

Dick Stockdale; of Tom Rance; of Tom Sebright; and of the late lamented Will Goodall, who died so prematurely last spring, regretted deeply and sincerely by all who knew him, *null febilior* than by his afflicted master, the present Duke of Rutland. Also adorned with a capital sketch from the speaking pencil of a Northamptonshire gentleman, in which Sir Charles Knightley and Mr. Osbaldeston are hit off to the life. We can ourselves vouch for the excellence of most of the above likenesses; and the short and pithy accounts that stand opposite each depicted worthy are no less faithful portraits than the engravings themselves.

True to its title, this elaborate little work contains a voluminous account of the most celebrated jockeys, and the most remarkable trials of well-known trainers and vigilant touts, of the foreign market for our thorough bred stock, of the Godolphin and Darley Arabians, the Byerly Turk, and other stud-book notabilities, under the appropriate head of "Silk;" whilst in the "Scarlet" department, we have biographies of the most noted huntmen, many pithy anecdotes connected with the chase, pedigrees and performances of famous hounds—a subject that has been too much neglected in all parallel undertakings; and neither last nor least, but first and foremost, a series of sporting lectures, and observations, by no less practical an authority than old Dick Christian, the famous rough rider. This venerable Chiron, who for more than half-a-century taught all the young horses, and most of the young riders, within twenty miles of Melton's well-known town, must tell his own story in his own graphic language. His training, like that of most successful men in all lines of life, seems to have been of the roughest.

"I began hunting," says he, "when I was eight years of age, and I've never missed a season since. I rode second horse for Sir Gilbert. Mr. George Watson, he once said to him, 'You'll kill that boy riding day after day without stirrups.' Bless you, I could turn a summersault in those days when I felt the horse going. I threw myself clean over his head, and always ketched on my legs. No end of gentlemen saw it." And, indeed, his education, as a boy, seems to have been muzz of the same kind as that which he himself favoured a later master's son, called "Little Matty"—the "*opem gregis*," indeed, of Mat Milton, the horsedealer. "Poor little Matty!" says Christian, "he used to cry sadly. Old Matty would make him follow me. I well-nigh drowned him two or three times. My reg'lar orders were to 'go and ketch 'em,' and the little chap was never to leave me. Mat always said that he would lick him if he stopped, but he never did that I heard of. At those very owdacious places, poor little fellow! he used to holler out, 'Where are you?' He couldnt spy me for them bulfinches; he didn't know if I wur up or down. We never turned the horses' heads, but went bang at them. Lucky if we only got three falls a day. He was so light, he used to bound up again like a ball. Captain White and Mr. Maxse, they did so enjoy seeing us at it. When they got to one of them reg'lar stichers, they used to say, 'Here's Dick and Matty coming, they'll have it!' When I see them I says, 'Matty, here's a rum 'un on afore us; take fast hold of his head, and don't fear nothing.' I always put him on those I knew to be perfect. Sir James Musgrave used to back us against the fences. Once I sees them coming on the road to meet us; I thought there was something up, and there it was, a great big stile and steps, with a deep ditch. I hears Sir James say to Mr. Maxse, 'I'll bet you twenty guineas he comes over it;' and my word, we won it for him."

Pretty severe training this for a young one, and only to be paralleled by that of the infant Viking, who was "rocked in a buckler and fed from a blade." But it is not only of his own "hair-breadth 'scapes" and adventures that he loves to talk; he has store of anecdote concerning his friends of the same nature, and he tells them with a certain grim humour that reminds us of an old moustache of the *Vieille Garde*. Here is a description of an amiable animal that might have made a match for Cruiser before he was Rare-fied.

"Will Head had a cheesnut they called Wroxtes, and rode him eight seasons. I never see such queer fore-legs; good 'un to go, for all that, but bad at a brook; a savage beggar, never leave you if he could get at you. Once Will gets took up into an oak tree at Sheep-heads in Charwood Forest. He hung there, and this Wroxtes walks right from below him, and stops to look; there Will hung, but the horse never offered to touch him. Will thought he'd have eat him that round, but he was as sensible as a Christian, *wouldnt take no wrong advantage!*"

With two of Christian's maxims we would in all humility wish to record our entire concurrence. In the first he expresses a very slight opinion of the use of spurs, arguing from his own large experience that the manner in which we take hold of a horse explains to him all we require him to do, and that the less he is flurried by punishment the better; and in the second, he gives the preference to blood. "Thorough-bred horses," says he, "make the best hunters. I never heard of a great thing yet, but it was done by a thorough-bred horse."

The number of thorough-bred hunters is doubtless increasing every day; and yet even now, with the superior pace of hounds, and the system of forward riding, which has of late become so general, it is strange that the full-blooded animal should still be the exception rather than the rule in every stud that goes up to Tattersall's. In all particulars and at all points he seems to us the most desirable animal. If we want to flourish away to the front at starting, is he not the fastest? If we would come out at the finish, is he not the most lasting? At large fences he shows coolness and activity, at small ones patience and docility; while if we belong to that rational class who enjoy a quiet chat in a sheltered ride, and a steady trot or a moderate canter along the turnpike road, and the best-established lines of hand-gates rather than a whirl of tumultuous excitement with a cropper at its conclusion, he is a quieter and far less insubordinate "mount" than his baser-born stable companion. Yes, the longer we live the more we are convinced that "*pure claret*" and *thorough-bred horses* are essential to the modern fox-hunter. A bottle of port and a Cleveland Bay will stop in three fields!

But we must not linger over our *beau ideal* of what a hunter ought to be, but rather trace back the noble animal to his earlier, and many will say his more legitimate profession of the turf. Three months must elapse before we can don the "Scarlet" again: in the mean time "Silk" is "your only wear;" and the "Druid" very properly places that article and its concomitants immediately after Dick Christian's Lectures, and true to his recollections of celebrated huntmen and anecdotes of famous hounds, "the Nestors of a sporting generation"—*noblesse oblige*, and the race-horse takes that precedence to which his birth entitles him. The opening chapter commences very appropriately with a poetical heading, in which he is not forgotten to whom racing men are so much indebted, and who scorned not to wear upon sweepstakes and handicaps the talents that made him afterwards one of the first statesmen of his day—

"No more shall he at Doncaster
Each foal and yearling pat,
Or ride up Goodwood's leafy slopes,
To the trial-ground with Nat."

But whilst England has a race-course Lord George Bentinck will not be forgotten. The "Druid" then goes on to describe the glories of Knavesmire, some seventy years ago, and enumerates a host of names famous on that turf which has now closed over them for ever—the Prince of Wales, Peregrine Wentworth, Lenny Jewison, Cade in the "all white," Hutehinson, Sir Charles Turner, Bolton, Queensberry, Rockingham, Bedford, Grosvenor, Abingdon, Barrymore, and a

thousand others, who were giants in their day, and whose race is now run for ever. His description reminds us of a picture by Stubbs, and takes us back at once to the days of knee-breeches, jewelled snuff-boxes, powdered heads, heavy bets, and heavy evenings, in which bumper-toasts were not suffered to pass unpunged: an era when our aristocracy had superinduced on their own native energy some of the vices, but more of the polish and refinement of the old French school; a different type, indeed, from the *brusque*, closely shaved *gaillard* of modern France. As a specimen of what the reviewers are pleased to term "word-painting," in that conventional slang with which they furnish opinions ready-made for ready money, take the following:

"A View of Nobleman's and Gentlemen's Trains of Running Horses, with the Grooms and Horses in their Full Liveries," was the popular print of 1790. The Warren Hill is the scene of the afternoon's revel. Quiet little Newmarket just peeps forth in the hollow, in the centre of that restless panorama; and in the far distance the Ely Minster turrets cut the cloudless sky, and struggle manfully for pre-eminence with Highflyer Hall. In the fore-ground is the Prince, by the grace of the artist a somewhat slim-looking buck, in a sort of Don Cesar de Bassan beaver, standing up in his phaeton with four greys, and booking a bet with the shrivelled Duke of Orleans on horseback at his side. His brother "York" has alighted, and is gaily pointing out to a lady a long-sheeted string, which are, West Australian fashion, cutting down the Warren Hill like a scythe, in the direction of King Charles' Capota chair. On the extreme left, the Countess of Barrymore, in the costume of

"Those tea-cup days of hoop and hood,
And when the patch was worn,"

sits in the phaeton by the side of her eccentric liege lord (who was so soon to fall lifeless in her arms as his hand held the reins), and listens to the animated periods of Charles James Fox, as he cruises in the coming laurels of his Seagull and his Put. John Duke of Bedford is also amid the throng; and so are Haggston, George Hanger, Wyndham, Captain Grosvenor, and Bullock. That ancient oddity, Colonel Thornton, though not much of a racing man, has wandered off here as well, and Falconer's Hall—where his seventy hooded hawks were kept to complete the devastation among the Yorkshire Wold game, which his three 150-guinea guns, "Death," "Destruction" and "Fate," were unable to accomplish—is forgotten for the nonce in the prospect of the forthcoming Grosvenor Stakes."

Opposite the likeness of Dick Christian, stands that of Jim Robinson, the jockey; and the Biography of the latter, from his stable-boy days—when he would promise another lad half his plum-pudding on Sunday to rack up his horse, that he might absent himself and see Frank Buckle ride, to his triumph with Dictator, and the same Frank on Merlin, and his victories on Lamp-lighter and Margrave—is told with the spirit and condensation which are so appropriate to all such narratives. Sam Chifney, George Edwards, the two Sam Days, Charles Marlow, Conolly, Pavis; veteran Tommy Lye; Bill Scott, of "strenuous speech" and energetic finish; Marson, Butler, and a host of other heroes of the weighing stand, find a place in the "Druid's" memory; and a powerful appeal in favour of their class concludes his elaborate list of the jockeys of England.

A word on behalf of that hard-working profession. When we consider the severity of training they undergo, the risks they run—for it is, after all, no such simple matter to get up at short notice on some of our thorough-breds, and, despite of queer tempers and game legs, ride them honestly home—the competition with which they have to strive in a country where every stable-boy, like the French soldier who carries a marshal's *baton* in his knapsack, hopes in his day to ride a Derby winner; above all, the temptations to which they are subjected, it is to us matter of pride as well of surprise that their probity should so seldom be corrupted. As a body,

they are certainly above suspicion, and we must take leave on one point to differ with our authority. We believe there is nearly as much riding talent in this present year of '59 as ever was in England; and we do not subscribe, however well it may be worded, to the spirit of the following lament:

"When we mark the rare phalanx who went to scale for the Oaks of '44, and think that of those alone Sam Chifney, Robinson, John Day, Jun., Chapple, Sam Darling, Frank Butler, and Job Marson will ride no more, we may well, in these latter days, when jockeys are so rare, and yet horsemen so rare, fall often wish for them back."

Amongst the noted stallions of this and former eras, Cruiser is not forgotten. Like Nero, his vices have made him famous; although unlike the imperial tiger, he has been brought by certain trans-Atlantic "fixins" to see the error of his ways. It seems strange—though, perhaps, on reflection, our wonder may disappear—that the highest-bred horses should thus show the extremes of good and evil disposition; but Cruiser is by no means a solitary sample of ferocity in these illustrious sires. Ardrossan, in his match with Abjer, tried to tear Robinson, who was riding the latter, out of the saddle; and Merlin, who became Lord Foley's property at two years old, in exchange for two thousand guineas, killed a man in his box, and was found two hours afterwards kneeling on his victim, and literally wallowing in his blood.

We have already trespassed largely on the space allotted to a notice, even of such a work as the present. We cannot, however, bid its author farewell, without thanking him for a considerable store of information as regards hounds, which he must have collected with indefatigable perseverance and research. In speaking of a new arrival in the field, the late lamented Sir Richard Sutton* used to say good humouredly "Is he a houndsman too, or only a horseman?" and no master of hounds in England better appreciated the distinction. We must do the Druid the justice to dub him a *houndsman* at once. He is evidently not one of those gentlemen who are quite satisfied to gallop and jump, without any definite object save that of giving a hunter a certain quantum of work; but loves to see a fox fairly found, fairly burst, fairly hunted, fairly chased, and lastly, fairly run into by a level, well-ordered, well-looking pack of hounds. He has gone deep into the subject of blood, which, much as it may tell in men, horses, sheep; pigs, and cattle, is in no animal of such vital importance as in the hound. Not the inimitable Mr. Puffington in "Soapy Sponge" has a "warmer side to the Beaufort Justice;" and the number of names and pedigrees which he has introduced under the head of "Scarlet" argue such an intimacy with his subject as nothing but a labour of love can produce. Each stallion-hound of notoriety has his appropriate notice, and although Juvenal tells us that in horseflesh—

"Venale pecus Corithes, postoritas et
Hirpini, si rara Jugo Victoria sedet,"

in the kennel we may pretty safely pin our faith to the old maxims, that "like begets like," and "what is bred in the bone will come out in the flesh." The often-agitated question, as to the respective merits of dog-and-bitch-packs, of big and little hounds, is too like the fable of the knights who fought about the gold and silver shield, to admit of a definite settlement. For our own part, with all due deference to the great authorities who have decided otherwise, we hold to the dogs for hunting and killing foxes, the bitches for racing and

*Another of that popular baronet's apposite remarks is so suggestive that we cannot forbear quoting it. On spying a bit of scarlet in the distance, a friend inquired if it was one of the field, or only an old woman in her marketing cloak. "It's a red coat, doubtless," quoth Sir Richard, "but it does not follow there's a man in it!"

killing horses; and the size of our hounds, we opine, should depend much upon the nature of our country. Like horses, however, they should look less than they really are, even on the flags, until you put them between your knees. In the field the fastest of us have all seen them look small enough at the end of five-and-forty golden minutes over grass!

Portraits of Tom Rance, Tom Sebright, and poor Will Goodall, deck the latter half of the volume. The two former are men well stricken in years, but still vigorous, and in the lusty health of manhood. The youngest of the three has been taken first, and in his prime; no more to see mellow autumn tinging the woods of princely Belvoir with its glowing hues; no more to cheer the deep-toned old favourite through the echoing glade, and mark the hopeful progeny emulating the mettle and sagacity of his sire; no more to return the cordial greeting of assembled sportsmen, and show them the shortest way to his cherished bounds over the vale: keen, wary, dashing, and sagacious, patient on occasion, quick as lightning on necessity, the very type of all a huntsman should be in the field, an honest worthy man in the station Providence had appointed him to fill.

No more—no more! When the wished-for season comes again, there will be a blank at the woodland side, a wistful expectant look on the old hounds' faces; for the soft November wind will stir the waving grass over Will Goodall's grave. *Requiescat in pace.* Men do not sleep for ever. G. W. M.

DURHAM COUNTY AGRICULTURAL SOCIETY.

The eighteenth annual meeting was held at West Hartlepool, and, in some respects it may be characterised as one of the most successful the Society has ever held. The weather was magnificent, and, in a pecuniary point of view, the show was quite successful. The following is the award of prizes:

THE CHALLENGE CUP, VALUE 100 GUINEAS,
Mr. Richard Booth, with "Queen Mab."

JUDGES.—Mr. Unthank, Netherseales; Mr. J. Outhwaite, Balnesse, Catterick; Mr. Wilson, Brawith, Thirsk; and Mr. Newby.

Best Bull of any age.
First prize of 30 sovs. to Messrs. Stephenson and Coulson, Fourstones, Hexham (Ivanhoe).
Second of 5 sovs. to W. Tod, Elphinstone Tower, Tranent.

Best Bull, under Two Years old.
First prize of 15 sovs. to Colonel Towneley, Towneley, near Burnley, Lancashire (Royal Butterfly).
Second of 5 sovs. to W. Tod, Elphinstone Tower, Tranent.

Best Cow in Calf or Milk, having had a Calf within the last Twelve Months.
First prize of 10 sovs. to Richard Booth (Queen Mab).
Second of 5 sovs. to Colonel Towneley (Emma).

Best Two-year-old Heifer in Calf.
First prize of 6 sovs. to Capt. Gunter, the Grange, Wetherby, (Moss Rose).
Second of 3 sovs. to the Hon. Lady Pigot, Chippenham Park, Cambridgeshire (Duchess of Gloucester the 2nd).

Best One-year-old Heifer.
First prize of 5 sovs. to the Hon. Lady Pigot (Stanley Rose).
Second of 3 sovs. to Capt. Gunter (Duchess 77th).
Bull Calf under Twelve Months old.

Bull Calf under Twelve Months old.
First prize of 3 sovs. to Joseph Wilson, Woodham, Norpeth (Duke of Tyne).
Second of 1 sov. to David Neasham, Haughton-le-Skerne (Sir Duke).

Best Heifer Calf under Twelve Months old.
The Prize of 3 sovs. to David Neasham (Priscilla).

EXTRA STOCK.

Cow in Milk.

Highly commended.—Richard Booth (Nectarine Blossom).

LOCAL PRIZES.

Best Bull of any Age.

The Prize of 10 sovs. to Robert Proctor, Throston Grange (General Havelock).
Best Cow of any age.

First prize of 4 sovs. and second of 3 sovs. to George Trotter, Tunstall.

Best Two-year-old Heifer.

The prize of 4 sovs. to Wm. Smith, Brierston (Miss Nightingale).
Best Yearling Heifer.

The prize of 3 sovs. to Robert Proctor (Lillian).

Best Bull Calf under Six Months old.

The prize of 2 sovs. to Robert Proctor (West Hartlepool).

Best Heifer Calf under Six Months old.

The prize of 1 sov. to Henry Stephenson, Throston.

LEICESTER, OR LONG-WOOLLED SHEEP.

Best Ram of any age.

The prize of 5 sovs. to Joseph Simpson, Spofforth Park, Wetherby.

Best Shearling Ram.

The prize of 5 sovs. to Joseph Simpson.

Best pen of Five Ewes, having reared Lambs this year.
Joseph Simpson.

Best pen of Five Shearling Gimmers.

The prize of 3 sovs. to Joseph Simpson.

PIGS.

Best Boar, Large Breed.

The prize of 3 sovs. to Robert Wild, Bishop Auckland.

Best Boar, Small Breed.

The prize of 3 sovs. to George Mangles, Givendale, Ripon, Yorkshire.

Best Sow, Large Breed.

The prize of 2 sovs. to H. J. Marshall, Sands House, Durham.

Best Sow, Small Breed.

The prize of 3 sovs. to George Mangles.

Best Pig, the property of a Cottager.

First prize of 1 sov. to John Bradley, Newburn-street, West Hartlepool.

Second of 10s. to George Thornton.

Third of 5s. to George Cawle, South Road, Durham.

HORSES—BLOOD MARES.

JUDGES.—Mr. George Menzie, Quarrington; Mr. Atkinson, Roseden, Alnwick; and Mr. Hawdon, Walkerfield, Barnard Castle.

Best Saddle Mare.

The prize of 5 sovs. to Stephen Kirby, Thirsk.

Best Harness Mare.

The prize of 5 sovs. to Henry Newby, Pittington Balgath.

Best Cart Mare.

The prize of 5 sovs. to R. C. Coulson, Burngill, Durham.

FOALS.

Sweepstakes of 5s. each, with £3 added by the Society, for the best Foal for the Saddle, to Robt. J. Mewburn.

Sweepstakes of 5s. each, with £2 added by the Society, for the best Cart Foal, to R. C. Coulson, Burngill, Durham.

THREE YEARS OLD.

Best Three Years Old Colt or Filly for the Field.

The prize of 5 sovs. to J. T. Robinson, Leckby Palace, Thirsk.

Best Three Years old Colt or Filly for Harness.

The prize of 5 sovs. to John Ellison, Gore Hall.

Best Four Years old Cart Colt or Filly.

The prize of 5 sovs. to John Nellist, East Thickley, Skildon.

TWO YEARS OLD.

Best Two Years old Colt or Filly for the Field.

The prize of 4 sovs. to Mathew Brunton, How Hills, Aycliffe.

Best Two Years old Cart Colt or Filly.

The prize of 4 sovs. to Henry Stephenson, Throston.

YEARLINGS.

Best One Year old Colt or Filly for the Field.

The prize of 3 sovs. to Smart Atkinson, Low Beaumont Hill.

Best One Year old Colt or Filly for Harness.

The prize of 3 sovs. to John Humble, East Hartburn.

Best One Year old Cart Colt or Filly.

The prize of 3 sovs. to William Dickman.

HUNTERS.

Best Hunter, Mare, or Gelding, under 8 years of age, qualified to carry 13 stones with Hounds, and warranted sound at the time of entry. The horses must be ridden and take three leaps, within 300 yards in the presence of the Judges.

The prize of 10 sovs. to William Proud, Bishop Middleham.

MR. JACKSON'S PREMIUM.

Best Mare or Gelding from 4 to 6 years old, suitable for Cavalry, Artillery, or Hunting purposes.

Prize of 25 sovs. to J. T. Robinson, Leckby Palace, Thirsk.

IMPLEMENTS.

JUDGES.—Mr. J. Farrington, Brancepeth; and Mr. Crawford, Lumley Park.

A prize of 5s. was awarded to W. Lax, Crossgate, Durham, for a Winnowing machine; a prize of 10s. to J. Watson, South Stockton, for Thorley's Cattle Food, &c.; 5s. to R. Paxton, Pity Me, for chain harrows, horse hay rake, &c.; 10s. to John Gregory, Westoe, South Shields, for ploughs, harrows, &c., and 10s. for an improved horse rake, with side lever springs; 5s. to Robert Young, Stanton, for harrows, grubbers, wheel and swing ploughs; £3 to the North of England Implement Company, for Samuelson's patent Britannia Reaping Machine, and £3 for their general collection of implements; £1 to F. Dixon, millwright, Norton, for a two horse power improved thrashing machine; 10s. to John Arrowsmith, Wolviston, for implements for grubbing and skimming combined, invented and made by exhibitor; £1 to Mr. Stephenson, Stockton, for wire-work.

THE MOUNTAIN SHEEP OF SWITZERLAND.

[TRANSLATED FROM THE GERMAN OF FR. VON TSCHUDI.]

Sheep are not very extensively reared in this mountainous country; wherever there is, however, a chance of success, the industrious inhabitants never fail to grow what wool they can, and the canton of Basenda alone has some sixty or seventy thousand sheep, amongst which those of Garpan and Seewis produce a fine quality of wool, whilst the rest is more esteemed for the meat, giving only about three pounds of coarse wool as a yearly average. All the sheep found in Switzerland belong to one of the following varieties:—

1. The common Suanian sheep; middle-sized, usually white-fleeced. Very poor wool.

2. The Fleming, or Dutch sheep, has a long and fine wool.

3. The Bergamasco sheep; a singular, high-legged animal, bigger than the others. The head is held erect, the nose very arched, the long ears pendant, and they have a piece of loose skin hanging down from the chin to the fore legs. They are driven annually from the valleys of Brescia and the plains of South Tessin, to the Engadin Alps, where they pass the summer. Their voice is of a deep bass, and their whole nature appears to be tinged with melancholy, as even the lambs are never seen to join the frolics of their kindred.

4. The Spanish, or Merino sheep, which stand the alpine climate unexpectedly well. Herds of them are met with occasionally all over the country, but more numerously in the French cantons.

Those parts of the higher Alps which are not accessible to cattle—elevated meadows, sometimes nine thousand feet and more above the level of the sea, often surrounded by miles of rocky ruins and glaciers—serve as summer pasture for sheep. A shepherd's boy has the care of them. He must avoid driving them directly over snow fields, as they are very easily attacked with snow blindness; and he has also to look out for snow storms; if overtaken by them the whole flock will lay down on the ground and rather die from cold or hunger than move on. Every evening a little salt is strewn over the ground, and eagerly licked up by the sheep during night. Sometimes, in very remote parts of the Alps, small flocks are met wild, that have escaped in some way from the custody of man; they fall an easy prey to the eagle and golden vulture. In Appenzell, sheep are the usual addition to a herd of cows. The wool and the meat only are used in the German and French parts of Switzerland, the milk never.

The higher the pasture and the drier the summer, the more the sheep will prosper. Summering costs about half a Swiss guilder per head. The weekly wages of the shepherd's boy is a half to one guilder and victuals. Summering, however, often proves a troublesome and losing business: should the bell-wether choose to jump down a precipice, of course the whole flock goes the same way and is lost; sometimes a strange dog drives the flock to such a desperate leap. A hail-storm is always dangerous, and there are instances on record that two hundred head were killed in one storm; a thunderbolt striking the densely packed flock, also seldom fails to do great damage.

Swiss sheep-rearing in general is still open to improvement, and might easily be made a better paying and more useful business. The dung is an excellent manure, peculiarly adaptable to the many meagre meadows, and alpine pasturage un-

doubtedly promotes the health of animals in a considerable degree.

As soon as the highest pastures in the Alps commence to develop their vegetation, all the roads of Southern Tessin are thronged with the wandering caravans on their way to the higher regions. The extensive flocks pass by slowly, feeding all along on the small patches of grass lining the road. Large, lean, long-haired dogs maintain a wonderful order. The whole procession is opened and closed by a shepherd. These are inhabitants of the barren grounds in the valleys Val Seriana and Brembana, a few families, all near relations to each other, are the proprietors of all the wandering flocks. Their nomadic life is regulated by one of their number, who is appointed chief, or "pastore." Early in the spring he goes to the Alps of Buenden to inspect and rent the meadows he intends to use as pastures, and to prepare everything for the arrival of the flocks. A well-packed ass always follows these, bearing some wearing apparel and whatever else is indispensable for so long a journey. The shepherds themselves officiate alternately—while some of them are travelling with the flock, the others stay at home to take care of the families, and perform what little work in the field is required. The "pastore" alone is exempted from these duties. He has to look after all the general business; the sale of sheep, wool, cheese, &c., belongs to his department; but he is often found to share in the more vulgar duties of his brethren. During the warmer seasons, they travel in the night; but when returning home in the fall, the day-time is usually preferred. Careful as the shepherds are, they nevertheless entrust watching the flocks, for the most part, to their excellently trained dogs, one of which superintends a large number of the woolly tribe. The roads taken are almost traditionally the same, and they have put up at the same places ever since they began. Every township demands a more or less considerable sum for the passage of the flocks, amounting in some to quite a burdensome tax.

Arrived on the Alps, all the sheep are separated into four flocks—first the ewes with the suckling lambs; then the wethers and all saleable stock; thirdly, the rams and larger lambs; lastly, all the milking ewes with a few rams. To each of these flocks a separate district is assigned, and a shepherd with a boy appointed over it. When the district happens to be at a considerable distance, a hut is also put up for the shepherd; those that are near enough live at the chief's hut, which has three rooms, a kitchen, a bed-room, and a store-room. With the completion of this building, the working season on the alp is fairly inaugurated.

The dogs never leave the flock, incessantly keeping the most careful watch. An approaching stranger is discovered at a great distance, and taciturnly accompanied until he is past the flock; the moment, however, he turns towards one of the sheep he is seized and held until the shepherd is on the spot. The shepherds themselves, although in good circumstances at home, live very scantily on the mountains. They take only breakfast and supper, and both these meals consist of a water-potenta, made from maize (Indian corn) or hirse, with the addition of a little cheese. Water and whey is their only beverage. Of course a man cannot be joyful with such food, and these shepherds are indeed suspicious-looking, word-sparing,

cunning fellows, of a rather wild character. They never sing or play the flute like other shepherds; but they are scrupulously attentive to their flock, easily contented, and hardened against everything. Their bed is an arm-full of old hay, spread over a wooden couch, their woolly cloak serving as a pillow or cover. Old men, covered with the snow of eighty winters, are not at all rare amongst these sturdy fellows.

The sheep follow the shepherd with the utmost obedience. They are always pastured according to a previously designed arrangement; each flock remains in the district assigned to it and proceeds in regular order, always densely crowded. A short, sharp whistle, is the signal to start; a modulation of the same, or a deep, bleating sound encourages the moving crowd, which marches quietly over rocks and glaciers. Are they to stop, the leader stands still for a moment, and then goes around the whole flock, calling the tardy ones with short sounds. Thereupon the whole mass remains quietly on the spot until aroused again by another whistle. Even the smallest spot covered with grass is reached in this way without any trouble. It is not a very seldom occurrence in the mountains of Eugadin, that a wolf, bear, or lynx, makes its appearance; in such a case, other flocks invariably run away in the greatest confusion; the Bergamasco sheep remain quiet, except crowding a little nearer to each other; the watchful dog soon faces the enemy and calls, barking, his master. Fed on middlings, water and whey, the poor animal is not only always in a miserable condition, but also lacks the power he might otherwise have to show battle against any one of the larger beasts of prey; several of these dogs combined attack, however, fiercely the strongest wolf.

The apparently despondent mood of the mountain sheep is attributed to the hardships they are constantly exposed to. They often have to remain in a snow storm for several days without any food; keeping as close as possible to each other under the shelter of a rock, the distress they suffer is manifested only by a deep, melancholy bleat.

The Bergamasco shepherds, who are commonly called Tessini, from their passing the winter near the Tessino, derive the following benefits from their herds:—During all the summer season they sell the fattened wethers; the butchers of Glarus and Zurich are constantly buying up these "fat ware," and pay for a couple, three years old, and weighing, in the average, eighty or ninety pounds a head, from forty to forty-six Milan livres. Then there is the increase in lambs. The wool crop is always considerable; it is taken twice a year. Three or four pounds is the average of a sheep each time. This wool is coarse, but is manufactured into cloth for the Austrian army, as well as into blankets. The mutton is very hard and insipid, though fat. A singular use of it is made—when a sheep happens to die on the mountain, the bones are broken, the whole animal stretched out between sticks, dried in the air, and sold to the poor in Italy.

We must dwell a little longer on the milk of these sheep, although the shepherds themselves think the process of milking them rather troublesome. To perform it, the sheep are driven through an enclosure, at the outlet of which two shepherds are stationed, taking hold of every ewe that attempts to pass out, and milking her with two fingers. The milk is afterwards strained through linen. The average produce of each animal amounts scarcely to five table-spoonfuls, and it requires the milk of three hundred for a "gepse," that is, the fourth part of the quantity necessary for cheese making. The other three parts are supplied by cows' or goats' milk, and ewes contribute, consequently, by far the smallest part of the ingredients in those celebrated small cheeses. Perhaps it is just the mixture that renders these so delicate. Next after the cheese, the

"puina," or sweet whey, is obtained; strained through linen and consolidated, it is highly esteemed, but commences soon to ferment; the good taste of it is also destroyed by pickling. What is now left of the milk forms the whey the shepherds and their dogs live on. Four "gepases" of milk produce six or eight cheese-cakes, weighing about two pounds each, and some twelve or sixteen pounds of sweet whey. This is a very singular branch of industry indeed.

As soon as September comes, the "pastore" pays the pasture rent, and issues his orders for the return home. The big asses are packed again, and on a given day all the flocks meet in the village of Gurgofocio, where they are shorn. Each sheep is marked on the ear, but those of each flock all alike—this prevents mistakes. In the lower parts of Piedmont, near Brescia, Crema, and the lower Tessino, extensive plains are rented by shepherds, who separate their flock in the same manner as before on the Alps, and keep them at night in pen-folds. The government, and other proprietors of large estates, permit the keeping of the flocks on their grounds, selling the remaining manure afterwards for the production of saltpetre.

The Bergamasco sheep, thus accustomed to all kinds of hardships, suffer very little from disease. An affection, not very unusual amongst them, is called "rogna;" it seems to be an eruption of the skin, and is successfully treated with tobacco juice, the Tessini being, with very few exceptions, indefatigable chewers of that weed. A flesh wound, or a broken leg, is a matter of little importance with them, at least as far as the sheep is concerned; the animal licks the injured part for a while, and its hardy nature does the rest of the cure in a remarkably short time.

Between thirty and fifty thousand of these sheep summer every year in the mountains of Buenden, and for the privilege of pasturing them there an annual rent of sixteen or seventeen thousand gilders is paid. The Spluegen furnishes pasture for perhaps a thousand more, in addition to which, a hundred or more horses are annually kept there by the shepherds, for others, these latter paying almost the whole rent on that mountain, say, perhaps, a hundred gilders. Now the inhabitants of Buenden might render their alps still more profitable by using them themselves; but then they would have to adopt also the honesty and frugality of their tenants, which seems to be altogether too difficult a task for them. The native shepherds in these mountains are never found without mutton, and their employers complain, with good reason, of the unusually large number of sheep that are yearly said to have died accidentally.

CORN FOUND WITH MUMMIES.—It is a well-known fact that corn is often found in the outer cases, or, in fact, coffins of mummies, and it has also been stated that such corn, on being sown, has yielded a crop, notwithstanding its immense antiquity. In a late number of the *Journal Pratique d'Agriculture* M. de Vilmorin casts a doubt on the genuineness of these crops from seed upwards of 3,000 years old. There can be no doubt, he contends, that the corn of our time loses its power of vegetation after a lapse of 10 or 12 years at the utmost, even in the case of Spanish or Moorish grain, which preserves its vitality longest. Now, why should the Egyptian corn respect 30 centuries ago be otherwise constituted in this respect? M. de Vilmorin admits that it has had the advantage of a constant temperature during the whole period of its stay in the catacombs, but this is not sufficient, he remarks, to produce such astonishing longevity. If the vessel in which it was contained was hermetically closed, there must still have been air enough inside to produce a certain degree of decomposi-

tion, and render the grain unsaid; if the vessel was open, the bituminous effluvia of the mummy could not fail to exercise their well-known destructive influence on the seed. Still, many highly respectable persons have affirmed that they have obtained crops from the corn of mummies. M. de Vilmorin, without doubting their veracity, thinks they were mistaken; they did get crops, but not from the corn they had sown. Were they quite sure, he asks, that the mould in which they sowed, or the manure they used, did not contain some grains of corn ready to vegetate under

favourable circumstances? Suppose a man to sow some Egyptian corn on a particular spot of his garden, if after a while nothing springs up he forgets the circumstance, finding the failure perfectly natural. If, on the contrary, a few stalks sprout up, he is overjoyed, cultivates them with extraordinary care, and obtains some excellent grains of corn, perhaps of an extraordinary size too; and this he reaps, and gives some to his friends as the genuine produce of mummy corn. It is thus, according to M. de Vilmorin, the delusion has spread and been generally adopted.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A CATALOGUE OF THE IMPLEMENTS EXHIBITED AT THE WARWICK MEETING.

(Concluded from page 165.)

The St. PANCRAS IRON WORKS COMPANY, Old St. Pancras Road, London.

A full-sized model of a loose-box, fitted up to show the patent pivot manger, price about £30; and (new implement), a patent pivot manger rack and water-trough, in separate parts, expressly for loose-boxes, price £4, invented by Professor Varnell, of the Royal Veterinary College, and manufactured by the exhibitors; (new implement), a loose-box door, fitted with iron ventilating grating, invented and manufactured by the exhibitors, price of ironwork with fastenings, hinges, and hangings £1 12s. 6d.; a loose-box post, fitted with necessary hangings for door, manufactured by the exhibitors, price £2 5s.; a loose-box division, invented and manufactured by the exhibitors, price £4 4s.; a patent swing-manger and rack (enamelled), invented by Professor Varnell, of the Royal Veterinary College, and manufactured by the exhibitors, received the commendation of the Royal Agricultural Society of England, at Salisbury, 1857, and the silver medal of the Royal Agricultural Society of Ireland, at Waterford, 1857, price £3 10s.; a set of white vitrified tiles, price 2s. per square foot; (new implement) a patent wrought-iron stall-division, consisting of iron post, ramp and sill, and boarding; invented and manufactured by the exhibitors, prices, wrought post 25s. 6d., wrought sill 7s. 6d., wrought ramp 45s., boarding 63s., if plain ramp 12s.; a set of tinted enamelled iron plates, manufactured by the exhibitors, price 2s. 6d. per foot superficial; (new implement) a patent enamelled top-plate manger rack, and water-trough, with noiseless halter guide, price £4 10s.; a patent manger and square rack with roller, price £2 18s., invented and manufactured by the exhibitors; a set of buff vitrified tiles (diamond pattern), price 2s. 3d. per foot superficial; (new implement) a stall-division for cart-horses, price, extra strong stall-post 30s., extra strong ramp 12s., wrought-iron bottom sill to receive boarding 7s. 6d., boarding 58s.; (new implement) an improved cart-horse manger and rack, price £2 17s. 6d.; and (new implement) a specimen of patent wrought-iron stable-gutter, price 2s. 6d. per foot run, invented and manufactured by the exhibitors; a specimen of patent moveable cover-gutter, price 2s. 6d. per foot; an angle-piece for gutter, price 3s. 6d.; and a tee or connecting piece for gutter, price 3s. 6d., manufactured by the exhibitors; (new implement), an improved iron sanitary horse-pot (trapped), invented and manufactured by the exhibitors, price 12s.; a sanitary horse-pot (trapped), price 7s.; a corner manger, price 9s. 6d.; a wrought-iron corner hay-rack, price 9s., manufactured by the exhibitors; a loose-box division, invented and manufactured by the exhibitors, price, wrought-iron ventilating division (per foot run) 7s. 6d., bottom sill to receive boarding (per foot run) 1s. 3d., 1½ in. boarding, grooved, beaded, and iron-tonged 63s.; loose-box post, fitted with necessary hangings for door, manufactured by the exhibitors, price £2 5s. and £1 15s.; a patent corner manger and rack, invented and manufactured by the exhibitors, price £2 5s. 6d.; a

patent galvanized manger and rack, manufactured by the exhibitors, price £3; a patent enamelled manger rack and water trough, invented and manufactured by the exhibitors, price with brass halter eyelets £3 12s. 6d.; (new implement) a patent noiseless halter guide, price 10s. 6d.; a patent enamelled straight manger, manufactured by the exhibitors, price £1 10s.; a patent enamelled manger and rack, price £3; a wrought-iron straight hay-rack, price £1 1s.; a patent manger-rack and water-trough, price £2 7s. 6d.; a patent corner manger (enamelled), price £1 12s.; a wrought-iron circular hay-rack (capped), price 14s.; a patent enamelled double-corner manger, price £3 7s. 6d., invented and manufactured by the exhibitors; a wrought-iron corn bin, manufactured by the exhibitors, price £1 10s. to £3; a wrought-iron corn bin, manufactured by the exhibitors, with two divisions for oats and beans, price £2 5s.; a set of iron-made corn measures, price, half-quarter 2s. 3d. and upwards; a strong sack truck, manufactured by the exhibitors, price 14s. and 18s.; a corn sieve, price 3s. 6d.; a chaff sieve, price 5s.; an improved carriage setter, invented and manufactured by the exhibitors, price 14s.; an iron carriage setter, price £1 1s.; a stable lantern, price 2s. 6d. and 4s. 3d., manufactured by the exhibitors; a patent stable lantern, price 15s.; a strong oak stable bucket, price 5s., others less; an improved stable skip, price 5s. 8d., manufactured by the exhibitors; a specimen of paviors, laid in cement, price £4 per thousand; a specimen of clinkers, laid in cement, price £2 2s. per thousand; a specimen of grooved paviors, price £5 per thousand; a model of stalls and boxes, designed and manufactured by the exhibitors; a set of patent harness brackets, invented and manufactured by the exhibitors, price 8s. 8d.; a set of patent brackets, covered with gutta percha, price £1 5s. 6d.; a set of patent brackets for double harness, price 17s. 4d.; a set of brackets for gentlemen's riding harness, price 12s. 3d.; a set for ladies' riding harness, price 15s. 3d.; a board of harness room fittings, head plates and bolts, price 4s. 6d.; an improved pipe pillar rein, price 6s.; a pair of best town-made bright steel pillar chains, price 10s.; an improved pipe halter rein, price 7s. 6d.; a star plate and ring, price 4s.; a collection of ornamental name plates, price 2s. 6d. to 6s. each; a variety of ventilators, price, 12 inches 5s. 6d., 15 inches 9s., 13 inches oblong 5s.; (new implement) a pair of improved coach-house door hinges, price £1 6s., manufactured by the exhibitors; a portable enamelled wash-stand and top, price £1 1s.; a harness room stove and boiler, price £2; (new implement) an improved saddle airer, price 9s. 6d., manufactured by the exhibitors; (new implement) an improved harness horse, price £1 12s.; a patent collar-bar hurdle for sheep, deer, or cattle, price 4s. 2d. and upwards, invented and manufactured by the exhibitors, received the silver medal of the Royal Agricultural Society of England, at Salisbury, 1857, and the high commendation of the Royal Agricultural Society of Ireland, at Waterford, 1857; a wrought-iron rational or foot gate, price 16s.; a wrought-iron flat-bar continuous fence, price 1s. 11d. per

foot run; wrought-iron round-bar continuous fence, price 1s. 2d. per foot run; a wrought-iron tree guard, price £1 5s.; (new article) a wrought-iron tree guard of improved design, price 18s.; a wrought-iron flat-barred field gate, £1 8s. and upwards; a pair of wrought-iron field gates, price £2 10s.; a pair of cast-iron posts for field gate, price £1 8s., all manufactured by the exhibitors; galvanized wire netting, price 1½d. per lineal yard and upwards; (new article) a wrought-iron standard for fixing wire netting, price 4d., invented and manufactured by the exhibitors; a cow stall, price 30s.; a trough for cattle, price £2 10s.; a specimen of gutter for cattle stalls, price 5s. per foot run; a pair of ornamental cast-iron park gates, with wrought-iron frames, price £94 10s.; a pair of ornamental cast-iron gates, price £80; and a pair of ornamental cast-iron pilasters, price £55, designed and manufactured by the exhibitors; and an improved rational or foot gate, price £1 1s., invented and manufactured by the exhibitors.

JAMES SMYTH AND SON, Peasenhall, Suffolk, and Witham, Essex.

(New implement) a machine for protecting the turnip and other crops from the ravages of the fly, invented by William Frederick Padwick, Esq., of Hayling Island, Hampshire, and improved and manufactured by the exhibitors, price £29; a patent three rowed turnip mangold wurzel seed, and manure drill, price £16; a five rowed ditto, price £26 10s.; a patent broadcast manure distributor, price £16 10s.; a patent general purpose drill, gained a prize of £10 at the Society's Meeting at Liverpool in 1841, price £41; a patent six rowed turnip and mangold wurzel seed drill, price £12; a patent twenty four coulters seed drill, price £26 10s.; a patent seven coulters small occupation lever corn drill, received the Society's prize of £5 at Gloucester in 1853, also their prize of £5 at Lincoln in 1854, price £16 17s. 6d.; a patent nine coulters lever corn drill, price £22; an improved fore carriage steering, price £4 10s.; a patent ten coulters lever corn drill, price £28; a seven row horse-hoe, price £6 6s.; a patent eleven coulters lever corn drill, price £25 10s.; a patent twelve coulters ditto, price £26; a patent thirteen coulters ditto, price £27 10s.; an improved fore carriage steering, price £4 10s.; a patent fourteen-coulters lever corn drill, price £29, seed sowing apparatus extra £5 19s.; a patent fifteen coulters ditto, price £30; a patent thirteen and two coulters corn drill, price £32; and an improved seven row horse hoe, price £12 16s.; all invented, improved, and manufactured by the exhibitors.

EDWARD R. AND FREDERICK TURNER, of St. Peter's Iron Works, Ipswich, Suffolk.

A crushing or bruising mill for oats, linseed, barley, malt, &c., invented, improved, and manufactured by the exhibitors, was awarded the prize at the Royal Agricultural Society's Meeting at Norwich in 1849, Gloucester in 1853, Lincoln in 1854, Carlisle in 1855, price 12½, pulley for power 12s. extra, small size less; an oat bruising, linseed crushing, and bean splitting mill, price 51. 15s. 6d.; an oat bruising and linseed crushing mill, price 41. 15s.; a malt mill, price 51. 10s.; a crushing or bruising mill for oats, barley, linseed, malt, &c., price 181. 18s.; a combined mill for crushing or bruising oats, linseed, malt, barley, &c., and splitting beans, &c., price 241.; a patent combined mill for crushing or bruising oats, linseed, barley, &c., splitting beans, and for grinding beans, peas, barley, wheat, &c., to fine meal, price £31; a corn grinding mill, price 561.; a bean splitting mill, price 41. 10s.; a mill for grinding Indian corn, beans, barley, &c., to meal, price 41. 10s.; a 2-horse power portable steam engine, price 901.; a 3-horse power ditto, price, mounted on iron wheels, 1181.; a portable thrashing, shaking, riddling, winnowing and barley avelling machine, price 451.; a chaff cutter, price 111. 11s.; a chaff cutter, for hand or power, price 71.; oilcake breaker, price 11. 15s. to 31. 10s.; a gear work for one or two horses, price 91.; and an intermediate motion for horse gear, price 31. 10s.; all invented, improved, and manufactured by the exhibitors; (new implement) a Smith and Taylor's patent cultivator, scarifier, or drag harrow and pulverizer combined, invented and manufactured by the Thomas Smith, of Bredfield, Suffolk, price, with nine drag teeth, 121. 12s.; A. T. Smith's patent self-acting counterbalance lever horse-rake,

invented, improved, and manufactured by Thomas Smith, of Bredfield, Suffolk, price, with 34-inch iron wheels and shifting counterbalance weights, £8 8s.

JOHN TYE, of Lincoln.

A portable or travelling corn grinding mill, highly commended at Chester in 1858, price 651.; portable or fixed corn-grinding mills, price £38 and £44; and a corn mill, price 1451.; all invented, improved, and manufactured by the exhibitor.

WILLIAMSON BROTHERS, of Canal Iron Works, Kendal, Westmorland.

A 3-horse power portable steam engine, price £120; a 3-horse power portable steam engine, price £50; an improved 4 horse power portable combined thrashing, shaking, and winnowing machine, price £50; an improved 3 horse power ditto, price £48; a 2 horse power thrashing machine, price £28; an improved 2 horse power thrashing machine with straw shakers, price £33; an improved straw-shaker, price £6; an improved 2 horse gear work, price complete, with drag bars, whippetrees, driving shaft, &c., £16; all invented, improved, and manufactured by the exhibitors; model of a patent vortex turbine, invented by James Thomson, Esq., and improved and manufactured by the exhibitors, price £10; a patent short barrel cast-iron lift and force pump, manufactured by John Warner and Sons, of London, price £3 8s.; a web or brush harrow, price £3. 10s.; an improved barrel churn, price £4; a washing wringing, and mangling machine, price £5 10s.; and an improved corn dressing machine, price £5 10s.; invented, improved, and manufactured by the exhibitors.

BARRETT, EXALL, AND ANDREWES, of Kate's Grove Iron Works, Reading, Berkshire.

