866 ...	31 1	6,421,260
Total .....		17,833,358	Total .....		17,851,373

THE EVIDENCE TAKEN BY THE MALT TAX COMMITTEE.

This result is the more remarkable, as the witnesses examined before the Committee on the malt tax were taken, with but two exceptions, from the ranks of its enemies. Some of them were members of Anti-Malt-tax Associations. One is a President of a similar body. Another has gained a prize for the best essay against the malt tax, and has been so strengthened in his convictions by the reward which they have earned him, that he considers second-hand evidence, if it comes from a trustworthy source, as good as new. Yet, after reading all the statements of these witnesses, we are by no means convinced that the repeal of the malt tax would be just or beneficial. More barley would, of course, be grown, and the farmer would put more money in his pocket. But the price of beer would not be much affected, unless the tax was taken off altogether, and this is a change which the most revolutionary Conservatives can scarcely contemplate. We observe that most of the witnesses recommend a shifting of the burden from the maltster to the brewer. One of them suggests that the House of Commons should economise the six-and-a-half millions of net revenue which the present tax produces. Another tells us calmly to get the best substitute we can for

the malt tax, as if those who counselled a remission had nothing to do with providing a substitute. Mr. Cayley, the President of the Yorkshire Malt Tax Repeal Association, would have a tax on private brewing among the assessed taxes, or would levy a capitation tax on all people above a certain age on the amount of beer which they might be supposed to drink. But if beer is to be taxed instead of malt the final effect will be the same, while to judge from the experience of the Chairman of the Board of Inland Revenue, a beer tax will be more difficult to collect, more costly, and more easily evaded. Mr. Cayley tells us, apparently by guess-work, that in his judgment, it would be very difficult to get a tax so expensive to collect as the malt tax, if the wit of men were to try and devise one. His impression is, that sixteen millions sterling are taken out of the pockets of the public in order to bring six millions into the Exchequer. But, from the evidence of the Chairman and of the Chief Surveying General Examiner of the Board of Inland Revenue, we learn that the tax is an economical one to collect, that it is not easily evaded, that there are very few frauds with regard to it, and very few complaints as to its operation. We do not know that a tax on beer would have the same advantages. As some of the opponents of the malt tax exclaim against an attempt to supply any deficiency of the revenue at the expense of private brewers, we may be sure that the large brewing-firms would not welcome such a change. One large brewer admitted honestly, that any saving which might be made in malt would go into his pockets. It is only fair to conclude that any burden which might be imposed on beer would fall on his customers. Farmers are not agreed as to the effect which a repeal would have on the price of barley. Many of them say that the price of the best barley would rise considerably. The inferior barley, which it is not worth their while to grow at present, and which the high-class brewers will not take, would come into favour. They complain, that as things are, barley is not grown in its proper course. But for the malt tax, they would grow the inferior kinds, and either use it for feeding cattle, or brew it at home for their labourers. Yet this first use is not unanimously recommended. A Worcestershire farmer does not believe in feeding cattle or sheep on either malt or barley; but other witnesses have tried it with considerable success, and these are the very ones who condemn the mixture of malt with linseed. There seems little doubt

that the mixture does not answer for feeding-purposes as well as malt itself, and it also appears that the malt sanctioned by Mr. Gladstone's Act is ground too small. We must remember, however, that all the speakers are hostile to Mr. Gladstone, and some of them take pains to proclaim their hostility. One says, with amusing frankness, that the Malt by Weight Act (which, according to another witness, saved a large maltster £100 a year) is the greatest humbug that ever existed, and that as to Mr. Gladstone's mixture, as it is called, he was not stupid enough to try it. But as the same man brews beer at 19s. a cask which he considers better than the beer for which he pays 54s. a cask, we may infer that the influence of too much home-brewed has disturbed his calculations. He, as well as most others, is great in praise of home-brewed. It seems the especial grievance of the farmers that their labourers go to the public-house, and it is thought that if the malt-tax was repealed there would be no such temptation. Beer is commonly given to labourers at harvest time, when some of them drink their six quarts a day, and they cannot work without beer, whether it comes from their master or draws them to the public-house in quest of it. There is a general feeling that if the farmers could brew a cheap and sound beer from inferior barley, more of it would be drunk among the labouring classes, and with less intoxication. The public-house beer "has the credit of being bad," and, no doubt, is bad; but the men have special inducements to take them to the public-house—a good room and cheerful company. Next morning they feel the effects of adulteration, and their masters notice it in the different quality of their work. The public-house beer, say some of the witnesses, make people "heady and talkative," which, of course, is a bad sign in an agricultural labourer. Yet it appears that even now some farmers brew at home, and that many more might brew at home in spite of the malt-tax. If the tax adds no more than 2d. a gallon to the cost of beer, it can hardly be the sole cause of the public-house monopoly. We should be glad to welcome anything that would raise the *status* of the rural labourer. Yet it is not at all certain that every farmer would brew at home and supply his men with beer, if the malt-tax was repealed. One of the opponents of the malt-tax says, that the obstacle to home-brewing is the trouble it gives; and we can understand that the wives of the labouring classes, who are not practised cooks and economists, will not succeed much better as cottage brewers.—*Economist*.

## THE CULTURE OF POTATOES.

At the quarterly meeting of the Morayshire Farmers' Club, held at Elgin, on the 31st October, Mr. ROSE, of Sheriffstown, the chairman, announced that the committee had fixed as subject for discussion that evening—"What is the experience of members as to the general culture of potatoes in this county, and which is the best and most profitable variety to be grown?"

Mr. YOOL, Conlartbank, said: His experience in growing potatoes was certainly not so extensive as that of many members. In the first place, he thought the soil most suitable for that kind of crop was a good deep black loam, or brown loam, although, unfortunately, they had very little of that kind of soil in the county. In his opinion, a mistake was made in attempting to grow potatoes on too light soil. Often they saw the potato track on the very worst part of the farm, whereas the very reverse should be the case. Potatoes are a very expensive crop, and on a bad season such as this it would not do to raise them on poor land. Another point he thought of very great importance was deep cultivation in the autumn. They should plough the land very deeply in the end of the year, because potatoes wanted a good deal of loose land not only around them, but also below them. If they had this, the tender shoots of the potatoes found room to go abroad, as they would likely want to do. Early planting he found to be a very great advantage. This year, for instance, potatoes late planted are not such a crop as those early planted. When early planted, they have a greater chance of getting up while the good weather lasts; and being early, they have a greater chance of getting over the season when disease sets in. The best time to plant he had found to be the last two weeks of

March, if the weather would permit, or the first ten days of April. After the crop was planted, the more cultivation they could give the better. They should of course have the weeds kept down and the soil frequently stirred between the drills. Potatoes required a good deal of manure—a good deal of farm-yard dung to begin with, and after that as much artificial manure as they liked on middling soil. He would give in the proportion of one cwt. of guano and two cwt. dissolved bones; but if it was damp land, a good deal less bones; and if it was light land, more bones and superphosphates. But farm-yard dung should always be at the bottom of a good crop. As to the most profitable varieties, he had little experience except with the Regents and Rocks. Regents were the most profitable crop on good land. They perhaps would not give so large a crop as Rocks, but they were surer, and brought a better price. In a year like this, when potatoes will sell well, Rocks would be most profitable, because they would have more of them, but in other seasons Regents would pay best. On poor and indifferent quality of soil, Rocks would be fully as profitable as on any other variety, being easier raised, and a harder quality of potato. There was one point which might be worthy of attention by those who had land which inclined to grow too much straw and too little grain. There might not be much of it in that part of the country, but there might be some, and where it did happen a crop of potatoes tended very much to remedy it. This was pretty well established now, and it was worthy of the attention of those who owned mossy, soft sort of land.

Mr. WALKER, Altye, said he quite agreed with Mr. Yool that they should grow potatoes on the best land, but it so hap-

pened that they had not got much of it. He differed entirely from part of what had been said. He thought sometimes on very indifferent land they would grow a very good crop, particularly after lea. Apply a fair dose of farm-yard manure, plough it in, and then work the land in the spring. In that way, they might get a very profitable crop of potatoes where the oat crop would be a failure. He thought their very thin land would be profitably employed in that way.

Mr. CRUICKSHANK: Would £30 an acre pay?

Mr. WALKER said £30 an acre for potatoes would pay. If they could guarantee that price, they had better begin at once to cultivate potatoes very largely. But they were a very precarious crop. If they could grow a reasonable number of tons, they might turn them to account either as feeding auxiliaries, or by selling them off the farm. In growing potatoes there were many things to consider. They were a very expensive crop to handle; and if they had a long way to market, they incur a great deal of expense, though they realise a great deal of money. As to the varieties to grow, Mr. Yool was perfectly right. It lies between Rocks and Regents. The one gives you a larger crop; but the other you can turn to account more quickly, and sell them better.

Mr. HUNTER (Dimple) said he had very little experience in growing potatoes. Like Mr. Yool, he would plant them as early as possible in the season; and, like Mr. Walker, he would advise putting them into thin soils, because he thought they grew a better crop on thin land. He never grew them on good land. He grew them on the poorest land he had, and always after lea. He put them in early, but it was impossible to get their green-crop shift cleaned to get them in by the 1st of April. Thus it was easier to get them in after lea; and he thought they grew a much better crop. The varieties he used were Regents, Hen's-eye, and Rocks. Rocks were a better crop generally, but not so easy to sell as the others.

Mr. WILLIAMSON: I think you could tell us about dressing them for the shows.

Mr. HUNTER: That is a secret, and we will keep it.

Mr. CRUICKSHANK (Meft) said he only grew from eight to ten acres every year; and it was the best of his land he grew them on. They were a very expensive crop; and where they had expense in planting, they required something that would make the crop pay. Farmyard manure was the best they could give, with a little artificial manure above. Rocks, in his experience, were the most profitable, the additional crop more than recompensing for the difference in the price between them and Regents. Last year he had something like ten tons an acre of Rocks. Of course he did not expect much above an average of five tons; but, so far as his experience went, he was best with Rocks.

Mr. GARDEN (Netherton) said he only grew an acre or two of potatoes every year. He put them into the poorest land he could. He did not say that was right; but they were a precarious crop, and he found them grow well there. He grew Staffordshire Blues, for which there had been a good demand for some years. They grew a very large crop, and sold as well as any other variety. One of his neighbours laid a hollow of rich land with potatoes, the rest being all on poor soil; and he found there was no disease anywhere but on the rich soil.

Mr. COLLIE said his experience was that it was best to apply farmyard manure to the stubble after harvest. Plough the land very deep, and give a good quantity of artificial manure afterwards. It was impossible to lay down a rule as to what soil and variety of seed were best. Every one should judge the nature and the character of his own farm.

Mr. WILLIAMSON (Shempton) said he had no experience: the clays of Duffus did not grow potatoes. There was one thing, however, he would impress upon the people of this country. The very seed at this moment would cost them £4 to £5 per acre; and if they were to lay them down, dose them well with farmyard and artificial manure. If they paid with seed at its present price, they would afford four or five cwt. of manure. He thought Mr. Yool quite right—that when they came to a bad year, they could sell Rocks when they could not sell Regents. Rocks were hardy, and would give a much larger crop. This year, Rocks would give a better crop, and sell as well as any other variety.

Mr. ADAM (Sweetthillock) said he put potatoes on the very worst land he had, because he had often been put about with

his crop failing. The blues were the very best kind he ever tried; but he had not a large experience.

Mr. MACKESSACK, of Ardgay, said he grew an acre or two of potatoes on each of his farms, but he found the best way to do was to dose them well with manure. There was no great fear of growing potatoes on any kind of land, if they gave them plenty of manure. He grew Rocks and Regents, which are the two best varieties for their part of the country. He never tried Blues. Blues and White Kidneys failed there many years ago. Sometimes he had a fair crop, and at other times a good deal of disease. When he put them upon his best land, he had most disease.

Mr. CRUICKSHANK, Barmuckity, believed he had grown as many potatoes as any of the members present. He certainly said deep ploughing was a good thing to begin with. Give plenty of farm-yard manure. The variety of potatoes changed every four or five years. In '46 the old-fashioned Eyes were done away with. Then came the Cups, then the Perth Reds, and then the Orkney Reds, each of which did for a few years. Now they had the Rocks and Regents. Regents he never had a good crop of, his land being too light. Rocks had done well for four or five years. He approved of Rocks in the meantime, but believed they would soon require a change.

Mr. FERGUSON, East Grange, said he grew only a very few potatoes. This year, however, he had grown rather more than usual, but his experience differed somewhat from that of some of those who had spoken, especially with reference to manure. He found ordinary farm-yard manure by far the best. If they used a great proportion of artificial manure, it was apt to push them too much. They grew prematurely ripe, and of too great size. No doubt deep cultivation was the first requisite. He had been very successful—more successful growing them after lea than after any other sort of crop. He had been more successful with Regents and Rocks than any other variety, which always stood better against disease, and found a readier market.

Mr. COLLIE said that, before the Chairman summed up, he had one remark to make which he fancied had escaped others as well as himself—the matter of changing the seed. He believed it was of the highest importance to change the seed very often. They ought to get the seed from a distance, not using seed grown in their own county for many years. There was more to be gained by paying attention to that than to the varieties planted.

Mr. WALKER, Altyre, said they had been recommended by two gentlemen to dose heavily with manure. He could state his experience of that this season. On a field of lea, he manured very heavily with farm-yard dung in the autumn, and ploughed it in. He added about four or five cwt. of artificial manure to the imperial acre in the spring. To try an experiment, he applied to one acre double the quantity of artificial manure—about ten cwt. From the extra quantity of manure, the shaws had a great appearance on that acre. When he took them up, he weighed all the potatoes of the field, and was very much disgusted to find that the produce stood in the ratio of 20 cwt. and 21 per acre, thus giving only 1 cwt. more for the double dose of manure. He had only to qualify his statement thus far, that the potatoes were checked; and if that had not been the case, the crop where the extra manure was might have been better. The whole crop to which he referred was a pretty fair one.

Mr. YOOL said, as to growing potatoes after lea, that where they were farming good land, if they did so they lost a good corn crop. On the seven years' shift, with good strong land, he would plant potatoes after a corn crop; but on the five years' shift on poor land, it was best to put them down after lea. There was a variety of potatoes he had tried this year, called Flukes, which had grown a fair crop; but this was an exceptional season, the crop of potatoes generally being small. He wished to mention another fact. In a communication he had the other day from the west nook of Fife, where there were great quantities of potatoes grown, there was not the fourth part of a crop this year. The Regents and Rocks were not a crop, while these Flukes were giving the best yield. The Fluke variety kept long, and gave good prices, fetching from £1 to 30s. a-ton more than any of the others.

Mr. WALKER, Altyre, said that so far as prices went, he was not getting above 5s. a ton more for dukes than for other varieties.

Mr. YOOL said that though farm-yard dung was a very good

thing, at the same time he believed there would be a better and sounder crop by a reasonable supply of artificial manure. He was not so very much in favour of changing seed as many people. He thought that if potatoes were well-grown and well-ripened, it was not of great importance where the seed came from; only in some districts the crop did not ripen well, and in that case he would have a change of seed, because they could bring in seed having a greater amount of vitality in it and it would grow better.

Mr. COLLIE said the seed might be untrue to its kind.

Mr. WALKER, Leuchars, said that when the disease first made its appearance in 1846, there was a very large grower of potatoes, Mr. McLennan, Boglillie, near Kirkcaldy, who generally grew about a hundred acres of the crop. He manured his land well on the stubble in the autumn, and ploughed them in. He drilled them up in spring, and gave a certain quantity of soot, as artificial manure was not in use at that time. By working on that method in 1846 and 1847 he saved his crop. As the disease is now making its appearance again, he believed that great safety would be found from the disease by ploughing the dung well in and giving a little artificial manure.

Mr. YOOL said he had found that ploughing-in in heavy land was beneficial. On light land, if they ploughed-in manure there was a great deal of it wasted. A light, sandy soil would not keep it, the winter rains washed it away,

Good ground would keep the dung better if put-in in autumn. It would be a very great mistake for anybody who had light land to plough it down with manure in the autumn.

The CHAIRMAN said his experience was limited, but he had always found that he was freest of disease on light land. He certainly was for growing potatoes after lea on light land. On good land he had always found a great amount of disease. Deep cultivation was the primary thing in his experience, and appeared to be so in the opinion of all of them. He approved of a good deal of farm-yard manure and a little artificial manure to bring them away. The favourite varieties were regents and rocks. He had himself tried the blues, but they were more apt to disease than the others, though they generally fetched the highest price in the market.

This finished the discussion.

Mr. WALKER, Leuchars, called attention to a formal lease drawn out by one of the governors of Robert Gordon's Hospital, at Aberdeen, and applicable to the lands belonging to that institution. The form was so long that it would take five sheets of stamped paper to hold it, and the clauses were such as could not be acted up to. But he said that if proprietors would select such a body of gentlemen as he saw round this table, with Mr. Rose at their head, as tenants, very few clauses would be required at all. Where there were leases with so many clauses and conditions, if they got a rogue, he would break through them, and an honest man did not require them.

## CHEAP MANURES.

South Australia is not the only colony in which complaints of small crops are indulged in. It is true our last harvest was a good one—good in the gross yield, and good in the average per acre. But fourteen bushels and twenty pounds an acre is not such a yield as we ought to look for under the proper conditions of farming. It is well known that some of our best wheat lands have been utterly exhausted by continual cropping year after year. The elements necessary to successful growth have been gradually taken out of the soil without being replaced, and the results have been very disastrous. The same process has been going forward in other colonies. A useful article in a recent number of the *Australasian* has dealt with the subject, and has presented statistics of wheat-growing in all the colonies, which show gradual but certain deterioration in the soil. In Victoria, according to the returns of the Board of Agriculture, the decennial period from 1856 to 1866 shows a sad falling off. In 1856, the average yield per acre of wheat was 26.9, against 15.2 in 1866; of oats 34.5 against 18.7; of barley 29.1 against 16.3; of potatoes, in tons, 5.4 against 1.9; and of hay in tons, 2.1 against 1.1. But it is pointed out that this, poor as it is compared with what it ought to be, is a favourable yield in comparison with that of the other colonies. In South Australia, during the last seven years, 12 $\frac{3}{4}$  bushels to the acre has been the average crop, a little over 14 bushels being the highest average in any one year, and that was the last. It was worse in New South Wales, the average during the last six years being only 11 $\frac{1}{2}$  bushels to the acre; the highest average in any one year being hardly 14 bushels. The account from Tasmania is even more discouraging: "The districts of Clarence and Brown's River, which for cereals and potatoes were the granaries of the Island, are perfectly exhausted, and the same is the case with the once fertile districts of Glenmorgan."

Now this is a gloomy state of things, and a remedy ought to be sought for. That a large portion of land in Australia is well adapted to the growth of cereals has been abundantly proved. There was a time when magnificent crops were obtained in average seasons. But everywhere there is a falling off, and the only mode of accounting for it is by attributing it to continual cropping, taking everything off the land and putting nothing on. The course pursued has been a most extravagant one. Mother-earth has been treated unkindly, and she has resented the affront. In the British Isles, where the climate is certainly unfavourable to wheat-growing as compared with ours, the writer of the article to

which we have referred shows that twenty-five years ago the average was twenty-four bushels to the acre. But it has risen to thirty-two bushels, and there is reason to believe that ten bushels more may be obtained on thoroughly well cultivated land. Now the question is, How comes it to pass that in Great Britain, where the soil is not better than ours, and the climate is much worse for wheat growing, the crops should be much heavier than ours? The whole difference arises from the superior farming. Every English farmer knows that to make his farm pay he must work it well and manure it generously. But it is not so here. In moderate seasons a fair amount of wheat may be grown with a very slovenly kind of farming, and most agriculturists feel that anything like free manuring is out of the question. Manures brought over sea are expensive, and it is only a few of our farmers with capital who can afford to purchase and use them freely.

The time must come, if farming is to pay we in Australia, when grazing and sheep pasturing on farms will have to be adopted. There must be a combination of wheat growing and cattle feeding, and this would do much to put heart into the land which is now utterly starved. But that time is not at hand. Now what is to be done at present with small farms of one or two hundred acres, on which the proprietor has hard work to live? It is no use telling him that he should freely manure, for he has not the capital to spend on his land. The writer from whom we quote says:—"The simplest plan is to let such land run back at once into bush, but this will only do for a long purse. The practical remedy is to manure as much as possible, but to buy no manure except under compulsion. We are supposing our farmer to have a very few spare sovereigns in his pocket; and these he must keep for a rainy day. It is of no use to tell him that two tons of guano will push on his wheat when the two tons will cost him £24. He must prepare his manure from what he has within his reach; and it is astonishing what a quantity, with an industrious family of boys and girls, he can make. This is undoubtedly the right idea. For the great bulk of our small farmers expensive manures are out of the question, and if they manure at all it must be with that which is comparatively inexpensive. There is too often a great deal that is exceedingly valuable about a farm, which is lost for want of a little forethought and management. All scientific farmers speak of the importance of having a compost pit, into which everything that can be turned to account may be thrown." The following are the principal cheap manures which are recommended by the writer:—

"Compost.—Composts simply mean collecting and mixing together in a pit all the loose decayed vegetable matter that is knocking about every farm at the end of the season—rough grass, dried potato haulms, the scourings of ditches, black mould, shell, marl, and especially, where it can be got, seaweed. Once collected, and well tucked up under a covering of earth, it ferments and turns most beautiful mould. But then comes the expense of carrying it out. It is, in fact, not of much use making compost heaps except at those odd moments when men and horses are temporarily idle.

"2. Two very neglected items, which can be got for next to nothing on the remotest township, but in limited quantity, are soot and sawdust. Another article to be picked up easily is bones. These are so good that the poorest man is justified in laying out all he can on them.

"3. All the excreta from the house must be carefully collected and removed to a pit, with at least double the quantity of vegetable-mould, or clay. The same must be done with all pigs'-dung, poultry-dung, and excreta whatsoever.

"Though in the first year the two good cows, which we may suppose our poor friend capable of owning, must be left to graze, as there is no choice, they should be most carefully shedded at night; their droppings then will be worth five times as much as if left in the open air."

The waste of valuable manures in the city of Adelaide is a

positive disgrace to us. A great deal that would be almost of incalculable value on the farm is left about the streets, or buried somewhere outside the boundaries, where, in many instances, it is not only useless, but a positive nuisance to the inhabitants. The refuse and sewage of the city, if properly collected and distributed, would soon alter the condition of the farms near town. The only expense would be the carriage. If the farmers within, say, twenty miles of Adelaide were, for every load of wheat they take into town, to take a load of manure back, and put it on their farms, the effect would soon be seen. Considerable quantities of bones and other animal-matter are often seen lying about the streets, or are thrown into places where rubbish is allowed to be shot, which would be worth something if placed on land that has been starved. The Chinese know how to utilize everything that will make manure, and the result is that "John Chinaman" will get as much off one acre of land cultivated and tended—as he knows how to cultivate and tend it—as a colonist would get off twenty. In China, where the proportion of population to the soil is so excessive, the land can only be kept productive by saving everything and wasting nothing. There is no reason here for us to ent the thing so fine as the Celestials do, but still a leaf out of their book as to methods of cultivation might not be altogether useless.—*Adelaide Observer*.

## THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MONTHLY COUNCIL: Wednesday, November 6.—Present: The Duke of Richmond, K.G., President, in the Chair; Lord Berners, Lord Chesham, Lord Tredegar, Lord Walsingham, Major-General the Hon. A. N. Hood, Mr. Acland, M.P., Mr. Bowly, Mr. Cantrell, Colonel Challoner, Mr. Druce, Mr. Brandreth Gibbs, Mr. Hassall, Mr. Holland, M.P., Mr. Hornsby, Mr. Hoskyns, Mr. Jonas, Col. Kingseote, M.P., Mr. Millward, Mr. Rigden, Mr. Read, M.P., Mr. Robert Smith, Mr. Thompson, Mr. Torr, Mr. Frere, Professor Simonds, and Dr. Voeleker.

The following new members were elected:—

Bennett, John, Mountfield, Hurst Green, Sussex.  
Borthwick, William, Monkway, Whitehaven Cumberland.  
Botterill, John, Eppleworth, Cottingham, Hull, Yorkshire.  
Nash, Henry Fleetwood, Upton Lea, Slough, Bucks.  
Oastler, Jonah, White's Farm, Alfold, Horsham, Sussex.  
Towerson, John, Whitehaven, Cumberland.  
Whitely, Henry Edward, Lock's Farm, Wokingham, Berks.

FINANCES.—Major-General the Hon. A. N. Hood, Chairman, presented the report, from which it appeared that the Secretary's receipts, during the past three months, had been duly examined by the Committee, and by Messrs. Quilter, Ball, and Co., the Society's accountants, and found correct. The balance in the hands of the bankers on the 31st of October was £1,616 3s. 3d. The quarterly statement of subscriptions and arrears to the 30th of September and the quarterly cash account were laid on the table. The arrears amounted to £2,127. The Committee regret that such a large amount of arrears is still due to the Society: this is partly occasioned by members joining at the annual country meetings. The Committee propose that a new form of letter be sent to each defaulter, specially calling attention to his respective liability; or otherwise it will be necessary to adopt more stringent measures to enforce payment.

JOURNAL.—Mr. Thompson, chairman, reported that it had been represented to the committee that it would be desirable to have a list of members published in the next number of the Journal. The committee were of opinion that in the present state of the Society's finances it would not be desirable to incur the expense of publishing a list of members at present. This report was adopted.

AGRICULTURAL EDUCATION.—Mr. Holland, M.P., stated that it was determined to report a list of the examiners at the next meeting of the Council in December.

LEICESTER MEETING.—Colonel Challoner reported that an application had been made by local societies to enable their members to make entries for local prizes without payment of the extra fee charged to non-members of this Society, and that it was resolved that exhibitors for local prizes will have free entrance to the Show as exhibitors for the Royal Society's prizes. Fees for entry of stock have never been reduced to other local societies, and it is not considered expedient that the rule should be relaxed. The Society's surveyor should be instructed to stake out the outer boundaries of the show-yard, in order that the local authorities may proceed with the levelling, &c. The date of opening of the Leicester Meeting was fixed for Thursday, the 16th July, 1868.

This report was adopted.

Lord CHESHAM having moved that the show of Live Stock, at future meetings, shall commence on Thursday—the Judges making their awards on that day—on the ground that stock from a distance, with the servants in charge, are kept away from home two Sundays, the motion was seconded by Mr. MILWARD, and carried unanimously.

Mr. MILWARD, having called the attention of the Council to the veterinary examination of horses in the show-yard, moved that the home examination be dispensed with; which was seconded by Mr. TORR, and carried by 11 ayes to 4 noes.

Mr. MILWARD then moved that the condition on the prize-sheet should run in the following terms: "There shall be an examination by the Society's veterinary inspector of all horses selected by the Judges for prizes, or reserve or commendation."

The motion was supported by Lord CHESHAM, Mr. TORR, and Mr. READ, M.P., and carried.

The Council decided that the General Meeting of the Society should be held on Wednesday, the 11th December, at noon.

## THE AGRICULTURAL RETURNS FOR 1867.

Subjoined will be found a copy of the official agricultural returns for Great Britain in 1867, as compared with those of 1866. These returns include an aggregate of the extent of corn crops *generally*, and of the area under wheat in particular; as also of the number of cattle and sheep, compared with those held in 1866.

The general area under corn crops of all kinds in England and Wales, in 1867, was 7,941,578 acres, against 7,921,244 acres in 1866; and in Scotland, 1,367,012 acres, against 1,366,540 acres in 1866; making an aggregate area under corn crops of all descriptions of 9,308,590 acres in 1867, against 9,278,784 acres in 1866, which leaves an excess of the present over the last year of 109,806 acres.

The breadth of land under wheat in England and Wales, in 1867, was 3,255,917 acres, against 3,275,293 acres in 1866; and in Scotland, 115,118 acres in 1867, against 110,101 acres in 1866, being an excess of acreage in that portion of the Kingdom of 5,017 acres; and forming an aggregate balance of 14,369 acres in favour of 1866.

If we estimate the average produce of wheat at  $3\frac{1}{2}$  qrs. per acre, we find the aggregate yield—or, rather, what it ought to be—of 1867 to be 11,798,622 $\frac{1}{2}$  qrs., against 11,848,879 qrs. in 1866, which leaves a balance of 55,256 $\frac{1}{2}$  qrs. in 1866 above the produce of 1867. This year our estimate of the yield gives only 3 qrs. per acre, which, however, may be rather above than under the mark.

We can account for the falling-off in the cultivation of wheat by the high price of barley for the last three or four years, which has induced the farmers to substitute the cultivation of that grain for wheat to a considerable extent. The demand for fine malting barley increases considerably year by year, while the amount of that description imported is so very limited that it is probable the price will in future bear a higher proportion to that of wheat than it formerly did, which was about two-thirds. At certain periods within the last three years barley came within two or three shillings of the value of good red wheat per qr., and even above, if the difference in weight per bushel is taken into the account. At present, however, the rapid advance and high price of wheat have disturbed the relative values, and barley has at last resumed, if not remained below the proportionate price it formerly maintained. This, again, is to be accounted for by the brewers having adopted the use of sugar to an enormous extent instead of malt, by which, of course, the consumption of the latter is lessened. The consequence is that, as we learn from different parts of the country, the largest breadth of land is sown, or prepared for sowing with wheat that has been known for many years. A further stimulus in this direction is found in the universal opinion that the stocks of wheat in every part of Europe were entirely exhausted at the commencement of last harvest; that consequently we were compelled to begin upon the new crop as soon as it could be housed; and that, therefore, with a deficient

crop, began upon a month or six weeks earlier than ordinarily, the stocks must be again exhausted by the next harvest, so that prices must necessarily rule high, let the crop be what it may. This reasoning applies to France as well as to England, for the two countries are so closely allied *commercially* by the free-trade principles adopted by both, that the values of agricultural produce are so far equalised that what affects prices in one is instantly felt by the other.

The returns of cattle and sheep are more satisfactory than we expected to find them. The number of the former for England and Wales is returned at 4,017,790, against 3,848,435 in 1866, leaving an excess in favour of the present year of 169,355. In Scotland there are 979,170, against 937,401 in 1866, being an excess of 41,769, making an aggregate balance of 211,304.

Of sheep, the increase in number is much greater than that of neat cattle. The returns for England and Wales give the number of 22,097,286, against 16,793,204 in 1866, leaving a balance of 5,304,082 in favour of the present year. In Scotland the number is 6,893,603, against 5,255,077 in 1866, being an excess in the present year over last of 1,638,526. The aggregate balance is 6,942,608. This is partly accounted for by the fact that the returns for 1866 were made up at a date before the lambing time, whilst those for the present year are after that season. Be this as it may, we can congratulate the agriculturists on the increase of both cattle and sheep during the last year, and on the almost entire disappearance of the cattle plague from amongst their herds and dairies. If the Commissioners will but do their duty in regard to the importation of foreign cattle and sheep, and be somewhat less meddling with the native herds and flocks, we may with confidence hope to keep the plague from our homesteads without the arbitrary and frequently uncalled interference of the official.

The aggregate of these returns has just been made up, and under corn crops of all kinds there were in England and Wales 7,941,578 acres against 7,921,244 acres returned in 1866; and in Scotland, 1,367,012 acres against 1,366,540 acres in 1866.

The land under wheat is returned for England and Wales at 3,255,917 acres against 3,275,293 acres in 1866; and for Scotland, at 115,118 acres against 110,101 acres in 1866.

The number of cattle is returned for England and Wales as 4,017,790 against 3,848,435 in 1866; and for Scotland, as 979,170 against 937,401 in 1866.

Sheep are returned for England and Wales to the number of 22,097,286 against 16,793,204 in 1866; and for Scotland, to the number of 6,893,603 against 5,255,077 in 1866.

The large increase in the number of sheep returned in 1867, as compared with the previous year, is to be accounted for by the fact that the returns in 1866 were made for the purpose of the cattle-plague inquiry at a date preceding the lambing season in *some* parts of Great Britain.

Statistical Department, Board of Trade,  
November 4th, 1867.

## HOW TO INCREASE THE MANURE PILE.

This is a question, the solution of which is of vital importance to all economical agriculturists. Much has been written in relation to the farmer's resources for farm manure, and very much more remains to be written before all his resources will have been improved and exhausted. The observing person, let him turn which way he may, can scarcely fail of seeing the greatest negligence and waste of which the general farmer can be accused, in the neglect to save and apply fertilizers, or matter that may be turned into such, and until all these wastes are economized, the soil will fail to produce to the greatest capacity it is capable of, as a reward to the labours bestowed thereon.

Nature does not work in this way when not interfered with by man; she always furnishes her workers the means to accomplish all her requirements. If we refer to her mode, we shall see that she first sows the seed, and this comes up a small and tender plant, requiring but little to nourish and sustain it, and a portion of that little is furnished by the air which it breathes, and at the end of the growing season the foliage is annually shed, and falls around the roots to protect them, in case they are perennial, and to decay and become incorporated in the soil, to furnish future nutriment for an increased vegetation. This is the way Nature acts; she always gives more than she takes. Can we do any better, or improve upon her teachings? Yet how few there are who act as if they respected Nature as our best teacher! Unless we return to the soil at least some proportional amount of the matter withdrawn by our crops, the most fertile of virgin soils will become exhausted of its fertility in the course of years. True, much is gained by rotation of crops, deep ploughing and thorough culture; but nothing can be substituted that will entirely compensate for the elements withdrawn from the soil in the crops, except a return to the soil of substances which will furnish those elements, and to provide as far as possible those substances is one of the important duties of the economical farmer.

Manures, when applied to the soil, act in various ways, and differently on differently constituted soils; hence it becomes the farmer to understand the why and wherefore farm manure in a certain state is applicable to one soil, while it produces no effect, or if any, a deleterious one, on a different soil.

It is only by the decomposition of animal or vegetable substances into their original elements that they can furnish food for a future growth; in this decomposition many chemical changes take place which it is not necessary to here notice. If this decay goes on in the soil altogether, it is slow; yet the soil, if a close and heavy one, is acted upon mechanically, as well as otherwise, in having its particles separated, and thus benefited; whereas, if a light and loose one, a disadvantage results instead.

The greater quantity of humus a soil contains, in a state of natural decay, the better prepared it is to support vegetation—the greater its capacity to absorb and retain heat and moisture, essentials in support of plant growth. The great source of this humus of the soil is animal and vegetable substances, and as these substances are unequal in their decay, it is better to mix them; the animal putrefaction proceeding rapidly tends to hasten the vegetable, while the vegetable tends to temper the animal, thus together benefiting each. In this decomposition gases are evolved which are essential to vegetation, and which, if allowed, pass off in the air, and are lost. Heat is also developed in the process, which needs tempering, or the life principle of the manure is lost, and instead we have only carbon, a principle important as combined with other elements, but alone, in its material state, of small benefit to vegetation. To regulate this and absorb the gases evolved, substances should be added, which, while uniting with, or absorbing them, will so regulate the evolution of heat, that no ill effects will result. Muck, peat, loam, and other like substances, are capable of absorbing and

retaining the gases evolved, and at the same time regulate the combustion as well as furnish important elements of plant nutrition.

To derive the greatest advantage from composted and fermented manure, the decomposition should be undergone under a shelter from the effects of sun, wind, and rain, as any and all of these carry off or destroy much that is saved when sheltered. Of the various substances used in composting with animal excrements and substances, perhaps there is none superior to good dry muck; while it absorbs the liquids it also deodorizes the manures with which it is composted, absorbing and retaining the ammonia and other gases, ready, when applied and mixed with the soil, to impart the same to vegetation. It is this which is mixed with night-soil in the manufacture of poudrette, rendering the night-soil manageable and easy of transportation and application. The muck being composed largely of decayed vegetable matter, is a useful addition to the animal matter; of itself, when free of acids, or nearly so, as it generally will be when thrown out in low piles and left exposed to the action of the air, rains, and frosts of a year or two, it is of great benefit when applied to light or sandy soils, or any soil deficient in vegetable matter.

The fall of the year being a more leisure time with farmers, and the ground being usually dryer than at other seasons, is the best time to dig muck, peat, &c., in quantities sufficient to be used freely as a deodorizer anywhere about the premises where it may be wanted, and to mix with the yard and stable manures, to add to the pig-pen from time to time, to fill the cess-pool vat, and absorb the liquids and fix the gases, and to receive the wash and waste from the house, &c.; for any or all purposes, it is better to lie exposed to a season's frost before using; if it could then be sheltered to be used as wanted, it would be best. For most practical purposes on most cultivated crops, I had as lief have one of good stable manure and two of muck well composted under cover, as three of clear stable manure of horned cattle. So far as my experience and observation extend, on sandy loam the effect, immediate and lasting, is better with the compost than with clear stable dung.

Upon vegetable composts, animal excrements, muck, &c., composted, the farmer must rely for the main bulk of his fertilizers on the farm, and these he should provide with an unsparing hand; and if, in conjunction with these, he uses some of the concentrated fertilizers of the market, or of his own production, the former may be made to go much farther, with equally good effects. Several of these the farmer can better prepare himself, and then he knows they are pure, than to depend upon the markets. Poudrette and super-phosphate, &c., can thus be prepared on most farms at small expense.

A source of considerable waste on all farms is bones. The farm is drawn upon largely for the elements of bones, and, as a matter of equity, they or their equivalent should be returned. A cheap and valuable fertilizer may be made by any farmer by taking a tight box, cask, or by digging and forming a close pit, and filling it with good wood ashes, broken bones and refuse salt, in the proportions of one bushel of salt, two bushels of broken bones, and ten of ashes. Put first a layer of ashes, and alternate with bones and salt, topping off with ashes; wet this, and keep moist with urine, or suds from the wash-room, and in the course of a few weeks of mild weather the bones will decompose so that they will fall to pieces, when it should be shovelled over and well mixed, and dried off ready for application.

An additional source is much swale grass, which is often left without gathering and lost. Few farms are there on which much matter may not be found, which, if economized, would greatly increase the manure pile.—W. H. WHITE, *South Windsor, Connecticut*, in "Country Gentleman."

## THE HEATH FARM.

A few miles in a southerly direction from the thriving town of Athy, on the property of his Grace the Duke of Leinster, lies the Heath Farm, now celebrated in more respects than one, as we shall presently see, but more especially as the spot where Scotch farming near thirty-five years ago had its first advent into the district.

The Heath Farm had been all but a sterile waste, within the bounds of which, it may be jocularly said, no "Scotchman, black-crow, or Newcastle grinding-stone" had ever either found a resting-place or anything to do! This the Duke resolved to change, and that, from being in a state of sterility and unproductiveness, the Heath Farm should become the cradle of alternate husbandry, or, in other words, of the most improved system of agriculture in the district. But how was this to be inaugurated? Who was to be the successful cultivator and pioneer? How was Ceres to be wooed and won? As we have seen, the Duke had neither the book nor theory of Darwin to guide his choice; but yet, nevertheless, how unerring was the instinct of His Grace in selecting one of the oldest formations, or rather upheavals of Britain, from which to import an improver to the modern limestone deposit, of which the Heath Farm is a portion; and from the trap or granite formation of "Cannie Aberdeen" came the man who was destined to make the sterile wilderness a fruitful field, and its agricultural productions to luxuriate and blossom as the rose!

After a time the strangest stories began to float about the neighbourhood as to the doings and on-goings of the "farran" steward. There was a rumour that two ploughs had been seen at work together upon "The Heath," to each of which no less than four horses (some said six) had been attached, and that it was not "Christian" ploughing, but "quarrying begorra," that was going on. Jim Grady and Barney Cummins, "who risked their lives" as ploughmen, became celebrated in more respects than one. At chapels and at wakes and "berrins" their rehearsals of the "mortal" work it was to hold their ploughs, and save themselves from being buried under the "tremendous" furrows they were "turnin' up against the sky!" were listened to with breathless attention and respect; and when they told of the "rocks" that every minute "rowled and tundered out, bedad, and almost aequal to tons in weight," the astonishment of everyone who heard them almost knew no bounds. Then, as the spring advanced, and summer was at hand, with the cheering carol of the lark above, and the note of the cuckoo in the grove, when there came a rumour—could it possibly be true?—that the growing of the "ould honoured pyato" was to be given up, and some said thirty, others forty, acres of turnips were to be sown on The Heath instead, where ne'er a turnip had been sown before. There would be a "mortal pison to the haste that ate them," all agreed. But when the turnips grew and swelled to aldermanlike proportions, and specimens were sent to Dublin to the Royal Society Show, and returned with "gould medals and ribbons galore," the wonder of the neighbours was too great for utterance; and when another May came round, and the stall-fed bullocks one after another "rowled" out upon the road, on their way to Smithfield, the people looked, and rubbed their eyes, and looked again to see the "monstrous bastes as big almost, the everyone of them, as Paddy Brian's cabin on the commons, which held every night, both aisy and comfortable, himself, herself, and seven childher, the pig, the ass, the three geese, and eleven gossins, besides all the delf and chayney were left him by his grandmother!" And when the cultivation of the "farraner" extended, and fields of yellow corn waved where formerly the "tranyeen" and the Irish furze held sway, it was emphatically alleged on every hand that "Mister Tim O'Hologhan at the Lodge, with the best land in yer country," had been beaten by "the Duke's Scotchman," and that Tim's "growin' av pyatoes without manure, and white after that, and oats after white, and thin the finest av grass and meadow without the sowing av er grass-seed or

clover in life, wasn't the aequal, or next to near, the craps growin' upon the ould heath." The labourers around, too, began to feel the benefits of constant employment, and their hearts to warm to the genial stranger who gave it to them. The wages came "mighty convenient av a Saturday night;" and in the famine-years, when they unfortunately came, the families of those employed upon "the Heath farm" passed through the dreadful ordeal almost unscathed. And, as time wore on, and the Heath labourer became used to little comforts—as his constitution improved by better feeding, and his mind and intellect correspondingly enlarged—he began, in more respects than one, to have a dim perception that for his class a better day was about to dawn, and that another way of living than in a miserable clay-built cabin and semi-starvation upon potatoes and buttermilk, to breakfast, dinner, and supper alike, ultimately awaited him. In the first instance, however, with the ruin of the potato, came the destruction of the poor man's pig and the poor man's fowl—often his only friends. There was no refuse for either in the "yellow male;" and neither did Paddy himself nor his wife and "childer" ever take kindly to the "yellow boock." Even "the lad," which was the next stage in Paddy's onward eating progress, although admitted to be an improvement, especially when garnished with a few cabbages or other "trimmings," has never gone down so kindly as the *smell* of the live pig of the "oulden" time, and the *thought* of the "pyatoes" growing and swelling in the neighbouring field. Paddy, in fact, is still dissatisfied. He is in the transition-period equally with his betters, and does not know of it. If he could, without increasing his exertions, come at wages which would give him the means of having "tay" and white bread-and-butter for breakfast, dinner, and supper, with now and again, and in short pretty regularly, a rasher of bacon, to keep the other "refreshments" company, there would be less cause for grumbling with his lot. This is his ambition.

The Scotch settlements around Athy were not in the commencement all rose-coloured, or invariably a success. There were, on the contrary, many difficulties in the way to all. The soil had been exhausted; the climate was different to what the settler had been accustomed to, and, in many vital respects, the system of cultivation to which they had been trained had to be departed from. These alterations in cultivation could only be adopted after bitter experience of failures. There was, therefore, much hardship endured in the beginning—much discouragement experienced—much wisdom to be learned; and before "the rough and weary road grew smooth," and the indomitable perseverance of the Anglo-Saxon race had triumphed, several had to yield to adverse fortune, and how before obstacles which they could not overcome. With the major part, however, perseverance, rigid economy, and well-planned industry succeeded, and ere many years had run their course the system of farming first inaugurated on The Heath became common throughout the district. The Duke's farming, however successful as a fact, had this one disadvantage—of being the cultivation of a landlord, where there was supposed to be no rent to pay. The experiment on The Heath, therefore, although it showed his grace the possibility of the system, and the benefits to be derived from its adoption on a general scale, may be said to have, for a time, done nothing more. The method or example, however curiously observed, was not imitated; for, as has been observed, it was supposed to be a landlord's "hobby." But when the Scotch settlers—tenants with a rent to pay—began to follow out the farming which had been seen upon The Heath, their plans and management were first referred to jocularly, then criticised, and finally, closely watched with interest by their Irish neighbours; and as crop succeeded crop in regular succession, and the "tranyeens" still kept out of sight; as improved cultivation became apparent; as order, regularity, and careful management (despite a little Scotch hilariousness of a market day!) began, evidently to give the means of paying rent, and rent was actually and punctually paid, the naturally shrewd and quick-witted Irishman became first interested, and then began, as if half-ashamed, to practise



what seemed so clearly to be a way of farming suited to the soil and altered circumstances of the times.

There was this about the Scotchmen, too—that they had nothing to conceal. There was their fanning for the inspection of all, and here they were themselves at all times, in the most friendly spirit, ready to impart to all that which they knew. There to the public gaze was the portion of the farm for next year's green crops—first autumn-cleared—to be thereafter tilled early, dry, and deep, to give it every chance of thorough pulverization by the frosts of winter. There was the spring cultivation by either plough or grubber; all weeds brought to the surface, collected, and carried away. Then followed good manuring by farmyard or Dublin dung, with artificials commingled to stimulate the growth, and then the sowing of the seed in a thoroughly dry bed, so as to prevent the fly. Next came the proper summer cultivation—the following and aeration of the soil, to be in their turn followed by full crops, stall-feeding, and all its benefits in raising plenty of manure. After, in rotation came the splendid crops of wheat or barley, for which the district is now so famed, and by which both Irish millers, corn merchants, maltsters, and every trade in Athy have thriven so well. There was then the careful laying down with clover seeds and grasses with which to occupy the soil, and keep the natural weeds and couch-grass as much as possible from cropping to the surface. Meadow and sheep pasturage followed (and in the sheep and cattle department the Scotchmen had no objection to learn a lesson from their Irish neighbours), to be succeeded by lea oats; and thus the circle of rotation, simple, regular, and effective, when seen and understood, was completed. From this commencement of alternate husbandry, or, in other words, a rotation of cropping, whereby one-half or so of the farm is always under corn, and the other under meadow and pasture, may be dated the prosperity which now exists in agriculture on the once poor and sterile soil around Athy. Travelling throughout the district at the season when the golden tinge of harvest is gradually creeping on the cereals, and yet a deeper green upon the luxuriant turnip leaf, the panorama lies everywhere before and around the tourist like a garden. Magnificent crops on every side wave richly in the summer breeze—his recollections of the cultivation of those parts of twenty years ago either drive across his memory as a past and troubled dream, or the imagination, conjuring up, it may be, some of those glorious scenes so vividly depicted in “The Tales of the Arabian Nights,” he fancies almost that “The Happy Valley” lies smiling on every side around him. Irishmen and Scotchmen vie with each other annually in these improvements and in thus painting the landscape, and at the pre-

sent time it would be hard to say which party (if party there be where both pull so unitedly and kindly together) is displaying most industry, or may yet be first in the race of civilization and improvement.