A patent subsoil plough and pulverizer, invented by Mr. Read, of London, improved and manufactured by the exhibitors (received the prizes of the Royal Agricultural Society of England at Southampton, Shrewsbury, Newcastle, Northampton, York, and Chelmsford), price £5; a Hunt's improved press roller, invented by B. Hunt, of Sherborne, and manufactured by the exhibitors, price £12; a large registered clod crusher, invented by John Large, Esq., of Upton, Berks, and manufactured by the exhibitors, price £15; a two horse power portable steam engine (received the prize at Amsterdam in 1858), price £100; a three horse power ditto, price £120; an eight horse power ditto (obtained the prize medal at the Great Exhibition, 1851, the prize at Lewes, 1852, the high commendation of the Royal Agricultural Society at Carlisle, 1855, the prize of 400 francs and silver medal at Paris, 1856, the gold medal at Vienna, and the grand prize diploma at Pesth, 1857), price £230; a twelve horse power double cylinder portable steam engine, price £310; a four horse power horizontal fixed steam engine, price £110; a six horse power ditto, price £150; a ten horse power ditto (obtained the prize of £10 at the Carlisle Meeting in 1855, the prize of 250 francs and gold medal of honour at Paris, 1856, the gold medal of honour at Vienna, and grand prize diploma at Pesth, 1857, and first prize of £20 at Chester, 1858), price £230; two 54-inch steam power combined portable thrashing machines, price, with wood wheels, £90 and £110; a 30-inch patent thrashing machine, price £32 10s.; a 36-inch patent ditto, price £37; a two horse portable patent thrashing machine (received prize, commendations, and medals from every agricultural society of note in England and Ireland, the prize of 250 francs and gold medals at Vienna, and grand prize diploma at Pesth in 1857), price £31 16s. 6d.; a three horse patent portable thrashing machine and patent horse gear, price £40 3s.; a patent one horse gear and intermediate motion, price £14 17s. 6d.; a four horse patent safety gear, price £22 16s.; a six horse ditto, price £29 18s. 6d.; a portable grinding mill, for horse or steam power, price £21; patent safety chaff cutters of all sizes (highly commended at the meetings of the Royal Agricultural Society of England at Lincoln, Carlisle, and Chester), price £3 6s. 6d. to £15; three sizes of a peragon universal grain mill, price £3 6s. 6d. to £7 12s. (obtained the prize medal of the Great Exhibition, 1851, besides others); an 18-inch patent endless band saw and frame (obtained the silver medal of the Royal Agricultural Society of England at Chelmsford, 1856), price 17s. 2s.; a

36-inch ditto, price £52 5s.; a 54-inch patent perforated beater drum, with spindle and rings, price £12; a registered reverse-action haymaking machine (obtained the prize of the Royal Irish Society, at Dublin, 1851, and a prize of the Royal Agricultural Society of England, at Salisbury, 1857), price £14; a patent horse rake, for hay, &c. (received the prize of the Great Yorkshire Society, at Sheffield, 1852, also a first-class medal of the Royal Irish Society, at Galway), price £7 10s.; smaller size £6 18s.; a barley aveller, for hand power (obtained the commendation of the Royal and other Societies), price £5; an oilcake breaker for hand power, price 4l. 5s. 6d.; and a grass and seed broadcast sowing machine, price 3l. 5s., all invented, improved, and manufactured by the exhibitors; and an American winnowing machine, invented by Grant of America, improved and manufactured by the exhibitors, price 8l.

JOHN BETTRIDGE, of Wellabourne, near Warwick.

A light nine-row corn drill, price £13, invented, improved, and manufactured by the exhibitor; a steershoe horse hoe, for general purposes, price £5 10s., improved and manufactured by the exhibitor; a small simple two-row drill, price £2 10s., and a farm gate, hangings, and fastenings, price 1l. 4s., both invented and manufactured by the exhibitor.

JOHN CLARKE AND BROTHERS, of Shiffnal, Salop.

A set of five light seed barrows, price £4 2s., and a set of three-beam barrows, price £4 18s., improved and manufactured by the exhibitors; a set of three-beam seed barrows, price £3 5s., and a horse hoe, or turnip scuffer, price 1l. 17s., manufactured by the exhibitors; an improved cart, for general purposes, price £16, improved and manufactured by the exhibitors; a pair of iron tubular shafts, price £2 10s.; a set of tubular iron whippetrees, price 15s.; a set of four stretstuffs of tubular iron, price 8s., all invented and manufactured by the exhibitors; two farm gates, price 1l. 2s. 6d. and 1l. 4s., improved and manufactured by the exhibitors; a pair of patent iron tubular shafts, suitable for a phaeton, price 1l. 15s., and a pair of patent tubular iron Brougham shafts, price 1l.; invented and manufactured by the exhibitors.

JOSHUA COOCH, of Harleston, near Northampton.

A plough for general purposes, price £4 15s., two improved patent corn dressing machines, price £13 and £14 10s., all invented, improved, and manufactured by the exhibitors (obtained the prize of £10 at the Liverpool meeting, 1841; also a prize of £15 at the Northampton meeting, 1847); a seed dressing machine, price £12 10s., invented and manufactured by the exhibitor; a set of small seed apparatus, price £2, manufactured by the exhibitor; a barley hummeller, price £4 10s., invented and manufactured by the exhibitor; a ditto, price £6, invented, improved, and manufactured by the exhibitor (obtained the prize of £3 at the Derby meeting, 1813, and also a silver medal at the Southampton meeting, 1844); a patent sack holder, price 1l., invented by Henry Gilbert, late of St. Leonard's-on-Sea, and manufactured by the exhibitor; a ditto and barrow combined, price £1 10s., invented by Henry Gilbert, late of St. Leonard's-on-Sea, and improved and manufactured by the exhibitor.

WILLIAM ROBERTS, Northampton.

A cast-iron ornamental swing cot, price £14 10s.; cast-iron garden seats, price £2 5s. to £6 10s.; several cast-iron garden chairs, price £2 10s.; a cast-iron ornamental fern stand, price £2; a ditto flower stand, price £2 5s.; a circular cast-iron ornamental garden seat, price £13, without table and flower stand £3 less; several patterns of bronzed cast-iron ornamental garden tables, price 1l. 10s. to 1l. 15s.; a Berlin black cast-iron smokers' table, price 1l. 15s.; a bronzed table, price 1l. 15s.; a bronzed cast-iron ornamental hall table, price 1l. 17s. 6d.; a Berlin black cast-iron ornamental hall table, price 1l. 12s. 6d.; a drawing room register stove, fender, and ash pan, price £21; a register stove, with hearth plate and fender, price £15, and a ditto, price £10, all invented and manufactured by the exhibitor; portable mangles, price £3 5s. and upwards; a sack barrow, price 12s. 6d.; a barley aveller, price 10s. 6d., and a revolving barley aveller, price 1l., all improved and manufactured by the exhibitor; a pair of door porters, price 8s. 6d.; flower stands, price £2 15s. to £6 10s., invented and manufactured by the exhibitor; a ventilator, price 15s., improved and manufactured by the exhibitor; two

ventilators, price 10s. and 15s., and drain grates and frames price 3s. 9d. to 10s. 6d., invented and manufactured by the exhibitor; two stench traps, price 6s. 6d. and 9s., improved and manufactured by the exhibitor; a stench trap, price 8s., invented, improved, and manufactured by the exhibitor; a ditto, price 11s. 6d., invented and manufactured by the exhibitor; a ditto, price 9s., invented, improved, and manufactured by the exhibitor.

SIDNEY FLAVEL AND CO., of Eagle Foundry, Leamington, Warwickshire.

A model cottage range, price £3, invented by William Bell, of Nottingham, and manufactured by the exhibitors; cottage kitcheners, price £3 5s. and £4 10s., invented and manufactured by the exhibitors; various sizes of kitcheners, price £7 5s. to £60 10s., invented by Mr. Flavel, and improved and manufactured by the exhibitors; a hot plate, hot closet, and grilling stove, price £13, improved and manufactured by the exhibitors; a portable kitchener, price £5, invented and manufactured by the exhibitors.

RICHARD GARRETT AND SONS, of Leiston Works, near Saxmundham, Suffolk.

A patent iron plough for deep ploughing, invented by Rudolf Sack, of Loeben, Prussia, and improved and manufactured by the exhibitors, price £7 10s.; a patent self-cleaning clod crusher and roller, price £21, invented by John Patterson, of Beverley, Yorkshire, and improved and manufactured by the exhibitors (received a special medal at the Society's meeting in 1855); a patent self-acting counter-balance lever drag rake, price £8 8s., invented by Thomas Smith, of Bredford, and manufactured by the exhibitors; an improved chaff-cutting machine, mounted on wheels, and adapted for being driven by steam power, price £15 15s.; an oilcake breaker for hand, horse, or steam power, price £6 10s., and a ditto for hand power, price £4 5s.; improved corn-dressing machines, price £6 5s. to £12 10s. (received the prize of £5 at Chester, 1858); a one-horse power portable open drum thrashing machine, price £32; a two-horse power bolting thrashing machine, price £47, and a six-horse ditto, with straw-shaker and screen, and strong driving gear, price £109 (received the prize of £10 at Chester); all improved and manufactured by the exhibitor; (new implements) patent portable combined thrashing and dressing machines for finishing the corn for market, price £35 to £105, invented by Richd. Garrett, Jun., and Jas. Kerridge, both of Leiston Works, and improved and manufactured by the exhibitors; a five-horse power portable steam engine, price £185; a six-horse power ditto, price £210; a seven-horse power ditto, price £235; a nine-horse ditto, price £250; and a portable mill, with stones for grinding farm produce, price £35, all improved and manufactured by the exhibitors (received the prize of £10 at Chester, 1858); a drill for general purposes, price £42 (received nine of the Society's money prizes, amounting to £107, and two special medals); and an improved drill for seed and manure on the flat and ridge, with Chambers' patent manure barrel, price £23 15s., both invented by the exhibitors and Mr. T. Chambers, Jun., of Colkirk Hall, and improved and manufactured by the exhibitors (prizes of £10 each at Cambridge, Northampton, York, and Gloucester, £5 at Carlisle, and the great council medal were awarded for this drill); a three-row economic seed and manure drill, price £12 12s., invented, improved, and manufactured by the exhibitors (prizes of £5 each at Lewes, Gloucester, and Lincoln); improved Suffolk prize lever corn and seed drills, price £22 and £25 (the prize of £10 at Norwich, 1849); improved corn and seed drills for small occupations, price £15 and £17 (prizes of £10 at Exeter in 1850, £5 at Lewes in 1852, and £2 at Salisbury in 1858 were awarded for this drill), all improved and manufactured by the exhibitors; a patent combined seed and liquid manure drop drill, price £22, invented by Mr. Thos. Chambers, Jun., of Colkirk Hall, and Mr. Thos. Chandler, of Aldbourn, and improved and manufactured by the exhibitors; a patent drop lever, price £2 7s. 6d., and a patent broadcast manure distributor, price £18, invented by Mr. T. Chambers, Jun., of Colkirk Hall, and improved and manufactured by the exhibitors (obtained prizes at Lincoln in 1851, at Carlisle in 1855, and at Salisbury in 1857); a patent prize horse hoe, price £18, invented, improved, and manufactured by the exhibitors (obtained in 14 prizes 65l. and 5 medals); a broadcast seed sowing machine, price £4 10s., improved and manufactured by the exhibitors; patent lever horse hoes, price £13

and £17, invented by John Taylor, of Annesley Park, Notts, and improved and manufactured by the exhibitors; a patent combined turnip hoe and thinner, price £8 8s., invented by John Horton, of Ashburton, and improved and manufactured by the exhibitors.

JOHN LAKE BAKER, of Hargrave, near Kimbolton, Huntingdonshire.

(New implement) a farm gate, price £1 4s., invented and improved by the exhibitor, and manufactured by William Eaton, of Dean, Bedfordshire; Specimen Draining Pipes, price £1 to £4 10s. per 1000, manufactured by Williams' tile machine, the property of the exhibitor; a farm gate, price £2 2s., invented and improved by the exhibitor, and manufactured by William Eaton, of Dean, Bedfordshire; a ditto, price £1 1s., manufactured by William Eaton, of Dean, Bedfordshire.

CH. HANSON, Secretary to Bray's Traction Engine Company (Limited), of 12, Pall Mall East, London.

(New implement), a traction engine, invented by William Bray, of Folkestone, Kent, and manufactured by R. and T. Hughes, of New Cross, London, price £875; (new implement) a traction engine, invented by William Bray, of Folkestone, Kent, improved by the Company, and manufactured by James Taylor and Co., of Birkenhead, price £675.

JAMES HAYWOOD, JUN., of the Phoenix Foundry, Derby.

A 5 horse power portable steam engine, price £180; a 4-horse power portable steam engine, with vertical cylinder, price £135; a 4 horse portable combined thrashing-machine, price £90; a 3 horse power portable steam engine with vertical cylinder, price £95; a 3 horse portable combined thrashing-machine, price £75; a 2 horse power portable thrashing-machine price £50; a 2-horse power fixed steam engine, with vertical cylinder, price, complete £65; a 4 horse power fixed steam engine, with vertical cylinder, price, complete £105; a portable circular saw bench, price £18; a double barrel liquid manure pump, price £35; a portable grinding mill, with 24 inch Derbyshire Peak stones, price £22; and a portable grinding mill, with 18 inch Derbyshire Peak stones, price £17 10s., all invented, improved, and manufactured by the exhibitor; a pair of Medici vases and pedestals in cast iron, price, vases 70s., pedestals 50s. each; and a pair of cast iron ornamental vases and pedestals, price, vases 30s., pedestals 21s. each, invented and manufactured by the exhibitor; cast iron ornamental vases and pedestals, manufactured by the exhibitor, price, vases 20s., pedestals 15s. each and upwards; cast iron ornamental garden chairs (oak pattern), invented and manufactured by the exhibitor, price 80s. each; a cast-iron ornamental single garden chair, price 17s. 6d.; a cast-iron ornamental garden chair (octagon shape), intended to be fixed round a tree, price £7 10s.; a cast iron ornamental table, with revolving top, price 35s.; an assortment of cast iron fruit plates, price 2s. 6d. each; and a pair of cast-iron ornamental vases and pedestals, price, vases 30s., pedestals 15s. each; invented and manufactured by the exhibitor.

HOLMES & SONS, of Prospect Place Works, Norwich, Norfolk.

An improved portable steam engine of 8-horse power, improved and manufactured by the exhibitors, price £230; a new portable saw bench, with self acting feed motion, suitable to be driven by portable engines, price £60; a portable circular saw bench, price £16, invented, improved, and manufactured by the exhibitors; a portable seed sheller, with dressing apparatus, invented and manufactured by the exhibitors, price £50; a corn dressing and winnowing machine, price £5 10s.; an improved manure distributor, for small and large quantities, price £14; an improved drill for corn or general purposes, price £28; an improved seed and manure drill, for large occupations, price £20; the Bath and West of England and royal Carlisle prize economical seed and manure drill, price £13 13s.; a 13 row lever Salisbury prize corn drill, awarded the Royal Agricultural Society's first prize at Salisbury, price £35; and an 11 row lever prize corn drill, price £22 10s., invented,

improved, and manufactured by the exhibitors; a 7 row small occupation corn drill, invented and manufactured by the exhibitors, price £14 14s.; a 1 row lever hand seed drill, with cups, invented, improved, and manufactured by the exhibitors, price 40s.; a broadcast machine for sowing all kinds of grain, price £10; a 2-row hand drill, for turnips or mangold wurtzel, ridge or flat, price 55s.; and a wrought iron land roller, price £6 10s.; invented and manufactured by the exhibitors.

ISAAC JAMES, of Tivoli Waggon Works, near Cheltenham, Gloucestershire.

(New implement) a prize liquid manure distributor, or water cart, invented, improved, and manufactured by the exhibitor, awarded a £2 prize at the Salisbury show, also 7 other prizes at different agricultural shows, price £24, smaller size £20; (new implement) an improved liquid manure and general portable pump, price 63s. 6d., invented, improved, and manufactured by J. Warner, of London; (new implement) a patent economic washing machine, price £8 10s. down to 45; and (new implement) an improved light srong one horse cart, for general purposes, price £11 11s., improved and manufactured by the exhibitor.

JOSEPH EDWARD KIRBY, of Banbury, Oxfordshire.

A combined 6 horse thrashing, shaking, and finishing machine, with barley horner, price £100; and a 3 horse combined thrashing, shaking, and winnowing machine, price £55; a 2 horse portable steam engine, manufactured by Hayes, of Stony Stratford, price £75; a winnowing and dressing machine, price £9; a 2 horse gear work, price £14; a 1 horse gear work, price £10; a 5 furrow seed and corn drill, price 71. 10s.; a 3 row seed and corn drill, price 41. 10s.; a 1 furrow cup turnip and mangold drill, price 45s.; a 1 furrow turnip and mangold drill, for sowing between beans, price 25s.; a 1 furrow brush turnip and mangold drill, price 45s.; and an iron sack barrow, price 121. 6s., improved and manufactured by the exhibitor; a light farmers' general purpose waggon, price 251.

F. P. WALKER, & Co., of 42, Market-street, Manchester.

A chaff-cutting machine, price £7 10s.; and a chaff and litter machine (new implement), price £13 10s., invented by F. P. Walker, and manufactured by the exhibitors; a new lawn-mowing machine, price £6 and £6 10s.; and a bean, pea, oat, and Indian corn kibbling mill, price £4 15s., invented, improved, and manufactured by Pickaley and Sims, of Leigh, Lancashire.

DAVID PROSSER, of Harescomb, near Stroud, Gloucester.

Three sizes of an iron pig trough, improved by the exhibitor, and manufactured by Hill and Smith, of Brierley-hill, Staffordshire, price 16s., £1 9s., and £2 2s.

THOMAS RILEY, of Balsall-street, near Berkeswell, Coventry, Warwickshire.

An iron plough, price £4 12s.; and a turnip hoe, price £2 12s., improved and manufactured by the exhibitor.

JOHN S. A. SHUTTLEWORTH, of Hatherage Hall, Sheffield, Yorkshire.

A pair of Peak millstones, 4 feet 6 inches diameter manufactured by the exhibitor, price £12 12s.

JAMES MELLARD, of Rugeley, Staffordshire.

A general purpose plough, price £4 5s.; and a ridge or double-breast plough, price £3, manufactured by the exhibitor; a parallel lever subsoil plough, invented by Gray and Son, Uddingstone, and manufactured by the exhibitor, price £5 10s.; a chain harrow, improved and manufactured by the exhibitor, price £3 7s. 6d.; a patent self-relieving chain harrow, invented by Cartwright, of Shrewsbury, and manufactured by the exhibitor, price £4; a five-tined cultivator, grabber, and paring plough, price £4 10s.; a seven-tined cultivator, grabber, and paring plough, price £6, improved and manufactured by the exhibitor (received several prizes, and a silver medal from the Staffordshire Agricultural Society); a Tennant's grabber on wheels, price £4 15s.; a three-tined horse-hoe, price,

£1 10s., and a five-tined lever horse-hoe, price £2 5s., manufactured by the exhibitor; a three-tined root grubber, invented and manufactured by the exhibitor, price £2 10s.; two improved press-wheel rollers and clod-crushers, invented by W. Cambridge, of Bristol, and manufactured by the exhibitor, price £8 and £16; a two-furrow turnip and mangold drill, invented, improved, and manufactured by the exhibitor, price £5 10s.; a two-furrow presser, with drilling apparatus, price £8 10s., invented by J. Bright, Esq., of Teddesley, improved and manufactured by the exhibitor; a horse-rake, with steeled teeth, and improved lever, price £6 10s., manufactured by the exhibitor; a patent field stile, price £2, invented by Thomas Lyne, of Malmesbury, and manufactured by the exhibitor; a cast cockle or heat box, price 12s., invented and manufactured by the exhibitor; two ornamental garden chairs, price £1 6s. and £1 12s.; two ornamental rustic garden chair, price £1 3s., manufactured by the exhibitor; an ornamental flower-pot stand, price 16s., designed and manufactured by the exhibitor; liquid manure taps, price 3s. 6d. and 4s. 6d., invented and manufactured by the exhibitor; treacle taps, price 2s. and 2s. 6d., manufactured by the exhibitor; an assortment of poultry troughs, price 9d., 1s., 1s. 6d., and 6s. 6d., invented by Barnard and Bishop, and manufactured by the exhibitor; a circular pig trough (No. 1), 22 inches diameter, with eight divisions, price 12s. and upwards, manufactured by the exhibitor; a pair of 2½-inch cart arms and boxes, price £1 8s. 4d.; an improved carriage jack, price 8s. 6d.; an improved corn stack pillar, with manure room top, price 5s. 9d.; an improved Rugeley Economic cooking range, price £5, manufactured by the exhibitor; a 2-knife economic chaff-cutter on neat cast-iron frame, price £2 2s. to £3 15s.; an improved chaff-cutter, price £6 5s. (new implement), invented, improved, and manufactured by the exhibitor; an improved Corne's chaff-cutting machine, price £10 10s., invented by J. Corne, of Barbridge, improved and manufactured by the exhibitor; a corn-crusher, price £4 15s.; a strong corn-crusher, price £9 10s., invented by Richmond and Chandler, improved and manufactured by the exhibitor; a roller malt mill, price £5 15s., manufactured by the exhibitor; an improved cake-breaker, price £2 15s.; a strong double roller cake-breaker, price £4 10s., invented, improved, and manufactured by the exhibitor; a 3-knife turnip-slicer on iron frame, with wheels to remove, price £3; an improved double-action Gardner's turnip cutter, price £5, improved and manufactured by the exhibitor; a cheese press, price £1 13s.; an improved compound lever cheese press, price £3 5s. (received three prizes from the Staffordshire Agricultural Society), invented, improved, and manufactured by the exhibitor; a cheese stool for heating cheese, price 9s., manufactured by the exhibitor; a curd mill, price £1 10s.; and a galvanized portable liquid manure pump, price £2 7s. improved and manufactured by the exhibitor.

ROBERT AND JOHN REEVES, of Bratton, near Westbury, Wiltshire.

A two-wheel iron plough, price £4 16s. 6d., and a one-wheel iron plough, price £4 3s. 6d., invented, improved, and manufactured by the exhibitors; a set of tubular iron whippetrees, price 14s., manufactured by the exhibitors; a patent two or three-row drill for liquid manure and seed, 4½ feet wide, for ridge and flat, price of drill without the droppers £26, invented by Thomas Chandler of Aldbourn, and improved and manufactured by the exhibitors (the Royal Agricultural Society of England awarded a silver medal to this drill at York, 1848, a prize at Norwich, 1849, a prize at Exeter, 1850, a special prize at Gloucester, 1853, a prize at Lincoln, 1854, and at Carlisle, 1855); a patent two or three-row drill for liquid manure and seeds, price £23 10s.; a patent broadcast dry manure distributor, price £10, invented, improved, and manufactured by the exhibitors (received a prize at Salisbury, it has also received all the prizes it has competed for at other societies since that time); (new implement) a patent manure distributor in rows, price £10, invented and manufactured by the exhibitors; a patent economical drill for dry manure and seed, price £10 (a silver medal was awarded to this drill at Salisbury, 1857); a patent economical drill for manure and seed on the ridge, price £11; and a small occupation corn drill, price £16, invented, improved, and manufactured by the exhibitors.

RICHMOND AND CHANDLER, of Salford, near Manchester and Liverpool.

A chaff-cutting machine (new implement), price £2 10s.; several specimens of various chaff-cutting machines, price £3 15s. and upwards to £15, invented, improved, and manufactured by the exhibitors; a four-horse power portable steam-engine, price £165, invented, improved, and manufactured by Clayton, Shuttleworth, and Co. of London; a corn crusher, price £5 5s.; two bean and oat crushers, price £6 10s. and £10 12s.; a linseed mill, price £6 10s.; a linseed and oat mill for power, price £14 15s.; a vegetable or root washer, price £4 4s.; a steaming apparatus, price £6 9s.; (new implement) a 1 horse gear, price £12 10s.; a turnip-cutter (double action), price £5, invented, improved, and manufactured by the exhibitors; (new implement) a kneading machine, price £10, invented by John Hodgkinson, of Atherton, improved and manufactured by the exhibitors; a patent sackholder, price £1 3s., invented by Dr. Gilbert, of London, improved and manufactured by the exhibitors; and a sack-truck and holder combined, price £1 12s., invented by Joshua Gooch, of Harleston, and improved and manufactured by the exhibitors.

WILLIAM SMITH, of Kettering, Northamptonshire.

Three improved double-blast winnowing machines, price £6 10s., £9 9s. and £11 11s. (awarded a prize of £5 at the Yorkshire Agricultural Society's Meeting, and also three prizes at other meetings); three new patent steerable horse-hoes, price £6 10s., £7, and £7 10s. (a prize of £1 was awarded to this implement at Salisbury, and a special prize at York, 1857, commended by the judges at Carlisle, 1855, and received a first-class medal at Paris, in 1855, and 100 francs in 1856, and also a prize of £6 at Athlone, in 1856); and improved two-knife chaff machine, price £3 15s., and an improved sack truck, price 12s., all invented, improved, and manufactured by the exhibitors.

WILLIAM TASKER AND SONS, of Waterloo Iron Works, Andover, Hampshire.

(New implements) four patent iron ploughs, price £5 to £5 3s. 6d.; ditto, price £4 19s., invented, improved, and manufactured by the exhibitors; a set of 4-beam diagonal iron harrows, price £4 1s., invented by Samuel Lawrence Taylor, of Cotton End, and manufactured by the exhibitors (obtained a prize at the meeting of the Royal Agricultural Society at Derby in 1843, at Southampton in 1844, at Shrewsbury in 1845, at Northampton in 1847, at Norwich in 1849, at Exeter in 1850, the prize medal at the Great Exhibition of 1851, a prize at Lewes in 1852, at Gloucester in 1853, and a prize of £3 at Chelmsford in 1856); two iron field rollers, price £9 and £12 4s., improved and manufactured by the exhibitors; a ditto, price £9, invented, improved, and manufactured by the exhibitors; a 3-wheel land presser, price, fitted with wheels, 36 inches diameter, £9 5s., and a corn drill for thirteen rows, price £29, invented, improved, and manufactured by the exhibitors; an iron horse rake, price £7 3s., manufactured by the exhibitors; a 2 and 4-horse power portable thrashing machine, price £34 13s. 6d. and £52 10s., invented, improved, and manufactured by the exhibitors; an 8-horse power outside-cylinder portable steam engine, price £236 10s., invented, improved, and manufactured by Clayton, Shuttleworth, and Co., Lincoln (this engine has received a prize of £25 at the Royal Agricultural Society's meeting at Norwich, £25 at Exeter, and a prize medal at the Great Exhibition of 1851); (new implement) a patent steam power combined thrashing machine, price £114, invented, improved, and manufactured by the exhibitors.

WALLIS AND HASLAM, of North Hants Foundry, near Basingstoke, Hampshire.

A 7-horse power portable steam engine, price £215, and a combined portable single-blower thrashing, straw-shaking, and winnowing machine, price £105, invented by Clayton and Shuttleworth, of Lincoln; a 4-horse power patent portable thrashing machine, and gearwork for horses, price £50 7s., invented, improved, and manufactured by the exhibitors; a patent portable straw elevator, price £59, invented by James Hayes, of Elton, and improved and manufactured by the exhibitors; a 3-horse patent portable thrashing

machine and improved horse-works, price, if to fix £37, invented, improved, and manufactured by the exhibitors; a 2-horse patent portable thrashing machine and horse-works, price, if to fix on stout oak frame £30, invented by the exhibitors; a 1-horse patent thrashing machine and 1-horse gearwork, or by hand power, price £26 10s., invented by Rawlings, of Collingbourne, and improved and manufactured by the exhibitors; a patent winnowing and corn dressing machine, price £14 5s., invented by Bobby and Bridgeman, of Bury St. Edmunds, and improved and manufactured by the exhibitors; a Scotch winnowing machine for dressing corn, price £10, and a corn blower or small dressing machine, price £4 15s., invented by the exhibitors; patent corn screens, price £6 13s. to £10, invented by Bobby and Bridgeman, of Bury St. Edmunds; improved 2-wheel iron ploughs, price 80s. to 85s. 6d.; a 1-wheel iron plough, price 69s.; a light 2-wheel iron plough, price 73s. 6d.; a 1-wheel iron plough, price 65s.; a pony plough, price 40s.; a 2-wheel horse-hoe, price 50s.; and two horse-hoes with one wheel, price 38s. and 50s., invented by the exhibitors; a 3-row horse-hoe for roots or corn, with swing steering, price £6 15s.; a set of chain harrows, patent self-cleaning, price 90s., invented by John Cartwright; a wheel-roller or clod-crusher, price £12 15s., invented by Cambridge; a registered clod-crusher or wheel-roller, price £14 15s., invented by Charles Haslam, of Basingstoke, and improved by the exhibitors (obtained the commendation of the Royal Agricultural Society at their Chelmsford meeting); two field rollers for land with three cylinders, price £7 7s. and £8, invented by the exhibitors; a machine for drilling iron by hand or other power, price, without frame 88s.; a barley hammeller for hand-power, price 90s.; a Hampshire harvest-cart for one horse, price £9; a pair of 1½ in. patent self-adjusting spherical bearings, price 9s. each (highly commended at the meeting of the society at Chester); a pair of 1½ in. patent ditto, price 11s. 6d. each; and a pair of 2 in. patent ditto, price 24s. each, invented, improved, and manufactured by the exhibitors.

J. WARREN, of Maldon, Essex.

Two patent iron beam expanding ploughs, price 85s. and 95s., and a ditto wood beam, price 70s., invented and manufactured by the exhibitor; a set of 4 harrows, price 80s., improved and manufactured by the exhibitor; a cultivator, price £7, invented, improved, and manufactured by the exhibitor; a double iron roll, price £8 8s.; a ditto, price £12, improved by the exhibitor; a double tom or ridging plough, price 84s., invented and improved by the exhibitor; patent iron beam ploughs, price 80s. to 87s. 6d.; patent expanding ploughs, price 50s. and upwards; a light plough, with wood beam, price 55s.; three Cambridge ploughs, price 50s. to 55s., all invented and manufactured by the exhibitors; a garden plough, price 45s., invented, improved, and manufactured by the exhibitor; three Essex or Goldhanger ploughs, price 45s. and 53s., manufactured by the exhibitor; a T. W. plough, with wood beam, price 50s., invented, improved, and manufactured by the exhibitor; a turnwrest plough, price £1, improved and manufactured by the exhibitor; a patent iron beam expanding plough, price 87s. 6d., and two double tom or ridging ploughs, price 55s., invented and manufactured by the exhibitor; a mangel or furrow horse-hoe plough, price 40s., and a broadshare plough, with iron beam, price £5, improved and manufactured by the exhibitor; a surface skim plough, price 70s., invented and manufactured by the exhibitor; a mangel or furrow horse-hoe, price 52s. 6d.; oilcake mills, price 40s. to 65s.; an iron plough sled, made of iron or wood, price 10s. 6d.; and a set of whippetrees, price 10s. 6d., all improved and manufactured by the exhibitor.

GEORGE BALL, of North Kilworth, near Rugby, Warwickshire.

An iron plough, price 88s. (the only plough which has gained a first class prize medal at each of the three great national exhibitions, viz., England, Ireland, and France, also a prize of £5 at the Royal Society's meeting at Norwich 1849, Exeter 1850, commended at Lincoln 1854, Carlisle 1855, a first class prize medal at Melbourne 1856, and a prize at Chelmsford the same year); three ditto, price 88s., all invented by William Ball, of Rothwell, and manufactured by the exhibitor; two double ploughs, price £7 10s.,

and a 3 or 4-horse waggon, price £35, invented, improved, and manufactured by the exhibitor; a 1-horse cart, price £14 10s. (a first-class prize was awarded for a similar cart at the Royal Agricultural Society's meeting at Salisbury 1857, and two more county prizes); a 2-horse cart, price £16; an iron scarifier, cultivator, or grubber, price £6 6s. each; and an iron scarifier, price £7 10s., improved and manufactured by the exhibitor; a set of 2-horse harrows, price 84s., and a set of 3-horse iron harrows, price 90s., improved by William Williams, of Bedford, and manufactured by the exhibitor.

ADAM C. BAMLETT, of Middleton Tyas, near Richmond, Yorkshire.

(New implement) a cultivator, price 91.; (new implement) a reaping machine, price 361.; and (new implement) a reaping machine, price 381., invented and manufactured by the exhibitor.

WILLIAM BLOXSON, of Gillmorton, near Lutterworth, Leicestershire.

A four horse power portable steam engine, price 1401., and a two-and-a-half horse portable steam engine, price 801., invented and improved by Martin Bloxson, of Gillmorton, and manufactured by the exhibitor.

THOMAS ALLCOCK, of Ratcliff-on-Trent, near Nottingham.

A chaff cutting machine, with two knives, invented, improved, and manufactured by the exhibitor, price, at Nottingham station, 181.; a chaff cutting machine, with two knives, invented and manufactured by the exhibitor, price, as above, £5 10s.; a chaff cutting machine with two knives, improved and manufactured by the exhibitor, price, as above, 45s.; a horse rake, price, as above, £6 15s.; and a horse hoe, price 55s., invented and manufactured by the exhibitor.

EDWARD HAMMOND BENTALL, of Heybridge, near Maldon, Essex; Swan-lane, Upper Thames-street, London, E.C.; and 48, Rue des Marais St. Martin, Paris.

A patent plough, price 58s. 6d.; a patent plough (obtained two prizes of 80s. and 40s. at the Chelmsford meeting in 1856), price 70s.; a set of Bentall's patent four-beamed heavy or drag harrows, price 85s.; a set of Bentall's patent three-beamed ditto, price 94s. 6d.; a set of Bentall's patent four-beamed light harrows (obtained a prize of 40s. at the Chelmsford meeting in 1856), price 73s.; a set of Bentall's patent three-beamed ditto, price £5 9s. 6d.; a set of Bentall's patent four-beamed light seed harrows, price 58s. 6d.; a set of Bentall's patent three-beamed light seed harrows, price 73s.; a Bentall's patent prize light subsoil plough, price 70s.; a Bentall's patent prize light broadshare and subsoil plough, price £6 6s.; a Bentall's patent prize light broadshare, cultivator, scarifier, and subsoil plough (obtained three prizes at the Chelmsford meeting in 1856, namely, 60s. as a cultivator adapted for heavy land, 80s. as a cultivator adapted for light land, and 40s. as a scarifier or parser), price £7 17s. 6d. and £8 18s. 6d.; a Bentall's patent prize broadshare scarifier and subsoil plough (received the prize of £5 as a pair-horse scarifier at the Royal Agricultural Society's meeting at Exeter 1850; £5 as the best cultivator, grubber, and scarifier at Lincoln, 1854; two medals as a cultivator and as a subsoil plough at the Great Exhibition of 1851; also the first prize of £5 as the best subsoil plough at the Chelmsford meeting in 1856), price £6 6s.; a Bentall's patent light iron broadshare, price £5 15s. 6d.; a Bentall's patent broadshare and subsoil plough, price £6 6s.; a Bentall's patent light broadshare plough, price £5 5s.; a Bentall's patent prize light broadshare and cultivator, price 90s. and 80s. (obtained the first prize at the Norfolk Agricultural Association's Meeting at Swaffham in 1857); a Bentall's patent light three-tined grubber and cultivator (received the first prize of £5 as the best grubber at the Great Yorkshire Agricultural meeting at Northallerton in 1854, price 47s. 6d.; and a Bentall's patent Salisbury prize double-ridge horse hoe, price 75s. 6d., all invented, improved, and manufactured by the exhibitor (this hoe was awarded a prize of 30s. at the Salisbury meeting of the Royal Agricultural Society in 1857); a Bentall's patent single-ridge horse hoe, improved and manufactured by the exhibitor, price 42s.; a Bentall's patent combined ridging plough and horse hoe, price 64s. 6d.; a Bentall's wood-beamed

mangel hoe, price 42s.; and a Bentall's double tom and mangel plough, price 75s., invented, improved, and manufactured by the exhibitor; a Bentall's improved horse rake, price £8; and a Bentall's improved chaff cutter, price 52s. 6d., improved and manufactured by the exhibitor; a Bentall's improved chaff cutter, invented, improved, and manufactured by the exhibitor, price £7; a Gardner's patent turnip cutter, invented by the late James Gardner, of Banbury, improved and manufactured by the exhibitor, price 90s.; a Bentall's patent root pulper (obtained the only prize of £5, awarded to root pulpers at the Chester Meeting of the Royal Agricultural Society, 1858), price from £5 5s. to £8 8s.; a Bentall's first prize oilcake mill (obtained the first prize of 5l. at the Society's Meeting at Chester, 1858), price from 40s. to £5 5s.; Bentall's improved circular hog troughs, price 10s. to 16s.; and Bentall's improved circular pig or sheep troughs, price 7s. 6d., invented, improved, and manufactured by the exhibitor; and a great variety of Bentall's improved pig troughs, improved and manufactured by the exhibitor, price 3s. 4d. and upwards.

JOHN BRUCE, of Tiddington, near Stratford-on-Avon, Warwickshire.

A registered skim or paring plough (obtained a prize at Southampton in 1844 of 5l., and at Shrewsbury in 1845 of 6l.), price 7l.; and a plough, with subsoil attached, price 7l. 7s., invented, improved, and manufactured by the exhibitor (a prize was awarded to this implement at Derby in 1843 of 5l.; a plough, for light land, with improved coulter fastenings, and skim, price 95s.; and a drill for general purposes, price 28l. 10s., improved and manufactured by the exhibitor; a cup drill for two or three rows, invented and manufactured by the exhibitor, price 5l.; a double-breasted or ridging plough, improved and manufactured by the exhibitor, price 80s.; a sca, riser or drag, price 5l., and a horse hoe for general purposes, price 84s., invented and manufactured by the exhibitor; and a harrow seed sower, improved and manufactured by the exhibitor, price 63s.

WILLIAM C. CAMBRIDGE, of St. Phillip's Iron Works, Bristol.

An improved iron plough, with two wheels, price 5l. and 90s.; an improved iron plough, with one wheel, price 80s. and 90l.; a patent jointed self-expanding chain harrow, price 75s. to 6l.; a patent double-action press wheel roller and clod crusher (obtained the first prize at the Bath and West of England Society's Meeting, held at Cardiff in June, 1858, first prize medal at the Melbourne Show, Australia; and first prize medal at the Geelong Show, 1858), price from 10l. to 18l.; an improved leser horse rake, price 7l. 10s.; a patent improved winnowing machine, price 10l. 10s.; a seven horse power portable steam engine, price 215l.; a patent portable combined thrashing machine, price 100l.; a three horse power portable steam engine, price 140l.; and a portable combined thrashing machine, price 55l.; all invented, improved, and manufactured by the exhibitor.

JOHN CARTWRIGHT, of Shrewsbury, Salop.

(New implement) a double patent action combined clod crusher and press wheel roller, invented, improved, and manufactured by the exhibitor, price 15l. 10s.; (new implement) a patent wood-cutter's machine, price 5l. 5s.; and (new implement) a patent compound lever mattock, price 21s., invented and improved by Duppa Duppa, Esq., of Wistanstow, and manufactured by the exhibitor; an improved two horse gear work, price 10l. 10s.; a patent intermediate motion, price 5l. 5s.; and an improved chaff cutter, with three knives, price 10l. 10s., invented, improved, and manufactured by the exhibitor; a patent compound action mill, invented, improved, and manufactured by John Patterson and Co., of Beverley, price 15l.; a patent prise root pulper, invented, improved, and manufactured by E. H. Bentall, of Heybridge, price 8l. 8s.; a two horse power barn work, for thrashing machine, invented, improved, and manufactured by the exhibitor, price 10l. 10s.; a patent wheat mill and dressing machine combined, invented, improved, and manufactured by Lloyd and Son, of London, price 9l.; an improved barrel churn, for power, 50 gallons, invented, improved, and manufactured by Robinson and Son, of Coventry, price 87s. 6d.; a combined winnowing or corn dressing machine, also a first-rate blower, price 8l. 5s.; a

patent light self-relieving chain harrow for two horses, price 85s.; a medium self-relieving chain harrow for two horses, price 95s.; a patent self-relieving chain harrow, for three horses, price 5l. 5s.; and a patent medium self-relieving chain harrow, for one horse, price 67s. 6d., invented, improved, and manufactured by the exhibitor.

COLEMAN and SON, of Chelmsford, Essex.

A patent double five-prong cultivator, for steam-power, invented and manufactured by the exhibitors, price £40; a patent clod-crusher, price £21; a patent seven-prong cultivator, grubber, or scarifier, price £14 10s.; two patent five-prong ditto (the Royal Agricultural Society of England awarded first prizes to it, at Gloucester, in 1853, and at Chelmsford, 1856), price 7l. and 7l. 15s.; a patent five-prong cultivator, grubber, or scarifier, price reduced to £9; and two patent seven-prong ditto, prices reduced to £11 and £13, invented by Richard Coleman, improved and manufactured by the exhibitors; a patent potato-digger, invented by John Hanson, of Doagh, improved and manufactured by the exhibitors, price £17. 10s.

JAMES COMINS, of Southmolton, Devonshire.

A paring plough (this implement received the prize of the Bath and West of England Agricultural Society's Meeting, held at Taunton, June, 1852), price £4 15s.; a registered one-way turn-over or turn-rest plough, price £4 15s.; (new implement), a new-pattern one-way turn-over or turn-rest plough, price £3 15s.; a subsoil pulverizer (awarded the prize of £5 at the Royal Agricultural Society's Meeting at Norwich, July, 1849), price £4 10s.; a set of general purpose improved zigzag harrows, price £4 10s.; a pair of general purpose improved zigzag harrows, price £3 1s. 6d.; a set of improved light harrows, price £3 10s.; a four-horse cultivator, grubber, and scarifier, price £10 10s.; a horse-hoe (was awarded a prize medal at the Great Exhibition, 1851), price £3; and a horse-hoe for general purposes, price £2, all invented, improved, and manufactured by the exhibitor.

W. M. CRANSTON, of 11, New Broad-street, London.

A Wood's prize combined reaper and mower (awarded the first prize of £25 as the best reaper, and £20 as the best mower, at the Royal Agricultural Improvement Society's trial at Londonderry, August, 1853), price £35; and (new implement), a Wood's one-horse mowing machine, price £20, invented and manufactured by Walter A. Wood, Hoosick Falls, State of New York, U. S. A.

A. and W. EDDINGTON, of Chelmsford, Essex.

(New implement) a draining windlass, patented and manufactured by the exhibitors, price £160; a drainage plough, invented by John Fowler, jun., of London, and manufactured by Fowler and Fry, Bristol, price £85; a portable steam engine, manufactured by Clayton, Shuttleworth, and Co., of Lincoln, price £235; (new implement) a windlass for steam cultivation, patented, invented by Alfred Eddington, of Chelmsford, and manufactured by the exhibitors, price £200; and a patent surface plough, invented by J. Fowler, jun., of London, manufactured by Ransomes and Sims, of Ipswich, price £95.

JOB ELLIS and SONS, Oswestry, Shropshire.

An eight-horse power portable steam engine, price £230; a six-horse power fixed steam engine, price £155; a combined portable thrashing, shaking, riddling, and dressing machine, for finishing the corn for market at one operation, price £115, invented, improved, and manufactured by the exhibitors.

A. and T. FAY, of Bristol.

A family Cobourg, improved and manufactured by the exhibitors, price £38; an improved Hannam's skeleton harvest cart, invented by J. Hannam, of Burcott Park, Oxon, and improved and manufactured by the exhibitors, price £16 10s.; a Newport prize cart (gained a prize of £3 at Salisbury, 1857, price £15 10s.; and an improved iron watering cart, price £24, invented, improved, and manufactured by the exhibitors; a registered tumbler cart (B size), invented by R. Stratton, of Bristol, and improved and manufactured by the exhibitors, price £31; a corn dressing machine, improved and manufactured by the exhibitors,

price £6 6s.; a corn-dressing machine, price £8; an improved iron-frame chaff machine, price £6; an iron-frame chaff machine, price £10 10s.; and an improved oilcake crusher, price £3 12s. 6d., invented, improved, and manufactured by the exhibitors; an American iron-pointed horse rake, improved and manufactured by the exhibitors, price £1 10s. and upwards; a grass drill (received the following prizes: from the Bath and West of England Agricultural Society, at Plymouth, June, 1853, £2; at Bath, June, 1854, £2; at Tiverton, June, 1855, £2; at Yeovil, 1856, £2; from the Royal Agricultural Society of Ireland, at Athlone, August, 1856, £3; and at Waterford, August, 1857, £5), price £3 10s.; and a two-row seed and manure drill, price £17, improved and manufactured by the exhibitors; an iron horse hoe, invented by Robert Cosens, of Pilton, and improved and manufactured by the exhibitors, price £3 10s. and upwards (a special prize of £3 at the Bath and West of England meeting, at Yeovil, June, 1856; £2 at the Royal Agricultural Improvement Society of Ireland's meeting, at Waterford, August, 1857; and commended at Salisbury, July, 1857); a double-action turnip cutter, price £5 10s.; and a single-action turnip cutter, price £4 10s., invented by J. Gardner, of Banbury, and improved and manufactured by the exhibitors; a root grater, price £3 10s. and £5, invented by Bushe and Barter, of Lismore, Ireland, and improved and manufactured by the exhibitors; an oat and bean mill, price £4 4s., invented, improved, and manufactured by the exhibitors; and a selection of spring balances, prices from 4s. to 5s.

WILLIAM GILBERT, of Shippon, near Abingdon, Berkshire.

An 11-lever corn and seed drill, with improved fore-carriage steerage, price £28 14s., invented and manufactured by the exhibitors; (new implement) a combined roller presser and clod crusher, price £14, invented and manufactured by Alexander Aldworth, of Abingdon.

W. GOULDING and Co., of Short-street Works, Leicester.

Several specimens of a patent iron plough, price £4 15s. and upwards; a wood-beam plough, price £3 5s.; a strong wood-beam plough, price £3 18s.; (new implement) a non-furrow-turning plough, or cultivator, price £4 10s.; (new implement) a pair of patent oil-box wheels, price 12s. 6d. per pair; two moulding, or ridging ploughs, price £3 15s. and £4; a moulding plough, with horse hoe and scarifier combined, price £5 10s.; a five-pronged cultivator, grubber, or scarifier, price £8; a seven-pronged ditto, price £10; a seven-pronged light cultivator, or scarifier, price £9; ditto without lever lift, price £6; a wrought-iron horse hoe, price £1 15s.; a subsoil plough, price 3l.; two sets of wood whippetrees, price 10s.; three sets of improved iron harrows, price 3l. to 4l. 4s.; a set of improved lever harrows, price 2l. 7s. 6d.; one-row turnip and mangal drills, price 2l. 7s. 6d. and 3l. 6s.; a one-row turnip, mangal, and manure drill, price 6l. 15s.; a four-row corn and seed drill, price 5l. 10s.; and a lever corn drill, price 13l. 13s., all invented and manufactured by the exhibitors; (new implement) a patent one-row turnip, mangal wurtel, and artificial-manure drill, on the flat, price 10l. 10s., invented by John Lakin, jun., of Hall End, Tamworth, and manufactured by the exhibitors; two improved oilcake breakers, price 3l. 3s. and 3l. 7s. 6d., improved and manufactured by the exhibitors; corn crushers or kibbling mills, price 4l. 4s. and upwards; a fourteen-knife root pulper, price, with two handles, 5l. 5s.; an eight-knife root pulper, price 4l. 10s. and a six-knife root pulper, price 4l. 10s., invented, improved, and manufactured by the exhibitors; curd breakers, price 1l. 5s. and upwards; wood drag rakes, price 9s. 6d. each, improved and manufactured by the exhibitors; twitch rakes, price, handled, 3s., invented, improved, and manufactured by the exhibitors; various garden seats, price 16s. and upwards, designed and manufactured by the exhibitors.

THOMAS GREEN, of Smithfield Iron Works, North-street, Leeds, Yorkshire.

Several sizes and specimens of lawn mowing machines, price £6 10s. to £18, invented, improved, and manufactured by the exhibitor.

WILLIAM HARKES, of Lostock Gralam, near Knutsford, Cheshire.

(New implement) a patent plough and pulveriser, price £8; (new implement) a turnwrest plough, with patent pulveriser, price £14; (new implement) a one-horse plough, with patent pulveriser, price £5 10s.; a drill plough, price £3 5s., and a scarifier or horse-hoe, price £4, all invented and manufactured by the exhibitor.

WILLIAM HARWOOD, of Mendlesham, near Stonham, Suffolk.

A reaping and mowing machine, price £42, and a mowing machine, price £30, both invented, improved, and manufactured by the exhibitor.

GEORGE HOWE, of Farningham and Dartford, Kent.