It must not be inferred from all this that the colonization scheme is yet perfected, or that all the available soil has yet been occupied. Now and again a fresh subject is wafted hither from the Scottish shores, glad to escape from the serfdom and exorbitant rents exacted in his native land. “Cannily he speers” on ever hand “about a fern,” and if his countrymen “are maakin siller be their hand, if labour’s dear, and whaas tae buy the corn?” and when satisfied “about the Irish world, and that it is not so hard a world as he had expectit it wad be,” he gets religious and wants “tae ken hoo fuar awaas the kirk,” where every Sabbath he might pray with zeal and fervour! He hears that some of the Scotch are “daen weel and others gaein weel, and that there is an Erish corn merchant in the toon, to whom his countrymen jist send their corn, and never mak a price awa.” The Scotchmen look upon him as “a freen, and loc him like a verra brither: a’ the corn’s worth he gies,” the settlement is made, and all are pleased. The “speiran” Scotchman is surprised, almost amazed! He “glowers about him everywhere throughout the toon.” He hears on every side the sharp metallic ring of the Irish idiom, kindly intermixing with the broad vernacular of his own dear land. Wherever introduced he meets a kindly welcome, for his newly-made Irish friends may be thinking of many a dear relative, like the stranger Scotchman before them, far away from home and friends, on distant prairies, and in many a peril and hardship in a foreign land. In short, the Scotchman sees on ever side a friendly, intelligent class “o’ folk” (people), and is told of the happy and prolific intermixing of Scotch and Irish blood (as an example worthy of every imitation) in the highest quarter near Killea. He also hears that everything like Fenianism was scouted in the district—that even those super-active magistrates and sub-inspectors of the “polis,” who went a “mare-nesting” with the view of doing themselves an honour, and keeping Her Majesty on the British throne, had made a special hunt for nothing—had failed in securing a single Fenian “rag,” or in hearing of so much as even a single Fenian “lair!” The “freshman” hears of all this, and dreams of clubs and pistols fade for ever from his mind! He’s “unco pleased wi aa” he sees and hears, and forthwith thinks he “nicht dae waur than settle doon,” if possible, and add another unit to the Scottish settlement and peaceable community around Athy.—*Leinster Express*.

## THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

The monthly meeting of the directors of this society was held in their chambers, No. 3, George IV. Bridge, Mr. Dudgeon, of Cargen, senior ordinary director, in the chair.

ABERDEEN SHOW, 1868.—Money premiums to the amount of about £1,300 were allocated to the different classes of stock; and it was resolved that the third prize in all these classes should be the medium silver, in place of the bronze medal, which has been in existence since 1857. In the poultry class, sixty-five silver and sixty-five bronze medals were recommended. At the request of the Aberdeen district, fifty sovereigns were appropriated as a special prize for the best thoroughbred entire horse. The days of the show were suggested to be the 25th, 29th, and 30th July.

A requisition for the show to be held at Edinburgh in 1869, signed by a number of members of the society, was submitted to the meeting of the board on the 9th of October, when the directors resolved to recommend to the next general meeting to comply with the request, and remitted to the Committee on General Shows to suggest the classes of stock for which premiums will be afterwards offered. At a meeting of the committee, held to-day, the classes were named, and subsequently approved of by the directors, the list to be submitted to a meeting of members in the district of the proposed show—namely, the counties of Edinburgh, Haddington, and Linlithgow.

VETERINARY COLLEGE.—The opening of the session 1867-68, on the 30th of October, by an inaugural address from Professor Williams, and the induction of Mr. MacBride to the new Chair of Cattle Pathology, which took place the same day, were reported.

It was remitted to the Committee on Office-bearers to report on the vacancies which occur, at the next general meeting, in January.

It was likewise remitted to the Committee on Premiums for Subjects connected with the Science and Practice of Agriculture, and on Woods and Plantations, to revise the lists for next year.

The various reports of local competitions which have taken place during the current year in almost every county in Scotland, in connexion with the society, were referred to the committee in charge of that department, and, at the same time, to consider the applications for new grants for 1868.

A list of the reports received in competition for premiums offered in 1867 was laid on the table; and committees were named to read and report on their merits.

Copies of queries to be answered by farmers, as to the cultivation of land by horse-power, which have been extensively circulated in Scotland, were laid on the table. The answers are to be returned before the 31st of December, and will form part of the report on steam cultivation, which has been for some time in charge of a special committee of the society.

## A SOJOURN IN NORTHERN GERMANY AND IN SCHLESWIG-HOLSTEIN.

Rich and fertile as are the districts of Schleswig-Holstein bordering the seas—the Baltic on one side, and the North Sea on the other—and which, known as marsh-lands, we briefly described in our last, and picturesque as are some other parts, as, for example, the tract of country lying between Lubeck and Kiel, by way of Plön, and the Preetzer district, there are nevertheless vast tracts of sterile moorland in the interior that, lying mainly out of the track of travellers, are not much known; but to the traveller who crosses, as we did, the country—say from Tønning, by way of Frederickstadt, Heide, and Itzhoe, and from thence to Hamburg—much of this dreary district will be passed through, although here and there pleasant spots of fertile land or rich pastures are met with, to gladden the eye otherwise oppressed with a too-unbroken expanse of heath-land. Probably the ride from Heide to Itzhoe, which, if not taken by private or hired conveyance, must be taken by the diligence or omnibus—a very primitive conveyance, which is very leisurely dragged along by two horses—gives the traveller the best idea of what the vast tracts of moorland which are met with in Schleswig-Holstein are like. From Husum, the town named at the end of our last paper, a railway runs to Tønning, the port from which the principal supplies of cattle are sent to England. In this trade there are two steamers regularly employed, conveying—taking last year's export as a fair average—some 40,000 cattle and some 30,000 sheep annually, the freights charged for the former kind being 20s., for sheep 3s. 6d., and lambs 1s. The river Eider passes through Tønning, on its way to the sea. It is a small, sluggish stream, bringing down with its waters a vast quantity of silt from the interior. Overflowing its banks, it spreads out into wide spaces, here and there leaving rich deposits of mud upon the surface. The town of Frederickstadt may be reached from Tønning by rail, part of the way, however, being by bus. This town is celebrated for the part it took in the war of 1848, when it was almost battered to the ground. It has quite recovered from the fierce cannonading to which it was subjected, and now is a quiet placid pleasant town. It is laid out as a square; all the streets intersect each other at right angles, thus forming a series of small squares within the larger one; this larger one, being surrounded by a canal with raised banks, and which is supplied from the Eider, which flows past the town. This river has to be crossed, in going to Heide, not by a permanent bridge, but by a floating one—a ferry-boat, guided by iron ropes stretched across from point to point. The journey from Frederickstadt to Heide is made by diligence or bus. This, like nearly all the public conveyances, we found to be a heavy lumbering affair, the fittings of which were comfortable enough, but had no pretensions to elegance. True, although one does not get much for his money in the way of a fine conveyance, much money, on the other hand, is not asked for, a ride of four or five hours costing but a few pence. The pace is slow—very slow—little better than a walk, so that one gets a good long ride, as regards time, for little cash. And this mode of travelling has its advantages: it permits one to see a good deal as one travels along, and, indeed, of making even his notes of what he does see: and every now and then a stoppage is made at some fine old inn or “gasthaus,” which admits of some suggestive if but brief glances being obtained

at the inner peculiarities of the life of the country-people. The first of these halts on the way from Frederickstadt to Heide was made at a place called Lönöon—as complete a contrast as could possibly be to its namesake with us. A charming old-fashioned town this was, so quiet and still that it was verily inviting to anyone who has had too much of the world of England, with its busy bustle, its push, and its fast living. We omitted to name, while writing about the Eider at Frederickstadt, that for a considerable distance its sides were embanked, and below the level of the embankment were fine extensive pastures, which reminded us a good deal of the Polder and of Flanders. The crops chiefly met with between Frederickstadt and Lönöon were beans, rape, and wheat; although we saw, as we drove past, by far the largest field of mangold we had seen in the country—a crop this, by the way, not much cultivated, considering the number of cattle winter-fed. The general aspect of the country closely resembled that of Flanders, being flat, the likeness being all the more striking from the absence of fences, the fields being divided by ditches. The farmhouses are generally built of brick—the brick-work being worthy of notice from its excellence; the roofs are almost invariably thatched. After passing Lönöon very extensive meadows are met with; and, further on, the frequent appearance of sand-heaps testify to a change in the character of the soil; the crops also begin to change, and buckwheat is met with. Approaching Heide a good many windmills are seen, used to pump up water for the irrigation of the fields, which is pretty extensively adopted here. Heide is a pretty village, with an old church surrounded by fine trees, and boasting of a large “platz” or square, in which we saw the “universal soldier” busily at work. Heide has a capital inn, near the church, not the least pleasant feature of which is the pleasant landlady, who, moreover, caters for the traveller with great good taste and for little cash. The walks in the neighbourhood of Heide are pretty and rural. The drive to Itzhoe by bus or diligence is a very long, and, if we had not had a magnificently fine day, would, we fear, have proved a very tedious one. As it was, we enjoyed the drive vastly—all the more that we had a most intelligent driver, who gave us much information upon passing points as we drove along. The land in the immediate neighbourhood of Heide is flat; but shortly after leaving this the ground begins to undulate, and indeed to rise gradually, up to the town of Meldorf, which stands somewhat high. Midway between Heide and Meldorf the pasture land almost entirely disappears, its place being taken by arable land; the cereal crops met with being rye, buckwheat, oats—a large breadth of land being under rye, and buckwheat being also very considerable in quantity. As green crops, mangolds and potatoes are met with, while considerable stretches of clover are also to be seen. Approaching Meldorf pastures begin to appear, and in the immediate vicinity of the town these are very large, and the flocks of sheep form a marked feature in the landscape. In the arable part of the land the fallow forms a distinguishing feature; most of it is heavily dunged, while the ploughing is deep and thorough. The plough employed is the two-wheeled one, the draught being so heavy as to require four horses, the man riding on the off-horse. The ditches are very deep, and wide between the stretches, which are very broad. The ditches are very carefully trimmed with the spade, and the cleanings thrown

over the land on either side. The crops are pretty various in kind—beans, peas, barley, rape, and rye being all met with. Meldorf is a picturesque old town, possessing a church of very considerable dimensions, and possibly the oldest piece of massive brickwork we had met with in our tour through a country where some of the finest structures of this material in Europe are to be seen. Shortly after leaving Meldorf the flat moor-land begins to be met with; peat is seen on all sides, and much of it dug from pits of vast extent and of considerable depth. Near the town a good breadth of this land is reclaimed; lime being, as with us, much used. The crops are principally rye, oats, and potatoes, with a fair proportion of buckwheat. The cows met with are few and far between. And here will be a fitting place to introduce a few remarks upon the peculiarities of the moorland districts, which form a characteristic feature of Schleswig-Holstein. Here we translate freely from a native and eminent authority: "The moorland stretches, in some places broad, in others narrow, over both duchies has very little forest, but many heaths and moors. Although fertile tracts are sometimes to be met with, in general the soil is very barren, and the greater portion consists of desolate heaths, quicksands, and moors. It is believed that at one time these districts were very thickly wooded, and there is no doubt that the destruction of these forests has been injurious to the health of the inhabitants. The greatest area belongs to the grower, and the rest to the boroughs, church, or nobles. There are not many houses: the villages lie at very great distances, here and there are solitary dwellings and small farms. This district is so thinly peopled, and so little is it under cultivation, that the hamlets have a very large extent of ground around them; and when this is the case, only one-third of the land is cultivated; the rest being moors, on which sheep and cattle graze. The peasants are the possessors of their places, for which they pay taxes and dues to Government. The houses look bare and dull, because there are no trees around them. They are fire-proof, long, narrow, and low in the roof; they are large and comfortably fitted up, but have no peculiar characteristic. The gardens are very poor, and few vegetables are planted, with the exception of potatoes. The country presents a dull flat, uninteresting appearance, from the absence of hills and valleys. The ground in some parts is flat, and smooth, and has few hollows, and such a thick hard subsoil that the rain does not penetrate, but collects on the surface of the low ground. The soil consists of very fine grayish-black sand, over yellow or white sand, with a subsoil of loam and marl. Such tracts which have not been cultivated for so long a time are green, and only require care to be made into fruitful land. Many weeds are seen, such as mustard-seed, corn-flowers, &c., but this may be attributed to the want of management. The ground is more fertile in the river districts, and much hay is made, and cattle are kept, and thus their supplies of manure are increased. The style of farming in the middle districts was very good. Formerly, a portion of the land was uncultivated, and a small part divided into fields, the property of the villagers. In many places, especially on the western side, deep ditches are dug without walls, and where there are walls, they are bare, and without trees. On account of the sharp winds, from which there is no protection in these flat plains, it is difficult to grow trees and shrubs, and the walls around houses and gardens are entirely destitute of trees. It has been proved that in former times a large forest existed, yet it has been found very difficult to plant new ones. It has been done by the Government and private people, who, by the sale of the wood, have derived larger rents than by the letting of the land. The large turf bogs are of great use to the people in supplying with fuel

the towns along the west coast and the island, and for the burning of tiles, glass, helmets, cloth, and fabrics, which are made in this part. The rotation of crops is very simple. Buckwheat and rye are the only grains which may be sown with safety. The soil, in many places, is too light for barley and oats. Potatoes here and there thrive well. A warm spring and not very dry summer are the best to ensure a good harvest. Dry weather and great heat are destructive both to grain and pasture. Frequent night-frosts destroy the buckwheat. Marl is found in some places, and, when put on the fields, grows beautiful corn: formerly there was a prejudice against its use, which is fast disappearing. In some parts the loam is so near the surface that, in digging a ditch, it is thrown out on the land. Where there is no loam, the new soil of the moors, with sand, is put on the land, and plentiful manure, after which rye is sown. The rotation on poor ground is the following: Buckwheat; rye; rye, and four or five years' pasture. Oats are rarely sown on high ground. Harrowing around is not in use. Although the people believe that the softness of the furrow is detrimental to the ground, I do not agree with them, if the ground be well rolled after the seed is put in. The saving of labour to the horses may account for this opinion. After the buckwheat, the ground is manured, and sown with rye, followed by rye again; after which the land lies for a number of years in pasture, without either grass or clover. The pasture is chiefly of the small sorrel, rumex acetosella, and similar herbs, which affords poor fodder for the cattle. When clover is not sown, rye-grass might be, and where the soil is not too dry, thyme-grass would be better for the cattle; but the farmers believe these grasses impoverish the soil. Oats are sown on low, damp fields; potatoes in most small fields. Barley is used instead of buckwheat where the soil is heavy, and then rye. The land is ploughed ten or twelve inches deep, and thoroughly manured before the barley is sown; the rye is put in without any manure. In the moor-lands, especially in Schleswig, the ploughs, harrows, carts, &c., are drawn by oxen and cows—sometimes yoked with horses. The great distance of the fields from the houses renders the carting of hay, corn, and manure very heavy. The cattle are fed through the day, and put in the stalls at night. The cows in this case give little milk and butter for sale, and cattle and oxen are largely kept for sale. Where the soil is better, the cow is better fed. In places where the land is intersected by rivers, the peasants have a quantity of hay, with which they feed their cattle; for the little straw they have will not go far, and feeding with corn is not known in this part. When there is an over-supply of hay, it is taken to the towns and sold. To increase the supply of straw and manure, the moors and heaths are cut with a short strong scythe, and a mixture of grass, moss, and heather is obtained, which is given to the cattle, and the manure made from this is considered best for the sandy soils. Besides the black cattle many sheep are kept, of a bad kind, which stay out summer and winter, and furnish material for clothing. Pigs are not kept to a large amount, but are bought from the Jutlanders, who bring over a large number. Large tracts of heath land lie waste, which bring in little or nothing. It is very desirable for the present line of proprietors to proceed quickly in the cultivation of the land, and lose no time. There are many obstacles which would not repay the expense of cultivation; but still, there is a large tract of land, which by judicious management, would form an excellent soil and amply repay the capital spent. The hilly uneven districts are the least worthy of cultivation, as the soil consists of very fine sand of blackish colour, the subsoil of a yellowish brown. The white low-lying plains, difficult to be drained, where the rain lies on the

surface, would not repay the expense of cultivation. There are many tracts where the soil consists of arable land and a subsoil of loam. Such a soil requires only proper cultivation to form rich soil, especially where there is loam.

Midway between Itzehoe and Meldorf what may be called the summit level is reached, the ground gradually rising from Meldorf to this point. Passing this, a very different country is seen lying below, from the bleak moorland the traveller has been passing through. In the distance fairly wooded tracts are seen, while as Itzehoe is approached magnificent extents of pasture lands are met with, supporting herds of fine, fat, and sleek cattle. The farmhouses are more numerous, and are generally beautifully situated, embosomed in trees, and possessing all the appearance of comfortably, if not of elegantly, appointed dwellings. The crops are numerous in the arable land near Itzehoe—flax, rye, oats, buckwheat and potatoes; while the breadth of land under mangold and beetroot is decidedly large as compared with some other districts where we have seen it grown. Not far from Itzehoe, in the midst of a magnificent stretch of pasture and meadow land, a row of windmills is seen, which are used to raise the water from the low to the high level. Itzehoe is a pretty large town, having some beautiful villas in the environs. Towards one side there is much wood, and, with the usual taste of Continentalists, numerous beautiful walks are made in these. A considerable trade is carried on at Itzehoe. There are several factories; one a very large one, for the making of beetroot sugar. The town is celebrated, or will be celebrated in future history, as that in which the last meeting of delegates from the representatives of the Duchies of Schleswig-Holstein met, just before the breaking out of the war between Prussia and Austria, and which meeting was put a stop to in the sudden style for which Bismarck is now so famous. A few days may be very pleasantly spent in Itzehoe and its surrounding walks: hotels are both numerous and good. From Itzehoe the rail may be taken to Altona, which is now, in fact, a part or a suburb of Hamburg; or by going up per rail on the Altona line as far as Elmshorn, the journey down to Kiel may be made in a few hours. The railway from Itzehoe to Elmshorn passes through a country in which much sandy soil and flat heathy land is met with. Here and there, however, clumps of trees, and, indeed, considerable stretches of plantations, relieve the country from the look of monotony which it might otherwise have. The crops met with are chiefly oats, clover, and mangold. The pastures in some parts of the route are very extensive. As we advance towards Gluckstadt, we find mangold and colza pretty freely grown. The latter was being barvested as we passed, and we noticed that the stalks are left very long; and the heads, for they are but little more, are laid on the stalks. These serve to support the seed-heads of the plants, keep them from the damp ground, and, allowing the air to circulate freely amongst the heads, the seed is dried rapidly. When the heads are collected and taken off the field, the stalks are pulled up by the root, and laid aside in heaps. As soon as the land is cleared it is ploughed-up at once for the succeeding crop. The mangolds met with are nearly all transplanted—not thinned-out, as with us. The general appearance of the land here resembles very closely that of Flanders; but with this remarkable difference, that the condition of the soil is not nearly so good: whilst in Flanders scarcely a weed is to be seen, here the water-courses between the stretches are filled with weeds and aquatic plants; in Flanders they would all be carefully collected and used for manure. The town of Gluckstadt is passed on our way to Elmshorn: a vast number of cabbages and leeks are grown in the neighbourhood. The land continues flat, and crops much the same as

stated above. As soon as the clover is cut the land is well manured and the whole ploughed-in. Elmshorn, the junction town, is small but pretty; the houses are quaint, and the streets lined on each side with trees; these, like nearly all the trees in the towns of these districts, are trained to be flat towards the houses and the street, and the branches to meet laterally as it were: by this means the branches form a screen at some distance from the ground, below and above which the view from the windows of the houses is uninterrupted; the streets, moreover, are thus open to the influence of the air and sun-heat, so that they dry much more quickly than if the branches were allowed to hang over the street and the pathway or pavement. The walks in the neighbourhood of Elmshorn are very pretty: living is very cheap here. If the traveller from this station takes the train to Altona for Hamburg, he will find, nearly all the way up to the former town, the land very flat, and in many places sterile and sandy. Outside of Elmshorn there is much peat and moorland. Approaching Altona there are vast tracts of heath-land on the right hand, much of which is not under cultivation; but reclamation is, however slowly, still going on, and here and there dotted over the surface are seen cottages with their cultivated portion of land surrounding them like oases in the desert. Reclamation seems to have been much more thoroughly and orderly carried out in the district to the left of the railway, although this may arise from the fact that the character of the soil is different (our readers know well enough how perplexing are those remarkably quick transitions from sterile to fertile soil, and *vice versa*, met with in many districts). There are here considerable tracts of meadow and pasture land, chiefly meadow. Near the small town of Pinnerberg a very pleasing change comes over the aspect of the country; it becomes woody, pretty rural-land is seen on all sides, the meadows are extensive, and considerable bodies of water are met with. The heathy flat-land, however, shortly resumes its sway, and maintains it for some distance; but as Altona is approached the country becomes more diversified, and in the distance towards the right rising ground is seen. The fields under cultivation are small; not divided from one another by ditches, as in other parts, but by thorn fences. The cultivation is good, the crops being in good condition. If, in place of taking the train from Elmshorn to Altona, the traveller advances further into the country, and takes the drive to Kiel, he will find, for some distance, the same character of soil as formerly met with from Itzehoe to Elmshorn, namely, light and sandy and flat; but as he approaches Kiel the character of the land changes from flat to undulating, and the soil from sand to a comparatively rich argillaceous soil. Kiel is an important town, and is daily becoming more so. It possesses one of the finest harbours in Europe. To form an idea whether or not this was worth fighting for by Prussia, let the visitor cross the bay from Kiel to the little village of Wilhelmshöer opposite, by means of a little cock-boat of a steamer, probably the smallest he has ever travelled in, and passing through the pleasure-grounds of the large hotel at the landing, climb the hill on the face of which they are formed, by many a winding path and bosky shade, and looking from the summit sea-wards, he will then be able to understand what a treasure Prussia has obtained—as to how, the less said the better—anxious as she is to become a maritime as well as a military power. A very fine view of the bay on one side, and of the rich undulating Preetzer district on the other, can be here had. Kiel is very rich in beautiful places for the recreation of the people. The gardens which skirt the bay are beautifully laid out, and the drive down to a place they call Bellvue is very pleasant. The woods and walks which are in the neighbourhood of Bellvue are truly fine.

From the walks and drives, delicious views of the bay or harbour are to be had: while the handsome elegant villas and bathing-places and concert-rooms and hotels, every now and then seen, make up a view which is truly characteristic. If the visitor wishes to see the beauty of the wooded walk in perfection, with some of the finest forest glades he could desire to look upon, let him take the walk the entrance to which is indicated by a sign-post, with the the word "Zu Fruchtbaum?" upon it. In returning he may turn to the right, and go through the wood in the direction of Kiel, to Dürsternbrock, a pleasant place much frequented by the Kielites; from which the town may be reached by a bus, fare one penny of our money. From Kiel several steamers sail to Copenhagen and other ports upon the Baltic, and to those disposed to extend their inquiries into the condition of the Schleswig-Holstein Duchies, the town may be made a starting-point for many of the most interesting districts. He may thus go, on the one side, to Lübeck, by way of Preetz and Plön; or, on the other side of Kiel, to Eckenförde, Schleswig, up to Flensburg; and from thence to Rendsburg and Altona. The ride, as we have already stated, from Kiel to Lübeck is very fine, much of it passing through a lovely country; but if not disposed to go the whole length, a very easily-made excursion to Preetz, should not be neglected. We translate here freely from our authority as to the peculiarities of the Preetzer district: "In this a very prosperous style of farming is met with. This fertile district, consisting of two parishes, lies west from the Baltic. It is peopled by a peculiar race, different from the others in their style of dress and manner of living. The hamlets are so close, and the population so large, that the working-classes do not find sufficient work at home, but seek occupation abroad, and are highly valued on account of their intelligence and activity. Many support their families by the manufacture of straw hats, mats, linen, and fishing in the Baltic. The inhabitants are industrious and intelligent, and pursue a style of farming which produces good results. The corn is considered the best in the district, and is sold at a very high price. Many improvements have been made of late years with regard to the tillage of the soil. The dairy is not so much attended to as the cultivation of corn: if six or seven fields are ploughed, only two milk cows will be kept. Many farms have salt meadows on the coast of the Baltic, where cattle are pastured. The crops are usually in the following rotation: Fallow-land, which is ploughed up three or four times in summer; rapeseed, wheat, barley, peas, rye; then potatoes or flax, oats, and two years in grass. Both red and white clover are generally sown. White clover is sown, with barley in one-half of the field. This is ploughed up the following summer, and, in autumn, sown with rye. When one-half of the field bears white clover, the other half is usually in peas, followed by rye or oats. Red clover is sown with oats, and only in one-half of the field, and is followed by grass. Potatoes are planted in the fields, and generally between wheat and barley. They are sold, but some kept for the cattle. Flax is largely cultivated; hemp very little. Fruit is very plentiful, but a scarcity of fuel. The land is ploughed very deep; and, on this account, three horses are yoked to the plough. A farmer possessing ten or twelve milk cows has, at least, six horses. Cattle are taken to market, but are not so valuable as those of Angeln. The wool from ten or twelve sheep provide garments for a household. This people derive large sums from their produce and manufactures, such as flax, wool, feathers, linen of different sorts, and are remarkable for their intelligence and love of order."

We would strongly counsel the visitor to Kiel to extend his trip as far at least as Schleswig, going there by way of

Eckenförde, and from Schleswig to Husum, Tönning, and thence to Altona by the route we have already described. Eckenförde is a fine bathing town, lying at the top of one of those bays or fords which are so frequently met with on the shores of the Baltic. The walks are very beautiful in the neighbourhood, and living is cheap. Those interested in the last wars will find many relics of them in the neighbourhood of Eckenförde. Pasture lands are very abundant and extensive, the chief farming being dairy. Dairy farming, in fact, is the grand characteristic of the whole range of the Duchy of Holstein—butter being the principal product. Our readers are well acquainted with the term "Kiel butter," although the butter with this name attached to it as a guarantee of its superior quality is not always the produce of Kiel or even its immediate neighbourhood, much of the butter made in other districts being sent to Kiel as the place of transshipment. While at Eckenförde, we paid a visit to one of the largest dairy farms in Holstein, and much gratified we were; we wish that space was at our disposal here to give an outline of what we saw in the way of dairy management, for much might be suggestive to some of our readers in this department of farming; it always serves a practically useful purpose to detail a practice which gives good results, and that such is the case in Holstein is notorious enough. From Eckenförde to the town of Schleswig the drive must be taken, as that from Kiel to Eckenförde, by the post-coach, for we are quite without the line of railway here. The drive is very pretty in many places, and the approach to Schleswig exceedingly so. One peculiarity in the landscape between Eckenförde and Schleswig is the frequency with which fine pieces of water are met with. These are chiefly the upper ends of the bays or fiords with which, as we have before stated, the Baltic coast is serrated, so to say. The crops met with chiefly in the drive are oats—which is the principal crop—rye, peas, buckwheat. A good deal of wild moorland is met with about the range of the highest part of the district between the two towns. Much peat is met with; in many places the drainage was so ill-managed, or appeared to be so, that the water was allowed to remain, the result being that the peat, in place of being taken out in a consolidated form, was taken out in a semi-fluid condition, and consolidated by horses treading on it, and then finally forced into brick-like masses. But as Schleswig is approached, the character of the country changes, and it becomes very beautiful. Schleswig—the town from which the Duchy derives its name—is a fine old town: it has a large schloss or castle, now used as barracks, and filled with Prussian soldiers, and the walks around it are very beautiful. It lies on the side of the bay, from the shore of which the ground gradually rises. There are a good many irrigated meadows near Schleswig. The town is in communication with the railway system, by means of which the towns of Rendsburg on the one hand or that of Flensburg on the other may be reached; or if a visit to the marshland district is desired, the rail may be taken to Husum, which we have in a former paper described. Shortly after leaving Schleswig the character of the country changes from the undulating to the flat. The crops chiefly met with in the arable land are oats, barley, rye, buckwheat, and potatoes. Approaching Husum the vast meadows with their herds of cattle are passed through, and which form the peculiarity of the marshland districts.

We have now taken our readers through a large part of the interesting duchies of Schleswig and Holstein, and have endeavoured, in doing so, to make our notes as useful and interesting as possible. We may, in conclusion, be permitted to give, as supplementary to or connected with what we have presented to our readers, the following, upon the subject of the large and small farms of the Duchies, and which we have freely translated from the

writings of that authority from which in last paper we gave an extract, and part of which bears upon points now much discussed amongst us. With few exceptions, the small farms are very similar to the large ones:

"The arable land is divided into eight or ten fields. The peasant-farms have an area of eight or ten tonnen, besides small hides of land, consisting of three or four tonnen, or even more, which are distributed among the tenants. Care is taken that these pieces of land do not lie at too great a distance from the dwelling-houses. About such fields which are too small to require two horses I must remark that they are always a disadvantage, in comparison with the larger, as the horses consume too much in proportion to the produce of the small farms. It is the same with the small proprietors, where either one horse is kept or the land worked by hired labourers. In the first case, the horse is not sufficient at certain seasons, and has nothing to do at other times; in the second, the land is often not ready at the proper time. In these small places the cow is used to draw, as is usual in some foreign states, and, indeed, is customary in the eastern districts of Schleswig. There is another disadvantage on these small farms: the steward does not find sufficient occupation, and must therefore work as a day-labourer, which he has not always an opportunity to do. Any person desirous of having a farm should strive to obtain a suitable one, and on the most favourable conditions. He should consider the amount of his capital and the advantages of the place, and take a farm of a suitable size, and on certain conditions. In this way things would follow a natural course, as seems right; and no hindrance would be put in the way of forming large farms. But this must not go to extremes, as it would be a disadvantage to the community; for when a capitalist, by purchase, unites many small farms, he has it in his power to undermine the property of many of his countrymen. So, in the opposite case, a constant subdivision lowers the condition of the peasant class, as in the district of Tondern. With the excessive subdivision of farms, the prosperity of its cultivators is lost. We must not lose this opportunity of saying a few words about the division of large farms recommended by many. That more is produced on a small farm in proportion, and that by the division of property many families may be provided for, are the principal arguments in its favour. That a small extent of land may be more carefully managed and many trifles used with success, is not to be doubted; but we do not affirm that farms on a small scale produce more; on the contrary, arable land is always worse cultivated and more seed sown on these small farms than those of proper extent. The disadvantages arising from excessive subdivision of land has been recognized in other countries. In England, and chiefly in Ireland, the proprietors are now uniting two or three small farms into a farm of moderate size. If the farm be not too large, perhaps from 600 to 800 tonnen, the steward can easily superintend the whole, and will not require so many labourers in proportion as on a small farm. This will be seen by reckoning the number of horses and labourers on a farm of 600 tonnen, and comparing it with the number on a farm of 60 tonnen. The proprietor of a large farm has generally more capital at his command, and can thus work it to greater advantage, by drainage, irrigation, and the use of the steam plough, thrashing machine, &c., and in this manner economize labour. The style of peasant farming in the monastic districts on the eastern coast differs very much from the farms of the nobility, and has certain peculiarities. There are many *baustellen* which exceed the usual size, and indeed form small estates. The farm-houses are called "Bohlen," and are either the property of their inhabitants, in which case they are "Bon-

denlufner," or they pay a kind of fee, which passes to the successors. These indeed enjoy the land as their own property, subject only to certain duties and taxes to the proprietor, and every new *Festbauer* must pay a certain sum when he takes a farm. A very great evil is felt in the unsuitable division of the fields, whereby fields belonging to one proprietor are rarely united, but are scattered over the village, on different sides even. The scattered situation of the country and the great distance of the fields from the dwelling-houses are great drawbacks to the farmer. For example, the pasture lands are at such distances from the village, that the farmer cannot conveniently fetch milk from all these places, and is obliged to put cattle and sheep on these fields. It is a great trouble and annoyance to the workman, who is obliged to cross several fields to get to another part of the farm, and the oversight is very heavy on the master. When the division of the land was made, these evils were not felt, and an exchange of land and fields is now the only way to repair the mischief. This is so evidently for the good and prosperity of the State and community, that Government should throw no obstacle in the way, but, on the contrary, help it by every possible means. The farming in the districts of Angeln and the coast of Coldinger Aue was not marked by the same activity and vigour as in the southern districts. Frequently there was a want of drainage, and the soil not sufficiently manured; but this has been more attended to in later years, but they are still far behind their southern neighbours. They are dressed in homespun clothing, and wear wooden shoes. In the north, many oxen and cattle are sent for sale to the market. The cattle stay out in the fields in summer, but, in winter, are kept in stalls, with their heads to the wall. The manure is put in heaps, which has its advantage. The beautiful district between Tehley and the Bay of Flensburg is called Angeln, and has an excellent soil. A small part of this district belongs to the nobility; the rest to the Crown and church. In the latter, the farms are the property of their inhabitants, and, besides the arable land and the dairy produce, are important in the rearing of cattle for sale. There is room for improvement in the farming operations with regard to the drainage and the necessary manuring of the soil, which is often neglected. The following is the rotation of the crops: Buckwheat, rye, barley, oats, then oats again, after which pasture for three or four years. Wheat and barley are very little cultivated by the peasants. Frequently there is quick grass and other weeds in the land; and it will soon run soiled if buckwheat is sown, instead of allowing the field to lie fallowed for a season. The cultivation of flax is very general in the east of Angeln; but the same cannot be said of hops. At harvest, every three sheaves are tied together with double bands of straw. The loading is then more easily done, and there is not so much litter-straw. There is a great want of irrigation in the meadow land. This arises from the lands being scattered among so many, that one hinders the other, and another blames his neighbour for not commencing sooner, and endless disputes arise. The rearing of milch cattle for sale is very general, and is a great source of wealth. The breed of milch cows is very valuable, both on account of their milk properties and for the manure, and a large number are sold every year. The cow is not very large, is smooth, well proportioned, with small bones. In order that purchasers may not be deceived, as was formerly the case, men are appointed to stamp the cattle when young with the mark A. R. (Angeler Race). The rearing of horses is also important in Angeln. A portion are brought from the northern districts for rearing, and afterwards for sale, and yearly a large number of work and carriage-horses are sent to other countries. Round some farms there is a valuable wood, which is sold for fire-wood and

other purposes. The roads which are made through highways are very angular, and were in bad condition a few years ago: now they are much improved. Angeln is very well peopled. Round the hamlets are planted shrubs and fruit-trees, which in the distance look like little forests. The style of building resembles the Danish more than the southern portion of the Duchy. There is a road to the house in the middle. On the one side is the dwelling-house, on the other the cattle-stalls. Throughout Angeln there is great prosperity, and a great improvement in their condition. Many sensible well-educated persons are met with, who by reading and other ways keep progress with the times. Especially we remarked a public spirit and independence which is wanting in the other districts.

We add to this the following statistics from the last-published report of some of the districts of the Duchies.

#### STATISTICS OF SEPARATE DISTRICTS IN SCHLESWIG.

(1.) FLENSBURG.—There are of arable land 57,140 tonneus, of wheat land 3,410. Land under wood 14,350 tonneus. Of stock there were 3,810 horses and foals, 12,976 milch cows, 6,610 fat cattle, 4,080 swine, 10,200 sheep, and 7 goats. There were under rapeseed 500 tonneus, 3,100 tonneus of wheat, 41,100 tonneus of rye, 30,520 tonneus of barley, 67,700 tonneus of oats, 1,010 tonneus of peas, 21,700 tonneus of buckwheat, and 100 tonneus of clover. The population was 26,513, of whom 10,974 were engaged in farming.

(2.) AUGUSTENBURGISCHE DISTRICT.—22,780 tonneus arable land, 1,140 tonneus wheat, and 2,200 tonneus wood. Of stock: Horses 1,454, fat cattle 1,609, swine 496, sheep 4,360, goats 13. Under rapeseed there were 600 tonneus, wheat 8,460 tonneus, rye 11,870 tonneus, barley 22,200 tonneus, oats 29,060 tonneus, peas 6,070 tonneus, buckwheat 4,580 tonneus. (A cow produces on an average a yearly weight of 60lbs. butter and 80lbs. of cheese).

(3.) (MARSHLAND DISTRICT), EIDERSTEDT.—There are in this district 14,850 tonneus arable land, and 31,050 tonneus grass-land. Stock: Horses 2,800, milch cows 28,400, swine 840, sheep 16,200, and 10 goats. Each cow gives on an average 180 to 200lbs. butter, and 160 to 200lbs. cheese. Population 3,772: 2,672 engaged in agriculture.

(4.) HUSUM.—Arable land 28,010 tonneus, pasture and grass land 11,370 tonneus, wood 2,970 tonneus. Stock: Horses 2,550, milch cows 4,400, fat cattle 6,030, swine 1,400, sheep 15,460, goats 3. Arable land: Rapeseed 2,500 tonneus, wheat 2,260 tonneus, rye 13,860 tonneus, barley 5,750 tonneus, oats 21,800 tonneus, peas and beans 2,010 tonneus. Each cow gives on an average 90lbs. butter.

(5.) FIRST ANUGLER DISTRICT.—25,500 tonneus arable land, 3,890 tonneus wheat land, 1,680 tonneus wood. Stock: Horses 1,400, milch cows 6,600. Fat cattle 1,700, swine 2,000, sheep 2,580, goats 20. Under rapeseed 3,000 tonneus, wheat 12,000 tonneus, rye 15,300 tonneus, barley 19,400 tonneus, oats 40,000 tonneus, peas 3,000 tonneus, buckwheat 8,900 tonneus, clover 50 tonneus. The produce of a cow is yearly 100lbs. of butter.

(6.) SECOND ANUGLER DISTRICT.—Arable land 50,500 tonneus, wheat land 5,070 tonneus, wood 7,000 tonneus. Stock: Horses and foals 2,940, milch cows 10,300. Fat cattle 4,000, swine 1,900, sheep 6,200. Land under rapeseed 1,000 tonneus, wheat 5,000 tonneus, rye 31,000 tonneus, barley 30,500 tonneus, oats 43,000 tonneus, buckwheat 26,000 tonneus, peas 3,500 tonneus, clover 70 tonneus. Produce of a cow 100lbs. butter and 100lbs. cheese. Population 15,778: 6,816 engaged in agriculture.

#### SEPARATE DISTRICTS IN HOLSTEIN.

(7.) RENDSBURG.—Land: Ackerland 50,220 tonneus,

wheat-land 16,815 tonneus, wood 4,010 tonneus. Stock: Horses 3,833, cows 9,536, fat cattle 3,687, swine 3,133, sheep 8,607. Land under wheat 445 tonneus, rye 32,105 tonneus, barley 1,635 tonneus, oats 30,035 tonneus, peas 1,790 tonneus, buckwheat 18,160 tonneus, clover 35 tonneus. Produce of cow yearly, 60lbs. butter. Population 22,189; engaged in agriculture 1,957.

(8.) KIEL.—Ackerland 4,730 tonneus, wheat-land 1,010 tonneus, wood 255 tonneus. Stock: Horses 425, milk-cows 1,213, fat cattle 225, swine 502, sheep 573, goats 43. Land under rapeseed 240 tonneus, wheat 2,170, rye 3,475 tonneus, barley 4,975 tonneus, oats 10,600 tonneus, Peas 690 tonneus, buckwheat 870 tonneus, and clover (kleesaat) 15 tonneus. Population 3,512; engaged in agriculture 877.

(9.) PLÖN.—Ackerland 7,950 tonneus, wheat-land 570 tonneus, wood 200 tonneus. Stock: Horses 400, milk-cows 1,270, fat cattle 370, swine 420, sheep 1,100, goats 83. Land under wheat 720 tonneus, rye 5,120 tonneus, barley 2,870 tonneus, oats 10,880 tonneus, peas 550 tonneus, buckwheat 1,700 tonneus, and clover 16 tonneus. Each cow produces 80lbs. butter yearly. Population 3,224; about 1,000 engaged in agriculture.

(10.) NEUMUNSTER.—Ackerland 19,730 tonneus, wheat-land 5,970 tonneus, woodland 1,650 tonneus. Stock: Horses 1,335, milk-cows 2,992, fat cattle 1,560, swine 1,286, sheep 4,650, goats 91. Land under crops: Wheat 175 tonneus, rye 12,995 tonneus, barley 460 tonneus, oats 11,145 tonneus, peas 1,135 tonneus, buckwheat 4,985 tonneus. A cow gives yearly 75lbs. of butter. Population 8,426; engaged in agriculture 2,000.

(11.) SOUTH DITHMARSCHEN.—Land: Ackerland 52,080 tonneus, wheat-land and grass-land 18,000 tonneus, wood 2,820 tonneus. Stock: Horses 6,210, milch cows 9,090, fat cattle 13,150, swine 4,170, sheep 4,580, goats 170. Land under wheat 28,750 tonneus, rapeseed 19,300 tonneus, rye 31,200 tonneus, barley 16,750 tonneus, oats 90,000 tonneus, beans 15,000 tonneus, buckwheat 13,100 tonneus, clover 30 tonneus. Produce of cow yearly 95lbs. butter. Population 33,412; 12,000 engaged in agriculture.

(12.) NORTH DITHMARSCHEN.—Land: Ackerland 45,040 tonneus, wheat-land 13,620 tonneus, wood and pasture-land 2,150 tonneus. Stock: Horses 6,180, milk-cows 8,782, fat cattle 14,480, swine 4,570, sheep 4,721, goats 35. Land under wheat 33,060 tonneus, rapeseed 23,550 tonneus, rye 22,010 tonneus, barley 18,010 tonneus, oats 79,000 tonneus, peas 1,700 tonneus, beans 14,320 tonneus, buckwheat 10,000 tonneus, clover 25 tonneus. A cow produces 95lbs. of butter and 110lbs. of cheese; if stall-fed, 150lbs. of butter. Population 30,139; 8,556 engaged in agriculture.

PETROLEUM FOR HORSES' SHOULDERS.—Joseph Harris, in the *American Agriculturist*, says that the best thing that he has tried for sore shoulder in horses is crude petroleum. He discovered its healing properties while applying it as paint for tools, by means of a rag held in the hand, which was accidentally sore. He now uses it for sores on all kinds of animals, and for some distance around the sore. Those who complain of the high price of drugs and medicines may be satisfied as far as the healing properties of this remedy goes, for it may be bought for twenty or thirty cents per gallon, by the barrel, and whatever there may be left after its medicinal application will be excellent for putting on all wood articles to prevent them from decaying—such as ploughs, harrows, wheelbarrows, carts, waggons, hoes, cultivators, spades, drill machines, mowers and reapers, horse rakes, rollers, &c. Use what is termed the light oil, which will penetrate the pores more perfectly, and exclude water and air. It is excellent for roofs, sides of barns, and out-houses generally, and may be applied with a small, new whitewash brush.

AGRICULTURAL WEIGHTS AND MEASURES.

On Wednesday, Nov. 13, a meeting of the Shropshire Chamber of Agriculture was held at Oswestry, for the purpose of discussing the question of the uniformity of weights and measures, when the following resolution was submitted: "That in the opinion of this meeting all agricultural produce should be sold throughout England by one uniform weight, and not by measure." An amendment was moved, proposing the adoption of a scale of uniform measure—the imperial; but on being put to the meeting it was lost, and the original motion was carried. The following motion was then put and carried with only one dissentient: "That as the ton is the recognized and universal weight for all descriptions of produce and merchandise, this meeting considers that a tenth part thereof will be the best weight to adopt for the sale of grain." Some difference of opinion was elicited during the discussion as to the most desirable basis of uniformity in weights and measures, but a strong and unanimous feeling was expressed that the existing state of things called for alteration. At the meeting of the Herefordshire Chamber, on Wednesday, the following resolutions were passed: 1. "That in the opinion of this Chamber all kinds of corn, fruits, and roots should be sold by weight, and all kinds of liquid by measure." 2. "That this Chamber considers that a uniform standard of weight should be enforced by the Legislature, and that, in order to facilitate calculations, the cental that has been adopted in Liverpool will best answer the purpose." 3. "That the standard at which the tithes of the kingdom were commuted have so closely assimilated to the average price of corn during the past 29 years, that the same should be adopted for all tithe payments for the future, and that the taking of the averages for that purpose be discontinued." The resolution referring to the tithes was put as an amendment to another motion, and carried by a majority of 7 to 5.

On the last occasion of this subject being discussed by The Farmers' Club, where it has continually come under attention, Mr. Owen Wallis, who read the opening paper, also prepared an admirable table epitomising the opinions of the country on the question, from which we take the subjoined results:

	Results of Returns of the Unions.	Dicto of Local Farmers' Clubs.	Dicto of Central Farmers' Club.	Total Results.
For perfect uniformity .....	64	20	4	88
To be made compulsory.....	47	18	4	69
Will co-operate with Central Farmers' Club .....	33	15	1	49
For Imperial measure only ...	12	3	4	19
For weight only, for all corn...	36	12	3	51
For measure, with natural weight stated .....	10	4	1	15
AVERAGE WEIGHT PER BUSH.	lbs. oz.	lbs. oz.		lbs. oz.
Wheat.....	61 4	61 5	—	61 4½
Barley.....	52 15½	52 11½	—	52 12½
Oats.....	41 1	40 3½	—	40 10¼
Rye.....	59 0	61 0	—	60 0
Beans.....	64 12	65 6	—	65 1
Peas.....	63 6	63 8	—	63 7
Tares.....	63 4	62 0	—	62 10

The discussion concluded in this way:

Mr. WALLIS, in replying, said: Notwithstanding all that he had heard to the contrary, he was still of opinion that weight was far preferable to measure as a uniform system; and if there were to be any change at all, it was of course desirable that it should be a change to the best system that could be adopted. The majority of persons interested in the matter were manifestly in favour of weight, which was in very many places entirely superseding measure. What Mr. Skelton advocated was, in fact, selling by weight.