A Dray and Co.'s patent champion reaping machine, price £25, invented by Obed Hussey, of America, improved and manufactured by the exhibitor (awarded prizes by the leading agricultural societies of England, Ireland, Scotland, and on the Continent); a Royal Society of England prize chaff-cutting machine, price £7, and a corn-crusher, price £6 10s., invented, improved, and manufactured by Richmond and Chandler, of Salford, Manchester; a patent bean-cutter, on an iron stand, price £4, invented and improved by G. A. Biddell, of Ipswich, and manufactured by Ransomes and Sims, of Ipswich, Suffolk; a Royal Agricultural Society of England prize oilcake breaker, price £5 5s., and an improved oilcake breaker, price £3 18s. 6d., both invented, improved, and manufactured by E. H. Bantall, of Heybridge, Essex; a Royal Agricultural Society of England prize root-cutter, price £5 10s., invented by James Gardner, of Banbury, improved and manufactured by B. Samuelson, of Banbury; a patent prise root-pulper, price £6 6s., invented, improved, and manufactured by E. H. Bantall, of Heybridge, Essex; a 4-cwt weighing machine, price £3 18s., improved and manufactured by W. and T. Avery, of Birmingham; a patent sack holder, price £1 8s., invented by H. Gilbert, of London, improved and manufactured by Richmond and Chandler, of Salford, Manchester; a very economical chaff-cutting machine, price £3 15s., invented, improved, and manufactured by Richmond and Chandler, of Salford, Manchester; improved leather driving bands for machinery, price 8d. to 4s. 1d. per foot, manufactured by the exhibitor.

THOMAS JOHNSON and SON, of Leicester.

A 3-cwt. weighing machine, price £3 5s., invented and manufactured by Day and Millward, of Birmingham; a 3-cwt. platform weighing machine, on wheels, price £3 15s., and a 4-cwt. platform weighing machine, price £4 5s., both improved and manufactured by Day and Millward, of Birmingham; a 3-cwt. sack weighing machine, price £2 2s., and a 3-cwt. portable platform weighing machine, price £3 8s., both improved and manufactured by W. and T. Avery, of Birmingham; a mangle, price £10, improved and manufactured by the exhibitors; a 19-inch patent mowing machine, price £8 10s., improved (and manufactured by Pickles, Sims, and Co., of Leigh); a 20-inch patent lawn mowing machine, price £7 10s., other sizes higher, improved and manufactured by Thos. Green, of Leeds; a Whitechapel or sporting dog-cart, price £36, and a Leicester basket cart, price £28, both improved and manufactured by Parr and Hamshaw, of Leicester; several sizes and patterns of garden chairs and seats, price 15s. upwards, manufactured by the Coalbrookdale Company and the exhibitors, cast-iron vases, pedestals, &c., of various sizes, price £2 2s. upwards, manufactured by the Coalbrookdale Company, and Handyside and Co., of Derby; a cast-iron fountain, price £14 10s., manufactured by Handyside and Co., of Derby; bronzed flower-pot stands, price £2 to £12; a bronzed cast-iron hat and umbrella stand, price £8, all manufactured by the Coalbrookdale Company; a cast-iron hat and umbrella stand, with hall table combined, price £8, manufactured by Corbitt and Co., of Rotherham; an ornamental cast-iron hat and umbrella stand, price £3, and a cast-iron table, price £1 12s. 6d., both manufactured by the exhibitors; a cast-iron hall table, price £4 15s., manufactured by Corbitt and Co., of Rotherham; an ornamental cast-iron chimney-piece, price £5 10s.; a register stove, price £4 10s., and a cast-iron hearth place and bright ash pan, price £3 17s. 6d.; various sizes and patterns of iron wire garden chairs, price 8s. 6d. upwards; ditto stools, price 5s. 6d.; iron wire flower stands, price 14s. upwards; wire

flower-pot stands (single), japanned, price 5s. 6d. upwards; a set of three Exhibition suspending flower baskets, price 14s. per set; a set of wire gauze dish covers, various sizes, price 1s. 3d. to 5s. 6d., or £1 5s. per set; a galvanised iron wire rat trap, price 4s. 6d.; a roll of galvanised iron wire game netting, price 6d. to 7d. per running yard, all manufactured by the exhibitors; a large-sized newly-designed parrot cage, price £8 12s. 6d., manufactured by Baker and Co., of Birmingham; wire bird cages, price 16s. 6d. upwards, and a galvanised meat safe, two sizes, price £1 1s. to £1 6s. each, manufactured by the exhibitors.

GEORGE JOSEPH JOHNSTON, of Ashley, near Newmarket, Cambridgeshire.

(New implement) a registered rotary coulter or cutter for corn and seed drills, price of fittings altogether £30, invented and manufactured by the exhibitor.

ARTHUR LYON, of 32, Windmill-street, Finsbury, London.

(New implement) a machine for pulping raw roots, invented and manufactured by the exhibitor, price £6 10s.; a machine for pulping steamed roots, for feeding pigs, &c., price £7; a machine for pulping steamed or raw roots, price £5 and £7 10s.; a machine for cutting carrots, &c., for horses, and mixing food for hounds, price £6 10s.; various sizes of a machine for cutting meat and making sausages, price £2 to £6 6s.; a machine for mincing meat, fish, and vegetables, also making sausages, price £1 10s.; a machine for the dinner table, to assist digestion, price £1 5s. to £2 2s.; a machine for making sausages, &c., price £1 10s.; a knife and board for chopping suet, parsley, &c., price 4s. 6d.; similar to the preceding, price 3s. 6d.; a tobacco cutting knife, price 2s. 6d.; a knife for slicing cucumbers and potatoes, price 1s.; and a machine for pulping roots, &c., for feeding poultry, price £2 5s., invented, improved, and manufactured by the exhibitor; a machine for paring, coring, and slicing apples, invented, improved, and manufactured by Timmins's, of Birmingham, price 8s. 6d.; a gardener's roll, containing pruning knives, invented, improved, and manufactured by Rogers, of Sheffield, price 7s. 6d.

OLIVER MAGGS, of Bourton (Dorset), near Wincanton, Somerset.

An improved 4 horse power portable steam engine, price £145; a patent combined bolting thrashing machine, price £65; a 2½ horse power portable steam engine, price £70; a small combined thrashing and riddling machine, price £35; and an improved chaff cutter, with 3 knives and sifting apparatus, for steam or other power, price £16 10s., invented, improved, and manufactured by the exhibitor; a patent cheese press, invented and manufactured by the exhibitor, price £2 12s. 6d.; an improved screw and lever cheese press, invented, improved, and manufactured by the exhibitor, price £2 12s. 6d.; an improved solid beam iron plough, price £4 7s. 6d., two wheels 10s. extra; and an improved solid beam iron plough, price £4 7s. 6d., improved and manufactured by the exhibitor; (new implement) a set of patent self expanding chain harrows, invented and manufactured by the exhibitor, price £3; an improved clod crusher or wheel roller, invented, improved, and manufactured by the exhibitor, price £14; a pair of improved door scrapers, invented by C. F. C. Foxon, of Bourton, improved and manufactured by the exhibitor, price 3s. and 5s.; an improved patent rotary washing machine, price £4 4s.; and an improved patent washing machine, price £3 10s., invented, improved, and manufactured by the exhibitor; a patent atmospheric house bell, invented, improved, and manufactured by J. J. Willnay, of Bristol, price 10s. 6d.

CHARLES PETERS MOODY, of Corton Denham (near Sherborne, Dorset), Somersetshire.

(New implement) a patent straw fabricating machine, invented, improved, and manufactured by the exhibitor, price £25.

OLDEAM and BOOTH, of Kingston-upon-Hull, Yorkshire.

(New implement) a six horse power combined bone mill and bone dust mill, invented and manufactured by the exhibitors, price £220; and (new implement) a 4 horse power bone dust mill, price £90, invented, improved, and manufactured by the exhibitors.

HILL and SMITH, of Brierley Hill Iron Works, near Dudley.

(New implement) a set of Smith's patent harrows, invented by H. Smith, and manufactured by the exhibitors, price £3 to £5; a set of patent self relieving chain harrows, invented by Jno. Cartwright, of Shrewsbury, and manufactured by the exhibitors, price £3 10s. to £4 15s.; a wrought-iron stubble paring skim, or light scarifier (obtained a prize from the Royal Agricultural Society at the Derby meeting), price £5 and £6; a strong wrought iron broadshare, price £3 10s.; (new implement) a strong wrought iron cultivator, or broadshare, price £12 10s.; a wrought iron horse hoe (has obtained the silver medal of the Royal Agricultural Society), price £3 3s.; a premium wrought iron light land roller, in two parts (obtained the prize as a light land roller at the Chelmsford meeting of the Royal Agricultural Society), price £10 10s.; a wrought iron barley roller, price £8; (new implement) a wrought iron universal field roller, large size, in two parts, price £15; and a cast iron land roller, price £14, invented and manufactured by the exhibitors; a cast iron clod crusher, or roller, invented by Wm. Cambridge, of Bristol, and manufactured by the exhibitors (obtained the prize as a clod crusher at the Chelmsford meeting of the Royal Agricultural Society), price £8 18s. to £13 15s.; a chaff cutting machine, invented and manufactured by the exhibitors, price £12; a chaff cutting machine, invented by Cornes, of Barbridge, improved and manufactured by the exhibitors (has on repeated occasions obtained the Royal Agricultural Society's prize), price £13; a chaff cutting machine, for hand power, price £6 10s.; and a chaff cutting machine, price 50s., invented and manufactured by the exhibitors; a machine for crushing oats or beans, price £5 5s.; a machine for breaking oilcake, invented and manufactured by the exhibitors, price 65s.; a turnip cutting machine, invented by Gardner, of Banbury, improved and manufactured by the exhibitors, price £5 10s., smaller 90s.; a turnip grating or pulping machine, invented by Moody, and improved and manufactured by the exhibitors, price 90s.; a horse works, price £12 12s.; a granary or warehouse crane (obtained a prize from the Society), price £7 10s. and £10 10s.; a rotary gravel screen, price £6 16s. and £8; an iron portable forge, price £5 5s.; an iron portable smith's work bench, with vice attached, price 40s.; an iron lifting jack, for carriages, carts, &c., price 20s.; and an iron sack barrow or truck, price 15s., invented and manufactured by the exhibitors; a patent sack holder and sack barrow combined, invented by Henry Gilbert, of London, improved by Henry Cooch, of Harleston, and manufactured by the exhibitors, price 32s.; a set of iron arms and boxes for carts and waggons (of different sizes), manufactured by the exhibitors, price 30s. per cwt.; an iron heating barrow, for tar, &c., price 68s.; an iron wheelbarrow, for general purposes, price 27s. 6d.; an iron wheelbarrow, for stables or ashes, price 35s.; an iron swing barrow, price 40s.; an iron sheep rack, price 84s. and £6 6s., invented and manufactured by the exhibitors (obtained the silver medal of the Society); a wrought iron sheep folding hurdle, invented by Henry Gilbert, of London, and manufactured by the exhibitors, price 16s. each; a wrought iron sheep folding hurdle, invented and manufactured by the exhibitors, price 17s.; a wrought iron sheep hurdle, price 5s.; a wrought iron sheep trough (obtained the silver medal of the Society at the Salisbury show), price 30s.; and a wrought iron galvanised sheep trough, price 35s., invented and manufactured by the exhibitors; a set of improved pig troughs, manufactured by the exhibitors, price from 9s. 6d. to 21s. each; a registered pig trough, invented by David Prosser, of Harescomb, and manufactured by the exhibitors, price 30s.; a set of cattle drinking troughs, price from 12s. to 65s. each; an iron water tank, price 75s.; a wrought iron rack feeding hurdle with trough, price 35s.; and a wrought iron cattle crib, 67s. 6d., invented and manufactured by the exhibitors; a machine for salting gravel walks and carriage drives, invented by Fleming, of Trentham Gardens, and manufactured by the exhibitors, price £13 10s.; a Shank's patent hand mowing and rolling machine, invented by Shank's and Son, of Arbroath, and manufactured by the exhibitors, price from £5 15s. to £7 17s. 6d.; a specimen of patent black varnish, invented and manufactured by the exhibitors, price 1s. 6d. per gallon; light japanned game proof wire netting, price 6d. to 1s. 6d. per lineal yard; light galvanised game proof wire netting, price 9d. to 1s. 4½d. per lineal yard; extra strong galvanised game proof wire netting, price 1s. 10d. to

2s. 3d. per lineal yard; game proof plant guards, price per dozen 18s. to 58s.; wrought iron tree guards, price 12s. to 24s. each; wrought iron ornamental garden seats, price 22s. 6d. to 50s.; a pair of folding garden or camp stools, price 4s. 6d.; a wrought iron field gate and wrought iron posts with basements (received the silver medal of the Society, the first prize of the Royal Agricultural Society of Ireland, and nine other premiums from different provincial societies), price 50s.; other sizes and specimens at various prices; continuous sheep or light cattle fence (obtained the silver medal of this Society on two occasions), price 2s. 1d. to 4s. 6d. per yard according to the strength; invisible strained wire deer park fence, invented and manufactured by the exhibitors, price without vertical rods 1s. 11d., with rods 7s. per yard and upwards; a set of tools for erecting strained wire fences, complete with box, price 42s.; wrought iron hurdles, price 3s. 10d. to 6s. 10d.; strong wrought iron unclimbable railing, price 18s. per yard; a wrought iron footpath or turnstile gate and post, price 35s. to 45s.; a wrought iron hand gate and posts, price 55s. to £6 6s., invented and manufactured by the exhibitors; a patent field stile, invented by Thomas Lyne, of Malmesbury, price 40s.; an improved iron garden roller, with balanced handle, price 65s.; a set of wrought iron ornamental garden stakes, price 3s. 6d. to 80s. per dozen; wrought iron standards or stakes for wire netting, price 4s. 6d. to 8s. 6d. per dozen; an iron vermin proof rick stand, price from 80s. to £19 10s.; a pair of cast iron vermin proof rick stand pillars and caps for wood frame top, price large size 4s. 8d., small size 3s. 6d. each; iron poultry hurdles price 5s. 2d. each hurdle, or 31s. for the pen complete; a stall division, price deal 4s. 10d., oak 6s.; a stall division, price without wood work 32s. 6d., with 1½ inch deal panelling 72s. 6d., with 1½ inch oak panelling 82s. 6d.; a galvanised corner manger, in loose box, price 9s. and upward; a corner rack, price plain 8s. 6d., galvanised 11s. 6d.; a rack and manger, price plain either right or left hand 30s.; a ventilator and air brick, price 12s. 6d.; a drain and trap for stalls, price 14s. 6d. complete; a cast iron horse pot, price 5s. and upwards; a lining of cast iron enamelled plates, price 3s. 6d. per superficial foot; a set of harness room fittings, prices various; and a set of chains for stable use, invented and manufactured by the exhibitors, price halter chain 1s. 3d., pillar do. 1s. 6d., rack do. 10d.

EDWARD PAGE and Co., of Victoria Iron Works, Bedford.

Three sizes of a draining pipe and tile machine, price £13 13s. to £17 17s., invented by W. Williams, of Bedford, improved and manufactured by the exhibitors, awarded the prize of £25 at the Royal Agricultural Society's Meeting at Northampton, in 1847; an improved double box draining pipe and tile machine, price £36, invented, improved, and manufactured by the exhibitors; several sizes of "ecipse" plough, price £2 15s. to £5, invented and manufactured by the exhibitors; a bouting or moulding plough, fitted with marker, price £3 17s. 6d., manufactured by the exhibitors; a combined horse hoe moulding plough and scarifier, price £4 10s., improved and manufactured by the exhibitors; a one-row horse hoe, price, fitted with wheel, £2; and a two-wheel horse hoe, price £2 10s., manufactured by the exhibitors; an improved leverage horse rake, price £7 10s., invented by W. Williams, of Bedford, improved and manufactured by the exhibitors, was awarded a prize at the meeting of the Royal Agricultural Society, held at Southampton in 1844, at Norwich in 1846, and at Dublin in 1851, and highly commended at Salisbury in 1857; (new implement) a new patent leverage horse rake, price £7 10s., invented and manufactured by the exhibitors; several sizes of a four-wheel wrought lever scuffer or scarifier, price £5 to £8, improved and manufactured by the exhibitors; several sets of four-bram patent diagonal iron harrows, price £2 5s. to £5 10s., invented by S. L. Taylor, of Cotton End, and manufactured by the exhibitors, obtained a prize at the meeting of the Royal Agricultural Society at Derby 1843, at Southampton 1844, at Shrewsbury 1845, at Northampton 1847, at Norwich 1849, at Exeter 1850, prize medal at the Great Exhibition of 1851, at Lewes 1852, at Gloucester 1853, at the Irish Exhibition, Dublin, 1853, also the first prizes for both light and heavy harrows at the Bath and West of England Show, 1854; a pair of patent drag harrows, price £6, manufactured by the exhibitors; (new implement) a set of Emery's

patent cross-parallel iron harrows, price £5, invented by R. Emery, of London, and manufactured by the exhibitors; several chaff machines, price £2 15s. to £14 14s., improved and manufactured by the exhibitors; (new implement) a patent linseedcake machine, price £3 10s.; and a pug mill for grinding clay, price £12 12s., invented and manufactured by the exhibitors; a set of whippetrees, price 11s. 6d.; a set of equalizing whippetrees, price £1 6s.; and a basket of dies, manufactured by the exhibitors.

THOMAS STANDING, of Preston, Lancashire.

(New implement) an improved patent sun-and-planet motion agitator, for 120 gallons, price £15 10s.; an improved prize patent sun-and-planet motion churn, price from £1 13s. to £6 6s. 6d.; a barrel churn, price £2 11s. improved and manufactured by Robinson, of Coventry; strong double-selva small diamond mesh hare and rabbit proof galvanised wire netting, and other netting for sheep, &c., price from 2½d. to 1s. 2½d. per lineal yard; and small diamond mesh extra strong garden fencing, to supersede iron railings, price 1s. 6d. per lineal yard; extra strong double-selva galvanised wire sheep fencing, price 1s. 1d. per lineal yard, and extra strong double selva galvanised house, garden, wall, flower, fruit, and vine training fencing, price 1s. 4½d. per lineal yard, invented, improved and manufactured by the exhibitor.

TUXFORD and SONS, of Boston and Skirbeck Iron Works, near Boston, Lincolnshire.

A twelve-horse power patent portable steam engine, with two vertical cylinders within a steam jacket, and fitted with separate expansive valves, and an iron house enclosing the working parts of engine, under lock and key, price £350, took the Royal Agricultural Society's first prize at Chester in 1858, and also the first prize at their previous meeting at Carlisle; an eight-horse power patent portable steam engine, with vertical cylinder, in an iron house enclosing the working parts of the engine, under lock and key, and a safety spark trap to the chimney, £235; a seven-horse power ditto, price £220; a seven-horse power patent portable steam engine, with inverted cylinder, within a steam jacket, and an iron house enclosing the working parts of the engine, under lock and key, price, on travelling wheels, £235; a seven-horse power improved portable steam engine, with horizontal cylinder enclosed within a steam jacket, and fitted with a separate expansive valve, and with a tubular boiler, price £225; a six-horse power ditto, price £205; a five-horse power ditto, price £185; a four horse power ditto, price £170—all on iron wheels, if on wood £5 extra; a three-horse power ditto, price, on wheels £130, without wheels £110, without wheels and governors, and unfelted, £100; a two horse power ditto, price, on wheels £100, without wheels £85, without wheels and governors, and unfelted, £75; a one-horse power ditto, price, on wheels £65, without wheels £50, without wheels and governors, and unfelted, £45; an eight-horse power fixed steam engine, with vertical cylinder, upon a cast iron sole plate, with handsome Doric frame, price £200; a six-horse power ditto, price £160; a patent combined thrashing, straw shaking, riddling, winnowing, chaff separating, and barley awning machine, with elevators to sack the grain at a height convenient for a man to back without help, price £90 (the judges of the Royal Agricultural Society have pronounced Tuxford's patent straw shaker and barley awning apparatus perfect); a patent combined thrashing, shaking, and dressing machine, with an extra dressing apparatus for finishing in one operation for market, price, with Boby's patent screen £117 10s., without it £110; a portable grinding mill, with a pair of 3 feet French stones, for steam power, fitted with silent feed and r-regulating apparatus, and arranged for either a flour mill or a farmstead, price £55; an improved circular-saw table, with cast-iron framing, parallel fence plate, and blinding roller or mechanical hand, rails and horses, drag motion and driving pulley, arranged for carrying saws up to 42 inches diameter, and adapted for round or square timber, deals, &c., price, with a 30-inch saw, £42; and an improved circular-saw table, with cast-iron framing, parallel fence plate, driving pulley, and a planed top, price, with a 24-inch saw, £14 (all the before-mentioned are invented by Weston Tuxford, of Boston, and manufactured by the exhibitors).

W. S. UNDERHILL, of Newport, Salop.

A plough, price £3 10s.; a plough, price £4 5s.; and a ridging plough, price £3, improved and manufactured by the exhibitor; a set of sig-sag harrows, price £2 15s.; and a set of harrows, price £3 10s., invented by Mr. Armstrong, and manufactured by the exhibitor; a chain harrow, price £2 10s., stronger £3 10s., manufactured by the exhibitor; a seven-time or three-horse cultivator, price £6; and a nine-time or four-horse cultivator, price £7 10s., invented, improved, and manufactured by the exhibitor; a grubber, price £2 5s., and a horse-hoe, price £1 10s., improved and manufactured by the exhibitor; a chain roller or clod-crusher, price £18, invented, improved, and manufactured by the exhibitor; a rye-grass drill, price £3 10s., a gapping drill, price 8s. 6d.; a haymaker, price £14 14s.; a lever horse-rake, price £6; a sheep roak, price £3 10s., and a cow crib, price £1 10s., improved and manufactured by the exhibitor; an assortment of iron hurdles, price 4s. 4d. to 5s. 6d.; a disconnecting apparatus, price £2 10s., invented, improved, and manufactured by the exhibitor; a self-acting index cheese press, price £3 10s. (awarded a first prize at the N. S. Agricultural Society's Show at Lichfield, Sept. 22, 1858), invented and manufactured by Henry Buckshaw, of Hinstock, Market Drayton, Salop.

JOHN WHEAT, of Hinckley, Leicestershire.

(New implement) a new gearing and improved steerage, applicable to drills in general, price £10 10s., the gearing invented, and the steerage improved and manufactured by the exhibitor.

THOMAS WHEELER & Co., of The Albion Works, New Road, Oxford.

(New implements) three patent Oxonian oscillating knuckle domestic washing machines, price £1 15s. and upwards; (new implements) two patent Oxonian oscillating knuckle flex, w. o. root, or clothes washing machines, price £2 12s. and £4; (new implements) two patent Oxonian reciprocating washing machines, price £4 10s. and £5 15s.; (new implement) a patent rotary diagonal Oxonian knuckle washing machine, price 6l. 6s. and 8l. 8s.; (new implement) a patent Oxonian sheep-washing machine, price 3l. 10s.; a patent Oxonian combined washing, wringing, and mangling machine, price 8l. 8s.; a portable mangle, price £2 15s.; an imperial mangle, price 4l. 2s.; and (new implement) a portable furnace, price 3l. 3s., all invented and improved by Thomas Wheeler, and manufactured by the exhibitors; a patent domestic sewing machine, price 3l. 3s. and 6l. 6s., invented, improved, and manufactured by Hewett, Allott, and Walker, of Sheffield; a patent double and single thread sewing machine, price 15l., invented, improved, and manufactured by William Ridley, of Fleet-street, London; a patent root pulper, price £5 10s.; two patent root graters, price £5 5s. each; a circular saw bench, price £16 10s. (the price of £1 was awarded to this implement at the Oxford show); a bean mill, price £2 15s.; a millstone prover and case, price £2 15s.; a set of six cast-steel mill-bills, price 1s. per lb., and a set of six silver-steel mill bills, price 1s. 1d. per lb., all invented and improved by Thomas Wheeler, and manufactured by the exhibitors; a three-and-half horse power portable steam engine, price £120, invented, improved, and manufactured by Hart, Gibbons, and Co., of Wantage, Berkshire.

JAMES WOODS & Sons, of The Suffolk Iron Works, Stowmarket, Suffolk.

A portable corn grinding mill, price £49, and a smaller size £31 10s.; an improved grinding and crushing roller mill, price £13 13s.; a roller crushing mill, price £11 11s., and a smaller £7 15s.; a universal mill for crushing oats, malt, linseed, barley, &c., also to grind beans, peas, &c., price £10 10s., a smaller size £5 15s.; and an improved crushing roller mill, price £4 10s., all invented, improved, and manufactured by the exhibitors; (new implement) six improved pulpers or root mincers, price £4 15s. to £5 10s., invented by Frederick Phillips, of Brandon, improved and manufactured by the exhibitors; a two-horse portable thrashing machine, price £37; a three-horse power ditto, price £49; a one-horse power for driving chaff engines, crushing mills, root pulpers, &c., price £13 13s., invented improved, and manufactured by the exhibitors; a Phillips's patent pony and weed extirpator and fertilising lever harrow, price £9 9s. (was awarded the silver medal by the Royal Agricultural Society of England at

Chelmsford), invented by Frederick Phillips, of Brandon, and improved and manufactured by the exhibitors; a set of rake teeth (Howard's patent), price £3 3s., invented by J. and F. Howard, of Bedford, and improved and manufactured by the exhibitors; a patent horse rake, price £3 10s., invented, improved, and manufactured by J. and F. Howard, of Bedford; an improved one-horse cart, with harvest frame, price £15 10s. (was awarded first prize at the Salisbury Meeting, 1857—(last offered); three improved one-horse carts, price £13 10s. to £15; and a pair of wheels and axle, price £7 15s. to £9, invented, improved, and manufactured by the exhibitors; a Hall's patent cabinet mangle, price 6l. 10s., invented by John Hall, Bidestone, and improved and manufactured by the exhibitors; an asphaltum apparatus for laying asphalt floors, paths, &c., price 17l.; specimens of asphalt flooring; a double barley roll, price 8l. 8s.; an iron furrow roll, price 2l. 2s., and an iron furrow roll, price 2l. 10s.; invented, improved, and manufactured by the exhibitors; a wrought-iron barley roll, price 10l. 10s., improved and manufactured by the exhibitors; a Wood's iron land and pasture roller, price 7l. to 15l. 10s.; a press-wheel furrow roll, price 8l.; a Wood's double iron hand and pasture roller, price 15l.; two combined Cambridge's and Crosskill's rollers and clodcrushers, price 11l. 11s. and 14l. 14s. each; a three-horse improved portable steam engine, price 95l., invented, improved, and manufactured by the exhibitors.

JOHN ALLIN WILLIAMS, of Baydon, near Hungerford, Wilts.

(New implement) a three-farrow one-way plough for steam cultivation, price £50, and (new implement) a seven-share steam cultivator, price £35, invented and manufactured by the exhibitor.

JOSEPH BETTRIDGE, of Wellesbourne, Hastings, near Warwick.

A Whitechapel cart, price £35, and a fashionable Malvern dog cart, price £30, invented, improved, and manufactured by the exhibitor.

LORD WILLOUGHBY DE BROKE, of Compton Verney, Warwick.

Three sizes of a fern gate, price 17s. 6d., 19s. 6d., and £1 4s.; and a set of draining pipes, price, 6 draining pipes of 2-inch bore £1 2s., 6 ditto of 4-inch bore £2 2s., 6 ditto of 6-inch bore £3 6s. 8d. per thousand; all manufactured by the exhibitor.

WILLIAM BALL, of Rothwell, Northamptonshire.

An iron plough for general purposes, price 4l. 8s. (the only plough which has gained a first-class prize medal at each of the three great national exhibitions, viz. England, Ireland, and France, also a prize of 5l. at the Royal Agricultural Society's meeting at Norwich 1849, 7l. at Exeter 1850, commended at Lincoln 1854, and Carlisle 1855, a first-class prize medal at Melbourne, Australia, 1856, and a prize of 4l. at Chelmsford the same year); an iron plough for very deep ploughing, price 5l. 10s. (a prize of 7l. was awarded at the Royal Agricultural Society's meeting at Gloucester 1853, commended at Carlisle 1855, and a prize of 3l. at Chelmsford 1856); an iron plough for light land, price 4l. 8s. (a prize of 2l. was awarded by the Royal Agricultural Society's meeting at Chelmsford 1856, and local prizes); a ridge or double-breast plough, price 4l. 4s.; an iron plough, price 4l. 8s.; a light two-horse waggon, price 30l. (a first-class prize was awarded at the Royal Agricultural Society's meeting at Lewes 1852, and a first-class prize medal at the Paris Exhibition 1855); a three-horse waggon, price 30l.; a cart for one horse, price 14l. 10s. (a first-class prize was awarded at the Royal Agricultural Society's meeting at Salisbury 1857); a cart for one or two horses, price 15l.; an iron scarifier, cultivator, and grubber, price 6l. 6s., and an iron scarifier, price 7l. 7s., all invented, improved, and manufactured by the exhibitor; a set of strong general purpose iron harrows, prices from 3l. 5s. to 4l. 4s., invented by Samuel Taylor, of Cotton End, and manufactured by the exhibitor; an iron horse hoe, price 2l. 10s. to 4l.; and a set of whipple-trees, invented by the exhibitor, price 10s.

BARNARD, BISHOP, and BARNARDS, of Norwich, Norfolk.

A patent root pulper, price 4l. 10s. and upwards, invented and manufactured by the exhibitors; a root grater, or turnip

cutter, price 4l. 10s., improved and manufactured by the exhibitors; a root grater, price 3l. 10s., invented by Bushe and Barter, of Lismore, Ireland, improved and manufactured by the exhibitors; an improved turnip slicer, price 4l., invented and manufactured by the exhibitors; a Gardner's turnip cutter for sheep, price 4l. 10s. and upwards, invented by James Gardner, of Banbury, improved and manufactured by the exhibitors; a patent barley hummeller or aveller, price 5l. 10s., invented by R. R. Holben, of Barton, Cambridge, improved and manufactured by the exhibitors; a patent rotary corn screen and riddle, for farmers' use, price 8l. 8s., invented by John Palmer, of Stockton-on-Tees, improved and manufactured by the exhibitors; a wrought-iron hay-rack or crib, for cattle or horses, price 1l. 10s., improved and manufactured by the exhibitors; registered troughs and fountains for poultry or dogs, at various prices from 1s. 9d. to 10s. each; strong wrought-iron garden chairs, price 18s. 6d. and upwards; and a wrought-iron table for garden or camp, price 1l. 4s., invented and manufactured by the exhibitors; a patent self-rolling mangle, price 7l. 7s., invented by Charles Barnard, of Norwich, and manufactured by the exhibitors; a cottage mangle, price 3l. 10s.; galvanized wire netting, at from 43d. per yard and upwards; pig troughs of all sizes and descriptions, from 7s. each and upwards; a cast-iron window casement, price 18s., invented and manufactured by the exhibitors; and two cast-iron cocks, for water-carts or butts, improved and manufactured by the exhibitors, prices 5s. 6d. and 7s.

THOMAS BRADFORD, of Manchester, Lancashire.

Bradford's patent washing machine, price 3l. 10s. and upwards; Bradford's patent washing machine, with wringing and mangling combined, price 8l. 8s. and upwards; Bradford's patent complete washing apparatus, price from 21l. to 82l. 10s. per set; Bradford's improved wringing machine, price 4l. 4s., invented, improved, and manufactured by the exhibitor; Bradford's improved mangle, with lignum vite roller-price 5l. 5s., invented, improved, and manufactured by the exhibitor; Bradford's registered churn, with compensated dash (new implement), invented and manufactured by the exhibitor, price 2l. 15s., to churn 20 gallons 5l. 15s.; and an improved portable boiler, with copper pan, price 4l. 4s., improved and manufactured by the exhibitor.

THE BUSBY AGRICULTURAL IMPLEMENT COMPANY, of Newton-le-Willows, near Bedale, Yorkshire.

A two-wheeled plough for deep ploughing, price 5l. 10s. (received the prize at the Society's meeting at Northampton in 1847, 10l. at York 1848, and 7l. at Lewes 1852); a two-wheeled plough for general purposes, price from 3l. 17s. 6d. to 4l. 10s. (received the award of the council medal at the Great Exhibition of 1851, a first-class medal at the Paris Exhibition, also six head prizes from the Royal Agricultural Society of England in eight years, also 10l. at the Rotherham meeting of 1856); a light two-horse plough, price 3l.; a double-breast or ridging plough, price 4l. 7s. 6d.; and a dwarf plough in iron, price 2l. 5s.; all invented and improved by W. Busby, of Newton-le-Willows, and manufactured by the exhibitors; a skeleton plough, price 4l. 10s., invented by the Rev. W. F. Wharton, of Birmingham, improved by W. Busby, and manufactured by the exhibitors; a Northumberland harrow, price 4l. 7s. 6d., invented and improved by W. Busby, manufactured by the exhibitors; a patent self-relieving chain harrow, price 5l. 5s. and 6l. 6s.; two sets of seed harrows, price 3l. 3s. and 4l.; horse hoe, with three times, price 2l.; a horse hoe with three times and revolving harrow, price 2l. 5s. (received prizes five years in succession from the Royal Agricultural Society, also prizes at the Bath and West of England Society, at Taunton in 1852, at Plymouth 1853, at Bath 1854, at Fiverton in 1855, and at Salisbury in 1857, for both flat and ridge work); and a five-tined grubber, or horse hoe, price 3l. 3s., invented and improved by W. Busby, and manufactured by the exhibitors; a patent implement for topping and tailing turnips, price 6l. 15s.; and a one-horse cart, price 13l., invented by W. Lister, Esq., of Dunas Bank, improved by W. Busby, and manufactured by the exhibitors (received a prize of 10l. at the Exeter meeting in 1850, a council medal of the Great Exhibition in 1851, a prize of 10l. at Lewes in 1852, silver medal at Lincoln in 1854, and the Bath and West of England Society's prize for three years in succession, and a prize of 4l. at Salisbury in 1857; an

improved one-horse cart, price 18l. 10s.; and an improved harvest cart, price 16l. 10s., invented by Hannam, of Barcot, improved by W. Busby, and manufactured by the exhibitors.

J. B. BOOTH, of Killerby, near Catterick, Yorkshire.

A farm gate, price 1l. 4s., invented, improved, and manufactured by the exhibitor.

ROBERT CUTEBERT and Co., Newton-le-Willows, near Bedale, Yorkshire.

A light reaping machine for one or two horses, price 22l., and a two-horse reaper, price 24l. 10s., invented by Hussey, improved and manufactured by the exhibitors.

HUGH CARSON, of Warminster, Wiltshire.

An iron plough for light lands, price 2l. 15s.; an iron plough for general purposes, price 3l., improved and manufactured by the exhibitor; an iron plough with two wheels, price 4l., invented, improved, and manufactured by the exhibitor; an iron plough for deep ploughing, with two wheels, price 8s. 15s.; a seven-share cultivator or scarifier, with side levers, price 11l. 10s., the judges of the society very highly commended this implement at the Chelmsford meeting, 1856; a five-share cultivator or scarifier, price 8l. 10s.; an iron field roller, 20 inches diam., price 11l. 10s.; an iron field roller, 16 inches diam., price 9l.; a registered self-cleaning cross-cut wheel roller and clod-crusher, price from 10l. 10s. to 18l.; a wrought-iron horse-hoe, price 2l. 10s. to 4l.; chaff cutting engines for steam or hand power, price from 4l. to 15l., pulley for power and change wheels extra, all invented, improved, and manufactured by the exhibitor; Moody's patent turnip cutter for hand power, on wood or iron frame, price 4l. 10s., invented by Edmund Moody, late of Maiden Bradley, improved and manufactured by the exhibitor; Carson's improved Moody's patent turnip cutter for hand or steam power, price 5l. 5s.; a single cheese press with double lever, price 2l. 10s. and upwards, received the prize from the Bath and West of England Society at Plymouth 1853, and a double cheese press, price 5l. 10s., invented, improved, and manufactured by the exhibitor.

COLTHURST, SYMONS, and Co., of Bridgwater, Somersetshire.

"Royal Flemish farm" (fac-simile of 30 feet of shedding) covered with patent ridge tiles, price 10s. per square; patent double Roman tiles, price 6l. per 1,000; patent double Roman dun-coloured tiles, price 7l. 10s. per 1,000, and patent ridge tiles, price 4s. per dozen, invented and manufactured by the exhibitors; patent caves tile, stop-ends, and discharge pipes, price 6d. per tile, invented by William Beadon, of Otterhead, and manufactured by the exhibitors; red and grey building bricks, price 1l. per 1,000, and red and grey front or facing bricks, price red 1l. 5s., grey 1l. 10s. per 1,000; patent 21-hole bricks, price 1l. 5s. per 1,000, invented by Mr. Beart, and manufactured by the exhibitors; hollow bricks, price 1l. per 1,000, manufactured by the exhibitors; plain red tiles, price 2l. per 1,000, and plain dun-coloured tiles, price 2l. 5s. per 1,000; red garden tiles, price 1l. 15s. per 1,000; dun-coloured garden tiles, 2l. 5s. per 1,000, and glazed black garden border tiles, price 2l. 15s. per 1,000, improved and manufactured by the exhibitors; ridge tiles and hip and valley tiles, price 2s. 6d. per dozen; kiln tiles, price 8s. per dozen, manufactured by the exhibitors; two-inch draining pipes, price 1l. per 1,000, four-inch draining pipes, 2l. 5s. per 1,000, and six-inch draining pipes, price 4l. 10s., improved and manufactured by the exhibitors.

JAMES CORNES, of Barbridge Works, near Nantwich, Cheshire.

Registered chaff-cutting machines, price from 2l. 15s. to 13l., invented by John Cornes, sen., of Barbridge, and improved and manufactured by the exhibitor, gained the first prize given by the Royal Agricultural Society of England for thirteen years in succession; a curd mill, price 2l., and a cheese apparatus, price from 2l. 10s. to 3l. 10s., invented, improved, and manufactured by the exhibitor.

WILLIAM CROWLEY and Sons, of Newport Pagnell, Buckinghamshire.

(New implement) a set of Crowley's patent apparatus for cultivating by steam power, price all complete for work 430l.; (new implement) a set of Crowley's patent universal ploughs, to be worked by steam power, price 55l. to 50l.; a water cart

or liquid manure cart, price 14*l.*, and a one-horse cart for general purposes, price complete 15*l.* 15*s.*, all invented, improved, and manufactured by the exhibitors, this cart obtained the prize at the Great Exhibition of 1851.

JOSEPH AND THOMAS DAVIES, of Meeting-street Works, Wednesbury, Staffordshire.

An eight-horse-power portable steam engine, price 210*l.*; a six-horse-power direct-action steam engine, price 60*l.*, and a four-horse-power direct-action steam engine, price 40*l.*

THOMAS DAVIS, of Guy-street, Warwick.

A mill stone, price 6*l.* 10*s.* to 14*l.*, improved and manufactured by the exhibitor; a pair of mill stones, price 4*l.* 10*s.* to 11*l.*, manufactured by Green and Outram, of Bakewell, Derbyshire; a parcel of mill chisels, price 1*s.* 3*d.* per lb.; a parcel of chisel huffs, price 2*s.* each, improved and manufactured by the exhibitor; a stone staff, price 18*s.*, and a bean mill, price 2*l.* 10*s.*, invented and manufactured by the exhibitor; a sack cart, improved and manufactured by the exhibitor, price 16*s.*; two curd mills, price 16*s.* and 18*s.*, and a parcel of screw spanners, prices, large size 10*s.*, small size 9*s.*, improved, and manufactured by the exhibitor; a set of skittle bowls, price 5*s.* 6*d.*, invented and manufactured by the exhibitor; a pair of road wheels, price 4*l.* 10*s.* and 6*l.*, and a connecting rod, price 2*l.* 10*s.*, improved and manufactured by the exhibitor; a thrashing machine, price 17*l.*, invented and improved by the exhibitor.

JOHN EATON, of Twywell Works, Thrapston, Northamptonshire.

(New implement) a pair of twin harrows, price 10*l.* 10*s.*, invented, improved, and manufactured by the exhibitor; an oak field gate, price 1*l.*, improved and manufactured by the exhibitor; a patent turnip thinner and hoe combined, price 6*l.* and 8*l.* 10*s.*; a light one-horse cart for farm purposes, price 8*l.*, and a corn winnowing machine and blower combined, price 7*l.* 7*s.*, invented, improved, and manufactured by the exhibitor; a corn winnowing machine, price 8*l.* 8*s.*, invented by the exhibitor; a registered sheep crib, price 1*l.* 2*s.* 6*d.*; a lifting jack, price 3*l.*, invented and manufactured by the exhibitor, a card of commendation was awarded this description of jack, by the Society held at Lincoln 1854; a larger size, price 4*l.*; an engine screw jack, price 1*l.* 1*s.* to 1*l.* 12*s.* 6*d.*; a child's perambulator, price 17*s.* 6*d.* to 1*l.* 1*s.*, invented and manufactured by the exhibitor.

JOHN EDDY, of Kenford, near Exeter, Devonshire.

A strong iron plough, with two wheels and skim-coulter, price £5 (awarded the prize at the Bath and West of England Society at Plymouth 1853, also at Bath 1854); an iron plough for general purposes, with two wheels, price £4 4*s.* (received the Bath and West of England Society's prize at Yeovil 1856, and at Newton-Abbott 1857); a light iron plough for general purposes, with two wheels, price £3 13*s.*; an iron turnwrest or one-way plough, with four wheels and two skim-coulters, price £5 (obtained the Bath and West of England Society's prizes for seven years in succession, viz., at Taunton 1852, Plymouth 1853, Bath 1854, Tiverton 1855, Yeovil 1856, Newton 1857, and at Cardiff 1858); a ridging or double-breast iron plough, with two wheels, price £3 10*s.*; a subsoil plough or subsoil pulveriser, price £3 15*s.* (awarded the Bath and West of England Society's prize at Yeovil 1856); a pair of heavy iron harrows for three horses, price £3 15*s.*; a set of iron harrows, three to the set, price £3 15*s.*; a set of iron seed harrows, three to the set, price £3 10*s.*; an iron plough for general purposes, with two wheels, price £3 15*s.*; an iron plough with two wheels, price £2 6*s.*; and a light iron one-way or turn-wrest plough, with two wheels, price £4 10*s.*—all invented, improved, and manufactured by the exhibitor.

JOHN THOMAS EDMONDS, of Great Missenden, near Amersham, Buckinghamshire.

(New implement) a new patent balance universal corn-cleaning, blowing, and sifting machine, price £10 10*s.*, invented, improved, and manufactured by the exhibitor.

JAMES FERRABEE and Co., of Phoenix Iron Works, Stroud, Gloucestershire.

A four-horse power portable tubular boiler, price £85, manufactured by Clayton and Shuttleworth, of Lincoln; a

three-horse power vertical steam engine, price £55, invented, improved, and manufactured by the exhibitors; a length of bright wrought-iron shafting, with pulleys and standards, price £13, manufactured by the exhibitors; two improved chaff and litter-cutting machines, price £15 15*s.* and £16 16*s.*, invented, improved, and manufactured by the exhibitors; a chaff-cutting machine for manual or horse-power, price £6, manufactured by the exhibitors; an improved chaff-cutting machine, price £8, improved and manufactured by the exhibitors; a Ferrabee's patent hay-making machine, price £16 16*s.*, invented by James Ferrabee, of the Phoenix Iron Works, and manufactured by the exhibitors; an improved portable safety two-horse power for driving machinery, price £18, invented by James Ferrabee and Son, of Phoenix Iron Works, manufactured by the exhibitors; patent mowing machines, price £4 10*s.* to £18, invented by the late E. Budding, of Dursley, improved by James Ferrabee, of Phoenix Iron Works, and manufactured by the exhibitors; a case of O'Neill's patent screw wrenches, price £3 3*s.*, invented by P. B. O'Neill, of London, and manufactured by the exhibitors; a case of Budding's improved screw wrenches, price 5*s.* to 18*s.*, invented by E. Budding, of Dursley, and manufactured by the exhibitors; a patent sweeping machine, price £5 10*s.*, invented by James Ferrabee, of Phoenix Iron Works, and manufactured by the exhibitors.

JOHN FREER, of Rothley, near Loughborough, Leicestershire.

(New implement) a three-row planting or dibbling machine, for mangel-wurzel and turnip-seed, price £34, invented and manufactured by the exhibitor.

JOSEPH GILBERT, of Evesham, Worcestershire.

An improved patent portable combined thrashing, shaking, and dressing machine, price £100, invented, improved, and manufactured by the exhibitor; (new implement) a corn-dressing machine, price £12 10*s.*, improved three-row corn drills, price £4 5*s.* to £5, and a grass and seed distributor, price £8 3*s.*, improved and manufactured by the exhibitor.

WILLIAM GLOVER, of Warwick.

An improved farm cart, price £15, an improved one-horse cart for general purposes, price £13, and an improved economical five-row corn drill, price £8, invented, improved, and manufactured by the exhibitor; an improved three-row corn and seed drill, price £8 6*s.*, improved and manufactured by the exhibitor; a six-row lever corn drill, price £12 12*s.*, and a one-row mangold and turnip drill, price £3 6*s.*, invented, improved, and manufactured by Wm. Goulding and Co. of Leicester; a broadcast sowing machine for clover, grass, or turnip seeds, price £3 8*s.*, manufactured by Barrett, Exall, and Co., of Reading, Berkshire; a new patent iron plough, price £4 15*s.*, and a root-pulper, price £4 10*s.*, invented, improved, and manufactured by Wm. Goulding and Co. of Leicester; a patent chaff machine, price £10 5*s.*, invented and manufactured by Picklesy, Sims, and Co., of Leigh, Lancashire; a patent Gardner's double-action turnip cutter, price £5 13*s.* 6*d.*, invented by the late James Gardner, of Banbury, and manufactured by Bernhard Samuelson, of Banbury (obtained the prize at Norwich 1849, Exeter 1850, Gloucester 1853, Lincoln 1854, Carlisle 1855, and is the same in construction as the one that obtained the prize at the Great Exhibition 1851, and at Lewes 1852); a set of four-beam diagonal iron harrows, price £3 15*s.*, invented by Samuel Taylor, of Cotton End, and manufactured by E. Page and Co. (late Williams), of Bedford (prizes at Derby 1843, Southampton 1844, Shrewsbury 1845, Northampton 1847, Norwich 1849, Exeter 1850, the prize medal at the Great Exhibition 1851, at Lewes 1852, Gloucester 1853, and Chelmsford 1856); a chain harrow, price £3, manufactured by Joseph Edwards, Wolverhampton; a Bradford's patent washing machine with wringing and mangling combined, price £8 8*s.*, invented and manufactured by Thomas Bradford, of Manchester; a patent spring balance washing machine with revolving beaded rubbers, price £1 8*s.*, invented, improved, and manufactured by Peter Gabbitas, of Workop; a patent bread-making or kneading machine, price £5 5*s.*, invented and manufactured by Charles Quinton, of Cheltenham; a revolving iron pig trough with six partitions, price 18*s.*, manufactured by Picklesy, Sims, and Co. of Leigh, Lancashire; cast-steel forks, swarded, marked from 2*s.* to 6*s.*, and draining tools, spades, &c., prices, draining tools #1

10s. per set, spades from 2s. 6d. to 3s. 6d. each, manufactured by Elijah Jackson, of Birmingham; a bundle of rakes, price, handled, 8s., and some cheaper, invented, improved, and manufactured by Wm. Goulding and Co., of Leicester; a patent chaff machine price £10 10s., invented and manufactured by Joseph Gardner, of Banbury; and a sample of chemical manure, price £5 per ton, manufactured by Southall and Co., of Birmingham.

GREENING and Co., of the Victoria Iron and Wire Works, 81, Oxford-street, Manchester.

Patent machine-made iron-wire, horse, cattle, poultry, and sheep fences in great variety, price 1s. per lineal yard, and upwards; galvanised hexagonal pattern wire netting for every purpose, price 1s. per yard and upwards, manufactured by the exhibitors; tree guards, price 10s.; wire plant guards, prices 1s., 1s. 6d., 2s., and 3s. each; wrought-iron farm gates of every size and pattern, price, including fittings for wood or stone posts, £1 1s. and upwards; wrought-iron entrance gates, price £6 10s., with handsome cast-iron pier £8 10s.; wrought-iron sheep hurdles, price, with four horizontal bars, 1s. 11d. per yard; wrought-iron cattle hurdles, price, with four horizontal bars, 2s. 3d. per yard; a strained wire fence, price 1s. 9d. per yard; a fine wrought-iron garden wicket gate, price £1 15s.; and a set of fine wrought-iron gates for entrance, price £8 10s., manufactured by the exhibitors.

WILLIAM HENSMAN & SON, of Linsdale Works, near Leighton Buzzard, Bedfordshire.

A four horse power portable patent bolting thrashing machine (the prize of 20L was awarded to this machine at Exeter, July, 1850, also a prize medal at the Great Exhibition, 1851), price 68L; a three horse power portable patent thrashing machine, price 45L; a ten row press lever and steerage corn and seed drill, price 27L; a patent eight row steerage corn, turnip, and mangold drill, known as the Woburn Drill (a silver medal was awarded to this drill at the York meeting, 1848, and a prize medal at the Great Exhibition, 1851), price 20L; a patent eight row corn and seed drill, price 21L; a patent six row corn and seed drill, price 19L; a one row drill, price 6L; a patent iron plough with two wheels, price 4L 10s.; and an improved iron ridge or bouting plough, price 4L 7s. 6d., invented, improved, and manufactured by the exhibitors; a small hand drill, invented by Mr. G. W. Baker, of Woburn, Bedfordshire, and manufactured by the exhibitors, price 1L 10s.

HOWARD, RICHES, & WATTS, of Duke's Palace Iron Works, Norwich, Norfolk.

(New implements) two patent American grist mills (No. 2), invented by Amory Felton, of New York, U. S. America, and manufactured by the exhibitors, price £22 and £31 10s.; (new implement) a patent grain separator, invented by Augustus B. Childs, of Rochester, New York, U.S., improved by A. B. Childs, of 192, Tottenham-court-road, London, and manufactured by the exhibitors, price £18 to £30.

MAPPLEBECK & LOWE, of Birmingham.

Two winnowing machines, improved and manufactured by the exhibitors, price 7L and 9L; a wrought iron corn bin, manufactured by the exhibitors, price 1L 7s. 6d.; an improved patent clod crusher (received the silver medal of the Royal Agricultural Society at Carlisle in 1855, and the first class award of the same society at Chelmsford in 1856), price with travelling wheels 18L 10s.; a Newcastle prize one horse cart, price 15L 15s.; a light Newcastle one horse cart price 14L 10s., and a York prize cart, price 12L 10s., invented and improved by W. Crosskill, and manufactured by his trustees, of Beverley (received the prize at York in 1858); weighing machines, improved and manufactured by W. T. Avery, of Birmingham, price from 1L 7s. 6d. to 25L; chaff cutting machines, invented by John Cornes, sen., and improved and manufactured by James Cornes, of Barbridge (gained the first prize given by the Royal Agricultural Society for thirteen years in succession), price 5L 5s. to 15L; chaff cutting machines, with two knives, invented, improved, and manufactured by Richmond and Chandler, of Salford, price 7L 10s. to 10L; (new implements) chaff cutting machines with two knives, improved and manufactured by the exhibitors, price 7L 10s. to 8L 10s.; a cast iron field roller, price 10L; (new implement) an improved wrought iron field roller, price 9L 10s., improved and

manufactured by the exhibitors; a patent seven coulter lever scarifier, invented, improved, and manufactured by J. and F. Howard, of Bedford, price 8L 10s.; a five coulter scarifier, improved and manufactured by S. Hand, of Glinton, price 7L 10s.; a Mercote balance scarifier or tormentor, invented by Luke Pearman, Esq., of Mercote Hall, improved and manufactured by the exhibitors, price 2L 5s.; a patent iron plough, price 4L 7s. 6d., a patent iron ridging plough, price 3L 17s. 6d., and a set of patent jointed harrows, price 4L, invented, improved, and manufactured by J. and F. Howard, of Bedford; a chain harrow, improved and manufactured by the exhibitors, price 8L 10s.; a patent horse rake (marked B), invented, improved, and manufactured by J. and F. Howard, of Bedford, price 8L 10s.; an American iron pointed horse rake, improved and manufactured by the exhibitors, price 1L 8s. and 2L; a patent combined oat and bean mill, price 6L, a patent bean cutter, price 4L, and a patent steel oat mill, price 3L 15s., invented by G. A. Biddell, improved and manufactured by Ransomes and Sims, of Ipswich; an improved corn crusher, improved and manufactured by the exhibitors, price 4L 10s.; an improved corn crusher, invented, improved, and manufactured by Richmond and Chandler, of Salford, price 5L 5s. and 6L 10s.; a domestic flour mill, improved and manufactured by the exhibitors, price 7L; an improved horse gear with intermediate motion, improved and manufactured by Ransomes and Sims, of Ipswich, price 13L; an improved oilcake breaker, improved and manufactured by the exhibitors, price 3L 3s.; a registered double action oilcake breaker for sheep and oxen, invented, improved, and manufactured by Smith and Ashby, of Stamford, price 3L 10s.; a double action oilcake breaker for sheep and oxen, invented, improved and manufactured by the exhibitors, price 4L 10s.; a registered oilcake breaker, invented, improved, and manufactured by Nicholson, of Newark, price 5L 10s.; a patent turnip cutter, invented by the late James Gardner, of Banbury, improved and manufactured by the exhibitors (a silver medal was awarded to the exhibitors for this machine at the Northampton meeting of the society, price 4L and upwards; a patent root pulper, invented and manufactured by E. H. Bentall, of Heybridge, price 5L 5s. and 6L 6s.; a sample of turnip manure, price 8L per ton, a sample of bone superphosphate of lime, price 7L per ton, a sample of mineral superphosphate of lime, price 6L per ton, a sample of soluble phosphate of lime price 9L per ton; a sample of wheat, barley, and oat manure, price 8L per ton, a sample of mangold wurtzel, beetroot, and carrot manure, price 8L per ton, a sample of vetch, bean and pea manure, price 8L per ton, a sample of grass, clover, lucern, sainfoin, and ryegrass manure, price 8L per ton, a sample of prepared bones for grass, dairy, or grazing land, and a sample of potato manure, price 8L per ton, all improved and manufactured by Griffin, Morris, and Griffin, of Wolverhampton; samples of sulphate of ammonia, bones, guano, &c., and samples of sacks, oil sheets, and model rack cover, manufactured by Griffin, Morris, and Griffin, of Wolverhampton; a single-row turnip and mangold wurtzel drill, price 2L 12s. 6d.; a double-row turnip and mangold wurtzel drill, price 4L 10s., and a three-row corn drill, price 4L 10s., improved and manufactured by the exhibitors; (new implement) a steerage horsehoe, price 7L 10s., invented, improved, and manufactured by S. Hand, of Glinton; an expanding horsehoe, price 2L, improved and manufactured by the exhibitors (highly commended by the judges at the meeting of the Royal Agricultural Society at Salisbury in 1857); a set of improved trussed whippetrees, price, wood 9s. 6d., iron 10s. 6d. per set, invented by E. W. Harding, of Old Springs, improved and manufactured by the exhibitors; a set of cast-iron stable furniture, price 4L, stall post and rails 1L 17s. 6d., rack and manger 1L 7s. 6d., drain and trap 15s.; harness-room fittings, contains saddle, bracket 4s. 6d., harness bracket 18 in. by 18 in. 3s. 6d., ditto 18 in. by 8 in. 2s. 9d., ditto 11 in. by 10 in. 1s. 6d., light harness bracket 12 in. by 12 in. 8d., ditto jointed 2s., double stable hook 1s. 2d., single ditto 6d., head for battening into wall 2s., pillar chain black 9d., galvanised 1s., rack-chain black 9d., galvanised 1s. 3d., head stall chain black 1s., galvanised 1s. 3d. each; a rack and manger, price 1L 13s. 6d.; a rack, manger, and water trough, price 2L; a centre manger, price 8s. and 10s. each; a corner manger, price 5s. 6d. and 8s. each; a centre hay rack, price 5s. 6d. and 7s., and a corner hay rack, price 4s. 6d. and 5s. 6d., all manufactured by the exhibitors; an improved hand road-scraping machine, price 3L 10s., manu-

factured by Bourne and Harris, of Somerset; wrought-iron carriage gates, price 21*l.*, 15*l.*, 15*s.*, and 10*l.* 10*s.*; a pair of secondary entrance gates, price 8*l.* 8*s.*; field gates all sizes and patterns, price 3*l.* and less; sheep, cattle, and ox hurdles, price from 1*s.* 10*d.* to 3*s.* 6*d.* per yard; a tubular hurdle on wheels, price 14*s.*, or 3*s.* 6*d.* per yard; garden fencing, price from 3*s.* to 4*s.* per yard, manufactured by the exhibitors; an improved Leamington kitchen range, price 5*l.* 10*s.* to 25*l.*; a harness-room grate, price 2*l.* 5*s.*; a set of cattle troughs, price 22*s.* 6*d.* and 27*s.* 6*d.*, and a set of pig troughs, price 6*s.* to 15*s.*; a pair of best warranted extra leathern double nailed smith's bellows, price 3*l.* 3*s.*, and an improved portable forge, price 4*l.* 4*s.*, manufactured by J. Onions, of Birmingham; a best warranted anvil, price 1*l.* 8*s.* per cwt.; an improved black staple vice, price, small 10*s.* 6*d.*, large 17*s.* 6*d.*; a pair of iron arms and boxes, price, 2 in. and 2½ in. 1*l.* 8*s.* per cwt.; a mail patent axle, with long bolts, price, 1½ in. 27*s.* 6*d.*, 1½ in. 30*s.*; best fencing wire, price 13*s.* per cwt., manufactured by Evers, of Cradley; an instrument for straining wire, price 2*l.* 2*s.*; a pair of pulley blocks, price, small 7*s.*, large 8*s.*; an improved lifting jack, price 5*l.* and 10*l.*; a wooden wheelbarrow, price 1*l.* 5*s.*; an iron wheelbarrow, price 1*l.* 6*s.*; an iron sack cart, price, small 9*s.* 6*d.*, large 16*s.* 6*d.*, and a wood-frame sack cart, price, small 12*s.* 6*d.*, large 15*s.*, ditto for barrels 16*s.*; a set of imperial iron-bound measures, price 1*l.* 12*s.* 9*d.*, manufactured by Ramford, of Willow-walk; a rain-water pipe, price, 2 in. 10*d.*, 2½ in. 1*s.* 1*d.*, 3 in. 1*s.* 3*d.*, 4 in. 1*s.* 10*d.*, 4½ in. 2*s.* 4*d.* per yard; a half-round gutter, price, 3½ in. 8*d.*, 4 in. 9*d.*, 4½ in. 11*d.* per yard, and a wrought-iron portable washing furnace, price 3*l.* 10*s.*, manufactured by the exhibitors; a double-action mangle, price 10*l.* 10*s.*; a cottage mangle, price 3*l.* 10*s.*, and a table mangle, price 2*l.* 12*s.* 6*d.*, improved and manufactured by the exhibitors; (new implement) a washing, wringing, and mangling machine, price 8*l.* 8*s.*, invented and manufactured by Bradford, of Manchester; a linen press, price 2*l.* 15*s.*, improved and manufactured by the exhibitors; a pair of polished mahogany trays and stands, price, supper tray 37*s.* 6*d.*, stand 12*s.* 6*d.*, butlers' tray 18*s.* 6*d.*, stand 12*s.* 6*d.*; a patent Ottoman chair bedstead, price 3*l.* 10*s.*; a portable iron bedstead, price 10*s.* 6*d.*; a single lever cheese press, price 2*l.* 10*s.*; a single cheese press, price 2*l.* 12*s.* 6*d.*, and a double cheese press, price 5*l.* 5*s.*, manufactured by the exhibitors; an oak barrel churn, price 2*l.* 17*s.* 6*d.* and 2*l.* 5*s.*; an American churn, price 2*l.* 4*s.*, and an atmospheric churn, price 1*l.* 11*s.* 6*d.*, manufactured by Samuelson, of Banbury; an improved churning apparatus, price 2*l.* 17*s.* 6*d.*, and a confectioners' egg whisk, price 1*l.* 10*s.*, invented by Griffiths, and manufactured by G. Kent, of London; a patent sausage-making machine, price 30*s.*, 42*s.*, and 63*s.*, invented and manufactured by S. Nye and Co., of London; a patent rotary knife-cleaning machine, price 3*l.* 8*s.*, invented and manufactured by G. Kent, of London; a patent fire-roasting safe, price 3*l.* to 12*l.*, invented and manufactured by Milner and Sons, of Liverpool; patent draining tools, price 1*l.* 19*s.* (5*l.* was awarded for these tools at the Northampton meeting of the Royal Agricultural Society in 1847, also at Lewes in 1852); black patent spades (assorted), price 3*s.* 3*d.*, 3*s.* 6*d.*, and 3*s.* 9*d.*; bright patent spades and patent shovels and digging forks of all descriptions, at all prices from 3*s.* upwards, invented and manufactured by W. A. Lyndon, of Birmingham; black cast-steel spades (assorted), price 4*s.*, 4*s.* 3*d.*, and 4*s.* 6*d.*, invented and manufactured by F. Parkes and Co., of Aston; round-nose gravel or railway shovels, price 1*l.* 4*s.* per dos.; hand drag rakes, price, best quality 12*s.* 6*d.*; a liquid manure or water pump, price 3*l.* 12*s.*; an improved garden engine in tub, price 5*l.*, and an iron garden roller, price 2*l.* 5*s.*; a patent lawn-mowing machine, price 7*l.*, improved and manufactured by Ferrabee, of Thrupp Mills; a patent lawn-mowing machine, price 6*l.*, invented, improved, and manufactured by Shaaks, of Arbroath; a patent lawn-mowing machine, price 7*l.* 10*s.*, invented, improved, and manufactured by Thos. Green, of Leeds; (new implement) a patent lawn-mowing machine, price 7*l.*, invented, improved, and manufactured by Pickaley and Sims, of Leigh; five pairs of cast-iron vases and pedestals, price per pair from 3*l.* 10*s.* to 11*l.* 10*s.*, manufactured by Handyside, of Britannia Foundry; a new pattern cast-iron vase without pedestal, price 60*s.*; a pair of new pattern Berlin black Grecian vases, price 28 6*s.* per pair; a pair of rustic pattern garden-seat, price 22 5*s.* per pair and upwards; a pair of new rustic pattern hall chairs, price 22 10*s.* per pair; a set of garden

syringes, price 4*s.*, 6*s.*, 8*s.* 6*d.*, 10*s.* to 14*s.*; a bundle of garden rods, price, 3 ft. by ½ in., 4*s.* and upwards; a set of bright quoits, price, 4*l.* 4*s.* and upwards; a pair of pheasant feeders, price 5*s.* and upwards; a pair of improved spring balances, price, to weigh 200*lb.* 4*s.* and an improved dynamometer or draught gauge, price, in strong oak-case £3, manufactured by the exhibitors; a patent oil-feeder, price 3*s.*, invented by Burdass, improved and manufactured by Symington, of Bowden Steam Mills; a specimen of vermin traps, price 16*s.* and upwards, manufactured by the exhibitors.

WILLIAM HENRY NASH, of Cubitt Town, Poplar, London.

A patent steam rotary cultivator, price 800*l.*, invented and improved by Robert Romaine, of Canada, and manufactured by the exhibitor.

WILLIAM PEARSON and Co., of Leeds, Yorkshire.

A washing, wringing, and mangling machine, price 9*l.* 9*s.*, another size 6*l.* 6*s.*; a machine for wringing and mangling only, price 3*l.* 7*s.* 6*d.*, and under; and a machine for wringing and mangling, price 2*l.* 5*s.*, manufactured by the exhibitors.

JOHN MIDWORTH, of Newark, Nottinghamshire.

A portable steam engine, five-horse power, price 180*l.*, improved and manufactured by J. and W. Midworth, of Newark; a combined thrashing machine, price 120*l.*, a drum for thrashing machine, price 10*l.*, and a steered shaker crank for thrashing machine, price 7*l.*, improved by John Coulson, of Newark, and manufactured by J. and W. Midworth, of Newark; a stationary or fixed engine, two-and-a-half-horse power, price, with Cornish boiler complete, 65*l.*, an improved root pulper, eleven-and-a-half-inch barrel, price 4*l.* 5*s.*, and an improved root pulper, ten-and-a-half-inch barrel, price 4*l.*, improved and manufactured by J. and W. Midworth, of Newark; a set of eight beater plates for thrashing machine, price 3*l.* 4*s.*, invented by John Coulson, of Newark, and manufactured by J. and W. Midworth, of Newark; a cast-iron field pump, price 1*l.* 10*s.*, a cast-iron pump for cistern, price 1*l.* 4*s.*, a cast-iron skylight or ventilator for granaries, price 14*s.*, a double-action cake breaker, price 3*l.*, a cart of beast-shed front in cast-iron, price 11*s.* per yard, a double-swing window, price 14*s.*, a window, with slide ventilator, price 9*s.*, a slide-ventilating window, with swing casement, price 17*s.*, an improved air-trap for cesspools, ten inches, price 7*s.* 9*d.*, smaller size, cheaper, a patent gas smoothing iron, price 7*s.* 6*d.*, a patent gas tailor's goose, price 10*s.* 6*d.*, and a small screw jack, price 2*l.*, all manufactured by J. and W. Midworth, of Newark.

THOMAS MILFORD AND SONS, of West of England Wheel Works, Thorverton, near Collumpton, Devon.

An improved one-horse cart, for general farm, road, and harvest purposes, price 15*l.* 15*s.* (awarded the prize of 3*l.* by the Bath and West of England Society at Yeovil, 1856, a first prize by the same society at Newton, 1857, and a first-class prize by the Royal Agricultural Society at Salisbury, 1857), an improved model one-horse cart, for general farm, road, and harvest purposes, price 15*l.*, an improved prize two-horse waggon, price 26*l.* (awarded the prize of 5*l.* by the Bath and West of England Society at Taunton, 1852, a prize of 4*l.* at Plymouth, 1853, prize of 3*l.* at Bath, 1854, prize of 3*l.* at Tiverton, 1855, prize of 2*l.* at Newton, 1857, and a first-class prize by the Royal Agricultural Society at Salisbury, 1857), and an improved double shaft, plank side, three or four-horse waggon, price 31*l.* 10*s.*, invented, improved, and manufactured by the exhibitors.

POWIS, JAMES, and Co., of 26, Watling-street, London.

A patent machine for mortising hard and soft wood, price 16*l.*, a patent machine for mortising and tenon-cutting hard and soft wood, price 20*l.*, and a patent machine for mortising, tenon-cutting, and boring hard and soft wood, price 21*l.*, invented and manufactured by the exhibitor; and (new implement) a patent endless-band sawing machine, price 27*l.*, invented by a Frenchman, improved and manufactured by the exhibitors.

THOMAS RADCLIFFE, of Leamington, Warwickshire.

A Leamington cooking range, price, 6 feet, 24*l.*, and a portable cooking range, price, 4 feet, complete, 12*l.*, improved and manufactured by the exhibitor; and (new implement) an

emigrant's or field-cooking range, price, 2 feet 8 inches, complete, 7*l.*, invented and manufactured by the exhibitor.

THOMAS RICKETT, of The Castle Foundry, Buckingham.

(New Implement) a patent locomotive steam cultivator and traction engine, of fifteen-horse power, price 750*l.*, invented and manufactured by the exhibitor; a model of elastic flexible roadway, as applied to traction engines, waggon, &c., invented by the exhibitor; and a sample of the patent elastic flexible roadway.

SAMUEL ROWSEL, of Buckland St. Mary, near Chard, Somersetshire.

An oak field gate, price 1*l.* 4*s.*, (new implement) a Rowsell's hangings and fastenings for field gates, price 7*s.*, Rowsell's Yeovil and Cardiff Prize Gate, price 1*l.* 2*s.* (this gate gained the Bath and West of England Agricultural Society's prize of 1*l.* at Yeovil, 1856, and Cardiff, 1858), a pair of oak posts, or pillars, price 13*s.*, Rowsell's prize American horse rake, price 1*l.* 8*s.* and 2*l.* (was awarded four special prizes by the Bath and West of England Agricultural Society of England, and the Royal Agricultural Society of England, at Salisbury, awarded it the silver medal, 1857), all improved and manufactured by the exhibitor.

JAMES SAVORY, of Tewkesbury, Gloucestershire.

A portable combined thrashing machine, price 100*l.*, invented, improved, and manufactured by the exhibitor.

SMITH AND ASHBY, of Stamford, Lincolnshire.

A Smith and Ashby's patent double-action and reverse motion haymaking machine, price 15*l.* 15*s.*, smaller size, 7*l.* 10*s.* (it took the first prize offered by the Royal Agricultural Society of England during a period of ten years in succession, without a single exception, the first prizes also of the Royal Societies of Ireland, Scotland, and the provinces were awarded to this machine during the same period, the prize medal of the Great Jubilee Meeting at Vienna, 1857, the prize medal and the prize of 200 francs, at the Paris Agricultural Exhibition, 1855-56), one of the prizes of the Royal Agricultural Society at Salisbury, 1857, and since that trial it has taken five more first prizes, being every prize offered since that show, making in all no less than thirty-six first-class prizes; a patent wheel hand rake, for hay, corn, stubbles, couch grass, &c., price 2*l.*, invented, improved, and manufactured by the exhibitors; a new two-and-a-half-horse portable steam engine, on Smith and Ashby's patent wrought-iron wheels, price 70*l.* 15*s.* (received the silver medal and high commendation of the Royal Society, in July last, also high commendation of the Great Yorkshire Society last July), a new three-and-a-half-horse portable steam engine, price 100*l.*, and a Smith and Ashby's portable combined thrashing, shaking, and riddling machine, price 45*l.*, improved and manufactured by the exhibitors; a Smith and Ashby's circular-saw table, price 12*l.*, manufactured by the exhibitors; a Smith and Ashby's new portable flour mill, price 17*l.*, improved and manufactured by the exhibitors; a Smith and Ashby's new portable flour mill, price, with best Peak stones, 26*l.*, manufactured by the exhibitors; a patent safety chaff-cutter, for horse, steam, or hand power, with new patented improvements, price from 3*l.* 15*s.* to 14*l.*, invented, improved, and manufactured by the exhibitors (amongst the numerous prizes awarded to it, are those of the Yorkshire Society, the first prize of the Bath and West of England Agricultural Society, Plymouth, the prize medal of the Great Exhibition, 1851, and it was strongly recommended to H. R. H. Prince Albert, by the engineers of the Royal Agricultural Society of England); a registered oilcake breaker, with double action for sheep and oxen, price 3*l.* 10*s.* (took the prize of the Bath and West of England Society in 1856, and again in 1857, it was also highly commended by the judges of the Royal Dublin Agricultural Society in 1856), a registered double-action oilcake breaker, for horse, steam, or hand power, price 5*l.* 6*s.*, and a patent double-action haymaking machine, price 15*l.* 15*s.*, invented, improved, and manufactured by the exhibitors.

JONATHAN STALKER, of Penrith, Cumberland.

A wheel-plough adapted for general purposes, price 4*l.* 15*s.*, a swing-plough adapted for general purposes, price 4*l.* 10*s.* (eleven prizes have been received for this plough from the leading shows of Cumberland, Westmoreland, Yorkshire, and Northumberland); a double plough, price 3*l.* 7*s.* 6*d.* to 4*l.* 4*s.*

(ten prizes have been awarded to this implement within the last three years, from the principal shows of Cumberland, Westmoreland, Northumberland, and the Liverpool and Manchester, held at Wigan), (new implement) a reverse plough, price 3*l.* 15*s.*, a prize horse-hoe, price 3*l.* 15*s.* (highly commended at the meeting of the Society at Salisbury, 1857), a horse-hoe, price 3*l.* 10*s.*, a small drill grubber, price 3*l.* 3*s.*, and a set of tubular iron whittle-trees, price 16*s.*, all invented, improved, and manufactured by the exhibitor; and an improved plough sledge, price 10*s.*, improved and manufactured by the exhibitor.

THOMAS STAPFELTON, of Hull, Yorkshire.

A French mill-stone, 4 ft. diam., intended to be used as a bed-stone, price 11*l.* and 12*l.*, a French mill-stone, 4 ft. diam., intended to be used as a runner, price 12*l.*, a parcel of cast-steel mill chisels or mill bills, price 1*s.* per lb., a parcel of iron chisel hfts, price 10*s.* 6*d.* each, a parcel of cast-steel mill picks, price 1*s.* per lb., and an iron proving staff, price 2*l.*, improved and manufactured by the exhibitor; (new implement) a patent boss for driving mill-stones, price 3*l.* 10*s.*, invented, improved, and manufactured by Mr. Harrison, of Brighouse, York; a pair of iron blocks, price 1*l.* 16*s.*, and a cast-iron bedstone bush, price 1*l.* 1*s.*, improved and manufactured by the exhibitor.

GEORGE TRAVIS, of Mercaston, near Derby.

(New implement) a patent cheese-making apparatus, price £15 10*s.*, a smaller size, price £12, invented and manufactured by the exhibitor.

JOHN WHITEHEAD, of Preston, Lancashire.

A drain pipe and tile machine, price £21 (prizes have been awarded to this machine at the Royal Agricultural Society's meetings, viz.: at York, 1848, £20; at Norwich, 1849, £20; at Exeter, 1850, commendation; at the Great Exhibition, 1851, prize medal; was not exhibited in 1852; at Gloucester, 1853, £10; at Lincoln, 1854, prize medal; at Carlisle, 1855, £5; at the Universal Exhibition of Paris, 1855, first-class medal; at Chelmsford, 1856, first prize; at Amsterdam, 1857, first prize; and Brunswick and Rotterdam, 1858; besides a number of prizes at local meetings); a drain pipe and tile machine, price £14 10*s.*; a double box drain pipe and tile machine, price £28; a double box steam power or horse power drain pipe and tile machine, price £5 5*s.*; an improved brick pressing machine, price £16 16*s.*, invented, improved, and manufactured by the exhibitor; an economical chaff cutter, price £2 10*s.*, invented and manufactured by the exhibitor; a turnip cutter, price £2 10*s.*, improved and manufactured by the exhibitor; a combined wringing and mangling machine, price £3 10*s.*, invented, improved, and manufactured by the exhibitor; a mangling, washing, and wringing machine, price £5 10*s.*, improved and manufactured by the exhibitor; a pair of spring carriers-off, price 15*s.*, invented, improved, and manufactured by the exhibitor; a patent mangle, price £8 8*s.*, manufactured by the exhibitor; a pug mill with screening apparatus, price £28, invented and patented by W. C. S. Percy, of Manchester, and manufactured by the exhibitor; a brick making and tile machine, price £160; and a pair of large clay rollers, price £55, invented and manufactured by the exhibitor; a pipe socketting machine, price £13, invented, improved, and manufactured by the exhibitor; a brick pressing machine, price £25, manufactured by the exhibitor; double selvedge diamond mesh hare and rabbit-proof netting, price 3*d.* to 9*d.* per yard, invented, improved, and manufactured by the exhibitor.

RANSOMES AND SIMS, of Ipswich, Suffolk.

(New implement) a set of patent steam ploughing apparatus, price £670, invented by John Fowler, of London, improved and manufactured by the exhibitors; (new implement) a set of patent independent steam ploughing apparatus, price £370, invented by John Fowler, of London, and A. Eddington, of Chelmsford, improved and manufactured by the exhibitors; (new implement) a patent trussed beam iron plough, price £4 5*s.* to £5 15*s.*; and (new implement) a moulding or double top iron ridging plough, price £3 5*s.*, invented, improved, and manufactured by the exhibitors; a Cotgreave's patent trenching and subsoil plough, price £10 10*s.*, invented by R. Cotgreave, of Chester, improved and manufactured by the exhibitors (awarded the silver medal at Lincoln 1854, at Carlisle 1855, and at Chelmsford 1856); a Lowcock's patent

iron one-way or turnwrest plough, price £6 5s. invented by Henry Lowcock, of Devonshire, improved and manufactured by the exhibitors (awarded the silver medal at the Royal Agricultural Society's meeting at Southampton, price of £5 at Shrewsbury, price of £5 at Exeter, price of £7 at Lewes, price of £7 at Gloucester, price of £2 at Chelmsford); a set of four light East Anglian seed harrows, price £4 15s. (price of £2 at Chelmsford, 1856); a set of four medium ditto, price £5; a set of four heavy ditto, price £5 5s.; an improved Scotch grubber with fore and hind wheels, price £6 10s.; an improved two-horse scarifier or cultivator, price £10; an improved wrought iron scarifier, price £16 (price of £2 at Chelmsford, 1856); a jointed wrought iron barley roller, 14 inches diameter, price £11 10s., if with 10-inch cast cylinders £9; a 24-inch three-cylinder field roller, covering 6 feet 6 inches, price £18 10s. (received the first prize of £2 at Chelmsford, 1856); an 18-inch three-cylinder ditto, covering 6 feet 6 inches, price £10 10s.; and a wrought iron 20-inch three-cylinder field roller, price £11 10s., invented, improved, and manufactured by the exhibitors; a Crosskill's patent clod crusher, 6 feet wide, price £16 10s., invented by W. Crosskill, of Beverley, improved and manufactured by the exhibitors; (new implement) a patent solid beam plough with two wheels, price £4 7s. 6d. and upwards; a light pony plough fitted with one wheel, price £2; a one-horse plough with one wheel, price £2 12s. 6d.; a small double tom or moulding plough, price £2 10s.; a patent universal ridge plough, price £5 10s. (a silver medal was awarded to this plough at Norwich, 1849); a strong solid beam iron plough, price £5 5s.; a two-horse double furrow plough, price £5 10s.; a set of patent trussed whippetrees, price £1 5s. (awarded a silver medal at the Royal Agricultural Society's meeting at Derby, 1843, and at Southampton, 1844; at Lewes, 1852, commended); a set of irons for a Shrewley skim for use on an ordinary plough, price £1 5s.; and a wrought iron horse hoe with expanding harrow, price without harrow £3, with expanding harrow £3 10s., all invented, improved, and manufactured by the exhibitors; a Nicholson's patent double action haymaking machine, price £16 16s., invented by W. N. Nicholson, of Newark, improved and manufactured by the exhibitors (received the first prize of the Royal Agricultural Society's meeting at Salisbury, 1857); a horse drag rake, with twenty-four iron teeth, price £7 15s., with steel teeth £8, larger sizes £8 10s. and £10 10s. (received the first prize of the Royal Agricultural Society's meeting at Salisbury, 1857); and a chaff cutter for horse or steam power, price £16, invented, improved, and manufactured by the exhibitors; a patent cam chaff cutter with wrought iron legs, price £5 5s., invented by G. A. Biddell, improved and manufactured by the exhibitors (received the first prize at the Royal Agricultural Society's meeting at Chester, 1858); a hand power chaff cutter, price £3 10s. and £4 4s., invented, improved, and manufactured by the exhibitors; a Biddell's patent bean cutter, price on wood stand £3 15s., on iron stand £4 (awarded the silver medal at the Royal Agricultural Society's meeting at Gloucester, 1853); a Biddell's patent steel oat mill, price on wood stand 3s. 10s., iron ditto 3s. 15s.; a Biddell's combined patent bean and oat mill, price on wood stand 5s. 15s., iron ditto 6s.; and a Biddell's patent combined bean and oat mill and oilcake breaker, price 7s. 10s., invented by G. A. Biddell, of Ipswich, improved and manufactured by the exhibitors; a bruising mill on iron stand, price 7s. 10s., invented, improved, and manufactured by the exhibitors; a Biddell's patent universal mill, price 9s. 10s., invented by J. Biddell, of Ipswich, improved and manufactured by the exhibitors; a smooth roller bruising mill, price 10s. (received the first prize of the Society's show at Chester, 1858); and an oilcake breaker, price 2s. 15s. and 4s., invented, improved, and manufactured by the exhibitors; a Biddell's patent root cutter, price 5s. 6d. and 6s. 6d., invented by G. A. Biddell, of Ipswich, improved and manufactured by the exhibitors; a Gardner's single action turnip cutter, price 4s. 10s.; a Gardner's double action turnip cutter, price 5s. 10s., invented by J. Gardner, of Banbury, improved and manufactured by the exhibitors; a hand turnip cutter, price 1s. 12s. 6d.; a one-horse gear with intermediate motion, price 13s.; an improved circular-saw table, price 15s.; a two-horse power portable thrashing machine, price 42s.; a patent portable combined chaff cutter and universal mill, price 50s.; a horizontal stationary steam engine of 8-horse power, price 103s. (received the Society's prize of 10s. at Lewes, 1852; first prize of 20s. at Lincoln, 1854; and first prize of 30s. at Car-

lisle, 1855); an improved dressing machine, price 9s.; a circular pig trough, price 10s.; a circular hog trough, price 18s.; a set of five pig troughs, price from 1s. 9d. to 8s. 3d. each; a set of five hog troughs, price from 4s. 9d. to 14s. 3d. each, invented, improved, and manufactured by the exhibitors; a Budding's improved grass cutter, price 5s. 17s. 6d., invented by E. Budding, of Dursley, improved and manufactured by the exhibitors; a 90-gallon water or feeding pan, price 2s. 15s.; a 45-gallon water or feeding pan, price 1s. 16s.; a small oblong water trough, price 9s.; a round water or feeding trough, price 6s.; a small water pan, price 1s. 10d.; an improved wrought iron lifting jack, price 1s. 10s.; an improved double handle sack barrow, price 16s.; and (new implement) a patent universal chaffcutter, price 10s. 10s., invented, improved, and manufactured by the exhibitors; a patent universal drill, price 12s. 10s., invented by A. G. Biddell, of Ipswich, improved and manufactured by the exhibitors; an oilcake breaker, price 5s. 5s., invented, improved, and manufactured by the exhibitors; a Biddell's patent root cutter, price 7s. 10s., invented by G. A. Biddell, of Ipswich, improved and manufactured by the exhibitors (obtained the first prize at the Royal Agricultural Society's meeting at Chester, 1858); a patent chaffcutter for steam power, price 24s.; a bruising mill for hand, horse, or steam power, price 16s. 16s.; an oilcake breaker, price 12s.; a double cylinder portable steam engine of 14-horse power, price 350s.; a combined steam thrashing machine, price with common drum and iron wheels, 100s.; a 7-horse power portable steam engine, price 210s. (obtained the prize of 10s. at the Royal Agricultural Society's meeting at Lincoln, in 1854); a combined portable finishing thrashing machine, price 125s.; an 8-horse power portable steam engine, price 215s.; a 3-horse power portable thrashing machine, price 75s.; a 3-horse power portable steam engine, price 125s.; and two sets of intermediate driving gears for machinery in motion, price 15s. 15s., invented, improved, and manufactured by the exhibitors.

JAMES A. BRUCE, of Broadwell, near Rugby, Warwickshire.

A set of stable fittings, invented and improved by the exhibitor, and manufactured by Ransomes and Sims, of Ipswich, price £20, hayrack 66s., plain manger 19s. 6d., enamelled manger 30s. 6d., safety tying apparatus 22s. sieve, 13s.

CHARLES WHITEMAN, of Dunchurch, Warwickshire.

A farm gate, invented, improved, and manufactured by the exhibitor, price 24s.

HENRY ATWOOD THOMPSON, of Lewes, Sussex.

An improved land roller, with single shafts, price £10 10s. (for trial); an improved land roller with double shafts, price £13; a cast iron trough, for loading roller, price £2; an economic drainage level (awarded a silver medal at Lincoln, 1854, and a gold medal at Paris, 1856), price 38s.; an improved economic draining level, price 55s., invented, improved, and manufactured by the exhibitor; a prize telescope draining level, invented and manufactured by the exhibitor (awarded a silver medal at Gloucester in 1853, and a gold medal and 100 francs at Paris in 1856), price £5 10s.; an improved telescope level, invented, improved, and manufactured by the exhibitor, price £6 16s. 6d.; a surveyor's cross, manufactured by the exhibitor, price 25s.; a workman's level, for working to any uniform slope (commended at Salisbury, 1857), price 18s. 6d.; a graduated levelling staff, with sliding vane, price 12s. 6d.; and a portable levelling staff, price 20s., invented and manufactured by the exhibitor; an assortment of measuring chains, improved and manufactured by the exhibitor, price, light 6s., strong 7s. 6d.; a set of arrows for measuring, ten in number, with bow handles, manufactured by the exhibitor, price 3s.; a portable pump, with 5-inch working barrel, price 65s.; a tripod stand and basket for pump, price 20s.; a portable pump with flexible hose, price £5 10s.; a patent haymaking machine, with reverse action, invented and manufactured by the exhibitor (awarded the first prize at Paris in 1856, and a prize at the Royal Agricultural Society's show at Salisbury in 1857), price £16 16s.; a patent haymaking machine, price £16 16s.; a single action haymaking machine, price £12; and a horse drag rake, for hay, corn, and stable, price £5, invented and manufactured by the exhibitor; a prize combined one horse cart, water cart, and manure irrigator, invented, improved, and manufactured by the exhibitor (awarded a gold medal and 350 francs at Paris in 1856, and highly com-

mended at Salisbury in 1857) price £15; a set of carved harvest raves, invented and manufactured by the exhibitor, price 40s.

ROBERT TINKLE, of Penrith, Cumberland.

Several sizes of a patent revolving barrel churn, invented, improved, and manufactured by the exhibitor, price 60s. to 90s.

WILKINSON, WRIGHT, and Co., of Boston, Lincolnshire.

A seven horse portable steam engine, price £205, on iron wheels £200; and a three horse portable steam engine, price £120, improved and manufactured by the exhibitors; a combined thrashing and dressing machine, improved by John Coulson, of Newark and the exhibitors, and manufactured by the latter, price £125.

J. B. BROWN AND Co., of 18, Cannon-street, City, London.

(New implement.)—A patent grubbing and harrowing land roller and clod crusher, for preparing the soil for green crops, invented by Mr. Campbell, and manufactured by Messrs. Shanks and Son, of Dens Iron Works, price £15; a patent lawn mowing and rolling machine, price £7 17s. 6d.; and a patent lawn mowing and rolling machine, invented, improved, and manufactured by Messrs. Shanks and Son, of Dens Iron Works, suitable for pulling only, price £6; wrought iron hurdles, price 5s. 3d. to 8s. 10d.; wrought iron continuous round-bar fence, for horses, cattle, sheep, and lambs, price 3s. 4d. per yard; wrought iron continuous flat-bar fence, for horses, cattle, sheep, and lambs, price 3s. 4d. per yard; a portable hare and rabbit-proof ornamental hurdle, price 6s. 6d. and upwards; an ornamental wicket gate, price 35s.; an improved wrought iron field gate, price 50s.; an improved wrought iron field gate, price 45s.; a wrought iron field gate, for hanging to wood posts, price 20s.; a wrought iron carriage gate, price £7; a small fine carriage gate, for pony drives, price £5 10s.; Galvanised wire netting, price 4d. per yard and upwards; wrought iron folding garden stools, price 4s. 6d. each; small size folding garden stools for children, price 3s. 6d. each; wrought iron portable garden seats, price 4s. 6d. each and upwards; an ornamental cast iron garden chair, price 42s. 6d.; an ornamental cast iron Medici vase, with figures, price 47s. 6d. and upwards; ornamental wire work flower stands, price 4s. 6d. and upwards; a wire work garden archway, price 45s. and 55s.; a wire work column archway, price 35s. 6d.; wire work suspending flower baskets, price 2s. 6d. and upwards; superior prepared fencing wire, price 7s. 9d. per bundle; an iron garden roller, fully mounted with back balance, complete, price 75s.; an improved garden barrow engine, with registered spreader, price 75s.; a wrought iron sack barrow, price 11s. 6d., lighter 9s. 6d.; a wrought iron wheelbarrow, price 23s. 6d.; a sheep folding hurdle, price 5s.; and improved iron corn rick stand, price £9 15s.; and a specimen of an improved iron pillar and cap, of increased height and strength, made to support wood frames, price 5s.

WM. CHOYCE and SON, of Sibson, near Atherstone, Warwickshire.

A combined corn roughing, blowing, and dressing machine, price from 8l. to 10l. 5s.; a single roller curd mill, price 22s. 6d. to 42s. 6d.; a deal mangle, price 85s., invented, improved, and manufactured by the exhibitors.

COTTAM and COMPANY, of 2, Winsley-street, London, W.

A cast iron stable post with ball top, price 42s.; a cast iron post, price 42s.; a door for loose box, price 92s. 6d.; a wrought iron bar pannel, price 8s. per foot; a cast iron bottom cill, price 1s. per foot; and a side of loose box, price 8s. per foot, manufactured by the exhibitors; a wood partition of loose box, and back of loose box, price 1s. per foot; a wrought iron rug, price 3s. 3d.; an improved trap for drains for stables, price 10s.; a sample of surface drains with safety covers, price 2s. 6d. per foot, angle for do. 3s. 6d.; and improved shape manger top for the corner of loose box, price 87s.; a patent enamelled manger and rack, price 68s. 6d.; a patent enamelled manger, rack, and water trough, price 78s. 6d.; a stall partition pannel, price 47s. 6d.; a patent galvanised wrought iron seed box, price 8s. 6d.; a Cottam's patent drop cover, price

3s. 6d.; a sample of Cottam's patent halter guide and collar reins, price 10s. 6d. each; a diamond ventilating ramp of cast iron with top rail and middle do. to receive wood partition, price 70s.; an ornamental cast iron horseshoe and brass ring for rack chain, price 3s. 6d.; a 9 inch square ventilators to open and shut, price 2s. 9d.; a sanitary trap, price 8s. 6d.; a sample of improved surface drain, price 2s. 6d. per foot; a patent tying apparatus, and leather collar, rein, chain, and spring hook, price 14s.; a division to form a loose box or two stalls, price 17l. 2s. 6d.; a round loose box post, ornamental top, price 45s.; a sample of diamond panneling, price 11s. 6d. per foot; a cast iron socket, for shifting post, price 9s.; a shifting post, of wood, price 15s.; a swing bail, or board and chains, price 13s.; cattle troughs, galvanised, price 30s. 6d. and less; a Cottam's patent saddle and harness airing and drying horse, invented and manufactured by the exhibitors, price 12l.; a sample of cast iron saddle and harness bracket, price 5s. and upwards; an improved collar holder, price 2s. 6d. each; a harness bridle holder, price 1s. 6d. each; a saddle bridle holder, price 10d. each; rosettes, rings, ribbons, and whip hooks, price 4d., 9d., 1s., 2s. 6d., and 4s. each; bright chains, price 3s., 3s. 6d., and 4s. each, galvanised chain 1s., 1s. 9d., and 2s. each, japanned do. 10d., 1s. 3d., and 1s. 6d. each; a harness cleaning hook, price 7s. 6d. and upwards; wrought iron corn bins, price 30s. and upwards; and improved iron spout corn metre, price 7s. 6d. iron supply pipe 1s. per foot, hopper 3s. 6d.; an Indian corn mill or thresher, price 6l. 10s.; a serrated chain harrow, price 90s. and 50s.; an odometer or land measure, price 63s.; and a dynamometer or draught gauge, price 7l., invented by George Cottam, of Wimbledon, and manufactured by the exhibitors; a carriage jack, price 25s.; a wrought iron carriage setter, manufactured by the exhibitors, price 18s. to 25s.; open air gratings, price 6d. to 9d. per foot run; dog troughs, price enamelled 4s. 6d. to 7s. 6d.; pig troughs, price 7s. 6d. to 10s.; galvanised stable pails, manufactured by the exhibitors, 3s. to 5s. each; cast iron enamelled pails, price 3s. 6d. to 6s. 6d. each; cast iron pumps, price 38s. and upwards; stable forks, price 1s. 6d. and 2s. 6d., bright 3s. 6d. each; stable shovels, price 1s. 9d. to 3s. each; cast iron enamelled bowls, price 2s. 9d. to 4s. each; and candle lanterns, manufactured by the exhibitors, price 2s. 6d. to 7s. 6d. each; safety lanterns, price 15s. each; a harness room stove and boiler, price 40s.; loose box and stable door latches and fastenings, price 1s. to 16s. 6d., flush rings and plates 4d. to 2s. 6d. brass; sack trucks, price 14s. and 21s. each; corn measures, price 1s. to 8s. each; and garden seats, price 12s. 6d. to 21s. each.

JOHN SAMUEL DAWES, of Smethwick House, near Smethwick, Staffordshire.

(New implement) a digging or forking machine or cultivator, invented and manufactured by the exhibitor, price 100l.

JAMES and FREDERICK HOWARD, of Britannia Iron Works, Bedford.

Several of Howard's new patent iron ploughs, with two wheels, price 4l. 5s. 6d. & 4l. 2s. 6d. (received the first prize at the Society's Meeting at Chelmsford in 1856, as the best plough for general purposes, as well as the first prize for light land at the same meeting, also ten other first prizes at previous meetings of the Society), a new patent iron fen plough, with two wheels, price, with skim-coulter complete, 6l., a new patent wrought-iron Colonial wheel plough, price, with steel-breast, 5l. 8s. and under, a new patent iron swing plough, price, with slide-foot to regulate depth, 4l. 15s. 6d., a new patent iron plough, price 4l. 7s. 6d., a patent iron plough, with two wheels, price 4l. 5s. 6d., skim-coulter 5s. 6d., drag-chain 2s. extra (is the one with which the exhibitors won so many first prizes from the Royal Agricultural and other national Societies), a patent one-horse iron plough, with two wheels, price 3l. 5s., fitted with steel breast 5s. extra, a patent iron draught plough, with one wheel, price 2l. 5s., a new patent iron plough, with two wheels, price 5l. 13s., a patent double-furrow plough, price 6l. 6s. and under, a patent subsoil plough, or subpulverizer, price 3l. 15s. 6d., a patent ridge or double-breast plough, price 2l. 15s. and upwards, (a larger size of this plough was awarded the only prize ever offered by the Royal Agricultural Society of England for ridging ploughs, at the Chelmsford meeting), (new implement) a patent draining plough, price 6l. 10s., and a new patent paring or skim plough, price 6l., all invented and manufactured

by the exhibitors; a patent iron plough for steam power, price 50*l*., invented by the exhibitors and R. Chandler, and manufactured by the former; ploughshares and plough fittings, price 8*s*. 6*d*. to 20*s*. per dozen, and a wrought-iron plough sledge, price 8*s*., invented and manufactured by the exhibitors; an improved dynamometer or draught gauge, price, including strong oak case, 3*l*. 10*s*., improved and manufactured by the exhibitors; a set of patent jointed harrows, price 5*l*. 6*s*., and under (awarded the following prizes at the Chelmsford meeting: the first prize for the best general purpose harrows, the first prize for the best light harrows, the first prize for the best drag harrows), a set of patent jointed harrows, price 3*l*. 12*s*. (received the first prize for the best light harrows at Gloucester, Lewes, and Chelmsford), a set of patent iron harrows, price 4*l*., and under, a set of patent iron drag harrows, price 6*l*. 6*s*., and under, a set of patent Colonial harrows, price 4*l*. 4*s*., and upwards, a set of trussed whippetrees, price 1*l*. 6*d*., a set of trussed tubular iron whippetrees, price 17*s*. 6*d*., a set of three-horse tubular trussed iron whippetrees, price 1*l*. 6*s*., a set of four-horse ditto, price 2*l*. 10*s*. and upwards, and a Bedfordshire scarifier, price 6*l*. 10*s*. to 12*l*., all invented and manufactured by the exhibitors; an improved press-wheel roller, price 18*l*., improved and manufactured by the exhibitors; an improved horse hoe, price 2*l*. 5*s*., and upwards (received the two first prizes from the Royal Agricultural Society of England), a patent horse rake, price 7*l*. 10*s*., and upwards (received the three first prizes of the Royal Agricultural Society), and a Howard's improved drill presser, price 16*l*. (received the silver medal of the Royal Agricultural Society of England at the Salisbury meeting) improved and manufactured by the exhibitors.