Mr. SKELTON observed that it was a uniform weight that he objected to.

Mr. WALLIS continued: The bushel varied with almost every sample, and to call it a standard, therefore, was altogether a mistake. It was quite certain that the country could not now go back from weight to measure; and, therefore, if there were to be a uniform system, it must be based on weight.

Considerable discussion ensued as to the form in which the question at issue should be submitted to the meeting. Ultimately,

Mr. WALLIS proposed, and Mr. B. WEBSTER seconded, the following resolution: "That it is the opinion of this meeting that a standard of weight is preferable to a standard of measure."

Mr. SKELTON moved, and Mr. LITTLE seconded, the following amendment: "That all sellers and buyers of corn in this kingdom should come to the conclusion to petition Parliament to enforce a uniformity of measure of 8 imperial bushels."

The amendment, after having been seconded, was put from the chair, when the numbers were declared to be equal. Mr. T. Owen, the chairman, then gave his casting vote in favour of the amendment, and the effect of this was of course to carry it.

Mr. WALLIS expressed his regret that the decision of the Club on the subject which he had brought forward was not in accordance with the opinions of the majority of farmers and corn merchants, adding that he was not without hope that the time was not far distant when a very different view would be taken of the matter.

COOKING FOOD FOR STOCK.

At the Buffalo State fair, the American farmers present had a discussion on this subject.

Mr. E. W. STEWART, of North Evans, Erie Co., who opened the discussion, said the importance of the subject was shown by the fact that more food is required for the domestic animals of the country, than for the whole population. He furnished the reasons, derived from long and extended experiment, to show the advantages of cutting fodder. If an animal has to masticate 30 lbs. of hay per day, it is attended with much labour, and if we can assist this labour by machinery, an important point is gained. He had fed from ten to fifty cattle, and found the food was more completely eaten without any waste when cut. Cooking rendered food soft, and in a condition to be eaten, even in a more perfect manner than by cutting. He cited the analogous fact that woody fibre in straw and wood was softened to a perfect pulp, by steam under a high pressure, in the manufacture of fine paper. He had found by experiment that two bushels of steamed hay, with nothing added but water, was equal to three bushels of unsteamed; and after repeated trials with different animals, the fact was proved that the animals kept in better order and were better satisfied on the two steamed, than on the three unsteamed. Many experiments had shown that for feeding swine the value of corn was about doubled, and in no case had the reported gain been less than one-half more. If it is profitable to feed a few animals on cooked food, it is more profitable to feed a larger number. To apply steam to *dry* hay, only dried or burnt it, and made it worse—it should be first wet—and this is the reason that some have failed in steaming. There should be two gallons of water to every five bushels. Another advantage in steaming was, in mixing hay and straw together, which should be done before the operation; and he had found this mixture thus treated to be fully equal to unsteamed clear hay. Bean straw, and pea straw, if cut soon enough, is still better, and may be thus mixed, and will prove extremely valuable. The manure from animals fed on bean and pea straw had proved rich, and better than straw manure. He had found by a long series of experiments, that two quarts of "middlings" was equal to one quart of Indian meal, and that wheat bran (which contains much gluten) was one of the most valuable kinds of food if properly prepared. Steamed fodder was similar in its character to fresh pasture; and horses that had been diseased by coughs had been cured by such food. As regards the *expense* of cooking food, he had found that one man could cook enough for fifty cattle, and he could take care of them with a little additional assistance. Water is sprinkled on



the dry fodder with a watering pot : on a larger scale it might be showered from a reservoir. The bran or meal, if added, is then well mixed with it, and the whole subjected to steaming. Roots when fed in winter should be steamed, and are as much improved in this way as fodder. An apparatus for steaming for a moderate number of animals might be made for fifty dollars. If not to be subjected to pressure, a long pan might be set on an arch, and the steam-box added. But the best way is to have a boiler with a steam-pipe connected with the steam-box, so that the pressure could be given, which softens the food more perfectly. He thought an apparatus for a hundred head of cattle might be made for two hundred and fifty dollars. Another great advantage of steaming is the superior character of the manure, which is finer and softer than common coarse lumpy manure : and such manure can be applied at once to the land, as well as fine and fermented manure, and can be distributed evenly.

H. T. BROOKS, of Wyoming Co., inquired if sheep were as much benefited by cooking food as cattle.

Mr. STEWART replied that he had purchased 25 sheep for the purpose of testing this experiment. They refused it entirely the first day, ate it better the second, and the third and afterwards consumed it greedily. They improved in condition and increased in weight while fed upon it.

L. F. ALLEN, of Black Rock, inquired why, if stomachs were alike in their action on food, all animals should not be alike benefited by cooking? He described the wasteful mode at the West, where corn is drawn out and fed, stalks and all, to cattle—much of the corn passes through whole, which is saved by turning in swine to pick out the unbroken grains of corn. He had inquired of Western men how much corn was required to fatten cattle—some answered fifty bushels, others seventy-five, and others again a hundred bushels. Some farmers thought an acre of corn would do. Probably this difference was owing to a difference in weather and other circumstances ; but good shelter and good preparation of food would doubtless far lessen the amount. He thought the same pains and use of machinery to prepare food for animals should be employed as in manufactories.

G. GEDDES, of Syracuse, said there was no branch of farming that was less understood and promised more advantages than the preparation of food. He had thoroughly proved years ago that cooking, independently of grinding, at least doubled the value of food. He had published this to the world, and yet what notice had the world taken of it? A. B. Dickinson had said that a man who knew how to winter a herd of animals properly was so rare a person that he was fit for President of the United States. He thought that some men got to be President who knew little about feeding animals.

GEORGE MOORE, of Erie Co., said he had fed 200 sheep on cooked food, and he had fully satisfied himself that the value of food was tripled by cooking. He steamed over night, and found the food warm next morning. He then steamed for dinner, and after dinner steamed for supper.

G. GEDDES had fed cooked food to hogs, as hot as it could be, and they soon found out how to manage it, although a little burned at the first trial.

Mr. STEWART found that his animals preferred warm food to cold, and ate it better ; if the box was kept covered it would keep warm two days in mass.

Prof. HORSFALL, of England, said that after long experience, he could not keep cows profitably without steaming. The failures had come from attempting to cook it dry.—*Country Gentleman.*

## MEN VERSUS SHEEP, IN AUSTRALIA.

TO THE EDITOR OF THE SPECTATOR.

SIR,—Your pleasant correspondent, "Wild Ass," makes some statements in his letter of last Saturday which may, I think, mislead public opinion as to the true nature of the Australian land-laws. Allow me to say something on the other side.

First, how much land is really wanted for agriculture? "Wild Ass" says, "Two or three hundred thousand acres . . . will grow more than enough wheat to feed the whole population in Victoria." The average of wheat grown to the acre being un-

der 12 bushels in Victoria, a population of 640,000 would only get 5½ bushels a-head from 300,000 acres. But a country cannot subsist entirely on wheat, and the system of farming without rotation of crops is commonly thought to have something to do with low returns in Australia. In South Australia, with one-fourth the population of Victoria, 555,000 acres were under cultivation in 1862. In other words, from 2,000,000 to 3,000,000 acres are really required to make Victoria self-supporting. Has "Wild Ass" forgotten that the late agitation for land was very much promoted by the large sums which the colony had to pay for imported corn in 1864? As to the Australian land-sale systems, it is true the squatters think them unjust everywhere. Like the fish in the fable, the sheep-farmers have been offered their choice to be eaten raw, to be eaten cooked, or to be eaten with vinegar, and they would rather not be eaten at all. But they have never pointed out a system that would suit themselves and give the people cheap land. They object, with great justice, to the New South Wales system of free selection, by which any vagabond may pick out a section of forty acres, containing the best water-holes in a run, force the Government to survey it at great expense, and then compel the squatter to ransom himself at a fancy price from an unwelcome neighbour. They object equally in South Australia to "the simple plan of putting up Crown land in small blocks to the highest bidder," because it tempts the squatter to buy the land at any price, with borrowed money, sooner than let his run be cut up ; causes a competition under which small capitalists cannot buy at all, or private agreements by which Government is defrauded ; and ultimately forces the Ministry to bring more land into the market than the population can take up with economy. It was to meet these difficulties that the Victorian system was devised. The idea was to put up the land for sale in such quantities that the squatters should not be able to find money for buying it ; to give every man the chance of purchasing on easy terms by the ballot ; and to protect the squatters against men of straw by binding purchasers to reside for three years, spending money on their land, and not selling it. The system was too complicated ; and I make no doubt the objections advanced by "Wild Ass" are more or less substantial. On the other hand, it has attracted settlers from the neighbouring colonies ; and Victoria last year produced corn in such quantities that instead of importing she is able to export. It may be true, as "Wild Ass" thinks, that "three out of four have small chance of succeeding honestly" in farming. But the same thing has been repeatedly said in other colonies ; and practical men, connected with squatting, have been ready to prove at any time during the last ten years that the farming interest in South Australia was bankrupt, although it has gradually risen to the very highest rank in the production of wealth. Perhaps the young gentlemen who are no longer able to find sheep-runs may do worse than take to agricultural farming.

I am, sir, &c.,

C. H. P.

P.S.—There is another slight difficulty, by-the-by, which I dare say "Wild Ass" will clear up in his next letter. The acreage of Victoria is nearly as large as that of Great Britain, and railroads are only in their infancy. How are Portland, Caslemaine, Melbourne, and The Owens to draw their supplies from a single agricultural district twenty miles square?

## HORSE SHOW IN NORMANDY.

A great horse show, at the instance of the Emperor of the French, took place last week at the Haras Du Pin, in Normandy, and in the very "Yorkshire of France." About three hundred and fifty half-bred stallions, almost all three-year-olds, and bred in the district, were inspected by General Flenry, the Master of the Horse to the Emperor, when, according to the only report published in England, that of *The Field*, "we were astonished to see so many good steppers, some being very stylish goers, but we soon found out that Normandy is quite a trotting country, and when they speak of racing they allude to the trotter ; and though it seems almost incredible, we were assured it is nevertheless the fact, that the three hundred and fifty three-year-old stallions had all been raced, and the

some had done their distances in a very short time. They were all in remarkably good trim, and very muscular, and their make-up is a great improvement on that of the nags of some of our own dealers and farmers, who think a horse fit to show when they have heaped as much flesh on him as he can carry. Most of the animals exhibited were roadsters and carriage horses, that looked like bowling along with a carriage or light cart; a few were really nice light-trotting cart-horses, and some rather good-looking big cobs; with many fashionable horses, that, with one cross more of blood, would be worth as much money as geldings in this country. Many of them were remarkable for deep tops, short backs, good loins, big quarters, thighs, hocks, and legs, with more bulk than quality; while their very common defects were a light jowl and narrow channel head fear, fully stuck on to the thickest of necks, with faulty shoulders either short, upright, or loaded, and calf-kneed forelegs. The General and his colleagues picked out a hundred at an average of £200 each, some to be castrated forthwith, for the Emperor's stud, while many went to private individuals, who are allowed something like £30 a-year, by way of encouragement, from the Administration, more or less according to the description of horse." Nevertheless, the old error has clearly been committed; for, as the report proceeds, "the French Government spends a good round sum in encouraging the breed of horses. Still we scarcely think they are on the right track without they return to the thoroughbred

in most instances; and we feel satisfied that if the dams of many of the best colts exhibited had been put to well-chosen blood horses, they would have produced a much more fashionable and valuable sort, with more power and endurance in a smaller compass. As it is never too late to mend, the experiment may be tried with a few at least of the fillies now rising four, when Normandy, with such produce, may become a mart in horseflesh even for England; but not in the way of stallions, as in this country few believe in the crosses and re-crosses of the half-breds; and it is the same with our cattle, all going for something pure; and so even down to the dogs, the cad with his pocket pet turning up his nose with contempt at the mongrel or cur. Among the three-year-olds there were, perhaps, three or four colts direct from the thoroughbred stallion that one could pick out in an instant, the difference being as great as that of a town-made bridle or saddle and a country one."

This gathering has now for some seasons been an annual one; but, despite the facilities of transit, as well as the show being very widely announced, it is noticeable that only two Englishmen were present—Mr. Corbet, the animal painter, who was professionally engaged; and Mr. Briggs, who has training stables at Caen. General Fleury, however, brought a large party from Paris, and some German gentlemen were also in attendance; whilst the farmers, breeders, and dealers of the country came in crowds, the proceedings occupying the best part of a week.

### CHEDDAR LOAF CHEESE.

Mr. Harding, Marksburgh, has addressed the following letter to our Ayrshire contemporary:—I have been desired by one of our county gentlemen to offer some practical remarks on cheese-making in small farms, with a view to equalize, as far as may be, the advantages of the larger dairy farmer with those of the smaller. It is clear that a thick cheese, such as can be made from a dairy of 25 or 30 cows, will command a higher price than a thin cheese of equal quality. It is also clear that a given quantity of curd made up in one thick cheese will, when ripe, weigh more than if made into two or three, in consequence of there being a larger portion of surface in the latter than in the former. A thick cheese will also retain its quality, and continue to improve for a longer time than a thin one, and will command a superior class of purchasers. It is only in exceptional cases that thin cheese made from whole milk will be as remunerative as when a portion or all the cream is removed. I state this on my own experience, having proved it to my satisfaction. The particulars of those experiments I would give here, were it not that it would occupy too large a portion of your columns. Whole-milk cheese should be made in a form best suited to the public taste. In Somersetshire, within a few miles of the famous village of Cheddar, thousands of small cheeses are made, measuring about 6 inches in diameter, and 8 or 9 inches in depth, weighing from 7 to 9 lbs. each. They are called "truckles," and sometimes "loaf cheese." They are made by persons who milk from ten to twenty cows, and occasionally by larger farmers. These persons being prejudiced to the method of their farmers, believe that no other cheese can be made successfully on their land. I have seen several hundreds of these cheeses, neatly arranged on the floor of a large room, and of uniform size, painted red, through which, during the process of ripening, a blue tint has penetrated, imparting to them a rather rich appearance. Many tons of them are annually exported to Australia and other parts, the prices fluctuating according to foreign demand. Some of the same description are also made in North Wilts, but without the exterior colouring. In both cases the cheese is of an inferior character, and is not desirable for the small cheese-makers of Scotland to imitate. They are generally a soft, porous kind of cheese, rarely reaching the price of our improved Cheddars by 10s. or 15s., and sometimes even 20s. The size and shape only are worth our notice. Another example of size and shape is presented to us in the Stilton. Its quality and flavour are good; but the excess of cream required to make them, and the risk of not making good cheese, are objections. The general

class of small dairy-farmers would scarcely be justified in imitating (as in the former examples) anything beyond its form. The cheeses weigh about 12 or 13 lbs. each, and are 10 inches deep and 7 inches wide. As to the kind of cheese, there is nothing more suitable than the Cheddar. The method of making is simple. There is an additional amount of labour and some waste consequent upon making these small cheeses; but if made good it will realize 5s. per ewt. beyond even that which is made in larger dairies, as small families will readily pay for the convenient size. As the Cheddar method of cheese-making has been so frequently detailed in your journal, and is so successfully practised, I need not give it again. It is in every particular suitable for the making of "loaf" cheese. The vats or cheesets may be made of tin, strongly hooped, and without bottom, or of staves, hooped similar to the vats; but I much prefer the expansion vat, a specimen of which I sent to the Ayrshire Agricultural Association three years since, and many of them I have since sent to parties in Wigtonshire. The cost of them is about 10s. each. With these the cheese is more easily liberated from the vat, and less liable to get broken in turning. All the vats should be of equal size, and furnished with inside followers (Scottie's lids), made to fit nicely. They may be pressed in tiers of three or four, as required. If the cheese is turned twice a day, two days' pressing will be sufficient. The edges should be well bandaged whilst in the press, to secure them against damage. There may not be sufficient curd to fill each vat every day, but if salted and pressed by the hand into a vessel, and covered, it will keep till the morrow, when the cheese may be made up with new curd. There should be no annatto used, or the colour of the curd of two days may not correspond. It frequently happens that these small cheeses will not be quite so solid as those of a larger size. Cavities will occasionally appear, unlike a naturally heaving cheese, but as though a portion of air had been suddenly arrested and confined. This I believe, arises from too sudden pressure upon so small a surface. This should be remedied by a gradual addition of power to the press. With ordinary treatment in the cheese-room, these small cheeses will be equal in quality, flavour, and appearance to Cheddar cheese of any size. The small Cheddar cheeses hitherto have been without a definite name. A year or two since, a cheese-factor in Bristol, wishing to give them a name, induced his best cheese-maker occasionally to make a few, bearing the impress of the words "Stilton Cheddar," which he had carved on the follower; but it is fair to state, that only in form does it resemble the Stilton cheese. The

name I have given at the head of this paper is much more appropriate, as being more expressive of the character of the cheese I should like to see made by the small cheese-maker of Scotland, and which, for its general usefulness, will be best suited to the public taste. The successful effort of the Agricultural Association in the improvement of cheese-making is

apparent to all; and the small dairy-farmer, having an equal proportional claim with the larger, I would respectfully suggest to the council of that body the propriety of withholding any prize at their Kilmarnock Exhibition for imitation "North Wiltshire loaf cheeses," and offering adequate prizes for "Cheddar loaf cheese," made from dairies of less than 20 cows.

## LEGAL QUESTIONS.

### IMPORTANT CATTLE-PLAGUE CASE.

WESTLAND v. GORDON.

This was an action at the instance of William Westland-crofter, Tullos, Nigg, against Thomas Gordon, cattle-dealer, Holburn-street, Aberdeen. The summons concluded for payment of £35 sterling, being damage "sustained by the pursuer, who, on or about 10th December, 1866, purchased from the defender a black-and-white cow, with short horns, in consequence of said cow having been, at the time she was sold by the defender to the pursuer, afflicted with pleuro-pneumonia, or other cattle disease, as was well known to the defender, who, however, fraudulently concealed that fact from the pursuer, and in consequence of two other cows, the property of the pursuer, having, when the said black-and-white cow was, by the pursuer, who relied on that cow being then in good health, in doing so, placed in the same byre in his premises at Tullos aforesaid with them, caught from the said black-and-white cow the said disease of pleuro-pneumonia, or other cattle disease, and died thereof."

The defender, in addition to a preliminary defence, which was repelled, denied the statements in the summons, and pleaded that the pursuer gave up and annulled the contract of sale between him and the defender, and returned the cow sold to him by the defender, and that, having done so, it was competent for him to sue for damages following on that contract.

Parties were sent to proof upon their averments, and evidence was led at some length, sixteen witnesses having been examined for the pursuer, and five for the defender.

Sheriff Thomson has now, after hearing parties, pronounced the following judgment:—

Aberdeen, 8th November, 1867.—Having resumed consideration of this cause, finds, in point of fact, that the defender, on or about the 6th November, 1866, in the byres of John Angus, Hazelhead, saw a red-and-white cow, which he stated to be, in his opinion, labouring under lung-disease, or pleuro-pneumonia: That, on the 5th December following, he was informed by the said John Angus that a calf belonging to him was ill, and that he wished to sell off his whole stock, as being infected with disease: That, on the evening of the same day, the defender went to Angus's byre, and examined his remaining stock, which consisted of the said calf and three cows: That he knew that the cow he had previously seen ill had been destroyed: That he also knew that Angus desired to sell his stock on account of disease being in the byre: That the defender offered to buy them at a price which he named, on this ground, that they must be at once killed, and that he did so on account of his said knowledge of their being in all likelihood diseased: That one of the cows so bought by him from Angus was a black-and-white one, with short horns, and on the eve of calving: That, the following night, the last-mentioned cow and another, had sold them to him for immediate slaughter, and because of his belief that they were diseased, and that the disease would very soon develop itself: That, on 10th December, the defender sold the said black-and-white cow to the pursuer: That at the time he sold it he had every reason to know that it was affected with pleuro-pneumonia, or other infectious disease, except that the disease was not developed in the animal at the time: That the defender concealed his suspicions from the pursuer: That the pursuer was entitled to rely on the said cow being in good health: That when the cow was subsequently removed from the pursuer's by the defender, she appeared to be suffering from pleuro-pneumonia: That two of the pursuer's other cows were infected by the said black-and-white cow, and subsequently died of the said disease: And, in point of law, that the defender is responsible for the loss occasioned to the pursuer by the death of his said

two cows: That the said loss is fairly estimated at thirty-five pounds sterling: Therefore, repels the defences, decrees against the defender for the said sum of thirty-five pounds sterling, in terms of the conclusions of the summons: Finds the pursuer entitled to the expenses.

(Signed), JOHN COMBIE THOMSON.

*Note.*—It seems to be now settled that such damage as is here sued for is sufficiently direct to infer liability on the part of the defender, if only the pursuer shall make out that the defender knew that the animal in question was suffering from an infectious disease when he delivered her to the pursuer. See the case of Robertson Conaly, 25th Feb., 1851, 13 V., 779.

As is the case in all such actions, the *onus* thrown on the pursuer of proving "knowledge" on the part of the defender is heavy; and it is, necessarily, difficult to discharge. In coming to a decision in the present case, the Sheriff-Substitute had the advantage of a very elaborate and able argument from both sides of the bar. The first observation which occurs on a perusal of the evidence is that, if the defender was innocent in this transaction, his own deposition, unfortunately, tends to produce a different impression. He is contradicted in almost every particular.

Further, his story is that the cow he sold to the pursuer was not one of the cows he had bought from Angus. But he can't tell from whom he bought her. He says that she recovered after he took her back from the pursuers, and that he sold her again. But he can't tell to whom he sold her, nor can his brother or any of his servants. Ignorance or forgetfulness of the latter fact is very serious for the defendant's case; for he knew well, by that time, how important it was for him to demonstrate that the animal had not been suffering from an infectious disease, and that the illness of the pursuer's other cows might be attributed to some other cause. That he was aware of that is plain from the fact that he took the pursuer's brother into his byre, and showed him a cow which was said by him to be the animal which he had taken back from the pursuer, but which the witness, Robert Westland, depones was another cow altogether. On the other hand, the evidence has left no doubt on the mind of the Sheriff-Substitute that the cow sold to the pursuer was one of the cows the defender had bought from Angus. There was ample opportunity for him to have availed himself of Angus's offer to "prove the cow," when the report first reached the defender's ears.

The question remains, Did the defender know at the time he sold the cow to the pursuer that it was "afflicted with pleuro-pneumonia or other cattle disease?" The defender maintained that the proof did not establish that the animal did actually suffer from that disease at all. But the byre from which it came had just before contained a cow and a calf which were so affected, and two of the cows in the byre to which it was taken became affected with pleura, while there were no other cases of that plague in the district at the time.