JAMES and FREDERICK HOWARD, of Bedford; and **WILLIAM SMITH**, of Woolston, Buckinghamshire, and 40, Mark-lane, London.

A set of patent apparatus for cultivating land by steam power, invented by William Smith, of Woolston, and manufactured by J. and F. Howard, of Bedford, price £205; a set of patent apparatus for cultivating the land by steam power, invented by the exhibitors and manufactured by J. and F. Howard, of Bedford, price £250; a patent self propelling portable steam engine, price £350; and a portable steam engine, price £350, invented and manufactured by Clayton and Shuttleworth, of Lincoln; a Smith's patent steam cultivator, price £16 10*s*. and £17 10*s*.; a Smith's patent trenching and subsoiling plough, price £21; and a Smith's subsoil plough, price £4, invented by William Smith, of Woolston, and improved and manufactured by J. and F. Howard, of Bedford.

The Right Hon. Lord LEIGH, of Stoneleigh Abbey, near Kenilworth, Warwickshire.

A field gate, improved and manufactured by the exhibitor, price 24*s*.

PROCTOR and RYLAND, of Emscote; Warwick; Great Lister-street, Birmingham; Saltney, near Chester; and Cathay, Bristol.

Turnip and mangold manure, wheat manure, barley manure, and oat manure, all price £3 per ton; grass manure, price £7 10*s*. per ton; grass manure for mowing land, price £8 10*s*. per ton; grass manure for grass land, with a light subsoil, price £8 per ton; potato manure, price £8 per ton; and a bone superphosphate of lime, price £7 per ton, all manufactured by the exhibitors.

HENRY PAIN, of Bedford.

(New implement) a patent cattle fastening, price 4*s*. 6*d*., lever for outside of building 7*s*. 6*d*. extra; and (new implement) a patent horse fastening, price 3*s*. 6*d*., invented by G. W. Baker, of Woburn, and manufactured by the exhibitor.

RD. FORSHAW, and Co., of Liverpool.

A two ton cart and cattle weighing machine (obtained the prize of the Royal Agricultural Society of Ireland 1858), price £18; a sheep weighing machine, price £7 10*s*.; and a sack weighing machine, price £5 5*s*., invented, improved, and manufactured by the exhibitors; a hay and straw cutter, price 70*s*. and £5; and a bean and oat crusher, price £6 10*s*., manufactured by the exhibitors; a Dray's champion reaping machine, invented by Obed Hussey, of the United States, im-

proved by Wm. Dray and Co., of London, and manufactured by the exhibitors (received many prizes both from the Royal Agricultural Society and other local societies, and many continental agricultural exhibitions: at the adjourned trial at Buxton in 1856, the judges awarded a prize of £15 to this machine: the Austrian gold medal of honour was awarded to it in 1857), price £25; a wrought iron sack truck, price 18*s*. and 18*s*. 6*d*.; and a combined wheat mill and dressing machine, price £7, invented, improved, and manufactured by the exhibitors (obtained many prizes at various agricultural society's shows); and a set of harrows, manufactured by the exhibitors, price 68*s*.

HUXHAMS and BROWN, of Exeter, Devonshire.

A millstone of French burrs, price £11; and a millstone runner of French burrs, price £11 10*s*.; manufactured by the exhibitors; a Stevens's patent bread making machine or dough mixer, invented by Mr. Stevens, of London, and manufactured by the exhibitors, price £48 10*s*.

PHILIP JOHNSTON, of 290, Oxford-street, London.

A butter churn to make one pound of butter, price 15*s*.; to make two pounds, 18*s*.; to make four pounds, 25*s*.; (new implement) to make 6*lbs*., price 30*s*.; to make 8*lbs*., 32*s*. 6*d*.; to make 10*lbs*., 35*s*.; to make 12*lbs*., 37*s*. 6*d*.; to make 15*lbs*., 42*s*. 6*d*.; to make 20*lbs*., 50*s*.; to make 25*lbs*., 65*s*.; and to make 30*lbs*., 81*s*. 6*d*., invented, improved, and manufactured by the exhibitor; a Baker's patent mangle, invented by Baker, of Fore-street, City, improved and manufactured by the exhibitor, price £10 10*s*.

THOMAS LUCK, of Spalding, Lincolnshire.

(New implement) a patent clover, rye grass, and flax seed drill, with horse rake combined, price £25; and an improved lever horse rake, for hay, corn, or twich, price £8, invented and manufactured by the exhibitor; and a dressing machine, with patent elevator and weighing machine combined, invented by S. Campaign, Esq., of Deeping, St. Nicholas, and manufactured by the exhibitors, price £25.

MCCAUGHT and Smith, of Worcester.

A commodious double Brongham, for one or two horses, improved and manufactured by the exhibitors, price £150; a waggonette for one or two horses, price £90; a light dog cart phaeton, price £65; and a light Malvern dog cart, for two or four persons, price £45, invented and manufactured by the exhibitors.

GEORGE MILFORD, of Thorverton, near Culmpton, Devonshire.

(New implement) an iron plough, invented and manufactured by James Wright, of Sandford, Devon (received the first prize of the Bath and West of England Society, at Newton, 1857, at Cardiff, 1858), price 85*s*.; (new implement) a strong light built two horse wagon (the prize of £3 was awarded to it by the Bath and West of England Society at Yeovil 1856, and a prize of £1 by the Royal Agricultural Society at Salisbury 1857, and half the prize by the Bath and West of England Society at Cardiff 1858), price £7 5; and (new implement) an improved one horse cart, invented, improved, and manufactured by the exhibitor (highly commended at Yeovil 1856, also at Salisbury 1857, and awarded half the prize by the Bath and West of England Society at Cardiff 1858), price £15.

FRANCIS PARKES & Co., of Sutton Coldfield, Warwickshire.

Warwickshire draining tools, price £1 19*s*.; draining tools, price £1 6*s*.; solid cast-steel forks, price 3*s*. and upwards; assorted cast-steel digging forks, price 3*s*. 9*d*. and upwards, manufactured by the exhibitors; cast-steel manure forks, price 4*s*. and upwards; cast-steel cottage garden forks, price 3*s*. 9*d*. and upwards; assorted cast-steel hay forks, price 1*s*. 9*d*. and upwards; cast-steel unloading and pitching forks, price 3*s*. 6*d*. and upwards; cast-steel blued hog forks, price 2*s*. 3*d*. and upwards; assorted manure drags, price 4*s*. and upwards; assorted cast-steel spades, price 4*s*. 3*d*. and upwards; assorted cast-steel hoes, price 1*s*. 2*d*. and upwards; assorted cast-steel shovels, price 3*s*. and upwards; assorted cast-steel surface spades, price 3*s*. 3*d*. and upwards, all improved and manufactured by the exhibitors.

JOHN R. PRILL, of 17, New Park-street, Southwark, London.

(New implement) a model of a [patent self-regulating wind engine, invented by W. H. Jahn, of America, and improved and manufactured by the exhibitor; an iron hurdle for folding sheep or cattle, manufactured by the exhibitor, price 4s. 9d.; a case of patent liquid-gas lamps, price from 3s. 6d. each.

GEORGE TURNER, of 196, Great Dover-street, Borough, London.

(New implement) two new egg whisks and cream whipping machines, price £1 1s. and £1 10s., invented and manufactured by the exhibitor; a magic churn and mixing machine, price £1 10s., manufactured by the exhibitor (awarded two prizes by the Royal Agricultural Society of England); (new implement) a new churn, price £2 10s., invented and manufactured by the exhibitor; a patent domestic flour mill, price £8 10s.; (new implement) a patent bread-making and dough-mixing machine, price £1 15s.; (new implement) a patent roasting-jack, combined with self-acting baster, price £2 10s.; (new implement) a patent percolating baster, price 2s. 6d.; a patent sausage-making and mincing machine, price £1 10s.; a patent rotary knife-cleaning machine, price £4 and £3 10s., invented and manufactured by Gollop and Co., of London; (new implement) a patent round dozen knife-cleaning machine, price £1 10s.; (new implement) a John Bull patent metal vent peg, price 1s. 6d., invented and manufactured by the exhibitor; a cucumber slicer, price 1s., manufactured by the exhibitor; (new implement) a patent Oxonian knuckle washing machine, price £2 15s., invented and manufactured by Wheeler and Co., of Oxford; (new implement) an improved washing machine, price £6 6s.; a patent mangle, price £4 10s.; an American patent cooking stove and oven, price £5 5s.; a patent portable copper, price £2 5s.; an improved patent cooking range, price £10 10s.; (new implement) a patent filter, price £2 10s.; (new implement) a patent lamp, called the Bude Light—this lamp and one gallon of the patent oil is carefully packed and booked to any address for £1 1s.; (new implement) a registered crib-biting preventive horse's-head collar, price £1 10s., invented and manufactured by T. Cook, of 4, Hay's-mews, Berkeley-square; a sample of patent food for cattle, price £2 2s. per cwt.; a patented apparatus for stopping the wheels of carriages, price 10s. 6d.

WILLIAM PIERCE, of 4, Adelaide-place, London Bridge, London.

A horizontal 8-horse power steam engine, price 120l., and (new implement) a patent vertical tubular self-complete boiler, suited for the above engine, price 60l., invented and manufactured by J. Young, of Edinburgh; (new material) patent slab roofing material price 8d. per foot, and strong wire netting, manufactured by E. Allen, of Park-side, Knightsbridge, price commencing at 2½d. per foot; (new implement) a patent truck sack weighing machine, to weigh 8 cwt., price 3l. 10s., and (new implement) a patent weighing machine, for dairy purposes, price 2l., invented and manufactured by E. Dowling, of Little Queen-street, London; two galvanised wrought-iron cattle troughs, price 2l. 10s. and 1l. 2s., and a wrought-iron water cistern, price 3l. 5s., invented and manufactured by Fraser and Son, of Commercial-road East, London; a portable wrought-iron forge, with square bellows, price 5l., invented and manufactured by A. Wright, of London; (new implement) Boyd's patent brush lawn mowers, three sizes, price 6l. 6s. and upwards, invented and improved by Jas. Boyd, of London, and manufactured by B. Samuelson, of Banbury, Oxon; a Boyd's patent self-adjusting scythe, price 10s. 6d., invented by James Boyd, of Lewisham, and manufactured by Wm. Dray and Co., of London; cast-steel 5-tined digging forks, price 5s. 6d. each, invented by Francis Parkes, of Birmingham, improved and manufactured by F. Parkes and Co., of Birmingham (have received prizes at various meetings of the Royal Agricultural Society, and also at numerous other shows throughout England); a bundle of vulcanised India-rubber driving bands, price 1s. per foot and upwards, vulcanised India-rubber delivery hose, price 6d. per foot and upwards, and vulcanised India-rubber suction hose, price 1s. 3d. per foot and upwards, invented and manufactured by William Hooper, of Mitcham, Surrey; patent flax hose, price 4d. per foot and upwards, and (new article) patent flax driving bands, price 8d. per foot and upwards, invented and manufac-

tured by Smith and Co., of Leyland; (new article) emery scythe rubbers, price 1s. each, invented and manufactured by the exhibitor; corn bins, price 1l. 7s. and upwards; two improved winnowing machines, with hand-made screens, price 10l. 10s. and 12l. 12s.; a garden engine, price 4l. 14s., and a patent tubular gate, price 2l. 2s., invented and manufactured by Wm. Dray and Co.; elegant flower-pots, price from 1s. 4d. to 3s. 6d., manufactured by H. V. Selmts, of Germany; a Dray's patent champion reaper, price 25l., invented by Obed Hussey, of Baltimore, U.S., improved and manufactured by Wm. Dray and Co.; a portable vice table, price 2l. 12s. 6d., manufactured by Wm. Dray and Co.; an ornamental flower stand, price 2l. 5s., with flower-pots 10s. 6d. extra; an ornamental table, price 1l. 16s.; an ornamental garden seat, price 2l. 10s., and an ornamental garden chair, price 1l. 12s., invented and manufactured by the Coalbrookdale Company; (new implement) a patent indicator gauge and self-acting syphon tap, price 5s. 6d., invented by James Boyd, of Lewisham, and manufactured by C. Bolton and Son, of Crawford-passage, Clerkenwell, London; patent socket screws, notched, price 1l. 13s. 6d., also from 80s. to 60s., according to size, invented and manufactured by Hughes and Son, of Dover-road, London; patent screw band punches, price 14s. each, manufactured by J. Buck, of Newgate-street, London; (new implement) Glenn's watering-pots, price from 2s. 3d. to 6s., manufactured by Lovesidge and Shoolbred, of Wolverhampton; a great variety of ornamental flower baskets, price from 2s. to 10s., invented and manufactured by Caston and Co., of London; (new implement) a Lamb's patent squeegee (one bundle), various sizes, from 5s. 6d. each, invented by Lamb, and manufactured by Perreux and Co., of London; patent improved churns, various sizes, from 1l. 5s.; dairy utensils, price from 6d. each, and two ornamental wire flower stands, price 16s. and 1l., invented and manufactured by Caston and Co.

PRIEST and WOOLNOUGH, near Kingston-on-Thames, Surrey, S.W.

A nine-row lever corn drill, price 22l.; a thirteen-row lever corn drill, 27l., and a fore carriage steerage, price 4l. 10s., improved and manufactured by the exhibitors; a patent lever horse-hoe, price 17l., invented, improved, and manufactured by the exhibitors (received a prize of 2l. at the Salisbury show, 1857); an improved lever horse-hoe, price 11l. 10s., invented and manufactured by the exhibitors; a patent turnip duster and fly destroyer, price 18l., invented by J. Jephson Rowley, of Rowthorne, improved and manufactured by the exhibitors (received the silver medal at the Chester show, 1859); a turntable skid, price 10s., invented and manufactured by the exhibitors.

GEORGE WILLIAM ROBINSON, of Barton-upon-Humber, Lincolnshire.

(New implement) a patent three-horse power clod crusher, roller, or pulverizer, price £17; (new implement) a two-horse clod crusher or pulverizer, and press wheel and general purpose roller, price £15 10s.; (new implement) a one-horse power ditto, price £12—all invented, improved, and manufactured by the exhibitor.

WILLIAM TORR, of Aylesby Manor, near Grimsby, Lincolnshire.

A farm gate, invented, improved, and manufactured by the exhibitor, price £1.

JOHN RICHARDSON, of Brunton Place, near Carlisle, Cumberland.

Two corn dressing machines, invented, improved, and manufactured by the exhibitor, price £7 10s. and £8 8s. (have been awarded nearly thirty prizes during the last nine years, including the first prize at the great show of the Highland Agricultural Society of Scotland, held at Glasgow in 1857.

JOHN WARNER and SONS, of 8, Crescent, Jewin-street, London.

(New implement) a turnip-cutter, price £4 10s., improved and manufactured by the exhibitors; (new implement) two double-action force pumps on barrow, with air vessels, price £4 and £6, invented and manufactured by the exhibitors; an overshot water-wheel, price £40; a cast-iron frame, wheel, and pinion, for horse and other power, price £38 10s.;

a cast-iron frame, price £20; a cast-iron engine frame, with fly-wheel and handle, price £10 10s.; a cast-iron engine frame, wheel, and pinion, with fly-wheel, handle, and crank, price £18 10s.; a 3' full water-way pump, price £11, £19, and £27; a double barrel 5" force pump or irrigator, mounted on four strong wheels, price £21; a brewer's or other force pump, price for 3½-inch £11 10s.; a cast-iron pump case, price £6; two cast-iron 8" working barrels for deep wells, price £1 8s. and £2 1s.; a cast-iron section rose for 3-in. pump, price 7s.; and a 3½-inch garden pump, price £3, all improved and manufactured by the exhibitors; a patent 2½-inch long barrel cast-iron lift pump, price £1 14s.; a patent 3-inch ditto, price £2 8s.; a patent 3½-inch cast-iron lift pump, price £2 12s.; a patent 4-inch ditto, price £3 3s.; two 3½-inch patent cast-iron lift and force pumps, price £3 3s. and £4 14s.; a 3-inch patent ditto, price £4; a patent 2½-inch short barrel cast-iron lift pump, price £1 10s.; a patent short barrel cast-iron pump on plank, price £1 15s.; a patent 2½-inch short barrel cast-iron lift and force pump, price £3 7s.; a patent 2½-inch cast-iron lift and force pump on barrow, price £5 14s.; a turnip and mangold grater, price £4 10s.; a patent 3-inch cast-iron straight pump case, price £2 10s.; a 4½-inch liquid manure or general portable pump, price £3 3s.; a 4½-inch liquid manure pump, with copper barrel, price £3 17s.; and a liquid manure pump for cart, price £2 10s., all invented and manufactured by the exhibitors; a 3-inch brass pump on a square tail, price £5 7s.; a 2½-inch double barrel pump for deep wells, price £10; a 2½-inch patent lift pump, price £3 2s.; a 3-inch strong lift and force pump, price £7 9s.; a 3½-inch patent strong lift and force pump on plank, price £8; a wrought-iron barge or agricultural pump, price £3 6s., manufactured by the exhibitor; a copper pump, price £3 4s., improved and manufactured by the exhibitors; a water ram, price £11 10s., manufactured by the exhibitors; a patent beer engine, with opal handle, price £2 12s., invented and manufactured by the exhibitors; a 24 gallon oval oak tub garden engine, with registered spreader, price £6 18s., improved and manufactured by the exhibitors (smaller sizes less); a garden engine in galvanized iron pail, price £4 4s.; a patent conservatory pump, price £2 12s.; and a portable fire engine, in galvanized iron pail, price £5, invented and manufactured by the exhibitors; a bundle of metallic string, price 10d. to 1s. 2d. per lb.; a board of syringes, price 9s. to 20s. each, improved and manufactured by the exhibitors; a mildew annihilator, price £1 15s., invented by Mr. Spray, of Brighton, and manufactured by the exhibitors; a small hand fire engine, price £3 3s., and a conservatory pump, or portable garden engine, price £1 7s. 6d., invented and manufactured by the exhibitors; a fire engine, for 4 or 6 men, price £24, improved and manufactured by the exhibitors; a swing water barrow, price £3 3s., invented and manufactured by the exhibitors; fountain designs, on board, price 5s. to 25s., according to pattern; a board of steam work, price £1 3s.; an alarm bell mounted in iron frame, price £5 15s.; a 24-inch bell, price £27; a set of sheep or cattle bells, with straps and buckles, price 12s. to 18s. a set; plumber's cocks, price 4s. to 20s. each; high-pressure cocks, price 4s. to 15s.; a half-inch India-rubber and canvass hose-pipe, with spreader, price £1 17s. 6d.; a straight branch pipe and registered spreader, price 7s.; an improved branch pipe, with internal cock, price 9s.; a taper branch pipe, with spreader, price 20 inch, 8s. 6d.; a swing water barrow, price £3 3s., invented and manufactured by the exhibitors.

EDWARD WEIR, of 296, Euston-road, London.

A perspective view of a farm cultivated by Halkett's patent system of guideway steam agriculture; a model of farm or market garden, laid down with rails for Halkett's patent guideway steam culture; a model of the locomotive cultivating platform used in the Halkett's system of guideway agriculture; a specimen of the brick and angle iron rail, for Halkett's patent guideway steam agriculture, price £20 per acre; a specimen of wooden sleeper rail, for Halkett's guideway steam agriculture, price from £8 to £10 per acre; photographic views of some of the operations performed by Halkett's guideway steam agriculture; and drawings and sketches of various parts of Halkett's system of guideway agriculture, all

invented by P. A. Halkett, of the Wyndham Club, London; (new implement) an irrigator liquid manure pump, fire and garden engine, price £7 7s.; (new implement) a length of barn railway, railway truck and turntable, price of railway 3s. per yard run; a spirit draining level, price £1 10s.; and a workman's pendulum draining level, price 15s., all invented and manufactured by the exhibitor; a set of Barton's patent stable fittings for stalls, 6 feet wide, price £4 17s. 6d., invented and manufactured by James Barton, of 370, Oxford-street, London; and models, photographs, diagrams, and sketches.

JOHN WILSON, of Wansford, Northamptonshire.

(New implement) a six-horse power steam traction and locomotive double-cylinder engine, price £275, invented by the exhibitor, and manufactured by John Law, of The Rutland Iron Works, Leicester.

JOHN WINDSOR, of Oswestry, Salop.

Two corn dressing or winnowing machines, price £5 10s. and £6 10s.; and a clover and grass seed drill (took the prizes at Cork and Dublin in the years 1851 and 1852, and the £5 prize at Londonderry in 1858), price £3 10s., improved and manufactured by the exhibitor; two patent root pulpers (have taken prizes wherever exhibited since 1856, including the following places: Dublin, Rotherham, Norwich, and Evesham in that year; Newton Abbott, Swaffham, Helmsley, Bush-bury, York, and Glasgow in 1857; and the Royal Agricultural Society's prize at Chester in 1858), price £5 5s. and £6 6s., invented and manufactured by E. H. Bentall, of Heybridge; two chaff cutting machines (took the Royal Agricultural Society's prize at Chester in 1858), price £3 15s. and £7, invented, improved, and manufactured by Richmond and Chandler, of Salford; a patent cultivator, grubber, or scarifier, price £9, invented, improved, and manufactured by Coleman, of Chelmsford; a washing machine, price £3 10s., invented and manufactured by Thomas Bradford, of Manchester; a new lawn-mowing machine, price £8 and upwards, invented, improved, and manufactured by Pickley, Sims, and Co., of Leigh; an elegant cottage verandah, price £6 10s.; two garden chairs, price £1 10s. and £2; a pair of single-seated reclining chairs, price £1 10s.; a neat iron sofa or garden seat, price £2 10s.; an easy arm chair, price £1 1s.; a pair of garden chairs, price £1 6s.; a wire arch for garden entrance, price £2; a wire arch for garden walk, price £1 1s.; an ornamental flower-pot stand, price £1; a three-step flower-pot stand, price £1 10s.; a double tray stand, price 14s.; an ornamental branch stand for nine pots, price £2 2s.; a flower stand, price £1 10s.; a round wire stand, price 12s.; an octagon wire stand, price 14s.; a pair of ornamental trainers for climbing plants, price £1; and a pair of camp stools, price 9s., all manufactured by the exhibitor.

HENRY ELLIS, of Holbeach, Lincolnshire.

(New implement) a revolving cultivator, land cleaner, and pulveriser, price £18 10s., invented and manufactured by the exhibitor.

WILLIAM NEWZAM NICHOLSON, of Newark-upon-Trent, Nottinghamshire.

(New implement) a patent combined revolving harrow, weed extirpator, thistle cutter, manure spreader, and hay-maker, price £19, and (new implement) a Nicholson's improved universal-jointed land-roller, price £11, invented, improved, and manufactured by the exhibitor; (new implement) a Nicholson's improved universal jointed Cambridge roller, price £12 12s., the roller part invented by W. Cambridge, of Bristol; two patent haymaking machines (obtained first prize at the Salisbury Show), price £15 and £16 16s.; a patent haymaking machine, for two horses abreast, price £21; two horse-rakes, price £7 and £8; a patent oilcake breaking machine, for beasts and sheep (was awarded the prize at Chester for the best machine for common cake), price £3 10s. and upwards; a corn winnowing, roughing, and blowing machine, price £12 12s.; two winnowing and corn dressing machines, price £10 and £9, invented, improved, and manufactured by the exhibitor; a patent rotary corn screen and riddle, price £5 10s. and upwards, invented by John Palmer, of Stockton, and improved and manufactured by the exhibitor; a 2½-horse power portable steam-engine, on four wheels, price £80; a three-and-a-half-horse power fixed steam engine, price £70;

a corn grinding mill, suitable for horse or steam power, price £80; a set of steaming pans, attached to steam engine, price with fittings £2 10s. each; a chaff cutter, to be driven by the engine, price £12 12s.; a sample of concave iron mangers, price plain 16s., enamelled 8s. extra; a sample of Nicholson's continuous fencing, of wrought tubular iron, price, 8 feet 6 in. high, 3s. 3d. per yard and upwards; a cottage cooking apparatus (obtained a price of £5 at York, £5 at Exeter, and silver medal at Lincoln), price, 38 inches wide, £1 18s. 6d. and upwards; a larger cooking grate, for farm purposes, price £4 10s.; a superior farm cooking grate, price £18; and a cosmopolitan cooking stove, price £8, all invented, improved, and manufactured by the exhibitor.

EDWARD COCKEY and SONS, of Frome Selwood, Somersetshire.

An improved field roller, price 8l. and upwards; a clod crusher or land presser, price 12l. 10s.; a patent cheesemaking apparatus, obtained a silver medal at the Royal Agricultural Shows at Salisbury and Chester, price 35l.; a patent cheese tub, price 5l. and 12l.; a curd cutter, price 7s. 6d. and upwards, all invented and manufactured by the exhibitors, and a curd mill, price 1l. 7s. 6d. and upwards, improved and manufactured by the exhibitors; a milk strainer, price 7s. 6d., and a pair of tin milk pails, price 15s. the pair, manufactured by the exhibitors; an improved cheese press, price 6l. 10s.; a single cheese press, price 3l. 10s.; a double cheese press, price 6l. 5s., and a single cheese press, price 3l. 7s. 6d., improved and manufactured by the exhibitors; a pair of cheese vats, price 16s.; a force pump, price 4l.; a cast-iron pump, 2l. 2s. and upwards; a cast-iron cattle trough, price 1l. 5s.; a garden seat, price 1l. 1s.; a wrought-iron folding garden stool, price 4s. 6d. and upwards; a horse rake with iron teeth, price 6l. 17s. 6d., and an iron sack truck, price 15s., manufactured by the exhibitors; a set of iron whippetrees, price 12s. 6d., invented and manufactured by the exhibitors; a winnowing machine, price 8l. 10s., invented by William Sawney, of Beverley; a carriage lifting jack, price 15s.; a cast stall, post, and rails for stables, price 1l. 15s.; a cast, iron manger, rack, and gruel pot, price 1l. 15s.; a cast-iron gutter for stable, price 5s. 6d. per yard; a cast-iron trap for stable gutter, price 7s.; a combined oat and bean mill, price 5l.; a wrought-iron field gate, price 1l.; a pair of cast-iron gate posts, price 10s., and a wrought-iron field gate, price 1l. 10s., manufactured by the exhibitors; a pair of cast-iron gate posts, price 1l.; an improved double tile machine, price 25l., and an improved liquid manure or water cart, price 16l., improved and manufactured by the exhibitors; a set of iron whippetrees, price 12s. 6d., invented and manufactured by the exhibitors; an iron sack truck, price 12s. 6d., manufactured by the exhibitors.

JOHN NICKS, of Leeh Wooton, near Warwick.

Six sizes of a field gate, with hangings and fastenings, price 1l. 1s. to 1l. 4s., manufactured by the exhibitors.

JOHN PALMER, of Hampton-on-the-Hill, near Warwick.

Eighteen drain pipes; prices, 6 pipes of 2-inch bore 19s., 6 ditto of 4-inch bore 40s., 6 ditto of 6-inch bore 5l. 15s., per 1,000, manufactured by the exhibitor.

HENRY J. SHELTON, of Brailles, near Shipston-on-Stour, Warwickshire.

A set of 6 draining pipes of 6 inches bore, price 12l. per 1,000; a set of 6 draining pipes of 4 inches bore, price 2l. 2s. per 1,000, and a set of 6 draining pipes of 2 inches bore, price 1l. 2s. per 1,000, all manufactured by a machine the property of the exhibitor.

THOMAS WEST, of Burton-upon-Trent, Staffordshire.

Several sizes of a curd mill, price 1l. 5s. and upwards, invented, improved, and manufactured by the exhibitor.

JOHN WILLIAM SCRIVEN, of Throstle-nest, near Otley, Yorkshire.

A farm gate, price 1l. 2s., invented by the exhibitor, and manufactured by Charles Smith, of Abergford.

P. R. JACKSON, of Blackbrook, near Gresmont, Herefordshire.

(New implement) a farm gate, price 1l. 4s., improved by the exhibitor.

CHARLES WYATT, of Cabbington, near Leamington, Warwickshire.

An oak farm gate, price 1l. 8s., manufactured by the exhibitor.

JOHN BEASLEY, of Chapel Brampton, near Northampton.

A field gate, price 1l. 4s., invented by the exhibitor, and manufactured by Edwin Green.

J. T. B. PORTER and Co., of Lincoln.

A national coal gas apparatus, price 47l. 10s., exclusive of tank for holder, invented by George Bower, of St. Neot's, and manufactured by the exhibitors.

HUMPHREY CHAMBERLAIN, of Kempsey, near Worcester.

(New implement) a patent dry clay brick-making machine, price, including patent rights, £1,000; (new implement) a dry clay mill, price £200; and a patent brick-making machine, price £250, invented and manufactured by Messrs. Bradley and Craven, of Wakefield; a patent brick and tile-making machine, price £200, invented and manufactured by Messrs. Wright and Green, of Rugby; a model of a patent dry-clay brick-making machine, price £1,000, invented by Messrs. Hersey and Walsh, of New York, and manufactured by the exhibitors; an eight-horse power fixed steam engine, price £200, invented and manufactured by Messrs. Bradley and Craven, of Wakefield.

THOMAS TERTIUS CHILLINGWORTH, of West Bromwich, near Birmingham, Staffordshire.

(New implement) a six-horse power horizontal expansive steam engine, price 72l.; and (new implement) a three-horse power vertical expansive steam engine, price 40l., invented and manufactured by the exhibitor; a five-horse power portable steam engine, price 169l., invented by the exhibitor, improved and manufactured by William Middleton, of Birmingham.

W. H. and GEORGE DAWES, of the Milton and Elsecar Iron Works, near Barnsley, Yorkshire.

(New implement) a patent atmospheric hammer, price, not including base plate and anvil block, 100l.; a model of a patent vacuum forge hammer; and a model of a patent vertical tilt hammer, all invented by Charles John Carr, of Hoyland, near Barnsley, and manufactured by the exhibitors.

FRANCIS MORTON, of James-street, Liverpool, Lancashire.

A removable shed for hay, or general farm purposes, constructed of galvanized iron, with galvanized iron pillars and gutters, price 35l., invented and manufactured by the exhibitor; a fire resisting self-supporting galvanized iron roof, price 18l. 10s., manufactured by the exhibitor; Francis Morton's patent wire cable strand fence, price, fixing, 2s. 6d.; exclusive of fixing, 2s. 3d. per yard, invented, improved, and manufactured by the exhibitor; (new implement) Francis Morton's patent strained iron fence, for young horses, heavy bullocks, &c., price, fixed, 1s. 11d.; not fixed, 1s. 8d. per yard, invented and manufactured by the exhibitor; an improved iron field gate, price 1l. 12s.; an ornamental iron wicket gate, with cast-iron pillars, price 2l. 5s.; a model of improved copper rope lightning conductor, and a model of fire-proof and vermin-proof iron flooring, manufactured by the exhibitor.

EMILE PAVY, à la Ferme de Girardet, près Canton de Neurey-rol, Indre-et-Loire, France.

Grenier conservateur (cilo or granary), prix 3,000, inventé par moi, propriétaire cultivateur, à la Ferme de Girardet, France, perfectionné par moi, et fabriqué par Renaud et Lotz, de Nantes, France, sur le refus de quatre constructeurs Anglais, de le faire à ma frais et pour mon compte.

ALFRED SPARKE, of Norwich, Norfolk.

A seven-horse power portable steam engine, fitted with Lowmoor fire box, price £220; a three-horse power portable steam engine, with cast-steel boiler and fire box, price £70; a patent vertical saw frame, to cut two deals at one time,

fitted with steam cylinder and stop valves, price £120, a patent circular-saw bench, fitted with 54-inch saw, price £75; and a patent vertical-saw frame, for cutting felloes, price £20, invented, improved, and manufactured by the exhibitor.

THOMAS GIBBS and Co., the Seedsmen to the Royal Agricultural Society of England, of Half-Moon-street, Piccadilly, London.

Dried specimens of permanent grasses, containing all the most useful and valuable varieties for laying down land to permanent meadows and pastures; specimens of English wheats, barleys, oats, &c., &c., in the ear, including all the varieties in general cultivation in the United Kingdom; dried specimens of foreign wheats, barleys, oats, &c., in the ear, and of English varieties grown from seeds imported from France after the kinds had been acclimatised there for some years; samples of various permanent and other grass seeds, including mixtures for laying down land to permanent grass for the following purposes: Meadows and pastures, parks and field lawns, irrigation of water meadows, upland sheep walks, cemeteries and church-yards, garden lawns and grass plots, &c.; renovating mixture for improving old swards; various grass seeds, separate; Italian and other rye grasses; fescues, poas, &c., &c.—altogether several hundred varieties; general agricultural and other seeds, including carrots, parsnips, mangel wursels, swedes, hybrids, and other turnips, clovers, sainfoin, lucerne, peas, beans, and other agricultural seeds; and roots of yellow or orange globe, long red, and other mangel wursels.

GEORGE BRUCE, of 54, Nelson-street, Liverpool, Lancashire.

Patent black Japan varnish, price, first quality 5s. per gallon, second 2s.; blue coloured composition, price 15s. 6d. per gallon, invented and manufactured by the exhibitor; red coloured composition, price, first quality 15s. 6d. per gallon, second 5s. 6d.; green coloured composition, price 15s. 6d. per gallon; stone coloured composition, price 15s. 6d. per gallon; transparent varnish, price 8s. per gallon; and white colourless varnish, price 15s. per gallon, manufactured by the exhibitor.

CHARLES LAMBERT, of Sunk Island, near Ottringham, Yorkshire.

(New implement) a patent plough drill, price £1 11s. 6d., invented by the exhibitor, and manufactured by James Johnson, of Ottringham, Yorkshire, and Messrs. Hornby and Sons, of Grantham, Lincolnshire; (new implement) a set of patent metal horse collars, price £1 1s., best silver-plated £4 10s., invented by the exhibitor, and manufactured by Messrs. John Crowley and Co., of Sheffield, Yorkshire.

JOSEPH THORLEY, of 77, Newgate-street, London.

A case of Thorley's food for cattle, price £2 16s., invented and manufactured by the exhibitor.

PETER LAWSON and SON, the Queen's Seedsmen, &c., 1, George IV. Bridge, Edinburgh, and 27, Great George-street, Westminster, S.W.

All the most important varieties of wheat, oats, barley, rye, and other kinds of cereal grain (in the straw and in the sheaf); all kinds of forage plants cultivated in the United Kingdom as food for the domesticated animals; all the principal varieties of mangolds, turnips, carrots, &c.; hardy, coniferous, and other trees, adapted for shelter or ornament; smaller instruments used in the farm, the forest, and the garden, viz.: Assortment of axes, from 1s. 8d. to 7s. 6d.; fagotators, 4s. 6d. and 15s. 6d.; brooms, 4s. to 5s.; pruning chisels, 1s. to 4s.; dibbles, 1s. 6d.; forks, 1s. to 7s. 6d.; fruit and flower gatherers, 1s. 10s. 6d., and 22s. 6d.; garden reels, 3s. 10d. and 4s. 2d.; gooseberry pruning knives, 2s. 3d. and 3s.; nailing hammers, 1s. 6d. to 5s. 3d.; hand bills, 2s. 3d. to 6s.; hand glass frames, 5s. 6d. to 8s.; switching bills, 3s. 6d. to 5s.; hedge bills, 4s. 6d. to 7s.; bee-hives, 1s. to 1s. 9d.; draw hoes, 1s. to 1s. 8d.; Dutch hoes, 9d. to 1s.; spud hooks, 9d. to 2s. 6d.; budding, pruning, and other knives, 1s. to 14s.; garden rakes, 8d. to 6s. 6d.; riddles, 2s. 6d. to 3s. 6d.; sowing basket, 11s.; saws, various, 2s. 6d. to 7s.; garden scissors, 1s. 6d. to 6s. 9d.; and a model reaping machine.

JOHN ROBINSON, of Nuneaton, Warwickshire.

An assortment of draining pipes, prices, 2in. £1, 4in. £2, 6in. £3, manufactured by the exhibitor.

ISAAC WRIGHT, of Great Bentley, near Colchester, Essex.

Grass, grass seeds, agricultural roots, and agricultural seeds.

HENRY BRIDGES, of 406, Oxford-street, London, W.

A large variety (new patterns) of improved butter prints, and other small articles for dairy use, price 6d. to 10s. each, invented and manufactured by the exhibitor.

DANIEL LANCASTER BANKS, of 3, Kennington-row, Kennington Park, London.

(New implement) a model of Banks' combination system of steam agriculture, invented and manufactured by the exhibitor.

GEORGE H. BOLTON and Co., of Warrington, Lancashire.

The Palatine invigorating horse food, price, box containing 120 feeds in packets, 19s.; fattening food, price, 120 feeds in packets, 14s. 9d.; milk-producing food for cows, price, 120 feeds in packets, 14s. 9d.; renovator for aged horses, price, 240 feeds in packets, £1 17s.; the chemical materials of the Palatine invigorating horse food, price, bottles containing sufficient to be given with 120 feeds, 15s.; the chemical materials of the Palatine fattening food, price, bottles containing sufficient to be given with 120 feeds, 11s.; the chemical materials of the Palatine milk-producing food, price, bottles containing sufficient to be given with 120 feeds, 11s.; the chemical materials of the Palatine renovator for aged horses, &c., price, bottles containing sufficient to be given with 240 feeds, £1 8s.; the chemical bases of invigorating human food, price, boxes containing 240 parts, 5s.; and the chemical bases of flesh-forming human food, price, boxes containing 240 parts, 5s.—invented and manufactured by the exhibitors.

GEORGE SPILL and Co., of Old Farm House, Stepney Green, Middlesex.

A double-texture India-rubber waterproof rick cover, complete, price 3s. per square yard; an oiled canvas rick cover, price 1s. 9d. per square yard; an oiled canvas cart cover, price 1s. 9d. per square yard; a double-texture wool and India-rubber horse-loin cloth, price 9s. 6d.; a double texture cotton and rubber-lined horse-loin cloth, price 10s. 6d.; a double texture cotton and rubber long horse cloth, price 18s. 6d.; an oiled waterproof horse-loin cloth, price 6s. 10d.; and an oiled canvas waterproof horse-loin cloth, price 9s. 6d.—manufactured by the exhibitors; (new production) a patent leather ventilating horse cloth, price £1 0s. 5d.; (new production) a patent leather gig apron, price 10s. 6d. and upwards; (new invention) a patent leather carriage knee boot, price, average size, £1 6s. 6d.; (new invention) a patent leather greyhound cover, price 6s. 10d.; (new invention) a patent leather gun cover, price 6s. 9d.; (new invention) a patent leather game bag, price 6s.; (new invention) a patent leather portable bucket, price 7s. 6d.; (new invention) a patent leather driving cape, price £1 2s. 6d.; (new invention) a pair of patent leather riding leggings, with springs, price 8s.; (new invention) a pair of patent leather riding leggings, with long springs, price 13s. 6d.; (new invention) a pair of patent leather trousers, price 15s. 6d.; (new invention) a pair of patent leather fishing stockings, price 8s.; (new production) a patent leather shooting or fishing hat, price 4s.; and (new production) a ploughman's waterproof cape, price 3s. 6d.—invented and manufactured by the exhibitors; a ploughman's waterproof frock, price 5s.; a ploughman's waterproof leggings, price 1s. 10d.; a ploughman's waterproof hat, price 1s. 3d.; Greene's metallic oxide paint—copper colour price 8s., black colour 7s. 6d., bronze colour 8s. per gallon; improved paint, mixed in a liquid state, ready for use, price 6s. per gallon, and upwards; torch oil, price 6d. per gallon; liquid silicate of potash, price 6d. per gallon; cement wash, price 1s. per gallon; engine oil, price 4s. per gallon; pure refined colza oil, price 4s. per gallon; improved white cart grease, price 8s. 6d. per cwt.; improved yellow cart grease, price 11s. per cwt.; improved brown machine grease, price 15s. per cwt.; superior phosphate of lime as a manure, price £6 10s. per ton; blood manure, price £5 5s. per ton; wheat manure, price £5 5s. per ton—manufactured by the exhibitors.

JAMES TREE, of 23, Charlotte-street, Blackfriars-road, Surrey.

A cattle gauge and key to the weighing machine, price 7s. 6d. to 16s. 6d. each; a cattle gauge, adapted for any market, price 8s. 6d. to 25s. each; a farmer's slide rule and cattle gauge, price 12s. 6d., 15s., and 25s. each; and a circular cattle gauge, price £1 5s. each—invented by John Ewart, and manufactured by the exhibitor; a telescope draining level, price £5 10s., invented by James Tree and Co., and manufactured by the exhibitor; a beam draining level, price £4, invented by Wm. Bullock Webster, of Neath, and manufactured by the exhibitor; a horse standard or measure, price 16s., invented by James Tree and Co., and manufactured by the exhibitor; a cottage or agricultural barometer, price 11s. 6d. each, improved and manufactured by L. Casella, of London; a garden minimum thermometer, price 4s. 6d. each, and upwards; and a garden microscope, price £1 1s.—improved and manufactured by L. Casella.

At a MONTHLY COUNCIL held Wednesday, August 3, present—the Right Hon. Lord Walsingham, President, in the chair; Earl of Powis, Lord Southampton, Sir J. V. Shelley, Bart., M.P., Hon. Col. Hood, Hon. A. Vernon, Mr. Amos, Mr. Raymond Barker, Mr. Barnett, Mr. Hodgson Barrow, M.P., Mr. Bramston, M.P., Mr. Brandreth, Col. Challoner, Mr. Exall, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Lawes, Mr. Milward, Mr. Robert Smith, Mr. Bankes Stanhope, M.P., Col. Towneley, Professor Voelcker, Mr. Jonas Webb, Mr. Wilson (of Stowlangtoft), and Professor Wilson, the Earl of Dartmouth was elected a Governor of the Society.

The following new members were elected :—

Bell, —, Gillingham, Dorset
Bentley, Henry, Woodlesford, Leeds
Bennett, James, Ingestone, Ross
Boulford, James, Hordley Farm, Woodstock
Brasnett, John, Hilbore Lodge, Brandon, Norfolk
Browning, Arthur Henry, Heath Lodge, Iwer
Burneston, Richard, Greenlands, Henley-on-Thames
Horton, W. T., Emleasy-Kirk, Skipton
Lambe, —, Church Bank, Boden, Manchester
Litchfield, John, Epperstone, Nottingham
Puleston, Rev. Theophilus, Worthenbury Rectory, Flintshire
Ralston, James, Danesfield, Great Marlow
Roberts, Richard, Stanage, Brompton Bryan.
Walker, John, Nottingham
Watson, John, Sherburn Castle, Tetsworth

The usual monthly report of the Finance Committee was received, by which it appeared that the current cash balance in the hands of the bankers was £2,464 18s. 2d. The report of the House Committee was received and adopted.

A deputation having attended from Canterbury relative to the site proposed for the Society's show in 1860, it was resolved, on the motion of Colonel Challoner, seconded by Sir John Shelley, "That the deputation be informed that the whole of the guarantees for the lower sites (No. 2, called Hale's Place), for the show-yard and trial-yard, must be guaranteed by the Corporate Seal of Canterbury during the present month, subject to Mr. Fisher Hobbs and Mr. Brandreth Gibbs visiting the above sites, and deciding that there is a sufficient quantity of ground adapted to the requirements of the Society, and that the said guarantees should include the completion of the sidings, suitable to the wants of the Society, previous to the 1st of May, 1860."

Reports were received from the stewards of live stock at the Warwick meeting.

On the motion of Mr. Barnett, seconded by Mr. Milward, the thanks of the Council were voted to Lord Leigh and the county magistrates for the use of the judges' lodgings at Warwick.

The following were elected as the new Finance Com-

mittee: Mr. Barnett, the Hon. Colonel Hood, Mr. Fisher Hobbs, Mr. Milward, and Mr. Bramston.

On the motion of Mr. Wilson, the resignation of Mr. Raymond Barker as a Vice-President was withdrawn.

A communication transmitted from the Foreign Office by order of Lord John Russell, together with copies of despatches relative to guano deposits on Jarvis Island, was laid before the Council. From a despatch from Captain Montresor, of H.M.S. Calypso, to Rear-Admiral Baynes, it appears that on Jarvis Island, situated in lat. 0° 22' S., long. 159° 50' W., deposits of guano exist to an extent estimated (by measurement) at 1,000,000 tons. Of this, 6,000 tons have been exported since the American Guano Company of New York (to whom it belongs) first commenced regular shipments in May, 1858. The shipments already made have been exclusively in American vessels. The deposit is from 4 feet to 10 inches in depth, and it contains a maximum of 80 per cent. of phosphate of lime, but little or no ammonia. It appears that there is also a deposit on Fannalg's Island, but that none of this has been exported, and a further deposit is said to exist on Johnson's Island.

Communications were received from Mr. Smith, of Woolston, and the Hon. Secretary was instructed as to the reply to be given to the one of these letters which was addressed directly to the Council.

Other communications and matters of detail were laid before the Council, and instructions given relative thereto.

The Council granted the usual vacation to the Society's clerks during the autumn recess, subject to the exact dates being arranged by the Hon. Secretary.

The Council then adjourned to its Monthly Meeting in November.

BATH AND WEST OF ENGLAND SOCIETY FOR THE ENCOURAGEMENT OF AGRICULTURE, THE ARTS, MANUFACTURES, AND COMMERCE.

A Monthly Council of this Society was held on Saturday, July 30, at Waghorn's Hotel, Taunton, under the presidency of the Right Hon. Lord Portman, in the absence of the President (Lord Rivers). There were present: Sir John Duntze, Bart.; the Hon. W. W. Addington; Messrs. C. Bush, H. G. Moysay, R. K. Badcock, John Gray Jonathan Gray, R. N. Granville, R. K. M. King, J. Fry, J. D. Hancock, R. H. Clarke, D. Adair, J. W. Walrod, E. S. Drew, J. S. Pitts, G. S. Poole, J. Widdicombe, M. Farrant, G. Langdon, R. Dymond, W. E. Gillett, J. Gould, E. Archer, &c.

ARTS DEPARTMENT.—A report of a very gratifying character was brought up from the Arts Department Committee, showing how exceedingly successful the extension of the society's exhibition to arts and manufactures had been at the recent meeting at Barnstaple. The plant and material acquired in this department by a special fund contributed for the purpose, were duly assigned to the society, and the council, encouraged by the success of the experiment, ordered that a similar exhibition should take place at the Dorchester meeting, next year.

LOCAL REPORT ON THE BARNSTAPLE MEETING.—Mr. Acland, referring to the great success which had attended the Society's visit to Barnstaple, and the spirited way in which they were met by the Local Committee, suggested that assistance be given by the Council to the Barnstaple Local Committee towards the publication of the Report proposed to be given to the subscribers to the local fund. The subject was referred to the Journal committee. The council unanimously elected H. A. F. Luttrell, Esq., of Badgworth Court, a member of the council for the Eastern Division, in the room of Mr. Floyer, resigned.

COMMITTEES.—The following committees were appointed for duties in connection with the Dorchester meeting: Stock

Prize Sheet Committee.—Messrs. C. Gordon, T. Hussey, W. Wippell, John Gray, J. W. King, J. Widdicombe, H. G. Moysey, R. Smith, and J. P. Pitts. *Implement Regulation Committee.*—Messrs. J. E. Knollys, J. Gray, Jonathan Gray, Belfield, Bush, Walroad, H. G. Moysey, and Fitman.

NEW MEMBERS.—The following new members were elected, viz.: The Earl of Lovelace, Ashley Court; Messrs. W. A. Sanford, Nynehead Court; W. Norrsworthy, Slough; T. B. Batten, Halberton; B. Marker, Uffensline; T. Davis, Warminster; Philip Symons, Washbourne.

THE ROYAL AGRICULTURAL SOCIETY OF IRELAND.

MEETING AT DUNDALK.

The great gatherings of the year now fairly crowd upon us. With just one week's grace after Warwick, and we have the Royal Irish and the Lincolnshire County alike inviting our attention. In but two or three days more the Highland and Yorkshire Societies again contemporaneously court the public favour, and exhibitors become thoroughly embarrassed as to "what is the best to do." Some few no doubt, like Mr. Douglas and his renowned "company," go the round of the three national exhibitions, crossing from Warwick to Dundalk, and from Dundalk to Edinburgh. Others will yield more readily to local influences, and not encounter the dangers of the sea. For such, however, as had predetermined to take the Royal route, nothing could come better, either in time or place, than this meeting at Dundalk. It is very available in the way of situation to get in and out of; and although perhaps a little more "law" might have been acceptable, still, with weather permitting, Scotland should be reached in very good time. We find accordingly such firms as the Howards, the Hornsbys, Clayton and Shuttleworth, and Richmond and Chandler, all going on. But the Athelstaneford stock stands almost alone amongst the cattle that will visit the three shows. A fellow-countryman, Mr. Todd, of Elphinstone, is we believe the only other exhibitor who has entered, and so far successfully competed, for the honours of the United Kingdoms of England and Ireland.

Still, if our own home breeders do not themselves much relish this crossing and re-crossing of the channel, it by no means follows that they were altogether unrepresented here. In fact, the Dundalk Show was far more a reflection of that at Warwick than the names merely of Mr. Douglas, Mr. Eastwood, and Mr. Todd would lead us to make it. And this was especially the case in the one strong feature of the meeting—the show of sheep. There never was such an entry of sheep in Ireland; and sheep, we are continually told, is just what Ireland wants above everything else. So sure as Mr. Torr goes over as a judge, and so sure as he makes a speech at the dinner, which is as inevitable a consequence, so certainly does he tell his audience to look to their breeds of sheep. On this occasion Mr. Torr unfortunately was not present; but Mr. Beale Browne was, and in due course made the speech for him. It may be curious to see what effect this advice from a famous breeder of Leicesters or Cotswolds will have on those who hear it. *Something* has unquestionably been done already. A good example is at any rate not needed,

while we can turn to such men in Ireland as Mr. Owen, of Blessinton; Mr. Thunder, of Navan; Mr. Garde, of Ballinacurra, and Mr. Roberts, of Strokestown—all these gentlemen supported the Society at Dundalk, and all, it will be seen, with more or less success. But such triumphs are susceptible of some test. Are the Irish sheep-breeders just satisfied with beating each other with what they have, or do they take some pains to really improve their flocks? Let us try this with the Leicesters—as usual, by far the finest class of all. Mr. Thunder then takes the first prize for shearing rams with what was declared to be a very good one. And so he ought to be, for he was bred by Mr. Sanday; he gained the second prize at Warwick, and he was taken by Mr. Thunder for ninety guineas. The second prize shearing—also the property of Mr. Thunder—was bred by Mr. Cresswell. In the all-aged class of Leicester rams "the proof" is perhaps yet more noticeable. When at Warwick, Mr. Owen hired of Mr. Pawlett his second-prize ram, and when he brought him home to Blessinton, the shepherd maintained they had a better sheep of their own: and this has been confirmed by the judges at Dundalk. The prize ram is one of Mr. Owen's own flock, while that from Beeston is not mentioned. But even judges are somewhat capricious, and their decrees at times liable to be overset. Such has been particularly the case with this Warwick ram. At the Show there Mr. Marris bought an uncommended animal of Mr. Spencer; and having done so, told Mr. Thunder not to be surprised if he beat the Pawlett ram at Dundalk. And he has beaten him; Mr. Marris taking the second prize, and selling his sheep again for a very good price—of course to stop in the country. The Warwick ram's wool was thought to be much against him, or otherwise he is well formed, and good enough to look at. But wool is just what they want in Ireland. Then Mr. Robert's prize ewes in both sections all come from Colonel Inge; the aged pen being made up of some very fine useful ewes, with one especially good amongst them. Although the Colonel has himself not been so long famous for his flock, he in turn goes to head-quarters for what he wants. He gets not only his rams and his ewes, but even his shepherds from Holme Pierrepont.

But this recommendation to look to your breeds of sheep, does not expend its force on the Leicesters. In the next division of "other long-woolled sheep," the first and second prizes for shearlings are taken by Captain Carroll, of Tulla,

with two Cotswolds that occupied precisely the same positions at Warwick, and that were purchased of Mr. Garne at a very high price. Mr. Beale Browne carries on the argument, but his sheep are half naturalized by now. His prize ram, for instance, has never left the country since he took equally high honours at the Dublin Spring show. But Dr. Roche ran him very close now, and the Andoversford ewes were to be preferred. They were really excellent for a certain combination of properties—wool, mutton, and symmetry—and will be much missed at these meetings. Mr. Browne announced in his speech at the dinner that he is about to retire from the "the stormy arena" of public competition, and that his flock of Cotswolds will be brought to the hammer early in September. The breed has not been much fancied in Ireland, but he has persevered very gamely with them. He entered and showed at Dundalk no less than nine rams and three pens of ewes—in fact, just about half the class.

Neither do the Southdowns "take," and the council very judiciously resolved upon one general entry of "Downs." They so made up a very good class of Shropshire and Southdowns, Mr. Hamilton's ram, if we mistake not, having also some previous character of his own, in England. The Cheviots and blackfaces were entirely in the hands of two or three exhibitors, whose titles are duly proclaimed on the prize list. Although of no remarkable excellence, they did not detract from the merits of a sheep show that the society and the country may well be proud of. It says everything for the energy and spirit of her agriculturists.

There is another kind of stock that speaks perhaps yet more highly for what is being done here. In fact, the celebrity of the Irish Shorthorns is known world-wide by this time, and very deservedly so too. But the show, as that in the summer usually does, drew a good deal of its strength from beyond the green isle itself; and some of the good things will not be forwarded to Irish addresses. There was, indeed, a well-grounded apprehension that the Purcell Challenge Cup would for the second time be carried clean away. Mr. Douglas had already won it two years in succession, and he entered for the third trial in great force, with Venus de Medicis, Old Ringlet, Rose of Sharon, the Maid of Athelstane, the Lady of Athelstane, and others. But the Douglas this season would appear "doomed to be foremost never to be first." He could get no further than a good second in anything he tried for at Dundalk, and so, of course, all hopes of the cup "for best animal in the show" were at once destroyed. We fancy his "point" was the well-known white heifer, Venus; and all Ireland certainly could not beat her; but, unfortunately, all England could. Mr. Eastwood sent over the second prize Chester cow Rosette, already distinguished on this side of the water, and the judges pronounced her not only the best of the cows, but the best animal brought before them. But judges are beginning to look at these matters in a new light. Unquestionably the most handsome, or rather the prettiest thing in the show was the appropriately-named Venus. It would be almost impossible to beat her for beauty of form, or the extraordinary evenness with which she has fed. But she has hardly grown at all since we last saw her, and although five months older, does not compare as a roomy great cow with Rosette. The latter is not quite perfect, perhaps; but she has many famous points, and above all has had a live calf, a grand consideration in any estimate of show stock. Mr. Eastwood matched her with a yearling heifer—the only two he sent over—that is a perfect marvel of early maturity. For her age—a year and some months—there never was such substance and development, combined with fine quality, symmetry, and generally good looks. Of course she

had the first prize of her class, although this was a very strong as well as numerous one, by far the best section of the Shorthorns. The authorities dealt freely in commendations and high commendations, and the Lancashire lead was well backed by such home-breeders as Captain Ball, Mr. Christie, Mr. Lee Norman, and others. In the adjoining class of Two-year-old Heifers, a somewhat small but good one, Ould Ireland went more directly to the fore. The Maid of Athelstane, that we spoke so well of at Warwick, was here again but a close second, Captain Ball defeating her with one of his famous Pea-hen tribe—a long, even lady-like looking heifer, very good before, but with scarcely "spring" enough in her rib. There was naturally enough some discussion as to which of the two should really be first or second, but Captain Ball by no means depended on this entry alone. In fact, he was in extraordinary strength, and more than fulfilled the promise he made at Londonderry last year. As will be found, he took not only the first prize for two-years-old, but the second for yearlings, and the Waterford Challenge Cup for the best lot of three young animals. Mr. Douglas, who won this last season, was again in competition, but Captain Ball's trio when had out side by side made a most attractive group, uniform in their character, high in their quality, and very forward in their growth and development. Good as the Captain's herd is and has been, he never held such a position as he does now, while the Dundalk Show is the best of all possible advertisements for his sale, to come off early in October, under the auspices of Mr. Strafford. In the aged cows Scotland had all the honours to herself, Mr. Todd ranking first with his Warwick prize, and Mr. Douglas second with the Rose of Sharon. The latter also sent Ringlet, but her day is palpably gone; and she looked altogether out of sorts, ragged, patchy, and jaded.

However generally good the yearling heifers may be recorded, they were very nicely balanced by the bulls of the same age. It is rarely that we have seen so many indifferent animals in one class. Small in size, and altogether mean in appearance, the majority of them did little to sustain the character of the Irish shorthorn, so observable in some of the other sections. This is the more remarkable, as, if we recollect aright, the Dublin Spring Show was thought to be more than commonly commendable, both for the number and goodness of the yearling bulls. The two more matured divisions were better, but still there was nothing here on a par with many of the females. Nevertheless, the Gold Medal animal of the Londonderry Meeting was amongst them—Sir Colin, now the property of Mr. Barcroft. He again took the first prize of his lot, but was beaten for the medal by a beast he had the precedence of last year. This was Mr. Todd's white bull Young Heir-at-law, which again carries off the premier honour in the All-aged division. He has certainly thickened a good deal since his last appearance, but we question whether he can ever rank as so fashionable a bull as his younger rival. It must have been a very near thing with these for the medal—Heir-at-law, Sir Colin, and Mr. Barnes' Dr. M'Hale. The last-named of these every now and then turns out something very catching to look at, and nice to handle. We confess to have been rather puzzled at first on recognising Mr. Todd's bull again in successful competition; but it seems the Society have lately "eased" one of their conditions, and aged male animals, whether previous winners or not, can now enter again and again at the meetings. For our own part, we make no kind of cavil of this, but it somewhat spoils the opening point of the Lord-Lieutenant's speech.

The same thing occurred in the horse show. Lord

Dufferin sent last year what we were bold enough to term "one of the best Clydesdales ever known in Ireland," and of course he took the prize. "Sir William Wallace," as he is called, was entered again at Dundalk, and with an equally successful result. He is now the property of the Messrs. Moore. But the display of agricultural horses was by no means an imposing one. There were two or three more smart Clydes, and Mr. Prendergast had a clean, handsome Suffolk, bought of Mr. Crisp, that might fairly have had some notice. The first-prize cart mare has much improved since we last saw her, and does Sir William Heygate's management every credit; but some of the young stock were deplorably bad, and the judges very properly refused to award some of the premiums. Our Irish friends have still much to learn about the make, shape, and keep, of a cart horse. Neither were the thorough-bred horses anything like up to the average of what they lately have been. Only four were sent, and only one of the two prizes given. The best of these, a brown horse by Colwick, was much fancied, and has the repute of getting capital stock. He is a horse of great power and substance, with a famous forehead and good action; but he has rather coarse, vulgar quarters, and does not, to look at, give one the idea of being quite as well-bred as he really is. Had Caledon "come again," he must have had a stronger hold on the Croker Cup.

The other breeds, honestly, do not flourish in Ireland, saving the Ayrshires, which included some very nice milking cows, the prize one with a rare udder. Sir William Heygate's were even better in mere appearance; but placing dairy stock must be a ticklish task under the most favourable of circumstances. The few Devon cows and heifers showed more purity than the bulls, which seem to be growing coarse; and Mr. Hewer, all the way from Hereford, answered for the virtues of his native breed. He did everything there was done for the class; but neighbours who go to Hereford fair would have opened their eyes at what some people in Ireland appear to imagine is good enough for a prize Hereford beast. Lord Talbot de Malahide showed some very superior black polled cattle, one or two of which are to be further tested at Edinburgh next week. There were, in all, one West Highland bull and four West Highland cows; not many more kerries; and four extra prizes for tenant-farmers' cattle, and two animals entered to compete for them. Surely it is time, or for a time, such premiums should be struck out of the list. They do no possible good. In fact, the only effect must be injurious, if such cattle as were here distinguished are to be known hereafter as prize animals of the Royal Agricultural Society of Ireland.

The show of Berkshire pigs was not so strong as we have occasionally seen it, but it was still one of almost general merit; while the best of the white varieties came "special" from England. Lord Clermont, however, and some other gentlemen, are evidently cultivating the Cumberland pig with great care; and bacon, like beef and mutton, becomes another of the landmarks of our Agricultural Improvement Association.

There was a very moderate collection of poultry, and a very small one of butter and cheese; the butter to be made in "imitation" of the English.

The main interest of the Meeting ceases here. The Irish Society, convinced by the arguments of our great English firms, offers no prizes for implements, save only a Challenge Cup, that it cannot well get out of. Mr. Gray, of Uddingstone, near Glasgow, promises to relieve the Council of even this difficulty, as he has now won the Cup two years in succession. But both at Dundalk and Londonderry, Mr. Gray is, as it were, on his own ground. He has long done a great trade in

the North of Ireland, particularly with his plough, and so would naturally under any circumstance plume himself upon "the collection" he could show to his friends. There was altogether a very good display of implements, and one, which if wanting some of the grand features of our English Exhibition, had the perhaps better recommendation of being adapted to the requirements of the country—small steam engines, and good useful implements offered at the lowest possible prices.

Nevertheless, business was "bad." We did not encounter a man that was satisfied with what he had done. One of our most famous makers confessed to having received "two one-pound notes" and no more. The prize or non-prize system may have nothing to do with this. We simply record the fact. There was little that we could hear of, in the way of novelty. Burgess and Key's and Wood's mowing machines were in work, and each with its partizans. The Howards and Hornsby's sent ploughs; Clayton and Shuttleworth, the Ransomes, and Garretts, steam engines and thrashing machines; Richmond and Chandler worked their chaff-cutters and corn-crushers, and the following English houses depended on the previous fame and character of inventions with which their names will be readily associated:—Turner, of Ipswich; Coleman, of Chelmsford; Woods, of Stowmarket; Barrett, Exall and Andrews; Humphries, of Pershore; Smith and Ashby; Picksley and Sims; Hill and Smith; Haywood; Samuelson; Bobby, from Bury; and others. There were also a number of Irish and a few Scotch implement firms with stands, but in the absence of any authorized trials of their entries it would be but tedious to repeat the catalogue we are already running through our columns.

"The Banquet" must speak for itself. But it was again overdone in this way. The Lord-Lieutenant got up a very good summary of the present condition of Ireland, although it was more of a lecture than an after-dinner speech; and the company began to tire of noble Lords, who had nearly all the fatal failing of not knowing when to stop. As a consequence, the really practical men, put very low on the list, were forced into undue brevity. Mr. Thurnall hardly more than acknowledged the compliment to the Judges, while Captain Ball, "the successful exhibitor," did dwell a little on the over-feeding of stock, a matter to which we may hereafter refer. The Report and Prize-list will tell the rest of the story; but the latter is scarcely as official as we could wish. The want of such a list issued under authority is indeed the weak place in an otherwise now very well conducted meeting. We know of no other association of anything like equal calibre but that has one. As in the Highland Society, this might be out in very good time for distribution at the dinner. We believe ours to be mainly correct, but that it may yet be amended by the mention of medals awarded to the breeders of the three best animals—one to Mr. Stewart, of Southwick, for Young Heir-at-Law, the best bull; another to Mr. Wetherell, of Aldborough, for Rosette, the best cow; and a third to Mr. Sanday, of Holme Pierrepont, for the best sheep.

PRIZE LIST.

CATTLE.

SHORT-HORNS.

JUDGES.—Robert Holmes, Esq., Bellair, Ballycumber.

William Ladds, Esq., Ellington, Hunts.

Thomas Parkinson, Esq., Hexgreave Park, Southwell.

Bulls calved on or after the 1st of January, 1854, and previous to the 1st of January, 1857, 1st prize of 15 sov. and gold

medal as best bull, Wm. Todd, Elphinstone Tower, Trancent, East Lothian (Young Heir-at-Law); 2nd of 5 sovs., Lord Talbot de Malahide, Malahide Castle, Malahide (Priam).

Commended.—Captain McClintock, Bunbury (Comet); Jaffray Barcroft (Beau of Kilbogget).

Bulls calved in the year 1857, 1st prize of 15 sovs., Jaffray Barcroft, Kilbogget House, Cabinteely, county Dublin (Sir Colin); 2nd of 5 sovs., Thomas Barnes, Westland Moynalty (Dr. M'Hale).

Commended.—Lord Talbot de Malahide (General Wilson).

Bulls calved on or after the 1st of January, 1858, 1st prize of 15 sovs., J. P. Tynte, Tynte Park, Dunlavin (Clydesdale); 2nd of 5 sovs., Francis Lindsay, Derryboy, Killeyleagh (Mystery).

Cows, in calf or in milk, of any age, 1st prize of 10 sovs., Wm. Todd, Elphinstone Tower (Volga); 2nd of 5 sovs., James Douglas, Athelstaneford, Drem, East Lothian (Rose of Sharon).

Heifers, in calf or in milk, calved in 1856, 1st prize of 10 sovs., gold medal as best cow or heifer, and Purcell Cup, value 100 sovs., as best animal in the show, Richard Eastwood, Swinshaw, Burnley, Lancashire (Rosette); 2nd of 5 sovs., James Douglas, Athelstaneford (Venus de Medicis).

Highly commended.—John Christy, Fort Union, Adare (Queen of Beauty the 2nd).

Heifers, in calf or in milk, calved in 1857, 1st prize of 10 sovs., Thomas Ball, Robert's Walls, Malahide (Peabon 8th); 2nd of 5 sovs., James Douglas, Athelstaneford (Maid of Athelstane).

Highly commended.—James Douglas (Lady of Athelstane).

Heifers, calved on or after the 1st of January, 1858, 1st prize of 10 sovs., Richard Eastwood, Swinshaw (Souvenir); 2nd of 5 sovs., Thomas Ball, Robert's Walls, Malahide (Letitia).

Highly commended.—Thomas Ball, Robert's Walls (Josephine); Thomas Lee Norman, Corballis, Ardee (Princess Maude); John Christy, Fort Union, Adare (Limerick Lass the Third).

Commended.—Thomas Lee Norman (Fair Maid); James G. Wood, Castle Grove, Ballymaleel, Strabane (Clarinet); Thomas Ball, Robert's Wall, (Agatha).

OTHER BREEDS.

JUDGES.—S. Anstey, Esq., Manavilly Farm, Cornwall.

David Hastings, Esq., Orangefield, Belfast.

Hugh Watson, Esq., Keillor, N. B.

Hereford bulls, calved on or after the 1st of January, 1854, prize of 10 sovs., John E. L. Hower, Vern House, Hereford (Purifier).

Devon bulls, calved on or after the 1st of January, 1854, prize of 10 sovs., Robert Quin Alexander, Acton House, Poyntspaas (Inkerman).

Polled Angus or Galloway bulls, calved on or after the 1st of January, 1854, prize of 10 sovs., Lord Talbot de Malahide (Polled Angus Lucullus).

Ayrshire bulls, calved on or after the 1st of January, 1854, prize of 10 sovs., Henry Harrison, Holywood House, Holywood, county Down (Madman).

West Highland bulls, calved on or after the 1st of January, 1854, prize of 5 sovs., the Earl of Charlemont, Marino, Fairview, Dublin (Jock).

Kerry bulls, calved on or after 1st of January, 1854, prize of 5 sovs., Charles Reilly, Artane, county Dublin (Ned of the Hills).

Hereford, Sussex, or long-horned Leicester cows, in calf or in milk, of any age, prize of 4 sovs., John E. L. Hower (Hereford, Lofly 2nd).

Hereford heifers, in calf or in milk, calved on or after 1st of January, 1856, prize of 3 sovs., John E. L. Hower (Nelly).

Hereford heifers, calved on or after the 1st of January, 1858, prize of 3 sovs., John E. L. Hower (Penelope).

Devon cows, in calf or in milk, of any age, prize of 4 sovs., Henry L. Prentice, Caledon (Beauty).

Devon heifers, in calf or in milk, calved on or after the 1st of January, 1856, prize of 3 sovs., Sir Allen E. Bellingham, Bart., Castlebellingham (Marchioness the Third).

Devon heifers, calved on or after the 1st of January, 1858, prize of 3 sovs., Henry L. Prentice (Moss Rose).

Polled Angus or Galloway cows, in calf or in milk, of any age, prize of 5 sovs., Lord Talbot de Malahide (Polled Angus, Maid of Angus).

Polled Angus or Galloway heifers, in calf or in milk, calved on or after the 1st of January, 1856, prize of 4 sovs., Sir F. W.

Heygate, Bart., M.P., Ballarema, Magilligan, Londonderry (Moorhen).

Polled Angus or Galloway heifers, calved on or after 1st of January, 1858, prize of 4 sovs., Lord Talbot de Malahide (polled Angus Grace).

Ayrshire Cows, in calf or in milk, of any age, prize of 4 sovs., Meredith Chambers, Hawthorn Hill, Flurrybridge (Mabella).

Very highly commended, Sir F. W. Heygate (Dewdrop).

Commended, Sir F. W. Heygate (Myrtle).

Ayrshire heifers, in calf or in milk, calved on or after 1st of January, 1856, prize of 3 sovs., Lord Clermont, Ravensdale Park, Flurrybridge.

Best Ayrshire heifers, calved on or after 1st of January, 1858, prize of 3 sovs., Lord Clermont.

West Highland cows, in calf or in milk, of any age, prize of 4 sovs., Sir F. W. Heygate (Rose of Oban).

West Highland heifers, calved on or after 1st of January 1858, prize of 3 sovs., the Earl of Charlemont, Marino, Fairview, Dublin (Annie).

Kerry cows, in calf or in milk, of any age, prize of 4 sovs., Sir E. M'Donnell, Newhaggard, Lusk (Eugenie).

Kerry heifers, in calf or in milk, calved on or after the 1st of January, 1856, prize of 3 sovs., Model Farm, Glasnevin (Norah).

EXTRA PREMIUMS.

To be competed for by *bona fide* tenant farmers of Ireland, not paying more than £100 a year of rent.

Cows in calf or in milk, of any age, prize of 3 sovs., Patrick Inglesby, Glack, Ardee (shorthorn Muslin Lady).

Heifers in calf or in milk, calved in 1856, prize of 3 sovs., James Ward, Stormanstown, Ardee (shorthorn Maid of Stormanstown).

WATERFORD CHALLENGE CUP, VALUE ONE HUNDRED SOVEREIGNS.

Best lot of three horned animals (bulls or heifers), but not in mixed lots, not exceeding twenty months old, having been bred by exhibitor, and *bona fide* his property, Thomas Ball, Malahide, for shorthorn heifers Agatha, Letitia, and Josephine.

THOROUGH-BRED HORSES.

JUDGES.—Robert Holmes, Esq., Bellair, Ballycumber.

Hon. R. G. Talbot, Ballinacree, Dalkey.

Henry Thurnall, Esq., Royston, Hert.

Weight-carrying thorough-bred stallions, prize of 30 sovs., the Croker challenge cup, and medal, Hugh Morrow, Coraboola House, Tashinny (Young Colwick, by Colwick out of Princess by Blacklock).

AGRICULTURAL HORSES.

JUDGES.—Hon. W. Arbuthnot, Rackford, Blackrock.

Silvester Rait, Esq., Rathmoyle, Edenderry.

Hon. R. G. Talbot, Ballinacree, Dalkey.

Stallions of any breed, for agricultural purposes, foaled on or after the 1st of January, 1852, and previous to the 1st of January, 1857, first prize 30 sovs. and silver medal to Moore Brothers, Edenmore, Rabeny, county Dublin (Clydesdale Sir William Wallace); second of 10 sovs., John Mill, Corballis, Donabate (Clydesdale Royal Charlie).

Commended, W. Hatch, Ardee Castle (Clydesdale Caledonia).

Draught mares in foal, or with a foal at foot, or having reared a foal in the year 1859, first prize of 15 sovs. to Sir Frederick W. Heygate (Clydesdale Nannie); second of 5 sovs., Nicholas M. Archdall, Crieve, Enniskillen (Clydesdale Jessie).

Commended, Molyneux Pooley Shuldham, Exmouth-place, Cheltenham, (Berwickshire Rose).

Draught fillies, foaled in 1856, first prize of 10 sovs. to Lord Clermont.

No further merit.

Draught fillies, foaled on or after the 1st of January, 1857, first prize of 5 sovs. to Archibald Steele, Myroe Slob, Myroe, county Londonderry (Clydesdale Jess).

Commended, Lord Clermont, Clermont Park, Dundalk.

SHEEP.

JUDGES.—George Brown, Esq., Avebury, Marlborough.

J. Clarke, Long Sutton, Lincoln.

Caleb Goings, Esq., Traverston, Nenagh.

LEICESTERS.

Shearing rams, first prize of 10 sovs. and silver medal, and

Gold Medal as best of all the rams, to George Thunder, Kingston Lodge, Navan; second of 5 sovs., George Thunder.

Commended, George Thunder, for two other rams.

Rams of any other age, not exceeding three years, first prize of 10 sovs. to William Owen, Bleainton; second of 5 sovs., Thomas Marria, The Chase, Ukeby, Lincolnshire.

Highly commended, William Owen, Bleainton, for another ram.

Commended, Thomas Garde, Ballinasurra-house, Middleton. Pens of five shearing ewes, first prize of 10 sovs. to Thomas Roberts, Farn, Strokestown; second of 5 sovs., William Owen, Bleainton.

Commended, George Thunder.

Pens of five ewes, not exceeding five years old, that have reared lambs up to 1st of June, 1859, first prize of 10 sovs. to Thomas Roberts, Strokestown; second of 5 sovs., Thomas Marria, The Chase.

Highly commended, William Owen, Bleainton.

Pens of five ewe lambs, prize of 5 sovs. to Charles Powell Leala, M.P., Glaslough.

Commended, Sir Frederick W. Heygate, Bart.

OTHER LONG-WOOLLED SHEEP.

Not qualified to compete as Leicester—all Cotswolds.

Best shearing ram, first prize of 10 sovs., W. H. Carroll, Tulka House, Nenagh; second of 5 sovs., W. H. Carroll.

Commended, T. Beale Browne, Hampen, Andoversford.

Rams of any other age, not exceeding three years, first prize of 8 sovs., T. Beale Browne, Hampen, Andoversford; second of 4 sovs., N. W. Roche, M.D., Fermoy, County Cork.

Pens of five shearing ewes, first prize of 5 sovs., T. Beale Browne; second of 3 sovs., T. Beale Browne, Hampen, Andoversford.

CHEVIOTS, OR ANY OTHER MOUNTAIN BREED.

Rams of any age, not exceeding five years old, first prize of 3 sovs., Lord Clermont; second of 2 sovs., Lord Clermont (Cheviots).

Pens of five shearing ewes, first prize of 3 sovs., the Marquis of Conyngham, Slane Castle, Slane; second of 2 sovs., the Marquis of Conyngham (Cheviots).

Pens of five ewes, not exceeding five years old, that have reared lambs up to the 1st of June, 1859, first prize of 3 sovs., the Marquis of Conyngham; second of 2 sovs., the Marquis of Conyngham (Cheviots).

BLACK FACES.

Best rams of any age, not exceeding five years old, first prize of 3 sovs., Lord Clermont; second of 2 sovs., Sir Frederick W. Heygate, Bart.

Pens of five shearing ewes, first prize of 3 sovs., Sir Fredk. W. Heygate, Bart.; second of 2 sovs., Lord Clermont.

Pens of five ewes, not exceeding five years old, that have reared lambs up to 1st June, 1859, first prize of 3 sovs., Sir Frederick W. Heygate; second of 2 sovs., Lord Clermont.

DOWNS.

For the best shearing ram, first prize of 5 sovs., Charles Wm. Hamilton, Hamwood, Dunboyne (Shropshire).

Rams of any age, not exceeding five years, prize of 5 sovs., R. Scott, Skirling, Camptown, Drem, N.B. (Southdown).

Pens of five shearing ewes, prize of 5 sovs., Thomas Marria, The Chase (Southdown).

Pens of ewes, not exceeding five years old, that have reared lambs up to 1st June, 1859, prize of 5 sovs., Charles William Hamilton, Hamwood (Shropshire).

Commended, R. Scott, Skirling, Camptown (Southdown).

PIGS.

JUDGES.—Hon. W. Arbuthnot, Rackford, Blackrock.

B. Harris, Highfield Wicks, England.

Henry Thurnall, Esq., Royston, Hert.

BLACK.

Boars under eighteen months old, 1st prize of 5 sovs. and medal as best black boar, Robert George Glen, Kilsennan, Waterside, Londonderry (Berkshire); 2nd of 3 sovs., William Joyce, Abbey Farm, Waterford (Berkshire).

Boars over eighteen months and under thirty-six months old, 1st prize of 4 sovs., Lord Clermont (Berkshire); 2nd of 2 sovs., Robert George Glen (improved Essex).

Breeding sows under eighteen months old, 1st prize of 4 sovs., Lord Clermont (Berkshire); 2nd of 2 sovs., Robert George Glen (Berkshire).

Breeding sows over eighteen months, 1st prize of 3 sovs., Wm. Joyce, Abbey Farm (Berkshire); 2nd of 2 sovs., H. Stanley M'Clintock, Randalstown (Berkshire).

WHITE.

Boars under eighteen months old, 1st prize of 5 sovs. and medal as best white boar, Joseph Wilkinson, Roundhay, Leeds (large breed); 2nd of 3 sovs., Lord Clermont (Cumberland).

Boars over eighteen months and under thirty-six months, 1st prize of 4 sovs., Joseph Wilkinson, Roundhay (small breed); 2nd of 2 sovs., Walsley Pendergast, Listerlin, New Ross, County Wexford (Cumberland).

Breeding sows under eighteen months old, 1st prize of 4 sovs., H. L. Prentice, Caledon (Cumberland); 2nd of 2 sovs., Lord Clermont (Yorkshire).

Breeding sows over eighteen months old, 1st prize of 3 sovs., Henry L. Prentice, Caledon (Cumberland); 2nd of 2 sovs., Russell Patteson, Fair Hill, Dundalk (large Yorkshire).

EXTRA PREMIUM.

Best breeding sows over eighteen months old, prize of 3 sovs., Robert G. Glen (Berkshire).

IMPLEMENTS.

JUDGES.—John Clarke, Esq., Long Sutton, Lincolnshire.

John G. Coddington, Dulany.

C. G. Gray, Esq., Ballykisteon, Tipperary.

THE IRISH FARMERS' GAZETTE CHALLENGE CUP, VALUED FIFTY GUINEAS.

For general collection of implements, manufactured by the exhibitor, and suited to the agriculture of Ireland, J. Gray and Co., Uddingston, Glasgow.

DAIRY PRODUCE.

JUDGES.—George Burrows, Esq., Carrickfergus.

Samuel McConnell, Esq., Belfast.

James McDonnell, Esq., Carlow.

BUTTER.

Firkins of butter, 70 lbs. weight, independent of the firkin, suited for the English or London market, and made on the farm of the exhibitor during the season of 1859, first prize of 3 sovs., Mrs. E. Smith, Knocks House, Clonakilty; second prize of 2 sovs., Baptist Gamble, Grann, Enniskillen; third prize of 1 sovs., Henry Leslie, Drumslade, Coleraine.

Firkins of butter, 70 lbs. weight, independent of the firkin, suited for the foreign market, and made on the farm of the exhibitor during the season of 1859, first prize of 3 sovs., Baptist Gamble; second of 2 sovs., Mr. D. Patten, Glaslough.

Cool of butter, 30 lbs. weight, independent of the cool, and made on the farm of the exhibitor during the year 1859, first prize of 2 sovs., W. Johnstown, Temple, Patrick; second of 1 sovs., Baptist Gamble.

CHEESE.

Couples of new milk cheeses made in Ireland, of the season of 1859, in imitation of any known and approved description of English cheese, not less than 20 lbs. weight each, first prize of 5 sovs., Lord Clermont, Clermont (in imitation of Dunlop); second, of 2 sovs., Henry Leslie, Drumslade.

FLAX.

JUDGES.—Henry Haslett, Esq., Newtown Limavady.

George Martin, Esq., Glenvean, Belfast.

Bundles not less than 16 lbs. weight, of mill-scutched flax, grown on the farm of the exhibitor, being an average sample of the produce of at least half-an-acre of British growth, and of the crop of the year 1858, prize of 3 sovs., David Patton, Tynanny, Glaslough.

Bundles not less than 16 lbs. weight, of hand-scutched flax grown on the farm of the exhibitor, being an average sample of the produce of at least half-an-acre of British growth, and of the crop of the year 1858, prize of 3 sovs., David Patton.

CEREALS AND GRASS SEEDS.

JUDGES.—Henry Haslett, Esq., Newtown Limavady.

George Martin, Esq., Glenvean, Belfast.

Collections of cereals and grass seeds, prize of 4 sovs. and medal, John Farquharson, Dundalk.

There were also prizes for poultry.

THE DINNER

Took place on the Wednesday evening, in the New Corn Exchange. Lord Erne, as President for the year, in the

chair, supported by his Excellency the Lord Lieutenant, and a number of noblemen and gentlemen interested in the agriculture of Ireland. The body of the hall, however, was little more than half filled. After the customary loyal toasts, the President gave "The Lord Lieutenant and Prosperity to Ireland." In responding Lord Carlisle thus proceeded: As your noble President has said, this is by no means the first time I find myself the visitor and the guest of the Royal Agricultural Society of Ireland, and I have the satisfaction of seeing that you are not inclined to consider me a stranger. Indeed, my fears might have run in a contrary direction. I might have apprehended that just as by the judicious regulations of your show-yards the same animals are not allowed to compete for an indefinite number of times, but that there are strict limitations of "two-year-olds," "three-year-olds," and "four-year-olds," which must not be transgressed, I might have apprehended that I should be considered too stale an object to be produced again on this occasion. Most happy shall I feel myself in connection with my renewed term of office in Ireland if, at least, I shall happen to be classed amongst that species of stock which is no longer entitled to compete for the prize, but is entered simply as commended. However this may be, my noble friend has rightly assumed that I must feel great pleasure in finding myself again amongst the members of your flourishing and vigorous society, and especially to have the privilege of being at an exhibition which, in all respects, has been so entirely worthy of their past renown and their advancing usefulness. Nearly all the points connected with the present show, and with the immediate condition of the society's affairs, I clearly shall do best to leave to those who, from familiar acquaintance with the whole subject of Irish agriculture, and from their having been, unlike myself, enabled by continuous and unbroken residence to keep their attention directed to the current transactions of the society, shall be thus qualified to speak with weight and authority on an occasion like the present. Still, gentlemen, as our interest to-day is mainly centred in our Irish soil, perhaps you will allow me for a very short time to occupy the sort of vantage ground which this annual meeting of the Royal Agricultural Society presents to us, and to glance at one or two of the leading features of the prospects we may thus take in of the general condition of the country. Now, on looking into authentic documents, I find that the land under tillage in Ireland in the first year when these returns were calculated—in the year 1847, twelve years ago—amounted to 5,238,575 acres. In the year we have just completed, in the year 1858, they had increased to 5,882,152 acres, being an increase in these twelve years of six hundred and forty-three thousand acres, or at the rate of 12 per cent. in eleven years. Now the climate and circumstances connected with it have with the true spirit of economy produced that result in the different kinds of culture. The grain crops have given way in a great degree to those more succulent and humid vegetables, which are classed as green crops, and accordingly I find in the same period to which I have referred that the cereal crops have diminished by not less than 565,000 acres, or 17 per cent. of the whole amount. The green crops have increased in nearly the same proportion. The live stock in Ireland, which was valued in 1841 at 19,375,000*l.* is valued now in the last year at 34,616,000*l.* (Hear, hear). With respect to the size of farms, farms under five acres, in 1841, amounted to 310,000. In 1858, instead of 310,000, they have decreased to 33,000. The farmers above 30 acres, in 1841, were 48,000, and in 1858 they have amounted to upwards of 156,000. Now, the absorption of small holdings I know is considered by some in this country as injurious. By others it is looked upon as a step in advance, but it is a fact. The application of capital to land necessarily leads to this result, just as in manufactures we see factories draw to themselves the labour that formerly expended on cottage looms. I take this to be according to the inevitable course of events; and whatever we may think of it, surely it is our duty to watch all such tendencies, and to adapt our measures to them. Among other improvements in the country I believe progress has been nowhere more remarkable than in the dwellings of the labouring classes. The subject is now under the immediate consideration of the Imperial Legislature, a bill having been brought in upon the matter by an excellent gentleman of a neighbouring county, Sir William Somerville. I know that the subject has largely engaged the attention of another gentleman from the same county, whom I have the

happiness of seeing at this board—Mr. Naper, and I find with great satisfaction that the Royal Agricultural Society of Ireland, which is peculiarly qualified by its position and its objects to take the lead upon such a subject, announces it as one of its constituent and primary objects to promote improvement in the dwellings and domestic condition of the people of Ireland, and they have founded prizes for the best cottages. Equally, if still not more gratifying has been the rapid diminution of pauperism in this country. It appears that in Dandalk workhouse—in the town where we are now assembled—in the last ten years the inmates have fallen from 1,264 to 263. From 107 able-bodied males they have decreased to 31. The commissioners for inquiry into the condition of the poorer classes in Ireland, in the first report made in the year 1836, estimated the number of persons out of work and in distress during thirty weeks of the year, or upwards of half the year, as 558,000, and the persons depending on them to 1,800,000, or nearly one-third of the whole population. There are now in all the workhouses in Ireland only 37,000 inmates, with only 14,000 persons receiving outdoor relief (Hear, hear). Mendicancy is nearly completely extinct, and wages are very nearly doubled. Now the last element to which I will refer in this rapid contrast is crime. I do not seek, gentlemen, to deny that our ears are sometimes startled and our minds shocked by the occurrence of some fearful agrarian outrage, deepening occasionally into the darkest shade of guilt; but looking at the general amount of crime, and embracing in our view the country at large, the change is as remarkable of late years as it is a blessed one. In this county of Lenth the criminal calendar this year has been, I believe, wonderfully light. The system of reporting outrages by the constabulary is singularly full and complete, and it is a point in which we are far ahead here of anything of the kind in England. Now take the period of the last ten years—the outrages reported in Ireland in the year 1848 was upwards of 14,000; in 1858 they had sunk to 3,492 (Cheers). Those of an agrarian character in 1848 were 795; 1858, no more than 225. Now, gentlemen, taking all those various items that enter so largely into the condition of the country as a whole, surely we must feel that it presents a picture which may still, to some extent, be of a chequered character, and upon parts of which the shadows of scattered clouds may still be resting; but still in all its broader spaces it is bright with all the hues of hope, and has the sunlight of heaven to gild it and to gladden. I feel that this is not the time or place to pause upon matters as those remarkable demonstrations which have of late excited much attention and much anxiety, and much, I would fain believe, of hope in the northern districts of this island. This I am sure of, that the old anniversaries of the present month have passed off with less of mutual provocation and bitterness, with more of Christian calmness and consideration, than ever had been the case before. And if, gentlemen, I may have appeared to have been too minute in this summing up of the signs and omens of present and future good before a company who are mainly brought together to promote the pursuits of agriculture, and to pay attention to what may seem at first sight the material wealth and progress of the country, yet I do feel that this great pursuit of the science of agriculture acts with rapid and immediate contact upon all the fibres of Ireland's happiness and Ireland's glory, and that I have been addressing those who, besides the stake and interest which they feel and which they possess in her green soil, are further keenly alive to all the yet even higher impulses which add to her just renown, and advance her in the scale of nations (loud and protracted cheering).

Lord ERNE, in returning thanks for the warm and flattering manner in which they had received his name, said, that Ireland was an agricultural country, and that by agriculture they must live. The Almighty had blessed them with all these natural resources from which agricultural prosperity must spring. They had as fine land as any in the United Kingdom, and a climate which, although it had not maintained its reputation during the present year, was called a "drooping climate." It was a climate peculiarly suited for green crops; but he was sorry to say that the Irish agriculturists did not cultivate their land as they ought to do; and they required a society like the present to induce them to farm their land better, and to make the great implement makers of England and Scotland take their most improved machinery over to that country. He was glad to find that

Irish agriculturists were availing themselves of the aid of machinery in the cultivation of the soil, though the use of improved instruments of husbandry was not so general and extensive as it should be. He was gratified to learn that orders to the amount of 2,000*l.* were given to one English agricultural implement manufacturer at the last show in Derry, and he would be happy if orders to double that amount were given to him on the present occasion. He was only sorry that the society could not lay an embargo on the vast collection of admirable and beautiful articles which were now displayed in their show-yard, and say to the manufacturers, "Gentlemen, we will not allow you to take one of these implements out of the country." The noble lord referred to a report published by the Royal Dublin Society, showing that the Swedish turnips and mangolds exhibited in 1857, at the society's show, were heavier and finer than those displayed during the same year at Birmingham. In the year 1856, of the Swedish turnips shown at the Dublin Society's show, six weighed 102*lbs.*, and six at Birmingham only weighed 98*lbs.* Six mangolds shown at Dublin weighed 108*lbs.*; at Birmingham, six weighed only 90*lbs.*; six red globes, weighed at the Royal Dublin Society's show, weighed 115*lbs.*, while the same number at Birmingham weighed 104*lbs.* From this, therefore—and it was very seldom they could get a comparison—they saw that they could grow green crops if they liked. But the farmers wanted skill and wanted knowledge, and the only way to get that knowledge was by giving support to this society. He then proceeded to observe that the landlords of Ireland ought to support the society as well as the tenants, and he regretted to say that they did not do so. He found by

the last report of the society that it had only 1,500 members. Now it was not so easy to find the number of landlords in Ireland, but he had taken the number of magistrates, and he found they amounted to 3,500, nearly all of whom it was reasonable to suppose were landowners. Taking the landlords of Ireland at 3,000, which was a moderate estimate, it was clear that only half of that number supported the society. This was not a creditable state of things, and it was his intention to ask the society to admit him, as their president, to write to every landlord in Ireland, making a personal appeal to him, and pointing out that it was his duty to give his warm support to an association which was so well calculated to advance the prosperity of the country. His lordship concluded by urging the necessity of farmers keeping correct accounts.

The other toasts were "The Royal Agricultural Improvement Society of Ireland," proposed by Lord Cremorne, and responded to by Lord Clancarty; "The Lord of the Soil" (Lord Roden), "The Royal Agricultural Society of England; the Highland Society, and Royal Dublin Society," proposed by Lord Monck, and responded to by Mr. Beale Browne, Mr. Hugh Watson, and Mr. George Roe, respectively; "The Vice-Presidents," given by Major M'Clintock, and responded to by Mr. Napper; "The Local Committee," by Lord Clancarty, responded to by Major Joyceelyn; "The Judges of the Show," by Mr. T. R. Hardy, and responded to by Mr. Thurnall; "The Successful Competitors," by Lord Belmore, and responded to by Captain Bell; "The Railway and Steamboat Companies," by Mr. Colthurst, responded to by Sir Edward M'Donnell; and "The Press," given by the Hon. R. G. Talbot, and answered by Mr. Purlon.

ROYAL LANCASHIRE AGRICULTURAL SOCIETY.

The show of our County Society this year at Blackburn is a "great success": brilliant weather, good arrangements, stock, &c., both numerous and superior, an immense attendance, and last, but not least important to the society's future success, an unprecedented amount in the shape of contributions for entry to the show grounds and fields where the implements were tested.

The following is a list of the numbers as regards implements and stock exhibited:

Implements for trial	245
Cattle	174
Horses	129
Sheep	52
Pigs	47

As to excellence, while, as on most former years, the animals which had obtained the head prizes at the exhibition of the Royal Agricultural Society of England (held this year at Warwick), were exhibited at Blackburn on Wednesday last, yet in no former year have these undoubtedly first-class animals met with such close competition from stock owned by tenant-farmers.

THE TRIAL OF IMPLEMENTS AND REAPING-MACHINES.

The trial of steam and other ploughs, reaping and mowing machines, &c., took place on Wednesday in two large fields which adjoin the old high-road from Preston to Blackburn, and are situated a few hundred yards north of the Cherry Tree railway station. The ordinary ploughs were first put in operation. About twenty teams were brought to the ground. The chief contest lay between a plough of Mr. Lazenby, of Feniscowles, and one of Mr. Whiteside, of Great Eccleston. The latter was handled by a ploughman from Rawcliffe, named Sheardley; and the former by the ploughman to Mr. Feilden. Sheardley has carried off several prizes, and his friends were most anxious that he should not be defeated in this contest; but the result was against him, and his defeat was generally set down to the superiority of his opponent's plough, rather than to any deficiency on the part of the ploughman from the Fylde.

Three reaping-machines were then put in competition. The crop selected for the trial was a field of oats, short and thin

(indeed, it is a poor season for oats), and sadly too full of grass and weeds. Last year, at Ulverston, the machines were tried upon a crop of wheat, one most admirably chosen for proving their adaptability; this year the crop was the reverse, and was more suitable for the scythe than the reaping-machine—indeed, as it proved, it was only those machines that were able to cut grass as well as corn that showed to advantage. The three machines tested on Wednesday were—one belonging to Mr. R. Cookson, of Layton Hawes, and formerly the property of Mr. Billington, of the Bull Hotel, Preston. The inventor of Mr. Cookson's machine is a Mr. Wood; the maker, Mr. Clayton, of London. Next, we had a machine from Miss Ffarrington, of Worden Hall, Leyland. It is Hussey's, improved by Messrs. Dean, Dray, and Co., of London, and is similar to the one tried last year at Ulverston. The third, "Crosskill's Improved Reaping Machine," was exhibited by the makers, the trustees of Mr. W. Crosskill, of the Beverley Iron Works, Beverley. It appears to be a combination of McCormick's and Bell's, with some original conceptions of the makers.

The machines were set at work in the following order: First, Wood's; second, Hussey's; third, Crosskill's. Previous to commencing operations, Crosskill's was put into motion down the furrows to cut a way through for the other two to commence working. Both Wood's and Hussey's succeeded in cutting the extent allotted to them in very fair style, and the very superior form in which the latter left the cut corn was much noticed. We heard several farmers remark that it was left in far better form for binding up than could have been accomplished by either scythe or sickle. Crosskill's machine did not succeed on Wednesday; it made far more frequent stoppages than the others, left a portion of the corn in several places uncut, did not deliver neatly, and the appearance of the plot which it cut, when compared with that gone over by the other machines, was somewhat slovenly. Crosskill's is strictly a reaping machine, and the other two are not intended for mowing; they were, however, tested, but the grass was too short, so that the result proved nothing as to their capabilities for cutting clover or rye grass.

Subsequent to the reaping of the oats, a trial was made with Messrs. Clark and Charney's steam-plough, which consists of the traction engine we noticed last year, when at Ulverston. It made three or four journeys across the field,

ploughing at various depths as required, but the working was not so satisfactory as could have been desired.

THE EXHIBITION OF STOCK AND IMPLEMENTS.

The show of horned cattle, horses, sheep, pigs, poultry, roots, cheese, butter, implements, &c., was held on Thursday, in some most extensive fields belonging to the Lord of the Manor, J. Fielding, Esq., of Witton.

The following is a list of the prizes and Judges in each department:

The following gentlemen officiated as judges:
IMPLEMENTERS.—Messrs. Roberts, Begbie, Ramsay, Wood, Hartley, and Boulton.

CATTLE.—Messrs. Banks, Douglas, Mason, and Patterson.
HORSES.—Messrs. Angus and Longton.

SHEEP AND PIGS.—Messrs. Addie, Mason, Lindon, and Fisher.

PRIZES. HORNED CATTLE.

Silver Medals for the best animals on the field in their respective classes.