Further, it is sworn to that when the cow was taken back from the pursuer's to the defender's it exhibited all the symptoms of pleura which are usually discovered during life. It was with much force argued for the defender that had he thought it diseased he would not have put it among his own stock. But (1) he got it from Angus on the 6th (Thursday); on Friday he told the pursuer he had some very nice cows, and asked him to come next day to see them, and on the Monday he sold her to the pursuer. The defender lost no time in being quit of her. And (2) the cow sold to the pursuer was in a byre with one other cow and a *stot* which was itself unwell.

It is probably true that the defender thought it *just possible* that the cow might not be infected, but his knowledge of its

previous history—his having bought it for killing from a man who wished to clear out his stock on account of it being infected with pleuro-pneumonia, and his whole conduct in the matter having satisfied the Sheriff-Substitute that he sold it at *periculo suo*, and that he is responsible for the consequential damage which ensued to the pursuer.

The evidence led by the defender is, it is thought, of a quite unreliable sort. The servants of the defender who were examined are self-contradictory, and they are all unable, apparently, to give him a notion of the person from whom or to whom the cow which is supposed to be the *origo mali* was sold.

(Initialed) J. C. T.

**THE FARMERS AND THE SEEDSMEN.**—A case of some importance to the seed trade and to farmers is reported, in which £117 damages against the seedsman were awarded to the plaintiff by the Sheriff's Court of Cupar, on account of seed purchased as that of Aberdeenshire Yellow Turnip turning out to be a softer and less hardy kind, so that the crop perished under the frost of January last, whereby loss to that amount resulted to the farmer.

**IMPORTANT TO WOOLSTAPLERS AND AGRICULTURISTS.**—It may be useful to many woolstaplers and agriculturists to read a case of interest heard at the Tiverton County Court, the other day—*Lock v. Churchward*. Plaintiff is a farmer at Dulverton, defendant a woolstapler at Buckfastleigh. Mr. Potbury, of Tiverton, is his agent in that district, and saw plaintiff at Tiverton Michaelmas fair, in 1866, when plaintiff said he had some wool to sell, and asked twentyence per pound for it. Mr. Potbury said his price was nineteenence. Plaintiff afterwards offered him the wool at a halfpenny per pound above that price, and Mr. Potbury wrote to his principal for instructions,

who told him not to buy at more than the nineteenence. On the 12th October, Mr. Potbury went to the plaintiff's house, and finding that he resided in Somerset, and that there were restrictions on the removal of wool, he told him that he could not pack it, but at plaintiff's desire Mr. Potbury looked over wool, and pronounced it to be in good condition. The parties appear, from the evidence of Mr. Potbury, to have had some conversation about it, which was not binding on either side. Mr. Potbury objected to meddle with the wool, because of the county restrictions, and because likewise the market was dull, and he told the plaintiff that he could sell it to Mr. Fox or Mr. Elworthy, at Wellington, in the same county. Plaintiff said he was in no hurry to get it removed. Mr. Potbury said the market might improve, and wrote a note in his pocketbook: "Mr. Thomas Lock's wool to remain as at present." Thus far there was no deal; and Mr. Densham, for plaintiff, argued that the statute of frauds required a written contract, and that contract had actually been made in the letters which had passed between the parties. Mr. Fryer, for the defendant, on the other hand, contended there was only a conditional agreement in the correspondence on the part of defendant's agent: that he would give a certain sum for the wool, subject to his approval when he saw it. When the agent went to the plaintiff's house and found that it was in another county, he declined to treat any further for the wool. If the market had gone up plaintiff would have been at liberty to sell the wool elsewhere; as it was, the market went down: he sold the wool at sixteenence instead of nineteenence, and now sued for the difference, £43 odd. Judge Petersdorff, in giving judgment, said that in all cases where the amount exceeded £10 there should either be a written and binding contract, or a part delivery or payment. He considered that there was no binding contract in the correspondence, and therefore nonsuited the plaintiff.

## THE RIGHT TO KILL RABBITS.

The Sheriff-Substitute of Dumfriesshire has pronounced the following interlocutor in the Denbie Mains case of Irvings v. Carruthers:

"Having resumed consideration of the whole case finds, with reference to the defender's preliminary plea, that the pursuers' averments are sufficient to support the conclusions of the summons, and therefore repels said preliminary plea, and *quoad hoc* decerns; with reference to the merits of the case finds that the pursuers have failed to prove that the defender has encouraged and systematically promoted the breeding of rabbits on his lands and plantations, either by importing foreign rabbits on to his said lands and plantations and there turning them loose, or otherwise; finds that the defender has endeavoured by all proper and practicable means to diminish and keep down the stock of rabbits upon the pursuers' farm, and on his own adjoining lands; finds that the pursuers have, admittedly, made no endeavour to kill rabbits or otherwise to protect their own crops; finds that the defender gave them full permission to do so by trapping, netting, ferreting, or other lawful means, but refused them access to his plantations for that purpose; finds in law that the pursuers, as agricultural tenants are entitled, even without the consent of their landlord, to destroy by proper means the rabbits on their farm; finds that the pursuers, having failed to take any steps to protect their crops from injury by rabbits, are not entitled to claim damages from defender for any injury so sustained by them; finds that the defender is not bound to give the pursuers access to his plantations, even for the purpose of killing rabbits, said plantations being reserved to the landlord in the minute of the set of the farm No. 4-1 process; finds that the defender having made proper and reasonable exertions to destroy the rabbits on the pursuers' farm and adjoining lands is not, in any event, liable for damage which may have been caused to the crops by rabbits; with reference to the foregoing findings in fact and law finds it unnecessary to consider the question of damage; sustains the defences on the merits, and asswizes the defender from the conclusions of the libel; finds the defender entitled to expenses, appoints an account thereof to be

given in and remits the same, when lodged, to the auditor to tax and report, and decerns.

"(Signed "DAVID BOYLE HOPE.")

A lengthened note accompanies the decision. Mr. Boyle states in it that the case though one of importance to the agricultural community presents no feature of difficulty, the law regarding rabbits being well established by a train of decisions, and being to the effect that no claim for damages could be made, seeing a tenant was at liberty to keep the rabbits in check by his own hand. The pursuers asserted that the defender had imported rabbits and bred them for game. Had this been proved, the pursuers might have had a good case; although from the observations made by Chief Justice Erle in the case of *Nelson v. Green* (6th, 7th, and 8th March, reported in the *Times*) it would seem that in England it would be necessary to prove that the rabbits were actually turned on to the farm itself. On examining the evidence, it appeared that the allegation of the pursuers on this point was without sufficient foundation. "The minute details set forth," continues Mr. Boyle in his note, "are a gross exaggeration and perversion of a simple and innocent act of the defender. He received from the children of a friend, who was about to leave the neighbourhood, three tame rabbits, which were put along with a sick rabbit belonging to another person into an old dog kennel on the lawn, surrounded by a fence of wire-netting. The sick rabbit having been let out was killed by a fox, and the other three escaped from within the fence, and these circumstances are magnified into a case of importing, breeding, and setting loose of foreign rabbits for the purpose of gain! It is stated on record that foreign rabbits were seen in great numbers on the lands; but none of the pursuers' witnesses gave any distinct evidence on this point, and the fact is denied by those best qualified to know—namely, the men who trapped the rabbits. Besides, if the Russian rabbits escaped by accident, the defender cannot be held responsible for their increasing on the lands. But it is said that, whether or not the defender imported and bred rabbits, the defender is liable in damages to the pursuers because he did not take sufficient

steps to have the stock of rabbits kept down. On this plea it may be observed—firstly, that even if an obligation to exterminate the rabbits (which is what is wanted) rested in any event on the defender, its fulfilment could not be demanded by those who, having the right to protect themselves, have never made any attempt to do so; and, secondly, that the charge is disproved by the evidence. In regard to the first of these points, it must of course be kept in view that the pursuers plead, in excuse for their supineness in the matter, that all that they could have done would have been of little or no avail in reducing the stock of rabbits, because they were denied access to the plantations, where alone, they say, the rabbits could be trapped. If the pursuers had tried, and failed, they might have had some grounds for pleading on that fact; but not having made a single attempt, they cannot be listened to in so hypothetical an argument. Besides, there is sufficient evidence, apart from all the probability, which is very strong against their contention, to show that a great deal could have been done by the pursuers themselves. John Kirkpatrick (2), the man who trapped for the defender in 1863 and 1866, deposes that he trapped in the fields about one-third of all that he killed, and that there was nothing to prevent the pursuers from doing so also, or having it done. John McCloy and John Dalziel, two experienced gamekeepers in the neighbourhood, both say that the pursuers' crops could be easily protected without any necessity for entering the woods. If so, and if the rabbits have increased rapidly of late years, as is alleged, the pursuers are themselves to blame. Even John Kirkpatrick (1), the pursuer's own witness, who trapped for the defender in 1864, admits that he trapped some of the rabbits in the pursuers' fields. The remaining point for consideration is the conduct of the defender in reference to the keeping down of the rabbits. Did he refuse or neglect to do so? He came home from abroad in 1864, and in the same year, on the pursuers complaining of the rabbits, engaged a man to kill them down. This man, John Kirkpatrick (1), alleges that he was engaged for two months, and in that time he killed 700, when the defender dispensed with his services for no reason assigned, and before the rabbits were killed down. The de-

fender states that he engaged him for no fixed period, but to kill down the rabbits; that at the end of eight weeks he said they were nearly killed out, and that he was soon after discharged for absenting himself from his work. The evidence of this man must be held of little worth, in so far as it is against the master who discharged him, and seeing that it is untrue in regard to that fact. In the two succeeding seasons the defender employed a competent trapper, with instructions to kill the rabbits down, and this man, John Kirkpatrick (2), states that in each year he killed till he could get no more to kill. Against this positive evidence of the exertions made by the defender, there has been led a mass of evidence as to there being on the lands enormous quantities of rabbits, notwithstanding the trapping which continued to devastate the pursuer's crops. Unfortunately for the pursuers, their witnesses try to prove too much. William Irying, jun., one of the pursuers, estimates the number of rabbits he has seen at one time at 1,500, David Haterson at 2,000, James Hutchison at 1,500 or 2,000, James Brown at from 1,000 to 2,000, and one witness, of still more lively imagination (Thomas Tweedie), says—“They were so thick that a stone thrown amongst them could hardly have missed killing some of them.” Evidence like this is utterly worthless. The Sheriff-Substitute makes bold to say that nowhere in Scotland, not even in a preserved warren, could such a sight be seen, and this is the opinion of several competent witnesses for the defence. On reviewing the whole evidence, it appears to the Sheriff-Substitute that the pursuers have completely failed to make out their case. In regard to the alleged damage, the evidence is very conflicting; but, according to the view of the case which has been taken, it is unnecessary to enter into that question. The Sheriff-Substitute will only observe that it seems doubtful whether the failure of the crops was not owing partly, if not chiefly, to other causes than the ravages of rabbits. In one of the fields the crop had failed in the middle more than at the sides next the plantation, which is not the usual result of the inroads of rabbits. Even if damage were proved it would be impossible to tell how much of it was caused by the rabbits which the pursuers might have killed themselves, but did not.

## THE REPEAL OF THE MALT-TAX.

Mr. J. A. Williams, of Baydon, read another paper on this subject at Hungerford on Wednesday, Nov. 13.

Mr. WILLIAMS opened with an apology for having already “exhausted the argument;” but, amongst other things, he said: Both parties have been alternately in office, but as a Government question neither have taken it honestly in hand. On one occasion the House of Commons was taken by surprise. The repeal of the malt duty was proposed and carried, the injustice was recognised and compensation about to be made, but it only lasted for 24 hours. The House became alarmed at the fear of losing £5,000,000 per annum, a whip was the consequence, the vote of the previous evening was reversed, and the farmer was again left to meditate on his position. Again, for the last three or four years, several of our county members, together with some of our borough representatives, who truly and honestly do their best to remove this obnoxious impost, have annually moved for the reduction, if not the abolition, of the duty. The Chancellor of the Exchequer for the time being has invariably met the House with the argument, “If you do away with this duty, you must give me an increased income-tax to the same amount.” This settles the question, and the farmer is again left to console himself with the reflection that, with self-interest in one scale and injustice in the other (the specific gravity of the former being so much greater than his own cause), there is but little chance of his ever obtaining a repeal of the duty, if by it the Government should lose the amount collected by the tax. Such is the legislative position of the farmer, and the effect of it tells against him in a number of ways, which those who are in power seem neither to care for nor regard. Suppose a duty was about to be put on cider, would the Government place it on the apples? Certainly not. If they did, the poor man could not make an apple-pudding but he must pay the duty on cider! Likewise, the public could congratulate each other,

that when eating apples as a dessert, or for any other purpose, they were adding to the revenue by paying the cider duty. What an absurdity this would seem to be if acted upon, and yet the malt-tax is precisely the same; the duty is on the raw material of beer, and Mr. Wentworth could not give his lambs a bushel of malt per day for a month, but he had to pay the duty on beer to the amount of between £4 and £5. Whatever might be said to the contrary of malt being useful for feeding purposes, it would be in general use if the duty were taken off. What, let me ask, is one of the principal ingredients given to the London dairy cows? but the brewers' grains, well known to increase the quantity and quality of the milk. We know, too, the value of malt screenings, and shall it be said that the offal is of such value, and malt itself of no use? I don't hesitate to assert that with a judicious feeding, with malt as a condiment, the public would be great gainers by having an increased supply of beef, mutton, pork, and bacon, and they would have a sweeter and more nutritious article. Then, again, with respect to the adulteration of the beer they purchase; the high duty on the raw material increases the price of malt to such an extent, that it induces the brewer to find a substitute, and a list of ingredients that are used may well frighten the public, if they know what they have to swallow. Among the ingredients used for adulteration, are tobacco, salt, ginger, treacle, quassa, linseed, gentian, sugar, coculus indiens, capsicum, wormwood, copperas, &c., and with respect to the amount of this adulteration, the careful enquiries of our Inland Revenue officers prove that twenty out of twenty-six samples as they reach the consumer are adulterated. Our forefathers for generations past have petitioned Parliament in vain for a reduction and the abolition of the malt-tax, and my belief is that if we continue to do the same till the youngest amongst us laid in the grave we shall be no further forward. Anti-malt-tax associations have existed, worked for a time, and died a natural

death. The one we last placed confidence in, and which was successful in getting up several important demonstrations in favour of a total abolition, may be said to have given up the ghost on Monday last. What are we to do then? Are we still to suffer the injustice we have done? Is the public weal to be set aside, because the Government will not give up the £6,000,000 per annum? I trust not. If we take a practical view of the subject we shall see the Government have not so easy a task to perform as we imagine. The malt-duty produces £6,000,000 per annum, but the spirit-duty produces £13,000,000 annually, and suppose the Chancellor of the Exchequer was inclined to do away altogether with the malt-tax, what would the distiller say, the beer being free of duty, whilst his commodity, coming in competition with an untaxed article, had to pay thirteen millions of money? It is a question to the Government of £19,000,000 instead of £6,000,000. As there is no hope, therefore, of obtaining a total abolition of the malt-tax (nothing less would be of service in freeing the article of barley from the fetters that exist on it), and, moreover, as the brewers have had it all their own way for nearly forty years, since the duty was so stupidly taken off the manufactured article, and retained on malt, the raw material; and again, since the Government has ignored this principle by the abolition of the hop-duty, by substituting a tax on brewers' licences; let us for the future, through the medium of the Chamber of Agriculture, ask the Government to grant that which they will have no difficulty in doing, viz., that barley and malt, like hops, should be wholly and entirely free from any tax, and whatever duty was required to aid the revenue should be imposed on the barrel of beer. There is no reason or obstacle in the way why this should not be done in the next session of Parliament, and in the name of common sense and justice, I would ask the Government to do away with such an anomaly, that requires at least three times the labour and supervision to assess the duty on the raw material that it would on the manufactured article; that restricts the farmer from using his produce to the best advantage; that creates a fictitious average price; that unjustly affects him who pays tythe and corn rents; that is a premium on the adulteration of beer; that has the effect of demoralizing the labouring classes; and, may I dare to say so, is disgrace to the kingdom at large. I am not going to turn Chancellor of the Exchequer, or suggest what amount of duty should be paid per barrel. I simply assert that it would be no more difficulty in granting licences to brew than there would in supplying licences to shoot, or keep dogs. The farmers, we all know, are large consumers of beer by their workmen, and as a matter of course, those who occupy the most land consume the most beer.

The other portions of the paper consisted of extracts from letters and speeches that have repeatedly appeared in our columns.

A brief discussion followed, in which nothing new was advanced; and the proceedings terminated by a recommendation that Mr. Williams should be called as a witness before the House of Commons Committee.

## THE REPEAL OF THE MALT-TAX.

At the annual meeting of the Wenlock Farmers' Club on Monday, Nov. 4, Mr. JASPER MORE, M.P., said, with respect to the committee on the malt-tax, his opinions on that subject were none the less strong because they were well known. He had certainly expected from the interest expressed in the question by his supporters that Mr. Disraeli might reasonably have been expected to do more than merely countenance the reference of the question to a select committee. When a deputation of farmers waited on him, he told them they had laid their views before him in quite an artistic manner. He thought it therefore rather a poor compliment to the farmers that all they should get from a Conservative Government was an assurance that a committee was wanted to express these views in a still more artistic manner. When the committee was proposed before the budget, he considered it his duty to propose an amendment, which had, at all events, the effect of ensuring an expression of opinion from Mr. Disraeli on the question. What he did they all knew. He applied his surplus to the relief of the commercial interests, and in all other respects merely carried out the views of Mr. Gladstone.

The committee had finished the first part of their inquiry, the needless evidence on the question as it affects the producer; the question of how it affects the consumer, and the only important part of the inquiry, the question of the policy of putting the tax on beer, would be resumed next Session.

Mr. GASKELL, M.P., said: Thirty-four years have elapsed since I voted in a majority with the late Sir William Ingilby for the repeal of the malt-tax, and during those thirty-four years no progress has been made towards the attainment of that object. Gentlemen, the truth is that neither of the two political parties has any great desire for its repeal (great cheering). My honourable friend near me, the member for South Shropshire (Mr. More), is unable to extract a single sentence of consolation from the present Chancellor of the Exchequer, just as Conservative country gentlemen found the late Chancellor of the Exchequer altogether impervious to their remonstrances and their complaints (cheers). If I might venture to give a word of advice, I should say, don't seek legislative redress in the doomed and expiring House of Commons; attach little value to the reports of committees and of commissions: they are too often devices on the part of Ministers (cheers)—I speak not of this or of that Government, but of the Government of the day—to postpone unpleasant decisions, and to relieve themselves from a disagreeable responsibility (cheers). Your wiser course will be to inform the public mind, to appeal to public opinion, and to address yourselves to the new constituencies, for it is to the new constituencies that you must look.

Mr. BENSON, the Chairman of the day, said he agreed with one of the members for the borough that they should have no confidence in committees of the House of Commons; they should rather depend upon their own efforts. He did not believe that their eloquent friend (Mr. More) expected, after all he had said, to see the malt-tax repealed. And at this there was laughter.

## CAUTION TO FARMERS AND OTHERS.

TO THE EDITOR OF THE KENTISH EXPRESS.

SIR,—Large quantities of greatly-adulterated stuff are now being sold at the different country markets as pigs' meat. As I have been victimised to some extent by the purchase of this spurious article, I wish on public grounds to state the result of feeding my pigs with it. I commenced with some twelve weeks' old pigs, and I found the food produced stoppage in them. I then mixed the food with barley meal, and gave the mixture to my fattening hogs. The result was the same as in the first instance. I found one hog of 10-score weight dead, and I was obliged to have another killed. I have also lost a large number of turkeys and fowls, which died with precisely the same symptoms as the hogs, which had eaten some of the food given to the hogs. Feeling sure that something was wrong with the so-called "pig-meat," I sent a portion of it to Professor Voelcker, of the Royal Veterinary College, for analysis, and I herewith publish the report of that gentleman.

H. ANDREWS.

Court Lodge Farm, Great Chart.

[COPY.]

11, Salisbury-square, Fleet-street, E.C.

London, September 6th, 1867.

Dear Sir,—I was from home when the sample of pig food arrived, and, wishing to give it my personal attention, some delay occurred in the examination. I have now the pleasure of handing you the results of my analysis, which shows that this stuff contains very little nutriment, and chiefly consists of indigestible woody matter and worthless mineral matter. In plain English, it consists mainly of the same materials of which sawdust and sand are composed. You will notice that it yields scarcely one-half per cent. of nitrogen, which is equal to 3 per cent. only of flesh-forming matters. Your pig food appears to be nothing more or less than the outer flinty husk of rice. It is very indigestible, and in my opinion quite unfit as pig food; for it is less digestible, as less nutritious, than good wheat or oat-straw chaff, which no farmer would think of giving to his pigs in any quantity. There is some rice-meal or rice-dust sold which may be given with advantage to pigs.



THE SALE OF THE MARQUIS OF HASTINGS' STUD.

This remarkable event took place at Stockbridge racecourse on Saturday, Nov. 16. The biddings altogether reached 37,675 guineas, and the following is the return:

YEARLINGS.	Gs.
Lady Di, by St. Albans, out of Lady Vernon	190
Leda, by Dundee, out of The Belle, by Birdcatcher	110
Enope, by Weatherbit, out of Triangle	105
The Conjuror, by Newminster, out of Madame Stodare	300
Jove, by Thunderbolt, out of Melody	430
Rowallan, by Dundee, out of Maggie Lauder	340
Bathsheba, by Trumpeter, out of Misserina	750
Arbaees, by Oxford, out of a Van Tromp mare (Isis' dam)	420
King of Clubs, by Ace of Clubs, out of Homily Mr H. Hill	220
Lopez, by Buccaneer, out of Creeping Rose	280
Iberia, by Weatherbit, out of Maid of Palmyra Mr H. Hill	370
Merrymaker, by Trumpeter, out of Maypole	300
Lord Bothwell, by Dundee, out of Little Woman	200
Kamschatka, by Trumpeter, out of Tzaritza	620
Lord Warwick, by Leamington, out of Lady Bertha	100
Colt by Kettle drum, out of Amethyst	200
Colt by Thormanby, out of Breeze	500
Filly by Orlando, out of Bonquet	510
Basilia, by Trumpeter, out of Energy	1000
Lady Cecilia, by Stockwell, out of Bay Celia Mr H. Hill	1650
Robespierre, by Stockwell, out of Marseillaise	800

HORSES IN TRAINING.

Redcap, 6 yrs, by Fandango, out of Peggy Whitethroat	200
John Davis, 6 yrs, by Voltigeur, out of Jamaica	1000
Lecturer, 4 yrs, by Colsterdale, out of Algebra Mr H. Hill	750
Black Prince, 4 yrs, by Voltigeur, out of Spots	220
Miss Havelock, 4 yrs (late Quick March), by Kataplau, out of Qui Vive	420
Lord of the Dales, 3 yrs, by Colsterdale, out of Colleen Bawn	500

Challenge, 3 yrs, by Trumpeter, out of Princess Alice	Gs. 2000
Count Carvalhero	160
King's Cross, 3 yrs, by St. Albans, out of Eleanor	200
Uncas, 3 yrs, by Stockwell, out of Prairie Bird	150
Red Ribaud, 3 yrs, by Van Galen, out of Ornament	500
Inez, 3 yrs, by Newminster, of Barcelona	

TWO-YEAR-OLDS.