Bull: Col. Towneley, of Towneley-park, Royal Buttery.
Tenant Farmers' Class: Jas. Dickinson, Upholland, near Wigan, Prince of Prussia.

Cows: Col. Towneley, Fidelity, two years and three months.
Tenant Farmers' Class: Jas. Dickinson, Amelia.

HORNED CATTLE.

BULLS.

Bull two years old and upwards: 1, Col. Towneley, medal and £10; 2, Jas. Dickinson, £5.

Bull above one and under two years old: 1, Thos. Atherton, Speke, near Liverpool, medal and £10; 2, Thos. Jolly, Warley, near Northallerton, £5.

Bull Calf: 1, Jonathan Peel, Knowlmore, near Clitheroe, £3; 2, James Dickinson, £1 10s.

COWS.

1, Richard Booth, Warlaby, £5; 2, ditto, £3.
Heifer above two and under three years old: 1, Col. Towneley, £5; ditto, £3 10s.

Heifer not exceeding two years old: 1, Col. Towneley, £3; 2, Thos. Atherton, £1 10s.

Heifer Calf: 1, Sir C. Tempest, £2; 2, J. and R. Patterson, Hall Beck, Ulverston, £1.

HORNED CATTLE (Tenant Farmers').

Bull, calved previous to January, 1857: 1, John Backhouse, Long Laude, Cartmel, medal and £10; 2, James Dickinson, medal and £5.

Bull above two years old: 1, James Dickinson, medal and £10; 2, James Bretherton, Claughton, near Garstang, medal and £5.

Bull above one year old: 1, T. Atherton, medal and £5; 2, W. Boulton, £2 10s.

Bull calf: 1, J. Dickinson, £3; 2, Henry Cunliffe, Oswaldtwistle, £1 10s.

Cow: 1, J. Dickinson, £5; 2, John Bownass, Lawnde House, Horaby, £1 10s.

Best four dairy Cows: George Howarth, £4.
Heifer not exceeding three years old: 1, John Binns, Marden, near Burnley, £5; 2, Rd. Nuttall, Vineyard Close, Tottington, £2 10s.

Heifer not exceeding two years old: 1, Thomas Atherton, £3; ditto, £1 10s.

Heifer Calf: 1, J. and R. Patterson, £3; 2, T. Atherton, £1.

HORSES.

STALLIONS.

For waggon or dray: James Robinson, Grove Inn, Broughton, Manchester, medal and £5.

For agricultural purposes: Thomas Edon, Barnsley, Yorkshire, medal and £5.

Thorough-bred: John and Lister Cockshott, Addingham, near Leeds, medal and £5.

Road or field: J. and L. Cockshott, medal and £5.

BROOD MARE.

Agricultural purposes: 1, William Suedell, Salwick, £5; 2, Jonathan Openshaw, Hotherhall Wall, Ribchester, £3 10s.

Road or field: 1, Jonathan Peel, £5; 2, James Williamson, Lancaster, £2 10s.

COLTS.

Three-year-old, agricultural purposes: Robert Watson, Stonebridge Mill, Oswaldtwistle, £3.

Three-year-old, road or field: Jonathan Peel, £3.

Two-year-old, agricultural purposes: Jonathan Peel, £2.

Two-year-old, road or field: John Noble, Broughton, £2.

Yearlings, agricultural purposes: Jonathan Peel, £1 10s.

Yearlings, road or field: Mercer Bros. and Co., Great Harwood, £1 10s.

Foal, agricultural purposes: James Woraley, Lower Darwen, £1.

Foal, road or field: Jonathan Peel, £1.

EXTRA STOCK.

Horses for agricultural purposes: Thomas Lee, Manchester and Darwen, medal.

Horses for agricultural purposes, and colt for road or field: Alderman Cunningham, Blackburn.

SHEEP.

Leicester shearling ram: Geo. Browne, Troutbeck, Windermere, £3.

Leicester ram, any other age: George Browne, £2.

Southdown shearling ram: Duke of Devonshire, Holkar Hall.

Any other description of Down: A. Stavert, £3.

Of any other age: A. Stavert.

Ram, for mountain district: Wm. Midgley, Birketta, Clitheroe, £2 10s.

Pen of Leicester ewes: A. Stavert, £2.

Pen of Southdown ewes: Duke of Devonshire, £2.

Pen of shearling ewes: Duke of Devonshire, £2.

Pen of ewes of any other description of Down: R. E. Ashton, Lime Field, Bury, £3.

Pen of shearling ewes, any other description of Down: A. Stavert, £2.

Pen of ewes for mountain district: Geo. Browne, £2.

PIGS.

Boar, large breed: 1, John Harrison, jun., Heaton Norris, Stockport, £3; 2, ditto, £1 10s.

Boar, small breed: 1, Joseph Hindson, Everton, Liverpool, £3; 2, John Palmer, Thorley, Skipton, £1 10s.

Sow, large breed: 1, J. Harrison, jun., £2; 2, James Birch, Sefton, near Ormskirk.

Sow, small breed, 1, R. E. Ashton, £2; 2, John Palmer, £1.
Extra stock—Sow, small breed, Col. Towneley.

SPECIAL PRIZES.

Additional, by the Local Committee.

HORSES.

Team and pair ditto, Robert Spencer, Blackburn, £3 3s.

Roadster, Robert Hopwood, Blackburn, £1 1s.

Hunter, T. Lund, Lovely Hall, £1 1s.

Carriage horses, Robt. Hopwood, £2 2s.

HORNED CATTLE.

Bull, T. Dewhurst, Ribchester, £2 2s.

Bull Calf, Henry Cunliffe, £1 1s.

Dairy Cow, George Howarth, £1 1s.

Two Dairy Cows, G. Howarth, £2 2s.

Drape Cow, James Parker, Blackburn, £1 1s.

COTTAGERS' PIGS.

1st, Bridget Walley, Blackburn, £1 1s.; **2nd,** Anthony Crook, Blackburn, 10s. 6d.

IMPLEMENTS.

Reaping machine: medal and £30, Miss Farrington, Worden Hall.

Thrashing machines: medal and £5, Alfred Nixon and Co., Liverpool.

Winnowing machine: Trustees of the late Mr. Crookhill, Beverley, £2.

Swing plough: £2, W. Lasenby, Feniscowles, Medal, Jno. Johnston, Accrington.

Wheel plough: £2, W. Lasenby.

Pair horse grubber: £2, R. W. France.

Heavy harrows: £2, Pickley, Simms, and Co., Bedford Foundry, Leigh.

Light harrows: W. Lasenby.

Horse hoe, on ridge: £2, W. Lasenby.

Grinding mill or crusher: £2, Pickley, Simms, and Co.

Chaff cutter: £2, Richmond and Chandler, Manchester and Liverpool.

Turp cutter: £2, J. Whitaker, Bedford, Leigh.

Churn: £2, Williamson, Brothers, Kendal.

Haymaking machine: £2, Richmond and Chandler.

Hay rake: £2, Richmond and Chandler.

One-horse cart: Trustees of W. Crosskill, £2.

Harvest cart, and spring cart: do, 0.

THE DINNER.

About one hundred of the leading agriculturists of the county and neighbourhood sat down in the Assembly-room of the Town-hall to an excellent dinner. They were ably presided over by Colonel J. W. Patten, M.P., supported on his right by the Marquis of Hartington, M.P.; Peter Ainsworth, Esq., of Smithills Hall, near Bolton; Col. J. T. Clifton, Lytham Hall; W. H. Hornby, Esq., M.P.; and the Rev. Philip Graham, of Over Darwen. On the left by J. Pilkington, Esq., M.P.; John Baynes, Esq. (Mayor); J. Turner Hopwood, Esq., M.P. for Clitheroe. There were several members of the corporation in attendance. Throughout the evening the entertainment was enlivened by the performance of some select pieces of music by a band in connection with Mr. Whiteley's mill, and led by Mr. G. Ellis.

HARVEST-HOME AT SUDBROOK PARK.

The annual festive harvest-home on the farms of Dr. Ellis was celebrated at Sudbrook Park, Hydropathic Establishment on Wednesday evening.

About 120 acres of hay and 80 acres of corn had been successfully gathered without the use of intoxicating liquors.

The employer having for the fifth harvest supplied the people with chocolate and cake as a substitute for beer.

Most of the men are regularly employed on the farms and in the establishment.

The unanimous testimony of the men is in favour of the strictly temperance principles observed by all while employed on the estate. The steward testified that in every way the conduct of the men had been most satisfactory during the whole of the busy time. No swearing, indecent, or even angry words were heard to fall from the lips of any one of the men, women, or boys.

Notwithstanding that machinery, which required great care in its use to prevent serious accidents, had been extensively employed in cutting the great proportion of corn, and steam-power was engaged in the performance of other operations, not an instance of injury even to the skin of any of the labourers had happened, and not an hour had been lost by one of them.

These happy results have been the same during all the experience of the employer. The men have no scores to rub off at the Jerry shops, and awake without headache after the harvest feast, returning soberly to their work next morning, without losing a single day.

The party invited to witness the festivity of the deserving labourers, consisting of ministers of the gospel, merchants, manufacturers, patients staying in the establishment, and gentlemen and ladies from the neighbourhood, were entertained by Dr. and Mrs. Ellis, in the Great Hall, afterwards, and expressed themselves highly gratified at the unique scene and entertainment.

The procession formed at the Ham Common Farm, and proceeded through the villages of Ham and Petersham to the beautiful mansion in the Park, in the following order:—

Band of music.

Steward on horseback.

Crimson banner, with the inscription.

"Welcome Harvest-home."

Two mowers with scythes.

Hay-making machine,

drawn by two decorated horses, followed by

Harvest-rake, two haymakers, with drag and hand-rakes.

Two reapers with sickles.

Reaping-machine drawn by two decorated horses.

Cart loaded with sheaves, decorated with evergreens, followed by

Webster and harvest labourers,

Steam-engine,

Threshing-machine.

Neddy and the provision-cart bring up the rear.

The supper was superintended by Mrs. Ellis at the head, supported by the Doctor and steward, at the other tables.

The strength of the tables was tested by the weight of plum-pudding, roast beef, and the other appendages of a harvest supper, and abundance of chocolate was supplied to help the digestion, instead of hindering it by alcoholic drinks.

A suitable address of congratulation was delivered after supper by the doctor, followed by some kind words of advice from a clergyman present.

The steward testifying of his increased assurance that harvest work can be done as well or better without beer than with it.

Prizes for the best and quickest sheaf tyers were presented.

To the men who had continued in their employ without being convicted of swearing or drunkenness since the last harvest were presented a new waterproof cape and hat.

To the boys of whom no vice had been reported to the employer, a new suit of clothes and hat were given.

The result of such encouragement to deserving labourers has proved for some years very satisfactory in the moral improvement of both men and boys.

RIPENING SEEDS.—Cobbett and other writers on horticulture have ridiculed the practice of gardeners carrying some seeds (melon, for instance) in their pockets for a considerable time to improve them. There may, however, be some truth in this notion; for it has been suggested by an eminent botanist, that the seeds thus carried probably become more fruitful after having been kept some time, for the same reason that plants are more likely to come to full flower after a lengthened season of rest.—*Proceedings of the British Association*, 1857.

WHERE SHALL I BUY A PIANO!—We do believe that ninety-nine out of every hundred persons who are in want of this necessary ornament, and most essential requisite for the complete culture of the female portion of their families, do not know where to apply in London for a good piano at a reasonable price. The tip-top makers, whose names on an instrument, however indifferent, will ensure its sale at a price far beyond the means of the industrious middle classes, will not sell their pianos without such prices as we ourselves would think about more than once, before we would submit to. We were lately in want of one; and the question which we have headed this paragraph with, was a study to us for some days. We searched that refuge of the destitute, "Kelly's Directory," amongst the Piano-forte Makers, and three volumes and a-half, or an array of nearly two hundred and fifty names, completely put us *hors de combat*. We consulted a friend, a musical one, and he referred us to a firm, the senior partner of which was for many years a finisher in one of the great houses in London. We purchased an instrument; and the result we feel in duty bound, not only in justice to them, but also to our readers who may be similarly circumstanced, to communicate thus fully. We have never recommended one tradesman over another to the favour of the public, and we set our face totally against puffing or recommending any person who may advertise his wares in our columns. We believe these manufacturers never did advertise with us, and we do not want them to do so. Ralph Smith and Co., of 171, Bishopsgate-street-without, are the makers to whom we allude. The piano which we purchased from them is as rich in tone as any similar instrument we ever touched from the hands of the very best makers. The fullness of the bass notes is remarkable; while the upper notes are as clear and bell-like as the most fastidious connoisseur could wish. We will not compare the cost for a moment with that of any of the other makers. It is far below it; but we venture to say that for £35 we have procured a piano which, had it the name of a fashionable maker, could not be purchased for double that sum.—*Manchester and Lancashire Express*.

REVIEW.

A DIGEST OF CASES CONNECTED WITH THE LAW OF THE FARM, including the Agricultural Customs of England and Wales. Second Edition.

By HENRY HALL DIXON, BARRISTER-AT-LAW.

London: Stevens and Norton, Bell-yard, Lincoln's Inn.

The astonishment we cannot but feel, that in a country so eminently agricultural as England, no book which exclusively treated of the Law of the Farm had been published up to so recent a period as last year, when Mr. Dixon published his first edition, is to a great extent justified by the fact that no sooner had Mr. Dixon supplied the deficiency, than the first edition was soon disposed of, and we have now to call our readers' attention to a second. In this edition a considerable change has been made in the general arrangement of the work, and, what is a great desideratum in every law book, the index has been considerably enlarged, so that but little difficulty can be experienced in finding the law upon any subject which may arise in the ordinary management of a farm. The first chapter contains a statement of the agricultural customs in the different counties of England and Wales. This is, we believe, the only volume yet published which contains them all; and it renders the book extremely valuable to all land agents and surveyors, as well as to country solicitors. There are also separate chapters on Interests in Land, Easements, Trees and Fences, Dangerous Animals, Water, Servants, Conveyance of Horses and Cattle, Distress, Husbandry Covenants, Trespass and Game, Tithes, Landlord and Tenant, Contracts and Sales, and Horses and Cattle. And the appendix, besides several valuable forms and other useful matter, contains the rules of various horse repositories, of betting and coursing, of the Royal Agricultural Show, of the Smithfield Club, and of the New Metropolitan Cattle Market, and also of the Central Farmers' Club in Bridge-street, Blackfriars. So we need hardly add that to all country gentlemen, farmers, land-agents, and surveyors, as well as to lawyers of all sorts, the book must be most valuable.

Upon the subject of distress for rent, which is treated of in Mr. Dixon's ninth chapter, we ought to call our readers' attention to a case of *Johnson v. Upham*, which was argued last term in the Court of Queen's Bench, and in which Mr. Justice Wightman delivered judgment so recently as 2nd July last. This case is mentioned in the addenda to Mr. Dixon's book, though by mistake it is added to Chapter X. instead of Chapter IX. But we think he scarcely attaches sufficient importance to it, as it overrules several previous decisions, and so far makes a considerable alteration in the law of distress. It was formerly supposed, and the law is so stated by Mr. Dixon at page 205, that a tender of rent to a distrainer *after* the goods had been impounded was too late, although within the five days allowed by the statute to the party distrained upon to replevy his goods. And this often operated very hardly upon a tenant. But the law was so laid down in *Thomas v. Harris*, 1 M. and G (Maule, J., *dissentiente*), *Ladd v. Thomas*, 12 A. and E., and *Ellis v. Taylor*, 8 M. and W. But these cases must now be considered overruled by the above-mentioned case of *Johnson v. Upham*, in which the Court of Queen's Bench, in an elaborate judgment, after full argument and time taken to consider, have given their opinion that upon an equitable construction

of the Statute of William and Mary, and in consequence of the change in the law relating to distresses for rent in that Statute, and 11 G. 2, c. 19, a landlord ought not to sell the goods after a tender of the rent and costs made *at any time within the five days*. This construction is, we think, most beneficial to both landlord and tenant, and it is only fair that a tenant should have a right of tender as long as his goods remain on the premises. The main object of allowing a landlord to distrain is to give him a speedy and summary remedy for his rent; and this object is sufficiently attained by the law as recently laid down by the Court of Queen's Bench.

The absence of side-notes, which are so useful to the practical man of business, is compensated for by the copious use of italics, which to some extent answer the same purpose. But we think it well worth Mr. Dixon's consideration whether he should not in the next edition favour his readers with references to the authorities in foot-notes, for which the list of cases at the commencement of the volume is scarcely an efficient substitute.

The limits of our space will not permit us to extend this notice to any greater length; but we should hardly have done justice to our numerous agricultural readers had we failed to call their attention to this very valuable work, which no farmer should be without.

A NEW REVOLVER PISTOL.—It is a saying worthy of being written in letters of gold, that "The man who makes two blades of grass to grow where but one flourished before deserves well of his country." This is an admirable saying in the piping times of peace; but "To invent a defensive weapon which, when compared with other fire-arms of the pistol genus, requires but half the care in the handling, and half the trouble in loading, with five times the means of protection afforded in defence," is another saying which, in war or peace, deserves being engraven on the memory, and which comes across our mind after a careful examination of "The Deane-Harding revolver." To those who have an instinctive dread of fire-arms from the liability of their mischievous effects by careless handling, yet who feel the necessity of some means of defence even in their quiet country residence, this pistol will be found a most safe and valuable investment. It is capable of being taken to pieces by the most inartistic handler of fire-arms for the purpose of cleaning, and can be put together again almost in a minute. It is capable of any amount of wear and tear, and cannot suffer from rough usage. It can be loaded with the greatest ease; a lever ramrod attached to the pistol, and acting vertically upon the bullet by the rectilinear pressure of the lever, effects that object. The discharge of one barrel, by pulling the trigger, causes the revolver to come to its position for a second discharge, and that without touching the cock: the mere pressure of the finger on the trigger five times in succession enures five discharges of the weapon. This we consider to be the *ne plus ultra* of practical efficiency. The weapon is the simplest and the safest we have ever seen. To those who wish a ready arm at their bedside in a lonely residence, where the midnight thief and assassin is often lured by the hope of easy prey and little resistance, this pistol will be most useful and effective. To the more active and restless traveller abroad it will be invaluable. Officers going "where glory waits them" need only be told that such a weapon is to be had; their own instinct of self-preservation will lead them to visit 80, King William-street, London Bridge, where Deane and Son, gun makers to H. R. H. the Prince Consort, invite public inspection of the Deane-Harding revolver.

CALENDAR OF AGRICULTURE.

In the northern counties the harvest is prolonged into this month, and is managed as before directed. Cut beans with the hand sickle; tie the crops into sheaves with straw ropes, or better with twisted twine, which will last for several years; carry the crop when dry, and build it in ricks. Thatch all ricks after a time, to settle into form; rake the rick yard clean from straws, and carry all rubbish to the dung yards. Employ plenty of hands in harvest, and reward them liberally.

Gather fruits, such as pears and apples. Pick hops; use the haulm for litter, and place the poles under cover for another year. Dry with coke in the east. Some use sulphur to give the hops a yellow tinge.

Plough the wheat fallows, and towards the end of the month begin to sow the grain; finish the application of dung and composts; plough lays for wheat, and scuffle the bean and pea grattans, as preparation for wheat sowing. Prepare by fallowing the green crop lands of next year, as potatoes, beetroot, and ruta бага; lay the dung on the land in drills, or in broadcast; if in drill, the ridglets are covered with fresh earth in the spring, or reversed when the crop is even; in broadcast the

land is ploughed and then drilled. The autumnal preparation very much forwards the operations of the spring, and in dry early and climates the practice is very beneficial.

Scarify the surface of lucerne grounds before laying on the finely pulverized composts, which are very evenly and carefully spread over the land; bush-harrow the surface when perfectly dry, and roll it heavily. Such treatment will secure a very early spring vegetation.

Collect manures by every means to the liquid pit and to the dung heap. Burn for ashes, and keep them under cover.

Towards the end of the month sow rye for a seed crop, and also for being consumed on the ground by sheep in the spring. Sow winter tares mixed with rye, winter beans, or winter barley, on lands clean in good heart, over a partial fallowing with dung.

Scour road sides; clean out open ditches for the winter floods; enlarge the courses of brooks; use all earthy excavations for composts with lime, and the vegetable matters by burning. Omit no opportunity of collecting manures in any form.

CALENDAR OF GARDENING.

Prepare mushroom beds in the showery weather. Sow lettuces early for winter, and transplant into a roomy frame by pricking out to stand the winter. Some hardy sorts may bear the frosts, but protection is generally required.

Plant cabbages in an open situation, and on rich soils, and in fresh grounds if to be got at. All the cabbage plants of the tribe thrive amazingly in fresh grounds.

Spinach raised from seeds must be thinned out into regular distances of two or three inches; the plants will then become stocky, and may be thinned again, and the plants so removed are used for the table.

Thin out and hoe the spaces between the drills of turnips, and sow salads again, if required.

Exterminate all weeds, and produce the neatness and order which render a garden to be the sober picture during winter, that is more beautiful, perhaps, than the rampant luxuriance of summer.

Plant strawberry beds with young sets well rooted, or raised in pots, and removed with the balls of earth. Place nets before any wall trees, to catch the falling fruit. Destroy wasps, by suspending bottles half filled with treacle water, into which they enter, and are strangled.

Clip box edging; remove green-house plants to their winter quarter; transplant pinks from piping, and also the hardy herbaceous plants. Rough dig or fork all the vacant borders.

Weed and roll gravel walks when in a damp state.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR AUGUST.

Although the weather of the past month has been somewhat changeable, it has on the whole been favourable for harvest work, which was commenced at a somewhat early period. Throughout England, as well as in Ireland and Scotland, immense breadths of land have been cleared of their wheats, and the quantity secured in the former country to this period is fully three-fourths of the entire crop; whilst, in the event of the atmosphere continuing dry, the remainder will no doubt be secured in a very few days. Considering the great scarcity of labour in some counties, the high prices demanded for har-

vest work (in some instances as much as 30s. per acre), and the lodged condition of much of the grain, the cutting and carrying of wheat have progressed rapidly; indeed, we believe that in no former season has more been secured in a given period than in the month just concluded. So far there is not much to complain of, although, of course, the additional expense in cutting is a serious item in the farmers' outgoings; but we have now to consider the extent of the yield, and the actual condition of the present crop. In those districts where heavy storms prevailed in July, the quality of the wheats will no doubt be somewhat under an average; but in some other counties the grain is turning out remarkably well.

Hence the general quality of the crops will be various, and there will be rather a wide margin between the value of the finest and the most inferior samples. The question of quantity has not yet been accurately determined, though it may be estimated. In the course of our experience we have never seen such an extraordinary bulk of straw grown as this season: everywhere the supply is enormously large; and, where thrashing has been carried on to any extent, the growth of wheat has rather exceeded previous estimates, the produce of the thrashing machine having in many instances exceeded six quarters to the acre. Taking the whole crop, we believe that it is no exaggeration to say that quite as much wheat has been grown this year as in 1858; but our impression is that its general quality is not equal to last season. In some instances the samples of new wheat disposed of at Mark Lane have indicated smut; but, with this exception, they have been fairly suited to millers' purposes.

The different markets have been rather scantily supplied with home-grown wheats, owing to much of the farmers' time having been occupied in the fields. The transactions, generally, have been on a very moderate scale, and prices have shown a drooping tendency. In reference to the future course of the trade, we may observe that there is no reason for assuming that any important rise will take place in the quotations, although it would appear evident that they have seen their lowest range. We have now commenced the consumption of the new crop with a very large quantity of last year's wheat in stock, millers have imported freely on their own account, and the value of rice, potatoes, &c., is not likely to rule high during the winter months. The rapid falling off in the arrivals of foreign flour, the unusually small quantities now on hand, and the comparatively high prices abroad, indicate what may be termed steadiness in the demand for wheat; whilst the flourishing state of the commerce of the country is a favourable feature as regards consumption. But, though consumption may be large, and though imports of flour from France and the United States may continue on a limited scale, we see no reason to anticipate either excited markets, or any important rise in prices, for the all-important fact that the pressure of supply would speedily produce calmness in our markets in the event of their becoming excited, which we do not expect.

Much of the barley grown this year is a very light sample, and unfit for malting purposes. In some districts, however, the quality of the crop is very good. A large portion has been secured, and some quantity has been thrashed out. On the whole, as to quantity, the yield may be described as an average one. Oats, except in particular counties, are certainly a good crop; whilst, in numerous instances, the growth of both beans and peas is nearly double that produced in 1858.

The advices from most parts of the Continent in reference to the harvest are, on the whole, somewhat favourable; but we have reason to believe that the yield of wheat per acre exhibits a slight deficiency compared with last season. In the United States the crops are pretty generally represented as large, and of fine quality. The same remark may be applied to Canada. As there is, at present, no margin of profit on shipments to England, some considerable fall must take place in prices ere we receive increased supplies of produce from the States or Canada.

The state of the potato crop has been a source of much uneasiness on the part of growers. For the most part, potatoes have grown slowly—many of the samples are still small—and in numerous instances extensive losses have resulted from disease. On the Continent, too, the root is not likely to turn out well for storing purposes; hence, good and fine qualities have produced here from £5 to £7 per ton, which prices, by the way, are not likely to be supported, owing to the present low value of bread. That an immense quantity of potatoes has been grown this year, does not admit of a doubt; but we incline to the opinion that the winter stock will be considerably less than last season.

The total crop of meadow hay in this country, the second crop having turned out well, has now proved quite equal to 1857, which, it will be recollected, was the largest and best ever known. Clover hay is, likewise, most abundant, so that prices are likely to rule comparatively easy.

The supplies of fat stock on offer in our leading markets have been somewhat extensive. Generally speaking, the trade has been somewhat inactive, but without producing any

important change in the quotations. Lambs, however, have fallen in value fully 4d. per 8lbs, as the "season" is now drawing to a close.

Notwithstanding that nearly 100,000 bales of wool are in course of public sale in the metropolis, the wool trade, owing to the return of peace on the Continent, has continued in a healthy state, and prices have had an upward tendency, the advance being from 1d. to 1½d. per lb. On the Continent stocks appear to be very light, hence rather large buyers have lately made their appearance here.

The fruit crop generally, this season, has turned out almost a failure. Even in the best districts the growth of all kinds of fruit has been the smallest ever known, consequently prices are unusually high.

The transactions in hops have continued on a very limited scale, owing to the splendid appearance of the crop. In Kent, Sussex, &c., the bine is almost wholly free from disease: it is in full burr, and the produce is expected to be fully equal to last season, and possibly of much finer quality. The duty has been freely backed at £255,000 and even £260,000. Two new pockets have been sold in the Borough, one from Kent at £8 8s., the other from Sussex, at £8 per cwt. In 1857, the opening prices were £8 to £12 12s., with an estimated duty of £185,000. Last year the duty was called £250,000 to £260,000, and the quotations were £5 12s. to £8 8s. per cwt.

The green crops have progressed remarkably well, and the fine rains have materially added to the general weight of the turnips and beets. Very few failures of plant have been discovered, so that the supply of cattle food will be very large during the remainder of the season. The pastures for the most part exhibit a most luxuriant appearance, and the quantity of grass in them is much larger than in the ordinary run of years at this period.

The grain trade in Ireland and Scotland has presented no new feature of importance. Fine wheat, barley, oats, and indeed other articles have maintained their value, with a moderate inquiry, but the transactions have not increased to any extent. The shipments to England have continued limited.

REVIEW OF THE CATTLE TRADE DURING THE MONTH OF AUGUST.

Owing to the continuance of unusually warm weather, rather large supplies of fat stock have been on offer in the various cattle markets held during the past month. Notwithstanding the abundance of keep in the pastures, and the general abundance of food, the condition of both beasts and sheep exhibited has been by no means first-rate. Prime stock has, therefore, been in fair request, and prices have continued firm. Otherwise, however, the trade has ruled inactive, and the quotations have had a drooping tendency.

In our leading counties, as well as in Ireland and Scotland, the health of the stock has continued good, and very few losses have been experienced from disease. The graziers have now a fair prospect before them, since they have a very large supply of food for winter consumption, and since the root-crops are likely to turn out very large, when compared with some former years. The enormous quantity of straw, too, produced this season, will secure to them that article at a moderately low price.

Advices from the Continent state that disease amongst stock is much less prevalent, and that large numbers of sheep will be shipped to London during the ensuing month. The importations, since we last wrote, have been as follows:—

Beasts	6,502 head.
Sheep	29,175 "
Lambs	3,308 "
Calves	3,254 "
Pigs	1,805 "

Total..... 44,044 "

COMPARISON OF IMPORTS.

Aug.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
1854	5,507	19,770	1,178	2,495	2,178
1855	5,941	22,608	984	2,484	3,476
1856	5,677	17,801	1,271	2,301	1,901
1857	4,692	23,215	1,760	2,661	2,322
1858	8,398	19,500	2,764	8,512	2,938

The total supplies from all sources exhibited in the great metropolitan market have been as under:—

Beasts	23,170 head.
Cows	522 "
Sheep and lambs	165,090 "
Calves	3,322 "
Pigs	2,330 "

Included in the above are 10,750 shortborns and crosses from Lincolnshire, Leicestershire, and Northamptonshire; 4950 of various breeds from other parts of England; 850 Beets and crosses from Scotland; and 782 oxen and heifers from Ireland, including nearly the whole of the importations from the continent.

COMPARISON OF SUPPLIES.

Aug.	Beasts.	Sheep & Lambs.	Calves.	Pigs.
1854.....	21,384	164,920	4,286	3,870
1855.....	20,816	151,870	3,356	4,272
1856.....	21,271	147,250	3,354	2,875
1857.....	20,695	143,758	3,173	2,450
1858.....	26,915	151,530	2,127	3,510

Beef has sold at from 3s. to 4s. 8d., mutton 3s. 2d. to 5s., lamb 4s. 4d. to 6s., veal 8s. 4d. to 5s., and pork 8s. 6d. to 4s. 6d. per 8lbs. to sink the offal.

COMPARISON OF PRICES.

	Aug., 1856.	Aug., 1857.	Aug., 1858.
	s. d.	s. d.	s. d.
Beef .. from 3	2 to 5	0 to 5	0 to 5
Mutton ..	3 4 to 5	2 10 to 5	4 3 0 to 5 0
Lamb	4 8 to 6	0 4 8 to 6	0 4 8 to 6 0
Veal	3 6 to 5	0 3 6 to 5	0 3 6 to 5 0
Pork	3 4 to 4	8 3 8 to 4	8 3 0 to 4 2

In reference to the foreign stock at hand within the last few weeks, we may observe that the beasts have reached us in moderately good, the sheep in tolerably prime, condition.

In Newgate and Leadenhall, very little meat has been disposed of, and the receipts from the provinces have continued limited. Prices have undergone very little change.

LEICESTERSHIRE.

It is gratifying to report of the harvest at this early date that, with the exception of beans, nearly the whole is now in the stack or barn. This rapid completion in securing the crops, and their becoming ripe so soon, is attributable to the fine and dry weather which prevailed in the months of June and July. In the latter month no rain, excepting a fine shower on the 2nd, fell till the 19th, when some wet days occurred, but only four to the end of the month, making a total of 1.19 inches, being much below an average. In the present month, much rain fell on the 4th, 7th, 8th, and the 15th, 16th, and 17th; these rains checked the progress of harvest work only for a short time; and during the interval between the 8th and 15th, and since the 17th, the weather has been so fine and hot, that but little damage was sustained, and the rain has been of the greatest benefit to the grass and root crops. Where due patience was exercised, the white corn has been secured in excellent condition, though, from fears as to the future, some corn has been put together in too great haste, those who waited longest having the advantage. Upon the whole, this may be pronounced a fine harvest, and no great impediment occurred as to its progress, excepting the lack of hands to get the corn cut, some having ripened prematurely, and waste has taken place by its shedding. This is an evil which has been seriously felt, and will be again in succeeding seasons, unless means are taken to supply this deficiency in hand labour. After all the mechanical skill and science which has been at work for some years past, for the improvement of agricultural implements, surely there are machines in existence which, under proper management, may free the farmer from this inconvenience in future years, and enable him to get his corn rapidly cut, when the great mass becomes ripe nearly at the same time. Are there not mowing and reaping machines already in use which will remedy this evil, if they are used with care and judgment? We have this month seen one at work, the master driving a pair of active horses, and a man raking the cut wheat off the platform, which was laid in quantities so even, and the heads so uniform, that,

when bound, it formed a neat sheaf. The machine requires careful management, and the crops on which it is intended to operate must be selected with judgment; and though in the case referred to it could not, from the manner in which the corn was inclined, work quite round the field, three sides were expediently cut, and laid in a better form for a sheaf, and the work much cleaner done, than could be effected by the best hands with the scythe. We have no doubt, before the next harvest, farmers will provide themselves with machines of the best make to perform this kind of labour, and instead of being compelled to advertise for one hundred reapers to come on a certain day, or giving 80s. an acre for reaping their wheat, they will by machinery be able to cut their corn as it becomes ripe, without being so much dependant upon hand labour to their great loss and vexation.

From the great bulk of straw, and in many instances of premature ripening, the quality of the grain will be various, especially wheat and barley, and the yield may vary nearly as much as the quality. From what we observe, and from information we get, we are of opinion that in this neighbourhood the produce will prove quite an average in measure. As regards weight, the bushel of wheat will not produce the usual amount of flour by 8lbs. or 4lbs. Complaints as to quality are even greater as to barley than other grain, and samples will be inferior both in colour and weight than in most seasons. This will be a matter of importance as regards malt, as it will be difficult to meet with large quantities of sufficient fineness to make the pale malt, on which the quality of the beer (Burton especially) so greatly depends. The oat crop is heavy, and promises a good yield, and will be of better quality than either wheat or barley. As to beans, there is one feature peculiar to the winter variety; but why should their cultivation be persevered in? They are certainly more hazardous than the spring kind; and the preparation of the land, and planting them in the autumn, is a very inconvenient circumstance, interfering greatly with wheat sowing; we think this kind might well be discontinued on most soils. There are many good crops of the spring beans; they are well podded, and the yield will be greatly in excess of last year; in fact, a good average may be calculated upon. To speculate upon the future price of corn is scarcely worth while, for so many circumstances occur to affect its value, that no assumption of prices can be depended upon. White wheat is now selling in our market at 44s. to 48s., old red from 42s. to 45s., new 46s. to 47s.; Barley 32s. to 38s.; Oats 28s. to 34s.; Beans, old 48s. to 51s., new 45s. per qr.

From the dry weather in June (the time for sowing swedes in this neighbourhood), we had fears as to the young plant progressing favourably; but, contrary to expectation, there are few seasons in which they suffered less from their numerous foes; the fly was inactive, and the plant received no check from it. The showers which fell at intervals, succeeded by fine hot weather, forced the young plant forward, and the crops now exhibit a more healthy appearance than they have done in several past years. The mangold again is a fine luxuriant crop, and is more extensively cultivated, we are glad to remark, every succeeding year. These root crops being good, will yield an abundant supply of food for stock during the winter. Potatoes have suffered from the hot weather on dry soils, and the tubs are small. We do not hear great complaints of the prevalent disease of former years; still it has made its appearance, but we hope in a milder form than usual.

We scarcely ever recollect a season when so general a failure of garden and orchard fruit occurred; neither gooseberries, currants, raspberries, apples, pears, or plums approach to anything like the usual yield. The produce of hay has been a good average, and the supply of grass for general stock has been plentiful, but the quality inferior, and it is only on the best land where the beasts have attained the usual degree of fatness, and great numbers come to market in bad condition. Store stock is very dear; and though the grazier gave great prices for his stock, when beef and mutton has been making 7d. per lb., we hope he has seen a profit by it.

From the short supply of labour during the harvest, to which we have alluded, the wages have been high, the general rate for good hands being 14s. or 15s. per week, with

beer; and in the case of cutting the corn fabulous prices have been given; we have heard of 30s. an acre for reaping wheat in several instances.—Aug. 24.

SUFFOLK.

At every market and fair during the past week the main question has been, "What about your barley? What have you carted? Is it much grown?" In nine-tenths of the cases the answer has been a doleful one, either "Much grown," "Entirely spoiled," or "Good for nothing but food for cattle." Even men who have farmed for the past sixty years never remember the like. In the generality of cases it was a matter of no moment whether the crop was cut or not cut, for that uncut was so flattened to the earth by previous rains and thunderstorms that more than half the barley has sprouted, and in many instances we have seen the shoots from the ears of barley perfectly green. The question is, What will be the result? and What is to be done? We believe one-half the barley crop cannot be malted; consequently the barley secured free from sprout and in good condition will command a high price. Wheat will also probably be malted to a certain extent as a substitute; the damaged barleys must be consumed by stock, and the pea and bean crops will be sold to realize a certain amount, where the barley crop is unsaleable. We now hear accounts of men who some fifty years since sold sprouted barley for malt, and were well pleased with their bargain; and it is our opinion similar instances will occur in 1859. We know of men who are carting their sprouted barleys (with much clover intermixed) in a very rear state, that the stacks may heat, and not only become good fodder for cattle, but probably produce an inferior sample of malt. We believe the attempt to have been a wise one. There is an immense quantity of straw to the barley crop, and we believe the grain yield to be slightly above an average. The turnip and mangel wurtzel barleys are again this year much better, both in quality and yield, than the crops grown upon long fallows or summer lands. The wheat crop is chiefly carted in good condition. Where the return has been tested by the thrashing machine, the laid wheats do not produce equal to expectation, and perambulating engineers inform us that 5 or 6 combs per acre is the average produce from the much laid crop. The standing wheat crop has cut up equal to expectation; but we believe the average yield of the county is from 15 to 20 per cent. below par. Peas and beans cut up an average crop, and much of the pea straw harvested previous to the rain will prove very valuable for feeding purposes. We never saw the mangold wurtzel crop finer or better: the weight per acre is above the generality of years. Turnips and swedes are growing very fast; they have been injured by the caterpillar, but they promise to produce much food for stock. Not only has the harvest work been very backward, but from the rapidity with which harvest came upon us much important work was left undone. The root crop is consequently unusually foul; and from the scarcity of men no hands can be spared to clean the crop till the harvest work is finished. With a good promise of an abundance of winter food, with a fair average supply of summer food at the same time, with the present price of wool, and with the present relative prices of meat and wheat, it can be a matter of no great surprise that all sheep stock realize high prices. Ipswich fair was decidedly a dear fair; nor was the show of lambs equal to expectation. Mr. Hudson, of Castle Acre, and other Norfolk gentlemen who came to purchase the first class lambs, were obliged to leave without an outlay, as there were no lambs penned which attained to their standard of merit. Unwilling as we may be to admit it, Suffolk is not sufficiently a sheep county: it is not the sheep county it ought to be, and Wiltshire and a score of other counties are far in advance of it. Even at the Suffolk Agricultural Show the county produced but one pen of lambs to compete for the Society's prizes, which clearly indicates the little pride taken in the flock produce. Had it been that the same prizes were offered for the best Suffolk colt or filly, there would probably have been twenty entries. It is to a certain extent satisfactory to observe that sheep are decidedly on the increase; but it is necessary, by judicious crosses, to improve the breed as well as to increase the number. With free trade we must depend more on mutton,

wool, and barley, and less upon wheat. Autumn cultivation is progressing in many districts; and for such tillage the weather of the past few days has been very satisfactory. It is the best and cheapest system extant for cleaning land, and only needs to be generally adopted.—Aug. 25.

SOMERSETSHIRE.

These few days past have been hot and sultry, after about two weeks of fine harvest weather, during which time the great bulk of our best wheats were secured, but, from want of hands, not so soon as they ought to be. We had some rain on the 5th and 6th, but it was partial. Wheat could not be safely put together. But on the 9th was the greatest fall of rain, particularly in the north and west part of the county, which caused considerable damage both to the standing and that which was on mow unthatched. Many have had to be spread abroad, and found much damaged. Since then, except a heavy storm on the 15th, we have had as fine drying harvest weather as could be wished; and now harvesting is all but finished, as follows: The bulk of the white wheat very fairly got in, heavy weight; a portion followed, too hastily got together, or damaged by taking wet in mow; and a large portion of the red, got in in excellent condition, was over-ripe and branny. Some of the winter peas got in wet, others too quickly. Spring beans secured in excellent condition. Some of the early barley sprouted and stained; the later ones finely secured. Oats much the same as to condition. On thrashing wheat, it proves to have much thin and bighted corn in the yield; and the best wheat will be two to three sacks per acre less than last year. Barley crops large. Oats the same. Beans irregular, rather over an average. Vetches large yield; not many grown. The rains helped the pastures, and brought up the turnip well; helped the swedes and mangels. The last promise well, but the swedes not equally so. Potatoes are small, and a great many more than were expected gone from disease; a poor, unprofitable crop per acre. The latter part of the month, farmers have brought their old wheat very freely to market, and a great deal has changed hands. Some few very choice white last week, in a few instances, realized 6s., but 5s. 6d. to 5s. 9d. this week. They are mostly long-threshed lots. Reds 5s. to 5s. 3d., extra (64 to 65lbs.) 5s. 6d., new 4s. 9d. to 5s. 3d., red 5s. 6d.; while in some districts a good deal of the new has been disposed of. Beans began at 5s. 3d.; but they have not supported that price—5s. to 5s. 1d. They are very dry, particularly the spring ones. Barley, no sales. Oats 22s., 24s., to 25s.; the latter winter ones, 44lbs. per bushel. Flour, 31s. to 32s. 6d. During the harvest, labour has been very scarce. We scarcely ever knew so much complaint, or so much corn overstocked, particularly the wheat; still we have done more in one month than for years. Nearly over in all our districts, beans and all, in five to six weeks; eight weeks, with average weather, being about the usual time for the process. Beef has been in great demand, although so difficult to keep when killed; and the price, 10s. to 11s., has paid the graziers better than last year. Lamb and Mutton have sold at fair prices. The late rains have quickened the sale, and prices of poor sheep as well as poor cattle rather advanced. Wool gone back 1d. to 2d. per lb. from the highest; not much doing. Cheese sells very well, at improving prices; even the new £3 to £3 10s., old £3 10s. to £4. Extra short make this year, from the spread of the distemper amongst the cows, lessening the produce of milk. Little doing in fat pigs; too hot and sultry.

MARHAM SHEEP SHOW.—The annual letting of long-woolled rams, bred by Mr. Thos. Brown, of the Hall Farm, Marham, was attended by a very numerous gathering of that gentleman's friends and customers. The business was preceded by a sumptuous luncheon, to which nearly 130 sat down, in a spacious booth near the house, shortly after one o'clock. The company proceeded to the field, when Mr. Beck proceeded to offer the sheep, which certainly deserved all the encomiums bestowed upon them. Fifty-two shearlings were let at prices averaging £7 9s. 6d., the highest being £15 and the lowest £5 5s.; and nineteen two-shear sheep at an average of £4 17s.; besides about a hundred lambs, which were privately let.

REVIEW OF THE CORN TRADE DURING THE PAST MONTH.

The past month commenced with doubtful weather, and till near the close there were occasional heavy falls of rain, threatening to the harvest, but eventually there was a return of brilliant summer weather. Nothing could be more opportune to the late gatherings, as the unusual scarcity of labour placed a great bulk of corn in extreme jeopardy. A favouring Providence, therefore, has well nigh carried the nation through the cereal crisis, and a large quantity has been well got in, though many parcels have been hurried, and sent quite damp to market. Great variety obtains in the samples, as was expected, some being quite equal to previous years; but the bulk was immaturity ripened by the excessive heat of July, and shows a deficiency of weight—so much so, that, notwithstanding the abundance of straw, we fear the yield will turn out below an average. Against this there is the consideration that an unusual stock of old wheat is yet on farmers' hands, while the granaries are well stored with foreign qualities. Generally we do not hear of great crops this season. There have been partial failures in the interior of Russia, in Southern Italy, Northern Africa, and France; the latter country, whence our chief supplies have lately been drawn, being considered by some very seriously deficient, say one-fourth less than the previous year. This may be made up by the improved yield in the United States and Canada; but it is doubtful whether much will be to spare thence, especially without more inducement to ship than is afforded by present prices. Denmark, Sweden, and Northern Germany appear well off as respects the wheat crop; but the yield of rye is universally complained of, and the weight very light. Maize, both in Europe and America, also appears to have suffered. Potatoes in our own country are many of them very much diseased. In Ireland they are small, and though for a time they were considered healthy, they are now beginning to change, and in some localities seriously. Some barley has been sprouted much, is very thin, and good malting sorts promise a fair remuneration through the season. Winter beans had many failures, but spring sorts turn out better, as well as all kinds of peas; and the oat crop, from the successive rains, promises a good result. As respects future prices, there seems nothing in prospect, to produce much enhancement; but if the late potatoes should suffer as much as the early ones, this may eventually affect the wheat market, as well as raise the price of Indian corn. Taking it for granted that the wheat produce is much less than last year, our present rates are comparatively under the lowest point of last season, and as there is no foreign port whence shipments can be made to pay, the presumption is more in favour of an advance than otherwise. Politics do not seem to settle according to the peace of Villa-Franca, and should any of the

great Powers again intervene in Italy, a new scale of prices may be the consequence. During the month 3s. to 4s. decline in new has occurred, the reduced price of new wheat being chiefly in consequence of its inferiority. Good old English and foreign qualities have declined only about 1s. to 2s. per qr. The following quotations from foreign ports show what little benefit can result to importers. Surely a business so unprofitable must lessen its proportions. At Paris, wheat of the best quality has been selling at 42s.; the quotations at Nantes were 38s. 9d. to 41s. per 480 lbs. The price of fine Polish wheat at Amsterdam was 56s. per qr. At Dantzic it was scarce, at 50s. to 52s. per qr.; fine red Antwerp was worth 47s. per qr. Berlin and Königsberg still quote 49s. as a top price, Hambro' to 44s. 6d., Stettin 43s. 6d. Petersburg soft wheat was worth 43s. 6d., hard to 48s. The decree at Naples for the free admission of corn, had sent up the rates at Odessa, where quotations had ruled from 32s. to 40s. At Algiers, the Arabs complain of 43s. for their soft wheat, and are only disposed to sell through want of money. The quality of the new wheat at New York does not answer to the first reports of the harvest: white Kentucky was worth 46s. 6d., red Southern 44s. In Spain they have a better crop this year, though still injured by the excessive heat. Some talk of a surplus for England; but with old stocks exhausted this seems improbable, and rates there must decline seriously to make it practicable, as flour at the nearest port (Santander) is now worth 39s. per sack of 280 lbs.

The first Monday in London commenced on a moderate supply of English wheat; but there was plenty from foreign parts. Kent and Essex in the course of the morning made but a small show of samples, some new being among them. The smallness of the supply emboldened factors to ask more money; but millers were indisposed to purchase except on former terms, and even then the sales were not free. Some fine new Talavera wheat brought 53s. per qr. The foreign trade was only retail, at the previous rates. In the country very little was doing, as harvest had commenced, and everywhere lessened the supplies. Notwithstanding the small quantity showing, the general tone was less firm; Birmingham, Spalding, Alford, and Newbury being 1s. per qr. cheaper; but Hull, Bristol, St. Ives, and Newcastle fully maintained the previous rates. Liverpool on Tuesday was dull, and on Friday noted a decline of 1d. per cental, equal from 5d. to 6d. per qr.

The second Monday had less foreign wheat; but of English there was a fair supply. The near counties then sent up more liberally, and the proportion of new was about half, chiefly white. The new exceeded expectation, and the finest samples sold freely at fully the previous rates;

but old, even of fine quality, was comparatively neglected, only selling slowly at former quotations. In foreign the trade was heavy, without change in price. In the country the tendency was more decidedly upward, Wolverhampton, Bristol, and Spalding being 1s. to 2s. per qr. dearer; Hull, Leeds, Birmingham, and Gainsborough were only firm; but Gloucester, Sleaford, and Newark were up 1s. per qr., while the markets in general fully maintained former prices. Liverpool on Tuesday was scarcely so dear, and though there was a return of wet weather on Friday, prices were not improved.