Equerry, a brown colt, by Stockwell, out of Miss Teesdale	200
Purser, a brown colt, by Caterer, out of Sylphine	100
Little Prince, a bay colt, by Orlando, out of Volley	100
The Earl, a bay colt, by Young Melbourne, out of Bay Celia	6100
Sec-saw, a brown colt, by Buccaneer, out of Margery Daw	2300
Boreas, a chesnut colt, by Weatherbit, out of Butterfly	105
Mameluke, a bay colt, by Stockwell, out of Lelia	1050
Belfast, a chesnut colt, by Stockwell, out of Bessie Bell	700
Lady Barbara, a roan filly, by Lambton, out of First Fly	200
Traviata, a bay filly, by Stockwell, out of Strayaway	125
Grand Duchess, a chesnut filly, by Stockwell, out of Tobolski	510
Cuckoo, a brown filly, by Buccaneer, out of Peggy Whitethroat, not sold.	
Naiveté, a bay filly, by Stockwell, out of Artless	700
Housemaid, a bay filly, by Stockwell, out of Scrubbing Brush	150
Summer's Eve, a bay filly, by Stockwell, out of Summer-side	300
Jasmin, a chesnut filly, by St. Albans, out of Jemima	100
Macduff, a brown colt, by Glenmasson, dam by Malcolm, out of Fama	110
Minnie Warren, a bay filly, by North Lincoln, out of Catawba	410
Athena, a chesnut filly, by Stockwell, out of Heroie	2100
Lady Elizabeth, a bay filly, by Trumpeter, out of Miss Bowzer	6500

FOREIGN AGRICULTURAL GOSSIP.

The French colonial *Credit Foncier* has been somewhat adversely affected of late, in consequence of delays which have arisen in the payment of debts—delays occasioned by the disappointments experienced this year by sugar-producers in consequence of a disease which has appeared in the plantations. The last news received from Réunion indicates, however, a better state of affairs.—We have dealt a good deal of late with the agriculture of France and other European countries; perhaps it will be well to cross the Atlantic and glance at agricultural movements in the United States of America. It was only in 1847 that the Congress of the United States directly applied its attention to rural industry, and testified its goodwill to it by voting pecuniary subventions inscribed on the general budget. Until 1847, the activity of the citizens of the union had taken another direction, and the progress accomplished in the domain of agriculture was far from considerable. Thus there were scarcely any agricultural journals; the agricultural societies, which were far from numerous, had no rallying point; in a word, everything remained to be done when the Congress

applied itself to the work and gave the signal of a revival, which is reflected in the foundation of new societies, the institution of comparative experiments on manures, the culture of plants, the breeding of stock, &c., and, finally, by the creation of special publications, the number of which is now so considerable that there is no State which does not possess one or even several. In 1858, there was established at Washington an experimental garden for the acclimatization or multiplication of exotic vegetables. The first experiments were directed to seeds of tea which had been brought to the United States from China, and the experimental cultivation of which seemed to offer some interest. Such was the starting-point of an institution the bases of which are considerably enlarged, and over the destinies of which the agricultural section of the Patent-office presides. This section is composed of a superintendent, a president or director, four clerks, and, finally, a gardener and his assistants. In the years preceding the outbreak of the civil war, the annual budget of this department amounted to £10,600, including the



expense of distributing seed, &c. The donation is a small one, but the re-establishment of peace will doubtless enable the Government to place the establishment upon a level with the wants which it seems calculated to satisfy. Mr. Thomas G. Cleunson, Superintendent of Agricultural Affairs, defined as follows, in 1861, the limits within which the intervention of the State should be exercised as regards agricultural affairs: First, regular correspondence with the agricultural societies of the union and the learned societies of the civilized world; secondly, the publication of a report on the general state of agricultural industry; thirdly, the study of the indigenous plants which might be introduced into ordinary cultivation; fourthly, the study of the insects which commit their ravages in fields, gardens, and woods, and which of late years have inflicted on American agriculture such cruel disasters; fifthly, the examination of all questions interesting to agriculture, and the solution of which requires the intervention of chemistry, and necessitates inquiries in the laboratory and in fields; sixthly, the supplying watercourses with fish; and, seventhly, the establishment at certain points of models of irrigation or drainageworks. The number of agricultural associations is more considerable in the Northern States than in the Southern States; in 1858, there were 799 American societies of agriculture, 43 societies of horticulture, and 79 mixed societies which associated in their programme agriculture and horticulture. But all these societies do not proceed upon the same plan, although there is one in each State, with the exception of the South, which assumes a quasi-official character, since it receives from the Government an annual allocation to meet the expenses of an exhibition which takes place every year, as well as the outlay attending the publication of its works. Some of the principal American agricultural societies possess estates, on which are established model or experimental farms. Washington, in 1796, conceived the project of a great association, which, like the Royal Agricultural Society of England, or the Imperial and Central Agricultural Society of France, would have extended its action over the entire country. This idea, revived in 1841, led to the establishment of a Central Agricultural Society of the United States, the activity of which became apparent after 1852 by annual meetings devoted to the discussion of questions set down on the order of the day, as well as to lectures and reports on the most recent discoveries or facts worthy of being indicated to the attention of cultivators. Independently of these general meetings, which are held every year in a different locality, the society initiates occasionally special meetings like that of 1857, for the trial of mowing and reaping machines. The proceedings of the society form a collection which composes already a very respectable number of volumes, and which it is sufficient to examine in order to acquire proofs that this great association remains scrupulously faithful to its task of contributing to the improvement and progress of American Agriculture by the

promulgation of good methods of cultivation, the encouragement and concentration of all isolated efforts, and finally by the establishment of sustained relations with all the agricultural societies of the States and counties of the Union. In each county, associations of less importance, which appear to offer much analogy with the French agricultural committees, pursue an exclusively-practical object, and confine themselves to annual competitive exhibitions of animals, implements, and products. The civil war interrupted the movement, which was becoming more decided in favour of agricultural instruction. Notwithstanding this, the American Union has made some progress in this regard—progress which had been realized, in fact, before the outbreak of the war of 1861. Thus in 1855, Seneca county, in the State of New York, established an agricultural college on a farm of 680 acres; while in 1854, the legislature of the same State voted the creation, at Havana in the county of Schuyler, of a mixed agricultural and industrial school, to which is annexed a farm of 200 acres. In 1855, the State of Michigan devoted a sum of £10,000 to the foundation, on an estate of about 700 acres, of an academy or agricultural institute, which commenced its operations in 1857, and which received a fresh subvention of £8,000. The establishment of the superior farmers' school of Pennsylvania, in the county of the Centre, near Bellefonte, on an estate of 400 acres, of which 200 acres were given by General James Irving, of Bellefonte, also dates from 1855. The State Legislature contributed to this work of public utility by an allocation of £10,000, to which were soon added a legacy of £1,000 and other special donations, which, augmented with an allocation from the Agricultural Society of Pennsylvania, now constitute a capital of £20,000. In 1856 the Legislature of Maryland voted an annual subscription of £1,200 for expenses attending the maintenance of an agricultural academy on the express condition that private subscriptions should assist in the formation of a capital of £10,000. These different resources were utilized in the purchase of a farm of 428 acres in Prince George county. Finally, among the States which taxed themselves, in order to assist the development and progress of the national agriculture, we must still mention South Carolina, the Legislature of which in 1855 devoted an annual sum of £1,000 to "agricultural encouragements." An excellent arrangement has been adopted with regard to the utilization of the dormant land resources of the great American Republic to prevent land-jobbing. A law of May 20th, 1862, provided that every American or emigrant who should declare his intention to become a citizen of the United States might obtain a grant of the public lands, to the extent of 130 acres at one dollar per acre. The deeds relating to the property are, however, only delivered to the purchaser after a period of five years, and on condition of proving that he has rendered his land valuable and that he has become a citizen of the Union.

## CALENDAR OF AGRICULTURE.

Plough stubble lands for next year's fallows, the clay soils first for the wheat culture, and next the turnip lands. Opinions differ in deep winter ploughing, or in the first furrow of the spring, but experience may recommend the depth in winter, as it turns up a fresh earth to be cultivated, exposes the largest extent of surface to the influence of weathers, and affords the largest quantity of mellowed alluvium for the summer workings of the land. No future cultivation can compensate for the want of the early exposure during winter of a deep furrow of the ground. The grass leys of clay soils intended for oats should be ploughed during this month, that the soil may be acted upon by the vicissitudes of the weather for at least three months before the time of seeding.

So long as the weather is fresh and tolerably dry, drains may be cut in the half-depth; best

done on grass lands, the turfs and the earth being laid on opposite sides of the trench; all loose earths collected to the compost heap of pulverulent bodies. Roads are mended and repaired by scraping the mud, deepening the side-ditches, and laying broken stones in the low places of the track way. Cast up earths into heaps for future composts. Collect most carefully everything in the shape of manure.

Plant forest-trees of all kinds, hard woods, and the softer kinds; cut underwood, and fill up vacancies, by planting and layering; standard trees are hurtful to the undergrowth, and are best grown separately in trees and copses of the special kinds. Plant new hedges by sloping an inverted turf on the intended line, and placing on the slope, at the distance of four inches, the strongest quicksets from the nursery, cut into lengths, and covered

with earth, the upper end of the set protruding into light. The loose soil is placed on the back of the line of the fence, which a double rail secures from damage of trespass. Fences are repaired, by drawing over gaps the side branches, which are tied into that position, and grow to fill the gap; transplanted stems will succeed in the circumstances of damp soils and climates; young sets very seldom thrive under the shade and drip of older growths, and wide gaps are ever best filled by a single rail, which stops all trespass, and inflicts not any damage on the adjacent growth.

Flood meadows, and lay dry occasionally.

In dry weather raise turnips from the fields, store bulbs at the homestead, and give the tops to the young cattle in the yards, and the store sheep in the fields.

Early lambs will be dropped during this month in some places. Feed the ewes very amply with juicy food, as cabbages, beet, and turnip, and provide a warm shelter.

During frosty weather, thrash grain regularly and frequently, and litter the yards very often with a thin covering of straw in short lengths, as has been directed, in order that the straws may be most intimately mixed with the solid excrements of the animals, and inspissated with the urinary fæces. After all that has been spoken and written on the subject of liquid manures, and when the mania has sobered down into a rationality, the best use is being absorbed by earthy substances as straws, haulms, and chaffs, to decompose together in the ground in the convenient form of short lengths that are easily covered by the plough.

Cart stones to the places of draining to be done, and carry fuel, in timber, faggots, and coals.

This month being the deep time of winter, the proper arrangements must be made for the opera-

tions in every department. The live stock require the most careful and unremitting attention, in being amply and regularly supplied with food, and in having a dry and comfortable lair in a shed, and a yard for fresh air in fine weather. This accommodation, with two or three large beasts together for being fattened, and six or eight store animals of an age, is acknowledged as the best arrangement after the many treatments of the subject by the practitioner and amateur, and the titled and scientific lecturer. Keep the steamer in constant work, and give cooked food daily to horses in the evening meal, to cows, fattening pigs, and poultry.

All food should be given in a fresh condition—turnips from the field every morning in open weather, from the store-pit during storms and frosts. The cattle in the yards should eat under cover, especially in high cold latitudes. This purpose will be effected when the time has arrived to cover the whole area of the farmery under one roof, as a railway terminus, which may not be much longer delayed.

The grain crops in ricks, with hays, and all live stock are duly insured by the farmer as his property, and the buildings by the proprietor of the land, as the bounden duty of both parties, of which the neglect constitutes an injustice to general society. The Farmers' and General Insurance Office is constituted for the special purpose of the farmer, as it includes both the growing and matured crops, animals, and buildings; forming a most convenient and valuable privilege.

It has prevailed for farmers to value and balance the articles of the farm at Christmas, known as "taking stock and crop," to ascertain the favourable or retrograde progress of the undertaking; but the May term may be more convenient, as the produce is more distinct and the profits more clearly realized.

## CALENDAR OF GARDENING.

### KITCHEN GARDEN.

Frost may set in early, and therefore every means of defence for plants in frames, under glasses, and in warm borders, such as littering straw and fern, ought to be at hand. In this way, late-sown radishes are preserved under straw, which, however, should be raked off in open sunny weather.

Protect artichoke beds with three inches of half-decayed leaves, strewed over the surface, or if the land be stiff and clayey, with as much coal and wood ashes.

Earth-up celery, finally very high in ridges. Pot and excite a second set of plants of seakale. Brick pits and darkened frames with good linings will be a great convenience, and prevent much litter.

Asparagus is easily forced upon deep beds of leaves raked from woods and parks, avoiding those of laurels, and of evergreens generally. The plants should be prepared in proper beds for the express purpose, and selected from the best two or three-year-old stock. Brick pits are the best erections; but good frames set upon leaves, with warm linings, will do well.

Rough dig and deeply manure grounds intended to be planted with root crops, as beet and onions. Trench deeply all lands for new plantations, and the earths in high ridges rough and open. Ridge the grounds of vacant places.

At this season of the year all is contingent: the driest weather must be chosen for all operations, otherwise the temperament of the ground may sustain injury. If the weather be open there is every probability that it will be wet, and then to trample in and work ground saturated with water is only to do mischief. If the land be iron-bound by frost, or swamped by drenching rains, in either case the labour is equally futile.

### FRUIT DEPARTMENT.

Look over any fruit stores, and remove decaying apples and pears. A dry cool air, a covering of dry straw, are the best preservers. Pears, however, should be kept in a warmer situation than apples.

Plant any fruit-trees that may be wished, as apples, pears, plums, and cherries. Choose from the nursery young thriving plants, with straight and

clean stems, and strong in the height. Allow fifteen feet apart from stem to stem, both in length and width, on lands deeply dug and manured, and mulch the surface over the roots of the plant. In the cavity which holds the root, sprinkle some cinders of lime of small size, to dissolve and impart warmth. These trees must be outside the garden, which admits only the espalier plants.

#### FLOWER GARDEN.

Cover the ground with half-decayed leaves, or lay cakes of moss among any American shrubs, keeping them in order by an edging of bricks or small stones. If snow falls, shake or break it off from evergreens before the sun shines hot upon them, as alternate thawings and freezings will ruin the foliage. Remove litter of all kinds, and also from lawns and gravel. Protect the glasses of pits and greenhouses, by mats or screens on rollers; give air, but little water. Straw mats, skillfully made with bands and strong pack-thread or cord, afford the best protection to frames and low pits.

Manure, as a general term, implies every decomposable substance, which by the action of the vital principle of plants, can be reduced to its component elements, and rendered available for their nutrition and growth. Among these substances are first, and most direct, green vegetable matters, cut into small pieces, dug into the soil, gathered in sum-

mer when the juice is most abundant in all broad-leaved succulent plants, before the maturity of seeds has commenced, which has been frequently recommended in our monthly directions.

The practice of self-manuring comes into a very probable importance to apply the leaves and tender parts of shrubs and vegetables, wherever it is convenient, to or about the roots of the same plant; the stalks and leaves of rhubarb, artichoke, and asparagus, by digging a trench between the rows, and burying the refuse deeply instead of burning it; but this operation will be further noticed at the proper season of use. Secondly, the dung of horses, cattle, sheep, and swine, as mixed with straws of all kinds, and also from scrapings of roads, in gritty earths, and animal droppings, being collected and placed in layers a foot thick, with some bone-dust and sulphate of ammonia, loamy earths, and decayed turf, and the whole finely incorporated by the spade. When finished, to be saturated with suds and urine of all kinds, to confer the valuable salts, which being under cover for a time, will be found little inferior to guano, and superior in the point of "bulk" that is conveyed to the ground.

These simple preparations are in the power of every cultivator of the soil, and very expressly written for the "agriculturist," and not for the owners of estates, or even for the amateur, being easily understood, and as easily performed.

## AGRICULTURAL REPORTS.

### GENERAL AGRICULTURAL REPORT FOR NOVEMBER.

The weather having been remarkably dry and open, considerable progress has been made in ploughing and sowing, with the land in excellent condition for the reception of the seed; indeed, out-door farm labours are now in a very forward state. Owing to the arrival of immense quantities of foreign and colonial grain, the demand for wheat has fallen off, and, in some instances—although millers are represented as holding light stocks even for the time of year—prices have had a drooping tendency. Much anxiety is manifested in reference to the future course of the trade. Our impression is that there is very little room for any extensive fluctuations in prices, as we shall require a very large importation between this and next harvest to meet consumption.

Barley has fallen about 4s. per qr., notwithstanding that the supplies brought forward have been somewhat limited. The same decline has taken place in the value of malt, which has come forward somewhat freely. Oats have fallen 2s., and beans and peas 1s. to 2s. per qr. The flour trade has ruled heavy, on lower terms.

Great depression has prevailed in the wool trade. The public sales of Colonial wool have been scantily attended, both by home and foreign buyers, and an average decline of 2d. per lb. has taken place in the quotations. The quantity to be offered during the present series is over 100,000 bales. In the private contract market scarcely any transactions have taken place, at 1d. to 1½d. per lb. less money.

The importations of foreign hops have been very large. The sale for all kinds has therefore been difficult, and rather a heavy decline has taken place in prices. The supplies of home-grown hops on offer have been only moderate.

As much as £5 per ton has been paid for good sound potatoes; whilst inferior kinds have sold at £5 per ton. These quotations indicate scarcity in some districts. The importations from the Continent have been moderate.

The accounts from most parts of the United Kingdom state that the root crops have turned out very abundant. There

are, therefore, ample supplies of food on hand for winter consumption. Hay and straw have met a dull inquiry, on lower terms. Meadow-hay has sold at from £3 to £4 4s., clover £3 5s. to £5 5s., and straw £1 12s. to £1 16s. per load. The quantities brought forward in the Metropolitan Markets have been extensive.

The imports of foreign stock having somewhat fallen off, the cattle trade has ruled steady at extreme rates to a slight advance.

Moderate supplies of grain have been on offer in the Scotch markets. Generally speaking, the corn trade has ruled very inactive, and prices have been with difficulty supported.

Very little change has taken place in the value of any description of produce in Ireland. On the whole, the corn trade has continued heavy, although full average quantities of wheat, barley, and oats have been forwarded to England.

### REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

The leading markets have been tolerably well but not so heavily supplied with beasts, chiefly in good saleable condition. For most breeds there has been a fair inquiry, and the quotations have had an upward tendency. The average value of the best Scots and crosses has been 5s. per 8lbs. The supplies of beasts from Ireland and Scotland have fallen off to some extent, but we understand that the arrivals from the latter country in December will be rather extensive.

The numbers of Sheep on sale have been seasonably extensive, and in full average condition. In the early part of the month, owing to heavy receipts of meat at Newgate and Leadenhall from Scotland and various parts of England, prices had a drooping tendency. Since then, however, the mutton trade has shown more firmness, and the currencies have had an upward tendency. The best Downs and half-breds have found buyers at from 4s. 10d. to 5s. per 8lbs.

The value of calves has fluctuated considerably; but the latest prices were 4s. 4d. to 5s. 4d. per 8lbs.

There has been a fair sale for prime pigs, at steady currencies; but large hogs have been very dull.

The imports of foreign stock into London have been as follows:

	Head.
Beasts ... ..	10,761
Sheep ... ..	33,202
Calves ... ..	618
Pigs ... ..	2,064
<b>Total ... ..</b>	<b>46,645</b>

COMPARISON OF IMPORTS.

	Beasts.	Sheep.	Calves.	Pigs.
Nov. 1866 .....	13,278	33,389	1,290	1,187
1865 .....	16,254	52,517	2,526	7,770
1864 .....	17,137	31,792	2,970	3,947
1863 .....	11,020	30,347	1,770	2,202
1862 .....	6,839	28,577	1,659	633
1861 .....	5,295	27,833	946	1,241
1860 .....	6,961	22,723	1,604	828
1859 .....	5,927	21,907	997	159
1858 .....	4,787	18,258	1,174	156
1857 .....	4,409	17,830	2,657	136
1856 .....	6,102	16,380	1,152	309
1855 .....	7,367	17,094	1,127	454
1854 .....	7,120	16,604	1,108	369

The total supplies exhibited in the Metropolitan Cattle Market have been as under:

	Head.
Beasts ... ..	24,080
Sheep ... ..	109,960
Calves ... ..	1,016
Pigs ... ..	2,350

COMPARISON OF SUPPLIES.

	Beasts.	Cows.	Sheep.	Calves.	Pigs.
Nov. 1866 .....	24,660	120	95,800	1,190	3,090
1865 .....	36,820	295	167,230	2,855	2,811
1864 .....	32,600	542	114,300	2,587	2,900
1863 .....	27,704	506	99,130	2,156	3,170
1862 .....	30,139	532	110,020	2,313	3,172
1861 .....	26,590	560	109,370	1,370	3,430
1860 .....	25,400	500	103,600	2,112	2,920
1859 .....	26,492	522	120,840	1,299	2,800
1858 .....	24,556	534	114,643	1,437	2,970
1857 .....	25,383	504	103,120	3,002	3,037
1856 .....	25,444	515	105,750	2,096	3,415
1855 .....	27,411	457	97,460	1,585	3,535
1854 .....	23,442	512	121,031	1,848	2,786

The district arrival of beasts thus compare with the three previous years:

From—	Nov. 1864.	Nov. 1865.	Nov. 1866.	Nov. 1867.
Lincolnshire, Leicestershire, and Northamptonshire .....				
Other parts of England .....	9,300	9,600	7,200	8,760
Scotland .....	2,700	3,550	2,450	2,600
Scotland .....	554	448	154	43
Ireland .....	2,000	1,000	880	1,350

Beasts have sold at from 3s. 2d. to 5s. 2d.; sheep 3s. 2d. to 5s.; veal 4s. 4d. to 5s. 8d.; and pork 3s. 4d. to 4s. 2d. per 8lbs., to sink the offal.

COMPARISON OF PRICES.

	Nov., 1864.		Nov., 1865.		Nov., 1866.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Beef from... ..	3 4	5 8	3 4	5 6	3 6	5 4
Mutton .....	3 10	6 0	4 0	6 8	3 8	6 4
Veal .....	4 0	5 2	4 4	5 4	4 2	5 10
Pork .....	3 6	4 8	4 0	5 8	3 10	5 2

Very large supplies of meat have been on offer in Newgate and Leadenhall. Amongst them have been about 8,000 tons from Holland and Germany. A good business has been passing, and prices have shown more firmness than in the previous month. Beef has sold at from 3s. to 4s. 6d.; mutton 2s. 10d. to 4s. 6d.; veal 3s. 6d. to 4s. 6d.; pork 3s. to 4s. 2d., per 8lbs. by the carcase.

NORTH WALES.

There are many reasons why North Wales does not stand out prominently as an advanced agricultural district. The

country is mountainous; the soil, except in the valleys, where there is a rich alluvial deposit, is generally thin, and not very fertile; the roads, with the exception of the leading thoroughfares, are of the worst description; the farms, as a rule, are small, and the farmers men of little capital. Added to this, the situation is remote, far from any of our great centres of population, and markets are consequently of a second-rate description. As, however, railways are extending themselves, although slowly, as may be supposed, from the obstacles the country presents to the engineer, the district is being gradually opened up, and greater facilities are afforded to the grower for conveying his produce to the consumer. The district is essentially pastoral, more than one-half of it, irrespective of mountain land and hill pastures, being in permanent grass. Flocks and herds compose therefore the staple of the farmer's produce, and it is to these he looks for the means of paying the landlord, the title-owner, rate-collector, and other innumerable creditors who have demands upon him. Corn is not grown to a large extent, except oats, although in Flint and Montgomery as many acres are usually under wheat as the lighter grain. In the other four counties forming the North Wales district little wheat is raised, besides just sufficient for the consumption of the farmer's family. In reporting, therefore, from time to time, on the state of agriculture of this northern part of the Principality, there is not much to dilate upon, and we may generally sum up in a few words the salient points requiring to be noticed. The late harvest was, on the whole, a very fair one as regards the yield, and was secured in good order, with the exception of the oats on some of the mountain farms, where the corn is late in coming to maturity. Here the rains of October delayed stacking for some time, and week after week the shocks of oats might have been seen standing in the fields, waiting for a favourable opportunity to be carted to the homestead. In many of the mountain parishes the thanksgiving day on the termination of harvest (which we are glad to say is most religiously observed in every parish) has been held only within the past week or two. Potatoes, which are grown to a great extent, are a good crop, and not so much diseased as in many parts of England. They are all now taken up, and secured for the winter. We have a very strong opinion that too large an acreage is devoted to this esculent, and believe that if turnips or mangolds were substituted—say to one-half the breadth—much advantage would accrue. Indeed we would very urgently press upon the North Wales farmers the desirability of greatly increasing their growth of green crops. The climate is admirably adapted to them, and, where drained, the soil is too. It is almost lamentable to find on a farm of 300 or 400 acres only a little patch of 3 or 4 acres of turnips, as we have often seen. They would form a most valuable food for the cattle and sheep, too, in the spring, when, if it is a late and cold season, these poor animals are almost starving, having eaten up all the hay, &c., and being able to pick the barest livelihood in the closely cropped pastures. Last spring was a case in point, and we remember then an instance of the largest farmer in an extensive parish in Carnarvonshire being obliged to turn all his cattle into the fields, to bite everything they could find—and they had to travel continuously and work perseveringly in order to get anything at all—because the winter fodder was exhausted. Had there been a few acres of well-stored swedes and mangolds this need not have occurred, the cattle would not have been brought to starvation point, whilst at the same time the pastures would have had fair play in preparing for and throwing out their summer supply. An increase in the tillage of roots, and the use of artificial feeding-stuffs in the winter, would enable the stockmaster to feed annually a portion of his young stock, instead of sending them away for graziers in other and perhaps more favoured localities to get that profit out of them which the breeder might appropriate. More manure, and of a much superior quality, would thus be made to enrich the land, and produce heavier crops the next year. The weather this month has been favourable for wheat planting, which is now nearly finished. Autumn cleansing of stubble has not made much progress, but in the late districts this can rarely be carried out. Sheep and wool have declined in the same ratio as in other parts of the kingdom; yet, until very lately, the butchers kept up their prices. At length they have come down, and hind quarters of the best mutton can be bought at 7d. per lb.—Nov. 21.

## AGRICULTURAL INTELLIGENCE, FAIRS, &c.

**ALYTH MARTINMAS SHEEP MARKET.**—Sales began slowly, but towards the close most of the lots were disposed of. Mr. Thomas Ballantine sold a lot of blackfaced ewes at 11s. each. Mr. Pattulo bought a lot of blackfaced ewes at 15s. each, and another lot of the same class at 10s. each. Mr. Storrier sold a lot of blackfaced ewes at 11s. each, and a lot of cross hogs at 29s. each. Mr. Stewart sold a large lot at 30s. each. Mr. Simpson bought a lot of blackfaced ewes at 11s. Mr. Wallace sold a lot of cross ewe hogs at 19s. Mr. Carrigill sold a lot of Highland blackfaced ewes at 11s. each. Mr. Whyte bought a lot of blackfaced ewes at 14s. each. Mr. Adam Jack bought a lot of small cross hogs at 9s. 6d. each. Mr. Sides sold a lot of fat Leicester ewes at 30s. each. Mr. Steel bought a lot of blackfaced ewes at 12s. each. Mr. Abercromby bought a lot of fine cross hogs at 24s. 6d.

**BANBURY FORTNIGHTLY FAIR.**—A short supply of beef and mutton; trade slow for both. Beef 4s. to 4s. 6d., mutton, wethers 4s. 4d. to 4s. 8d., ewes 3s. 8d. to 4s., veal 4s. 8d. to 5s. per stone, bacon and pork 9s. to 9s. 6d. per score.

**BAKEWELL FAIR.**—There was but a moderate show of cattle and sheep, and business generally was in a very sluggish state. Beef sold at from 7s. to 7s. 6d. per stone. Cows dropping their calves, from £16 to £22 each, heifers from £9 to £14 10s. each, stirks from £6 to £9 each, calves £4 to £5 each. The number of sheep considerably exceeded the demand, and a clearance could not be effected. Mutton from 5d. to 6½d. per lb. Store lambs from 18s. to 25s. each. The pig show was good, but trade was not quite so brisk, prices ranging from 18s. to 40s. each.

**BOSTON SHEEP MARKET.**—Only a small supply of fat sheep. Ewes sold slowly at 5d. to 6d., and wethers from 6d. to 6½d. per lb.

**BURGH FAT STOCK MARKET** was well supplied with beasts and sheep adapted for the butcher. There was also a good number of lean animals. Plenty of buyers were in attendance, and trade was brisk. Mutton made rather more money, and for beef former rates were well sustained.

**DONCASTER FAIR.**—The show of stock was large, although not more so than we have seen in former years. Except for well-bred bullocks and heifers, and in-calfing and newly-calved cows, the trade was by no means brisk, and prices had a downward tendency. There was a large show of Irish cattle. Secondary lots were a heavy sale, and many remained unsold. Cows for milk were uncommonly dear. There was not a large show of sheep, and these chiefly consisted of lambs, for which there was a slow sale.

**DUMFRIES FAIR.**—The show of horses was very numerous, and there was a large attendance of dealers from all parts of the country, particularly from Glasgow and Edinburgh and the border counties. There was a good demand for the best draught horses, and good prices were obtained for the higher class of animals, but for secondary and inferior horses there was little inquiry. Few saddle and harness horses were shown, and the show of draught horses and fillies was very small. Ponies were scarce and inferior. Generally prices for first-class horses were higher than at the Rood fair in September. Draught horses £36 to £50, and in a few cases a higher figure; good useful light horses £25 to £32, aged and inferior £20 downwards. In the cattle market there were about 400 head shown, consisting chiefly of Irish Galloways and Highlanders; but despite the impetus given to trade last week at All-Hallow fair, sales were slowly effected. Two-year-old Galloways £9 to £12, one-year-old do. £5 10s. to £7 15s. Ayrshires, which were mostly queys, £10 to £14. For cows near calving and for two-year-old queys £6 10s. to £9. Irish stirks 45 to 47.

**GLASTONBURY MONTHLY MARKET.**—Well supplied with beef and mutton; the trade, however, was dull, and very few changed hands, at low prices. Pigs were plentiful, and sold from 9s. to 10s. per score.

**GLOUCESTER MONTHLY MARKET.**—1,200 sheep were penned, which were of every possible quality. The supply of beef, with the exception of a few heifers, was of very inferior description. Best quality beef found ready buyers at from 7d. to 7½d. per lb., inferior descriptions sold at from 6d. to 6½d. The mutton trade was inactive, and lower prices had to be submitted to. Heavy ewes fetched from 5½d.

to 6d., second class from 6d. to 6½d., and prime small wethers from 7d. to 7½d. per lb. Pigs realized from 9s. to 9s. 6d. per score.

**LOCKERBIE FAIR.**—The show of sheep was much less than at the corresponding market last year. With a few exceptions the quality of the stock was inferior. There was a fair demand for anything good among half-bred lambs and Cheviot ewes. The supply being small, holders were asking higher prices than buyers were willing to give, and the market was slow. The following are a few of the sales:—Mr. Alex. Douglas, Lundergarth, sold a lot of 41 half-bred lambs at 11s. Mr. Archibald Anderson sold a lot of 41 half-bred a. 12s. 3d. each. Mr. Thomson, Nutholmshaw, sold the Westwater third wether lambs at 7s. 7½d. each. The Blacklaw mid-wether lambs were sold by a dealer at 7s. Mr. Bainie, sold a lot of second wether lambs at 7s. The Nether Cascook shot ewe lambs sold at 6s. 6d., and a lot of shot wether lambs about the same figure. Crossdykes Paley ewe lambs made 5s. 6d. Mr. Thomson sold a lot of Cheviot ewes about 19s. Mr. Renwick sold a lot of ewes at 15s. 6d. and the Nether Cascook shot ewes sold for 11s. A lot of Cheviot gimmers sold at 25s., for which 27s. was refused before the market. The show of cattle was very meagre. There was a fair inquiry, and the most were sold. A prime lot of 22 three-year-old Galloway queys sold at £12 each. Two-year-old Galloways £9 to £11, one-year-olds £5 15s. to £7 10s. Mr. Muddell sold 16 two-year-old Highland bullocks at £6 10s. Mr. Thomas Hetherington, Learigg bought most of the Ayrshires in calf, at prices from £10 to £14.

**LOUTH SHEEP MARKET.**—Only a small show. Lambs realized 20s. to 30s. Trade in mutton dull at: Ewes 5½d. to 6d. per lb., wethers 6d. to 6½d., draps ewes 30s. to 35s. Show of beef only small, at the rate of 8s. per stone.

**MALTON FAIR.**—There was a very large attendance, with the largest show of stock ever remembered. The majority of beasts were Irish, and the sale, owing to the over-supply, was dull, many being unsold, although prices were lower. Wyes £4 to £5, steers £4 to £10, extra beasts £11 per head. No Scotch cattle on offer. There was a scarcity of English beasts, but those on offer were of good quality: in-calfers were in demand at £13 to £20, steers £10 to £20. No sheep offered. A small supply of pigs, which had good sale. Beef 8s., pork 6s. to 6s. 6d. per stone, mutton 6d. to 7d. per lb.

**NEWTON-STEWART HORSE FAIR.**—The demand was good, and first-class draught animals realized high prices. Really good useful draught-horses ruled from £35 to £44, secondary do. £15 up to £30, and inferior kinds from £5 upwards; good roadsters were quoted from £10 to £25 each, according to age and quality.

**THE WINTER SHOW OF THE ROYAL DUBLIN SOCIETY.**—Owing to some recent regulations and changes which have taken place in the Society, it was determined not to have any show of cattle, sheep, or pigs, on this occasion. The exhibition was therefore confined to poultry, farm, and dairy produce, implements and machines. The show of poultry was a large one, and the birds were shown in very good condition. In the butter sections the entries were numerous. The first prize for the best cool of not less than 25lbs. was awarded to Mr. David Patten. The first prize for the best fleece of long wool was awarded to Mr. Wm. Owen, and the second to Colonel Leslie, M.P. The prize for the best fleece of short wool was won by Mr. Phineas Riall. The show of roots and cereals was large and fine, as it always is on these occasions. The size and weight of some of the swedes and mangolds attracted great attention. Lord James Butler exhibited six mangolds which weighed 171 lbs.; the produce of an Irish acre being, according to the card attached, 70 tons. His swedes shown were also very fine, the crop being 62 tons per acre. The second prize for long red mangold went to Colonel Tattuham, who showed six roots which weighed 89 lbs. There were some enormous carrots shown by Colonel Bunbury, for which he was awarded the first prize. The show of implements and farm machinery was very small, very few of the English manufacturers represented.

## REVIEW OF THE CORN TRADE DURING THE PAST MONTH.

November has passed over seasonably fine, with less rain than usual; indeed, for some soils, it has been rather too dry. A large quantity of land has been very successfully planted with wheat; so there has been a first movement to recover our position in respect of stores. Our foreign imports have been fair, though not on a scale that might have been expected. For the kingdom, we have received during the month about 900,000 qrs. wheat, flour included, and could we be certain of a continuance of this rate of supply, we should be content. Last October's gain of about 5s. per qr. has, however, not been without its check in the shape of bread-riots in the south of England, at Paris, and also slightly in Ireland. This consideration has not been without its fruit on the state of the trade, which throughout has been exceedingly dull, and for the first fortnight prices gave way 2s. to 3s. At this point they have stood but doubtfully. The quiet of Paris has been secured by fixing the price of the best bread at about 8½d. per loaf of 4lbs., with a Government indemnity for the bakers against loss, and prices there have somewhat risen since. Here, with free trade as a principle, and competition its regulator, we are left to the fluctuations of the times, and until extreme cases of oppression occur, no interference is expected by the acts of Government. Let us hope none will be needed, and that neither Fenianism nor hunger will appear in our midst. Opinions still vary considerably with respect to this year's yield of wheat. The Board of Trade returns show the cultivation of 3,255,917 acres of wheat this year in England and Wales: at 3 qrs. to the acre, instead of an average of 3½ the yield would be 9,767,751 qrs., so that our growth this season is only about half what we want. Nothing can more plainly demonstrate that but for a free-trade in corn the country would be nearly starved; for, notwithstanding present high rates, imports come in but slowly, being greatly absorbed by that large half-way port Marseilles, where the recent receipt of 100,000 qrs. has scarcely produced any impression. It is well that Garibaldi's enterprise did not end in an European war, and let us hope that the re-occupation of Rome by France will be of short duration, allow Italy to settle upon her lee, and consolidate her power in peace. The latest accounts from Germany, as to her wheat crops, are anything but assuring, and rye has signally failed. We know that Spain, Portugal, and Algeria are very deficient. Maize has failed in America, and there is no country in Europe but Hungary that can boast of a good harvest, while nothing of any magnitude can come from America till after the month of May. The following prices were recently quoted at the several places named: White wheat at Paris to 79s., red to 77s.; red at Antwerp, 77s. 6d.; at Louvain and Liege, 75s.; white Zealand at Rotterdam, 75s. 6d.; Holstein at Hamburg, 70s.; red at Cologne, 67s. 6d.; at Stettin the same; Marks,

68s. 6d.; Pomeranian at Stralsund, 74s. 6d.; Hungarian, 71s. 6d. The best old white wheat at Danzig was quoted 78s.; Saide wheat at Alexandria, 55s. 3d. cost and freight; No. 1 spring red at New York, 57s.; amber 70s. 7d. per 480lbs. Banat, afloat off the coast, has sold at 65s., Marianopoli and Berdianski at 70s., California the same.

The first Monday in Mark-lane commenced on a small English supply of wheat; but there was plenty of foreign. The show of samples in the Essex and Kentish stands was short; yet a general dulness prevailed, and the advance of the previous week—say, 1s. to 2s. per qr.—was wholly lost. The foreign trade was equally heavy, and the same reduction was necessary, in order to make sales. Cargoes afloat were very little in request, and quite 1s. per qr. lower. The London advices had their usual influence on the country markets, which, however, were taken by surprise, and several of them resisted any decline: among these were Bury St. Edmund's, Ipswich, and some other places. Others would not accept a greater reduction than 1s. per qr., as Manchester, Bristol, Birmingham, Market Harborough, Melton Mowbray, Louth, Newark, and Newcastle-upon-Tyne; more generally, however, the reduction of London was noted—say, 1s. to 2s. per qr. Edinburgh and Glasgow were about 1s. to 2s. per qr. lower. Dublin was 6d. to 7d. per brl. lower for native wheat, and dull for foreign.

On the second Monday the home-grown supplies were larger, and the foreign arrivals considerably less. The number of samples fresh up from Kent and Essex exhibited on the respective stands was scarcely an average in amount; yet the heaviness of the trade was increased, and prices were fully 1s. per qr. lower for the best samples, inferior sorts being a difficult sale at a greater reduction. All this happened when the French were still in the market, and in the course of the week had loaded about six vessels with English produce. As to foreign holders, they were generally indisposed to accept any decline; yet where sales were made from the ship's side an abatement of 1s. per qr. was accepted. The business in floating cargoes was very limited, there being no buyers except at some reduction from previous rates, which importers were not inclined to take, especially on fine qualities. A similar decline to that of London was noted at many of the country markets; Louth, Thirsk, Frome, Sheffield, Market Harborough, Boston, and other places agreed to it. But it was resisted at Liverpool, Leeds, Rotherham, Newark, Lynn, Stockton-on-Tees, Birmingham, Ipswich, Bury St. Edmund's, &c.; yet some places noted the decline 2s. per qr., as at Cranbrook and Dorchester. Edinburgh and Glasgow were down 1s. per qr. Dublin scarcely maintained the previous rates, and some sales were made at 6d. per barrel less money.

On the third Monday there was a moderate sup-

ply of home-grown wheat, though plenty from foreign ports. The show of samples during the morning on the Essex and Kentish stands was limited: yet it would seem the influence of bread riots in Devonshire and in Paris had told upon millers, who generally held off from purchasing except for their immediate wants. It was, therefore, a market of nominal prices, so little was done, and holders not being willing to accept less money. The foreign trade was on the same scale, and to have forced sales there must have been a reduction from former rates. Floating cargoes were dull for the finest qualities, and 1s. to 2s. cheaper for low sorts. The general aspect of the trade throughout the country this week was heavy. Dorchester reported a decline of 2s. to 3s., Frome of 1s. to 2s., Newbury of 1s.; but, as a whole, no positive decline was reported; while some places were tending upwards, and Market Rasen reported an advance of 1s. Edinburgh and Glasgow were dull, but without quotable change. Native wheat at Dublin, being scarce, sold at fully former rates; and buyers of foreign, having previously held aloof, were compelled to supply themselves at previous prices.

On the fourth Monday there was a moderate supply of home-grown wheat, with plenty from abroad, principally Russian. The show of fresh samples from Kent and Essex during the morning was moderate, and the market opened very dull from the absence of a consumptive demand. Eventually some buyers from Yorkshire appeared, who partially relieved the market by taking off some quantity at the previous Monday's rates; but when they were satisfied many parcels were left unsold. The foreign trade was also dull, and, though fine Baltic and other qualities were not quoted lower, inferior Russian could not be cleared without some concessions being made. Cargoes afloat were but little in demand, and low sorts were cheaper.

The arrivals in London for four weeks in English qualities were 27,213 qrs., in foreign 157,953 qrs., against 25,262 qrs. English, 73,090 qrs. foreign in 1866. The imports into the kingdom for four weeks ending 16th November were 3,420,624 cwts. wheat, 275,944 cwts. flour. The general averages commenced at 70s. 5d., and closed at 70s. 1d.; those of London began at 72s. 6d., and ended at 70s. 9d. The London exports for the month were 1,860 qrs. wheat.

The flour trade throughout the month has been dull and tending downwards, without any marked decline or fluctuations. On the first Monday country sorts gave way 1s. per sack, and to have sold freely on the last would have perhaps required a similar abatement, but holders were not pressing. In foreign, perhaps not more than 1s. per sack and barrel decline in all could be noted; while town-made qualities were without change, the top price remaining 64s. The imports into London for four weeks were 85,192 sacks English, 36,214 sacks 11,506 barrels foreign, against 77,573 sacks English, 45,737 sacks 11,824 barrels foreign in 1866.

The imports of maize have been very light, viz., 4,575 qrs. during the month; and, with no pros-

pect of liberal shipments in consequence of the failure in the United States, prices have risen very high—say from 46s. to 52s.; but at these rates very little business was passing.

The supplies of barley have continued on the most moderate scale, yet there has been great heaviness in the malting trade; and rates have given way during the month about 3s. per qr., 44s. to 45s. per qr. being now very extreme prices. Indeed, such was the indisposition of maltsters to increase stocks, that the finest Saale exhibited in Mark-lane on the last Monday only found 42s. per qr. bid by the trade, which would leave a loss to importers of 3s. per qr. Secondary sorts have been equally depressed; and grinding qualities have given way 1s. to 2s. per qr. Yet the price is still high for pig-feed. The imports into London for four weeks were 12,965 qrs. British, 20,550 qrs. foreign, against 21,109 qrs. British, 58,929 qrs. foreign for the same period last year. We can, however, hardly anticipate any further decline in fine malting sorts.

The malt trade has been unusually dull, and given way out of proportion to barley and other grain, the decline for the month being about 4s. to 5s. per qr. The fear of bread-riots, and general want of employment during the winter months, may have determined brewers to keep prices as low as possible.

The oat trade during the month seems to have been in a very peculiar position. A hurry to get off shipments before the setting-in of frost, or a great anxiety to realize during the present high prices, appears to have influenced shippers in Sweden and elsewhere to make liberal exports of their new crop in a raw and unprepared state. The consequence has been that very many cargoes have arrived in such an unsaleable state that their value has been quite uncertain; and a decline of 2s. to 3s. per qr. has been submitted to, in preference to landing such qualities in granary, while fine old corn and sweet Russian have scarcely given way more than 6d. per qr. This unusual want of condition may partly have arisen from the protracted character of the season, the only time for ripening being in the fine weather of August. Old corn, we fear, must consequently be dear till the new arrivals come in a more marketable state; and the heavy losses recently incurred by hasty shipments may lead to a remedy as time works on; and if the frost should set in early, while it will lessen exports, the condition of the stores will be improved. The imports into London for the four weeks were in English qualities 16,759 qrs., Scotch only 106 qrs., Irish 8,230 qrs., and foreign 257,112 qrs., against 9,146 qrs. English, 455 qrs. Scotch, 2,370 qrs. Irish, 133,607 qrs. foreign for the same period in 1866.

During the month beans have lost their buoyancy, without large supplies, and values have declined 1s. per qr. Being, however, so much cheaper than maize, and rather more so than barley, we cannot look for any material decline. The imports into London for four weeks were 4,102 qrs. English, 8,038 qrs. foreign, against 4,275 qrs. English, 8,713 qrs. foreign in 1866.

Peas, with but moderate arrivals, have been dull,





# THE FARMER'S MAGAZINE.

DECEMBER, 1867.

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30 lb. 100 " " " " " " " " " " " "	.....	0	10
40 lb. 150 " " " " " " " " " " " "	.....	0	15
50 lb. 200 " " " " " " " " " " " "	.....	1	0
60 lb. 250 " " " " " " " " " " " "	.....	1	3
80 lb. 300 " " " " " " " " " " " "	.....	1	7
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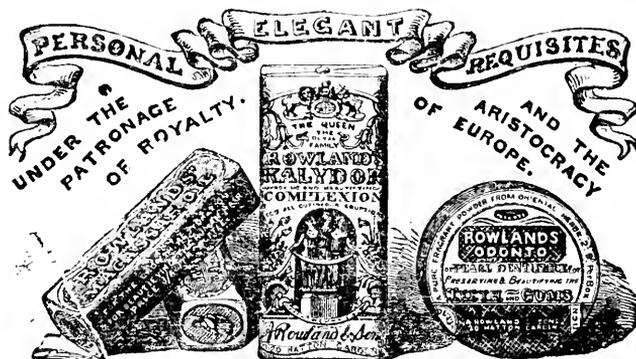
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