The third Monday had rather less foreign than the second, with only an average quantity of English. The show from Kent and Essex was but moderate, and the new this time was unequal to that exhibited the previous week. But as heavy rains had fallen factors commenced by asking several shillings more money. This advance millers were unwilling to pay, but eventually sales were made freely for all good sorts, at fully the previous quotations. Foreign also found better sale at fully the former prices; but factors could not quote any advance. The occupation with harvest work made all country markets thin and poorly supplied. They were consequently firm, with little doing. Hull, Birmingham, Gloucester, and Bristol maintained former rates; Newark and St Ives were 1s. per qr. higher, and Alford made 1s. to 2s. per qr. more money. Liverpool on Tuesday rather gave way to buyers, the attendance being thin; but on Friday the inferior condition of the new wheat created a better demand for good French red, at fully former prices.

On the fourth Monday the foreign supply was diminished; but of English the arrivals were improved. In the course of the morning there was but a small show from Essex, though Kent was not deficient. The new then brought to market being below the quality of what had been seen previously, was very difficult to dispose of, and 1s. per qr. less was taken for the medium qualities, some being so much out of condition as scarcely to be saleable. Fine new and old hardly maintained their value, but the secondary qualities of foreign, being required for mixing, sold on fully the previous terms.

The country markets this week all came very dull. Hull and Newark were 1s. to 2s. per qr. cheaper; Birmingham, Lynn, Boston, and several other places being 1s. per qr. lower; Liverpool was in favour of buyers both on Tuesday and Friday, with a small decline; on the fifth Monday, with moderate supplies from Kent and Essex, the weather being fine, new wheat, still inferior, was fully 3s. per qr. down, old being also 1s. to 2s. cheaper; and the foreign trade was quite in suspense.

The arrivals in the port of London in the month of August were 23,877 qrs. English wheat, and 68,894 qrs. foreign, against 28,678 qrs. English, 77,868 qrs. foreign in August last year. Of flour the receipts in the same time were 56,106 sacks English, 2,168 sacks 70 brls. foreign, against 68,221 sacks English, 195 sacks 12,011 brls. foreign in August 1858, showing a great falling off both in English and foreign arrivals. The imports into the kingdom for July last were 376,944 qrs.

wheat, 304,888 cwt. flour. The flour trade, since the reduction of 3s. per sack on the part of the town-millers on the first Monday, has very little varied through the month. Town prices commenced at 43s. per sack for the best, and Norfolks at 30s. On the third Monday the latter advanced 1s. per sack, and on the fourth Monday lost the improvement. The unsatisfactory result of French importations has led to a material falling off in that description, and some of the importations that were placed to speculators, beyond the consumptive demand, are now in warehouse much deteriorated in quality by the excessive heat of the season. On the fifth Monday Norfolks further declined 1s. per sack.

The barley trade, as usual at this time of the year, has been unimportant, and prices have very little altered. The London market has appeared very unattractive to growers of malting qualities, very little new as yet appearing, though some brought 38s. per qr.; and some Scotch, weighing 57 lbs. per bush. 41s. per qr. Reports are conflicting as to this year's produce, some is no doubt sprouted, and the bulk has been immaturity ripened by the excessive heat of July, making the samples excessively thin, and more like that imported from the Black Sea than an average growth of English. Still there are many places that have escaped the storms, and been favoured in quality; and samples of first-rate malting will no doubt maintain a high range through the whole season, while such as proves inferior will find a smart competition with foreign, and will probably be low-priced. Very little English through the entire month has appeared in the London market, and foreign supplies have so materially fallen off, that on the fourth Monday some improvement of value was noted in all sorts. The imports into London for the month were 480 qrs. English, 11,706 qrs. foreign, against 1,357 qrs. English, 37,194 qrs. foreign for August, 1858.

The malt trade through the month has been dull and dragging, but we can note no change of value.

The oat trade, with heavy supplies from Russia, has rather declined as respects the value of imports from that country. The first, third, fourth, and fifth Mondays were each of them 6d. per qr. cheaper for Archangel, Riga, and Petersburg oats; making the decline in Russian qualities fully 2s. per qr. in the course of the month. From other countries the arrivals have been moderate, and prices consequently have little varied, but their value has, of course been relatively lessened. The supplies from the United Kingdom have been quite moderate, and show that consumers have greatly depended on foreign imports. As oats at Riga, Petersburg, and other Russian ports are now relatively dearer than in London, it is to be expected that supplies will soon decrease, and the chance is more in favour of a rise on present low quotations than otherwise, though the crop this year in England is well reported. The imports in the month of August into London were, 279,917 qrs. foreign, 8,000 qrs. Irish, 5,295 qrs. Scotch, and 2,009 qrs. of home growth: against 299,576 qrs. foreign, 2,893 qrs. Irish, 3,570 qrs. Scotch, 4,120 qrs.

English in August last year. So that, notwithstanding this month's good supplies, they were greater then; but the imports were larger, being 5,313 qrs., against 3,746 qrs. last month.

Beans and peas during the month have both come to hand in moderate quantities. Of the former many complaints were made as to the winter produce: the spring crop, supported by frequent rains in the time of bloom, may prove better; but the short arrivals from Egypt and France have left the market so bare, that on the fourth Monday they advanced 1s. to 2s. per qr.; and we expect, as Egypt is not well reported as to its crop, prices will be comparatively high through the season, unless there should be unexpected arrivals of Indian corn.

White peas have remained heavy all through the month, and unaltered in value. Grey appearing in some quantity have much declined in value, say 4s. per qr.; but as maples have not been forthcoming, they have kept inordinately dear. As to boilers, we think they have seen their lowest, as well as grey or dun, but maples cannot be expected to remain at such an artificial price, say about 45s., unless farmers should have neglected their growth. The imports into London in beans were for the month of August, 1,794 qrs. English, 1,447 qrs. foreign, against 2,918 qrs. English, 7,927 qrs. foreign, in August 1858. Of peas the month's imports were, 2,169 qrs. English, 2,286 qrs. foreign, against 1,655 qrs. English, 5,330 qrs. foreign last season.

Linseed, with moderate imports and a steady export trade, has rather gained in value than otherwise, and seems likely to remain dear. Rapeseed has maintained its value. New mustardseed, after bringing great prices for the first samples, has seriously declined, selling finally at 15s. per bush. for fine. Winter tares have also become more moderate. Canaryseed was showing an upward tendency, but since new has appeared in quantity it has become calm. New trefoil being inferior and the crop deficient, it has risen. *Trifolium incarnatum* being in demand beyond the French imports has greatly improved in value. Hempseed, carraway, coriander, and other seeds have been steady through the month. Of red cloverseed it is yet too early to form a correct opinion: the crop in some parts of France is said to have suffered; new white is offered from Germany at high prices.

CURRENCY PER IMPERIAL MEASURE.

		Shillings per Quarter.		
WHEAT, Essex and Kent, white	new 27 to 45		old 28 to 47	
	red new 36	41	 old 36 42	
Norfolk, Linc. and Yorks., red			27 45	
BARLEY, malted, new	— to 27		Chevalier, new 36 38	
Grinding	26 27		Distilling	28 30
MALT, Essex, Norfolk, and Suffolk		49 to 57	fine 58 65	
Kingston, Ware, and town made		49 57	..	58 65
Brown		48 49	..	—
RYE		new	—	30 31
OATS, English, feed	31 26		Potato	26 29
Scotch, feed	32 37		Potato	26 30
Irish, feed, white		31 34	fine 37	
Ditto, black		31 23	..	35 36
BEANS, Masagan	39 43		Ticks	39 42
Harrow	40 45		Pigeon	45 49
PEAS, new, white, boilers	40 45	Maple 42 44	..	Gray 34 36
FLOUR, per sack of 260 lbs., Town, Households	36s. fine 40 45			
Country, nominal	78 30		Households	31 35
Norfolk and Suffolk, ex-ship				38 39

FOREIGN GRAIN.

		Shillings per Quarter.	
WHEAT, Danzig, mixed 50	—	high do. —	53 extra .. 54
Königsberg	48 50	—	—
Rostock	50	fine 53	old 54 —
American, white, 42 48	red .. 42	46	—
Pomer., Meckb. & Uckermark, red 47	49	—	—
Silesian, red	41 46	white	46 50
Danish and Holstein	—	—	46 47
Russian, hard 44 45	French .. 40	46 white 44	47
St. Petersburg and Riga	—	—	42 46
Rhine and Belgium	—	—	44 49
BARLEY, grinding	26 28	Distilling	28 30
OATS, Dutch, brew, and Poland 23	27	Feed	26 28
Danish and Swedish, feed ..	20 25	Stralsund ..	31 34
Russian	—	—	32s. 6d.
BEANS, Friesland and Holstein	—	—	39 43
Königsberg	37 40	Egyptian ..	35 37
PEAS, feeding	35 36	fine boilers ..	35 38
INDIAN CORN, white	30 31	yellow	29 31
FLOUR, per sack	French 27	32 Spanish, none —	—
American, per barrel, sour 23	26	sweet ..	—

IMPERIAL AVERAGES.

FOR THE LAST SIX WEEKS:	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
July 16, 1859	s. d. 46 6	s. d. 29 11	s. d. 25 3	s. d. 40 6	s. d. 45 10	s. d. 39 8
July 23, 1859	44 11	30 7	25 11	38 10	46 10	39 10
July 30, 1859	43 0	30 1	25 3	35 1	44 2	37 0
Aug. 6, 1859	43 7	29 0	25 1	32 8	46 5	37 6
Aug. 13, 1859	43 11	30 1	25 2	33 2	46 7	36 9
Aug. 20, 1859	44 1	31 1	25 5	30 8	44 6	37 8
Aggregate average 44 4	30 1	25 4	35 2	43 8	38 1	—
Same time last year 45 5	31 1	27 9	33 4	45 4	44 2	—

COMPARATIVE AVERAGES—1858-59.

From last Friday's Gaz.	s. d.	From Gazette of 1858.	s. d.
Wheat	79.149 qrs. 44 1	Wheat	73.848 qrs. 48 1
Barley	1,386 31 1	Barley	1,206 .. 33 7
Oats	4,872 25 5	Oats	5,249 .. 37 9
Rye	374 29 8	Rye	819 .. 35 10
Beans	999 44 6	Beans	1,209 .. 46 10
Peas	514 37 8	Peas	427 .. 44 8

FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT.

PRICE.	July 16.	July 23.	July 30.	Aug. 6.	Aug. 13.	Aug. 20.
49s. 6d.	..	..	..	..	..	..
49s. 11d.	..	..	..	..	..	..
49s. 14d.	..	..	..	..	..	..
49s. 11d.	..	..	..	..	..	..
49s. 7d.	..	..	..	..	..	..
49s. 0d.	..	..	..	..	..	..

PRICES OF SEEDS.

BRITISH SEEDS.

MUSTARDSEED, per bush, new 12s. to 16s., brown 12s. to 16s.	—
CORIANDEER, per cwt.	14s. to 16s.
CANARY, per qr.	68s. to 70s.
TRIFOIL, new	24s. to 26s.
TARES, Winter, new, per bush	5s. to 6s.
LINSEED, per qr., sowing —s. to 64s., crushing 54s. to 58s.	—
LINSEED CAKE, per ton	£9 10s. to £10 10s.
RAPSEED, per qr.	54s. to 58s.
RAPSEED CAKE, per ton	£8 10s. to £9 0s.

FOREIGN SEEDS, &c.

CLOVERSEED, red —s. to —s.	white —s. to —s.
TRIFOIL,	—s. to —s.
HEMPSEED, small, 38s. per qr.	Dutch —s. to 38s.
CORIANDEER, per cwt.	16s. to 18s.
CANARY	68s. to —s.
LINSEED, per qr., Baltic 58s. to 56s.	Bombay 58s. to 50s.
LINSEED CAKE, per ton	£9 10s. to £11 0s.
RAPSEED, Dutch	64s. to 58s.
RAPSEED CAKE, per ton	£8 0s. to £9 0s.

HOP MARKET.

LONDON, MONDAY, Aug. 29.—Nothing can be more favourable than the continued progress of the plantations, and the duty has in consequence advanced to £270,000, with every prospect of the amount being fully realised. Picking in some few instances has commenced, and about 50 pockets of the new growth have arrived at market. The few sold realised from 168s. to 200s., and the remainder are on offer at from 100s. to 112s. per cwt.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS, MONDAY, Aug. 29.—The supplies of Potatoes on offer now are moderately good, but in very middling condition. Prime samples are in fair request, at full prices, but all other kinds move off slowly, at barely late rates. Shaws 55s. to 85s., and Regents, 70s. to 120s. per ton.

COUNTRY POTATO MARKETS.—York, Aug. 20: Potatoes are 6d. to 8d. per peck, and 1s. 10d. to 2s. per bush. MALTON, Aug. 20: Potatoes 1s. 4d. to 1s. 8d. per peck. LEEDS, Aug. 23: A large supply of potatoes, which sold at 6d. to 7d. wholesale, and 8d. to 9d. retail, per 21lb. KNARESBOROUGH, Aug. 24: Potatoes 10d. to 12d. per 21lb. SELBY, Aug. 22: Potatoes 7½d. to 8d. per 21lb. RICHMOND, Aug. 20: Potatoes 2s. 6d. to 2s. 8d. per bush. SHEFFIELD, Aug. 23: Potatoes sell at from 6s. to 8s. per load of 18 stones, with a plentiful supply. MANCHESTER, Aug. 23: Potatoes 5s. to 9s. per 352lb.

PRICES OF BUTTER, CHEESE, HAMS, &c.

BUTTER, per cwt.:	s. s.	CHEESE, per cwt.:	s. s.
Windsorland.....108 12		Cheshire.....60 60	
Kial.....112 11		Cheddar.....60 82	
Dorset.....112 11		Double Gloucester.....54 58	
Carlisle.....88 104		HAMS:	
Waterford.....88 104		York.....78 88	
Cork.....92 104		Westmoreland.....78 88	
Limerick.....90 100		Irish.....70 80	
Sligo.....94 104		BACON: Wiltshire, dried 68 72	
Fansh, per dozen 11s. 0d. to 14s. 0d.		Irish, green.....68 68	

BELFAST, (Thursday last.)—Butter: Shipping price 98s. to 107s. 4d per cwt, firkins and crocks 10d. to 11d. per lb.; Bacon 54s. to 58s., prime Hams, 80s. to 84s., second quality 60s. to 66s. per cwt.; prime mess Pork 92s. 6d. per bri.; Beef 120s. to 130s. per tierce refined; Irish Lard, in bladders 66s. to 70s., kegs or firkins 60s. to 64s. per cwt.

CORK BUTTER EXCHANGE, (Saturday last.)—The supplies for the week limited, owing to harvest operations. The receipts were 10,556 firkins, against 10,116 in corresponding week last year. Demand dull, in consequence of the soft condition of the Butter arriving in market. Prices have a declining tendency, firks having fallen 1s. and low qualities 3s. since last Monday, when prices were 108s., 104s., 93s., 84s., 66s., 52s. This day's prices are 107s., 103s., 92s., 81s., 66s., and 52s. From the cause above assigned, it is likely that the supplies will be low for the next fortnight.

WOOL MARKETS.

ENGLISH WOOL MARKET.

LONDON, MONDAY, Aug. 29.—Since our last report only a limited business has been transacted in all kinds of home-grown wool, and in some instances prices have ruled the turn in favour of the buyers. The extent of the colonial sales, and the large quantities purchased thereat by continental dealers, have, for the time at least, checked operations in English wool.

Per pack of 340lbs.		
Fleeces—Southdown Hogs.....	£18 0	to £19 0
Do. Half-bred Hogs.....	18 0	18 0
Do. Kent.....	17 10	18 0
Do. Southdown Ewes and Wethers.....	16 10	17 0
Do. Leicester do.....	15 10	16 10
Sorts—Clothing, picklock.....	18 10	19 0
Do. Prime and picklock.....	17 10	18 0
Do. Choice.....	16 0	17 0
Do. Super.....	14 0	15 0
Do. Combing—Wether matching.....	20 0	21 0
Do. Picklock.....	17 0	18 0
Do. Common.....	14 10	15 10
Do. Hog matching.....	23 0	24 0
Do. Picklock matching.....	17 10	18 10
Do. Super do.....	14 10	15 10

LEEDS (ENGLISH AND FOREIGN) WOOL MARKET, Aug. 26.—There is quite a little doing in English combing wools as there has been for several weeks past, and so long as manufacturers are well supplied there will not be much improvement. Prices are not materially lower. There is a good demand for most kinds of short wool. For foreign clothing wool there is a good demand, though prices are scarcely equal to those paid in London. There is no change to report in low wool.

LIVERPOOL WOOL MARKET, Aug. 27.

SCOTCH.—The demand for Laid Highland is still limited, and consumers only take to supply immediate wants at about the quotations. White Highland is more enquired for. In Cheviots and Cross there is little doing. Prices are very high.

	s. d.	s. d.
Laid Highland Woolper 24lbs.....	11 6	13 0
White Highland do.....	14 6	16 6
Laid Crossed do., unwashed.....	15 0	16 9
Do. do., washed.....	16 0	18 6
Laid Cheviot do., unwashed.....	17 6	20 0
Do. do., washed.....	20 0	26 0
White Cheviot do., washed.....	33 0	40 0

FOREIGN.—There is a fair demand for all kinds of good useful wool, at prices rather in favour of the sellers, and if the choice was better there would be more doing.

FOREIGN AND COLONIAL WOOL MARKET.

	Per lb.	s. d.	s. d.
German, { 1st and 2nd Elect.....	3 4	to 4 6	
Saxon, { Prima.....	2 4	3 0	
and { Secunda.....	3 0	3 4	
Prussian. { Tertia.....	1 8	1 10	
COLONIAL:—SYDNEY—Lambs.....	1 11	2 4	
Scoured do.....	1 4	2 11	
Unwashed.....	0 11	1 4	
Locks and Pieces.....	0 8	1 11	
Slips and Skin.....	0 7	1 11	
PORT PHILIP—Lambs.....	1 9	2 7	
Scoured do.....	1 5	2 11	
Unwashed.....	0 9	1 6	
Locks and Pieces.....	1 1	1 11	
S. AUSTRALIAN—Lambs.....	2 4	3 0	
Scoured do.....	1 5	2 9	
Unwashed.....	0 10	1 3	
Locks and Pieces.....	0 11	1 9	
V. [D. LAND—Lambs.....	1 2	1 10	
Scoured do.....	1 8	2 7	
Unwashed.....	1 3	2 0	
Locks and Pieces.....	1 3	2 0	
CAPE OF GOOD HOPE—Fleeces.....	1 2	2 2	
Lambs.....	1 5	1 10	
Scoured.....	1 2	1 11	
Unwashed.....	0 4	1 4	

MANURES.

PRICES CURRENT OF GUANO, &c.		
PERUVIAN GUANO, (per ton, for 30 tons).....	£12 0 0	to £14 0 0
Do. Do. (under 30 tons).....	12 12 0	13 5 0
KOORIA MOORIA GUANO, (48 per cent. Phosphate and 4 per cent. Ammonia).....	6 0 0	6 10 0

ARTIFICIAL MANURES, &c.

	(per ton)	s. d.	s. d.
Nitrate Soda.....	216 0 0	to 217 0 0	
Nitrate Potash or Saltpetre.....	32 0 0	33 0 0	
Sulphate Ammonia.....	14 0 0	15 0 0	
Muriate ditto.....	20 0 0	26 0 0	
Superphosph. of Lime.....	5 10 0	6 0 0	
Soda Ash, or Alkali.....	11 0 0	12 0 0	
Gypsum.....	1 10 0	2 0 0	
Coprolite.....	2 10 0	3 0 0	
Sulph. of Copper or Roman Vitriol, for Wheat steep, 1st qual. Ditto, 2nd quality.....	24 0 0	28 0 0	
Bait.....	1 0 0	1 5 0	
Bones, Dried, per cwt. Do. 1st qual. Oil Vitriol, concentrated, per lb.....	0 17 6	0 19 0	
Do. Brown.....	0 0 0	0 0 0	

OIL-CAKES.

Linseed-cakes, per ton—		
This American, 1st 15 0 to 16 0		
Ditto bags 5 5 0 to 5 10 0		
Thick do. round (none) 0 0		
Marseilles.....	49 10 0	to 51 0 0
English.....	10 10 0	to 12 0 0
Rape-cakes, 1st 5 10 0		5 15 0
Cottonseed cakes 5 10 0		5 0 0

JOHN KEEN, 35, Leadenhall-street, (Late Odams, Pickford, and Keen.)

Agricultural Chemical Works, Stowmarket, Suffolk.		
Prestie's Cereal Manure for Corn Crops.....	per ton	£5 10 0
Mangold Manure.....	per ton	£5 0 0
Prestie's Turnip Manure.....	per ton	£5 10 0
Prestie's Superphosphate of Lime.....	per ton	£5 0 0

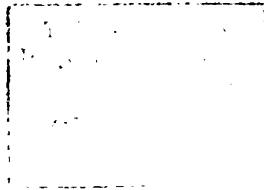
Manufactured by Hodgson & Simpson, Wakefield, and Matthews & Co., Driffield.

Nitro-Phosphate.....	per ton	£7 10 0
Ammonia-Phosphate.....	per ton	£3 10 0

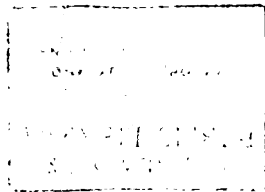
Nitriol, Bone, and Manure Works, Howden Dyke, Howden.		
Ammonia Phosphate.....	per ton	£3 10 0
Anderson's Turnip Manure.....	per ton	£5 0 0
Super-Phosphate of Lime.....	per ton	£5 0 0

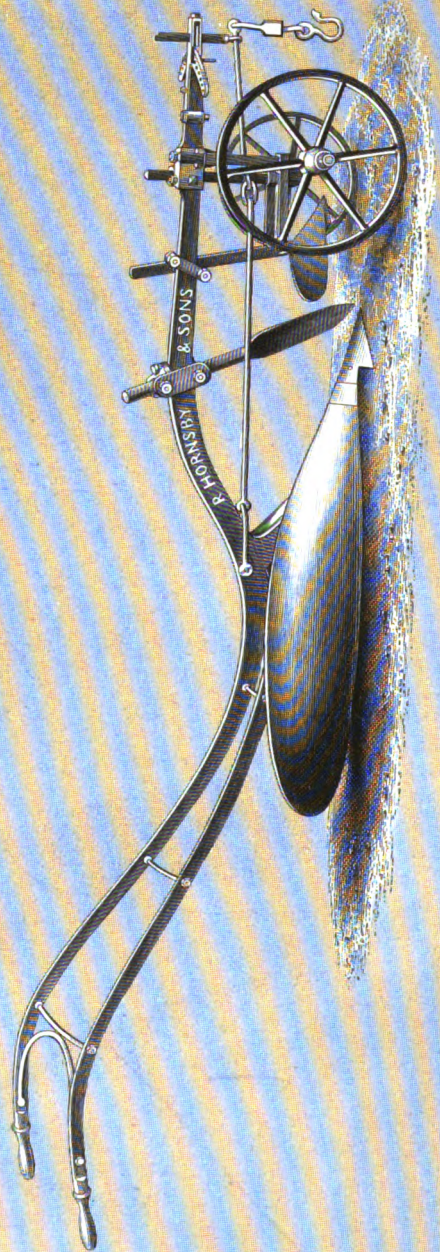
LIVERPOOL GUANO AND SEED, &c. MARKET.

Guano, Peruvian, £12 0 to £13 0		
Do. Upper do. 6 10 0	7 0 0	
Ichaboe, per ton.....	5 0 0	6 10 0
Patagonian.....	4 3 0	5 10 0
Saldanha Bay.....	5 0 0	6 10 0
Kooria Moorla.....	3 15 0	6 0 0
Pedro Keys.....	3 10 0	5 0 0
Bone Ash, 75p. ct. 4 0 0	5 15 0	
Linseed Cake.....	£9 0 0	to £9 2 6
American, p.t.n. £9 0 0	to £9 2 6	
English.....	8 10 0	to 9 15 0
Cottonseed Cake.....	7 10 0	to 8 0 0
Nitro of Soda, p.c. 14 6	to 15 0	
Lined. Bomby, p.q. 3 0	to 3 6	
Cloverseed, American, red, new, per cwt., nominal.....	0 0	0 0









Designed by E. Allen

Handwritten text, likely a signature or note, written vertically along the right edge of the illustration.

100-111-1111

100-111-1111



At the horn held back by the horns of the bull, which took a pair of 2 1/2 years to grow and for the first time was used at the first time of the bull, which was produced by the bull of the first time.





THE FARMER'S MAGAZINE.

OCTOBER, 1859.

PLATE I.

HORNSBY'S PRIZE PLOUGH,

AS FIRST EXHIBITED AT THE WARWICK MEETING OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND,
JULY, 1859.

This already famous plough was one of the great features of the Warwick Meeting. In fact, its remarkable and altogether unexpected success created quite a sensation, both amongst "the trade" and the general public. As we said at the time, its work was extraordinary for its excellence, while it has equally strong recommendations in the way of make and price. In the many hot discussions over the awards of that busy week, it was the almost unanimous opinion that the Grantham plough had fairly earned the distinction it commanded, and some of our best farmers determined at once on giving it a trial.

In the Light Land class Hornsby's plough took the first prize, beating Ransomes and Sims of Ipswich (2), Howard of Bedford (3), Hensman of Leighton Buzzard (4), the Busby Implement Company, Ball of Rothwell, and Page of Bedford, all highly commended; and Goulding of Leicester commended.

In the Heavy Land class Hornsby's plough took the first prize, Ransome and Howard being declared equal for second, and Ball and the Busby Company for third.

For the General Purpose plough Hornsby stood second to the Howards of Bedford, who here retained their long-accustomed place, Ransome being third, the Busby Company fourth, Hensman fifth, and Ball highly commended.

The Grantham plough has not since been exhibited in competition, the Messrs. Hornsby considering themselves bound by an understanding amongst the leading implement makers not to go to trial this year at any meeting but that of the Royal Agricultural Society of England.

This plough is manufactured wholly of wrought
OLD SERIES.]

iron, with the exception of the slide, name plate, and wheels. The share and turnfurrow, or breast, are attached to the slide or sole plate instead of to the frame as is usual; thus the beam, handles, and frame are solid pieces of wrought ironwork, obtaining the greatest possible lightness, with great strength and durability, doing away with the heavy cast-iron frame in ordinary use, and at the same time giving to the plough a light, simple, and pleasing appearance.

On the principle patented by Messrs. Hornsby, the vertical plate of the slide or slide is much longer than the horizontal or sole, the advantages of which are, that by increasing the length of the vertical plate, the plough is rendered less liable to deviate from a straight line when at work, and, by decreasing the length of the horizontal or sole plate, it is more easily made to follow the undulations of the land, so that the ploughing may be everywhere of the same depth. It is also much more easily held, and works with greater steadiness and less draught than those of ordinary construction.

The shares are attached to lever necks of wrought iron, from the peculiar and patented principle of which they cut through the soil more uniformly, and with less power, than those in ordinary use. The lever necks are so constructed that no dirt can possibly work into the joint to interfere with its free action, which is capable of universal movement, and, being spherical, it is the firmest and most easily-adjusted arrangement that can be introduced for giving it more or less pitch, as also for directing the point of the share more or less to land. The spherical bearing is fixed close to the share, so that giving it more or less pitch, or

land movement, does not raise it above or below the front of the breast.

The coulter fastenings are made wholly of wrought iron; the coulter itself is very easily adjusted for cutting in-land or furrow, and at a greater or less inclination. Skim coulters, with wrought-iron stems and steel miniature mould-boards, are attached to these plough by a wrought-iron clip, and also drag chains when desired. The wheel stems are fastened to slides passing through holes in the beam, and a piece is welded on the underside of the beam, through which they also pass, giving them a firm, wide bearing. By this

arrangement the land wheel can be expanded or contracted, dispensing with the slide-axle at bottom, and causing the wheels to run nearly opposite to each other. The wheels are so constructed that no soil can adhere to, or be carried round by them—as is the case with most ordinary ploughs—the rims being bevilled on the inside.

We purpose giving, also, in due course the prize ploughs of Messrs. Howard of Bedford, and of Messrs. Ransome of Ipswich; so that our subscribers may have a fair opportunity of comparing the merits of one with the other.

PLATE II.

STATESMAN; A CELEBRATED SHORTHORN BULL.

Statesman (15342) was bred by the well-known auctioneer, Mr. William Wetherell, of Aldborough, Darlington. He was calved on November 20th, 1855, and got by Earl of Derby (12810), out of Lady Scarbro' by Earl Scarbro' (9064)—Stately by Statesman (13789).

Statesman's opening year, that of 'fifty-seven, was little more than one of promise. At the Salisbury Meeting of the Royal Agricultural Society of England, he was one of the twenty yearlings exhibited, but not amongst those noticed by the judges. Mr. Fawkes, of Farnley, stood at the head of this excellent class with Sir Edmund Lyons.

At the York Show of the Yorkshire Society, Statesman was highly commended as a yearling; Sir Edmund Lyons again taking the premium.

At the Stockton Meeting of the Durham Society, Statesman carried off the second prize for young bulls; and Sir Edmund Lyons, once more, the first.

In 1858, at the Chester Meeting of the Royal Society, Statesman was highly commended in the aged-bull class; Lord Feversham's Fifth Duke of Oxford standing first, and Mr. Barrowby's Marc Antony second.

At the Grantham Meeting of the North Lincolnshire Society, he took the first prize for bulls under three years old, beating Mr. Dudding's Admiral, and others.

At the Northallerton Meeting of the Yorkshire Society, he took the second premium to Fifth Duke of Oxford; Marc Antony and Sir Charles Tem-

pest's Emperor Napoleon being both highly commended.

At the Sutherland Meeting of the Durham Society, he took the first prize in the open class as the best bull of any age, with some very strong competition against him.

At the Highland and Agricultural Society's Show, at Aberdeen, Statesman crowned all these performances, by taking the first prize of the aged class of bulls, in a large and remarkably good entry, including Lord Kintore's Lord Raglan (second), and Mr. Todd's Young Heir-at-Law (third).

We believe he took another mere local prize or two during the season. In the spring of the present year, at the sale of Mr. Wetherell's herd, Statesman was knocked down to Mr. W. B. Cox, of Pickering, for the very low figure of eighty-two guineas. Since his change of hands, he has been only shown at the Hull Meeting of the Yorkshire Society, where he took the first premium, beating Lord Feversham's Prince Imperial, Mr. Smith's Albus, one of Colonel Towneley's Young Butterflies, and others.

Statesman is a bull of extraordinarily good symmetry, of great length, with a full, deep frame, and altogether one of the "long, low, and level." He is not, however, by any means a grand-looking animal; and it takes some little time to see how really good he is all through. He is somewhat sharp in the hair; and his quality is hardly equal to his appearance. In fact, we fancy it has been this matter of quality only that has stayed him from figuring more frequently in the first place.

THE EFFECT OF MANURE ON THE GRASSES OF PASTURE LAND.

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

It was an observation of a very early date that the grasses grow without the aid of man : and it was almost as soon discovered that by certain dressings the land was readily induced to produce particular plants, and to cease to yield others. It was noted, for instance, that couch grass or twitch appeared to follow the footsteps of the arable-land farmer, let him manure his land in whatever way he might.

In more modern days, when artificial manures began to be employed, similar observations were made. The farmers who used peat ashes observed, that when these were spread on pasture lands, that the white clover seemed to grow, as it were, spontaneously: the site of a wood-fire becomes speedily tenanted by the same plant. In still more recent times the application of crushed bones produced a similar result. The effect of their use at Welbeck, on grass land, was many years since described to me by the late Duke of Portland, in a letter, in which he observed : "They appeared so much to encourage the growth of white clover, that I had almost formed the opinion that it was superfluous to sow the seed." And, as I have elsewhere remarked, the honest Nottinghamshire farmers of those days had many a puzzling, learned cogitation upon this strange yet regular appearance of white clover wherever bones were applied. They, however, wisely recollecting that the bones chiefly came from the very land of fine white clover seed, strongly suspected that the seed came in the bones. The Lancastrian and Cheshire farmers, who as copiously dressed their fine pastures with bones, had no faith in the correctness of such an explanation, since they found that the white clover sprung up just as abundantly after the use of the *boiled* bones of the size-makers, as it did upon lands manured with those in a fresh or green state.

Even the use of rich food for the stock feeding on pastures, produces the most considerable results on the quality of the herbage. Oilcake given in this way is powerful in its effects. Mr. G. Dobito has briefly described a case of this kind (*Jour. Roy. Ag. Soc.*, vol. vi., p. 76). He says: "A friend of mine has lately adopted a plan which, under the same circumstances, I should strongly recommend;

it is that of giving a small quantity of oilcake to grazing animals for the sake of improving an ordinary pasture field; its effects are astonishing. The pastures I allude to are small, and one or two bullocks more than they are calculated to carry are put into each of them. They are then allowed four pounds of cake per day per head: this, at a cost of about two shillings per head per week, which I believe the stock well paid for, has entirely altered the face of pastures from what they were three years ago, when my friend first adopted the plan."

The effect of certain top-dressings, then, upon the *kind* of herbage growing in a pasture has been long known; but the *extent* of that influence, till the recently reported laborious trials of Mr. J. B. Lawes and Dr. Gilbert, was not so well understood. The results of these researches are reported in the last and present volumes of the *Journal of the Royal Agricultural Society of England*.

The soil of the half-acre plots of natural pasture at Rothamstead, on which these trials were made, is a somewhat heavy loam, with a heavy clay sub-soil resting on chalk.

These plots were yearly dressed in February or March with one and the same kind of manure. But each plot had a different *kind* of manure: two plots, however, for the sake of comparison, were left unmanured.

After three years' experience, these plots were in 1858 botanically examined. The result of that examination will be found in the following table (*Jour. Roy. Ag. Soc.*, vol. xx., p. 250):—

PLOT.

1. was one of those left unmanured.
4. had been annually dressed per acre with 200 lbs. of sulphate of ammonia, and 200lbs. of muriate of ammonia.
8. with mixed mineral manure, composed of—

200lbs. bone ash	} Sup. phos. of lime.
150lbs. sulphuric acid	
300lbs. sulphate of potash.	
200lbs. sulphate of soda.	
100lbs. sulphate of magnesia.	

PLOT.

10. with the same as plot 8, and 200lbs. of sulphate of ammonia, and 200lbs. of muriate of ammonia.
13. with the mixed mineral manure, the same as plot 8, and 400lbs. of sulphate of ammonia, and 400lbs. of muriate of ammonia.
16. with 14 tons of farmyard manure.
17. with 14 tons of farmyard dung, and 100lbs. of sulphate of ammonia, and 100lbs. of muriate of ammonia.

Let us next see the effect of these applications, using, as much as possible, the words of Mr. Lawes and Dr. Gilbert, who have so long aided each other in these and other valuable agricultural enquiries.

As regards the general character of the herbage of the experimental meadow, it may be well to give their preliminary remarks, viz., that in the third season (1858), to which their table of separations refers, there was no *dactylis glomerata* (rough cock's foot), no *poa pratensis* (smooth-stalked meadow-grass), no *bromus mollis* (soft brome-grass), and no *avena pratensis* (meadow oat-grass), detected in the produce of the *unmanured* plot. The rough cock's foot and smooth-stalked meadow-grass occurred, however, on some of the manured plots; and each in large proportion under certain conditions of manuring. But the soft brome-grass and meadow oat-grass occurred in very few cases at all, and then in very small quantity. There was, too, a striking absence, on all the plots, of several esteemed permanent meadow-grasses. Thus *alopecurus pratensis* (meadow foxtail), *festuca pratense* (meadow fescue), *f. duriuscula* (hard fescue), *phleum pratense* (meadow cat's-tail), and *poa trivialis* (rough-stalked meadow-grass), were not found in our list at all in the third season, 1858. The meadow foxtail, the meadow cat's-tail, and a fescue-grass were, however, each observed on one or more of the plots in 1857.

The table of the remarkable effects of the different descriptions of manure upon the complex herbage of which the meadow was composed, in developing the different kinds of plants, is thus introduced by Messrs. Lawes and Gilbert:

"Allusion has already been made to the greater development of the *leguminous* herbage by purely *mineral manures*, and to that of the *graminaceous* plants, or natural grasses commonly so called, by characteristically *nitrogenous manures*. In fact, the plots had each so distinctive a character in regard to the prevalence of different plants, that the experimental ground looked almost as much as if

it were devoted to trials with different seeds as with different manures. So striking and characteristic, indeed, were the effects produced in this respect, that, in 1857 and 1858, the subject was thought of sufficient interest to induce us to request the examination of the plots by Professor Hefrey, to which he kindly assented.

"An endeavour was also made in the second year, 1857, to separate and determine the proportion of the different plants in carefully averaged and weighed samples, taken from the several plots as soon as the grass was cut. Taking advantage of the experience gained in this first trial, the separations have been carried out more carefully in the case of the produce on some of the most important plots in the third season, 1858. The results of these separations are recorded in detail in the table.

"The mode of proceeding in making the separations and estimations may be shortly explained. As soon as the grass on a plot was cut down, samples were taken from many parts of it. These were carefully intermixed in such manner as to shake out as little seed as possible; and then, from the whole, a certain quantity was weighed out to be further operated upon. Characteristic specimens of each of the plants *in flower or seed*, or in other conditions in which they could be recognized, were then selected as types; and a number of boys were set to pick from the weighed sample all they could find to correspond with these types. The remainder consisted chiefly of *detached foliage and undeveloped stems*, which was then separated into four or five different lots, according to types selected to the best of our judgment. Each weighed sample was thus divided into from fifteen or twenty different descriptions of herbage. The weight of each of the selected portions was afterwards taken—all in an equal condition of dryness. The weights so obtained, of the respective grasses, or other plants, or parts of plants, in the original weighed sample from the plot, were then calculated into their percentage relation to the collective weight of the whole of the separated portions in their partially dried state. It is the results so obtained that are recorded in the table."

Attention may now be directed to the comparative development of each of the plants according to the manure employed, taking each *seriatim*, in the order in which it predominated on the unmanured land.

The following tables, then, will give the amount in 100 grasses of the different varieties growing in 1858 on the unmanured plot, and on the plots manured for three years with the same dressings—

PERCENTAGE AMOUNTS OF EACH PLANT, &c.

DESCRIPTION OF THE HERBAGE.	PERCENTAGE AMOUNTS OF EACH PLANT, &c.						
	Unma- nured. (Plot 1.)	Artificial manures.				Farmyard manure.	
		Ammo- niacal salts alone. (Plot 4.)	"Mixed mineral manure." (Plot 8.)	"Mixed mineral manure" and am- moniacal salts. (Plot 10.)	"Mixed mineral manure" and double quantity ammonia- cal salts. (Plot 13.)	Alone. (Plot 16.)	With am- mo- niacal salts. (Plot 17)
1. — GRAMINACEOUS HERBAGE ; STEMS BEARING FLOWER OR SEED.							
Common rye-grass.....	16.77	14.73	23.39	32.23	12.10	29.00	14.92
Woolly soft grass, or Yorkshire Fog.	14.02	14.43	6.94	32.64	26.37	10.75	19.87
Fibrous-rooted, tall, oat-like grass	6.04	3.27	9.07	4.84	2.56	14.33	17.16
Sweet-scented vernal grass	5.43	0.41	1.01	0.09	..	0.34	0.66
Common or creeping-rooted bent grass, also black switch, &c.	4.82	0.97	0.03	1.48	2.16	..	1.25
Common quaking grass.....	2.07	0.41	1.01	..	..	..	..
Crested dogs'-tail grass.....	1.10	0.05	0.39	..	0.05	0.45	0.26
Rough cock's foot	..	1.64	..	1.38	20.17	..	..
Smooth-stalked meadow grass.....	..	..	..	..	..	14.89	10.10
Soft or downy brome-grass	..	..	..	..	0.10	..	..
Meadow oat-grass	..	..	0.34	..	1.57	..	0.40
Total.....	50.25	35.91	42.18	72.66	65.08	69.76	64.62
2.—GRAMINACEOUS HERBAGE; DETACHED LEAVES AND INTERMINATE STEMS.							
Leafy produce—from woolly soft grass	3.41	12.28	5.46	4.06	15.35	2.24	5.55
Coarse leaf, &c.—some bent grass; probably also cock's foot, soft brome-grass, and others	8.78	11.46	1.79	6.64	3.93	3.58	1.32
Middling leaf—chiefly bent grass; some meadow oat-grass, &c.	3.41	8.18	14.33	4.43	..	4.03	..
Fine leaf, &c.—unknown	7.81	16.37	5.82	2.58	1.18	4.48	4.22
Dead leaves and stems	2.44	4.91	2.24	7.01	11.81	3.58	3.96
Total.....	25.85	53.20	29.64	24.72	32.27	17.91	15.05
3.—LEGUMINOUS HERBAGE.							
Yellow or meadow vetchling.....	2.07	2.20	4.53	..	..	2.02	1.32
Common bird's foot trefoil	1.83	..	0.45	..	..	..	..
Perennial red clover	1.22	..	17.91	..	..	1.68	0.46
Total.....	5.12	2.20	22.89	..	..	3.70	1.78
4.—MISCELLANEOUS HERBAGE, CHIEFLY WEEDS.							
Rib-grass or plantain.....	10.79	0.41	..	0.09	..	1.96	8.25
Common caraway	1.71	..	0.78	0.28	..	1.62	1.72
Common milfoil or yarrow	1.34	3.58	0.48	0.28	0.59	0.22	1.78
Sheep's sorrel or dock	0.67	1.02	0.23	0.88	1.08	1.12	3.10
Catchfly	0.61	..	..	..	..	..	..
Crow-foot	0.49	1.13	..	..	..	2.02	1.58
Field wood-rush.....	0.12	..	..	..	..	..	..
Germander speedwell.....	..	..	0.22	..	..	0.11	..
Common yellow-flowered bed-straw, or cheese rennet	..	..	..	0.32	..	..	..
Total.....	15.73	6.14	1.71	1.85	1.67	7.05	16.43

The general conclusions at which the authors of this section of a very valuable series of trials arrive, are thus summed up:—

"1. That, whether the produce of hay be considerably increased by means of farmyard manure alone, farmyard manure and ammoniacal salts, or

artificial mixtures of suitable mineral manure and ammoniacal salts, the proportion of the whole which will be *graminaceous* will be very much increased.

"2. That the produce will be by far the *most graminaceous* when the "artificial mixtures" are

employed. In fact, when the increase of hay is obtained by artificial manures containing *both the necessary mineral constituents and ammoniacal salts*—and it is then greater than under any of the other conditions—both the *leguminous* and the *weedy herbage* are nearly excluded, and the produce is then, therefore, *almost wholly graminaceous*.

"3. That the *graminaceous produce itself*, when grown by *farmyard manure*, is less complex in character than that grown *without manure*; whilst that grown by the *most active artificial manures*, is *less complex still*.

"4. That, up to an equal period of the season, the *graminaceous produce*, grown by the *active artificial manures*, will be in larger proportion in *flowering and seeding stem*, than that grown *without manure*; and that the produce grown by *farmyard manure* will be in still larger proportion in that condition.

"5. That the *description* of the produce grown by *farmyard manure alone* was, upon the whole, superior to that grown *without manure*.

"6. That when the crop was further increased, by the *addition of ammoniacal salts to the farmyard manure*, the character of the produce was somewhat deteriorated, both in regard to the *description* of the *useful plants* grown, and on account of the large proportion of *miscellaneous or weedy herbage* then developed.

"7. That, when in a *mixed mineral and ammoniacal manure* the ammoniacal salts were *not used in excessive amount*, the herbage, which was then almost exclusively *graminaceous*, and comprised also but *very few species*, nevertheless, included a considerable proportion of grasses of recognised good quality. But, when *excessive amounts of ammoniacal salts were employed*, the character of the produce was deteriorated, both in regard to its *condition*, and to the *description of the grasses* that were developed."

The effect produced by these different dressings for grass land in these experiments is very interesting. We have here carried out a still more valuable, yet somewhat similar series of enquiries to those of Professor Buckman, on the results of irrigation upon the natural grasses of a meadow. The Professor's labours were directed to the results of watering the land; but the *object* was similar to those carried on at Rothamstead. In both cases the attempt was successfully made to ascertain the changes produced in the natural grasses of a pasture by artificial applications—solid dressings being employed in the one case, river water in the other. Of the experiments of Professor Buckman (*Jour.*

Roy. Ag. Soc., vol. xv., p. 462) I have elsewhere given a digest (*Farmers' Almanac*, vol. vii., p. 229). The Professor gives the following example of a meadow sloping to the banks of the Churn, near Cirencester, and notes the changes which have taken place since it was partially irrigated. This field has a subsoil of oolitic gravel. The following table gives—I., the name of the grasses; II., the proportional before irrigation; III., after two years'; IV., after four years' irrigation—

I.	II.	III.	IV.
Meadow foxtail	1	2	4
Field meadow	2	3	4
Roughish meadow	1	2	1
Quaking grass	2	..	..
Dogstail grass	2	1	..
Hassock grass	1	..	..
Marsh bent	1	2	3
Cock's foot	1	2	3
Yellow oat	2	3	3
Soft oat	1	1	1
Meadow barley	1	2	2
Perennial rye	2	4	6

These changes, continues Mr. Buckman, become evident where there is a gravelly subsoil; stiff clays, without there is a stratum of lighter matter, seldom succeed so well under irrigation. The changes which take place with the herbs of improved pastures is still more striking. The following table gives an instance of this. Column I. gives the trivial name; II., III., and IV., the proportional number before, after two years', and after four years' irrigation—

I.	II.	III.	IV.
Upright meadow crowfoot....	1	3	1
Bulbous crowfoot	3	1	..
Narrow-leaved plantain	3	..	..
Dutch clover	2	..	..
Broad clover	1	2	2
Common beaked parsley	1	2	1

This field, it seems, trebled in value in four years.

These experiments are of considerable importance; for not only do they show that it is within our power to add, by certain dressings, to the produce of the grasses already existing in a pasture, but that the grasses themselves, by the soil being thus manured, may be changed—good kinds brought forth, and the growth of the inferior sorts discouraged. Such experimental enquiries give us, with far more precision, facts of which our forefathers were not altogether unacquainted. They could not but observe many of the changes in the grasses produced by some of the dressings to which I have alluded. They could not but remark that the difference between good and bad pastures is, in very many cases, merely the result of their

cultivation. Instance, as Mr. Buckman remarks, a poor clay ameliorated; its list of grasses will not remain the same, or in the same proportions; on the contrary, bad grasses, which are ever present, to some extent, in every pasture, will either nearly all die out, or, if not so, they will greatly improve in quality; whilst many good ones, of which scarcely an example could previously be found, rapidly increase. And again, the many herbaceous plants, such as the broad-leaved plantain, common daisy, bulbous crowfoot, &c., give place to a growth of grasses. Facts like these, I repeat, former generations of farmers must have noticed; but they had not then the scientific accuracy necessary to

reduce these observations to anything like an useful degree of certainty. The higher relative value of their cereal crops, in those days, indeed, made them more careless of their grass land; but a different state of affairs in our time naturally adds to our interest in everything that promotes the growth of food for our live stock. We may well, then, rejoice to see science at last well directed to those grass lands, for which hitherto so little has been done, as to well justify the observation, that "the grasses are nature's care." These experiments will, moreover, lead to others of equal, if not greater importance—researches not confined to the action of manures upon the natural grasses.

LECTURES ON PLANTS

Applied to Useful Purposes throughout the World, or otherwise fulfilling obvious offices in the Economy of Nature, commencing with those which are the Principal Objects of Cultivation, as furnishing Food, Fibre for Manufacture, Medicine, Colouring, Astringent and other Properties applicable to the Arts.

BY CHARLES JOHNSON, PROFESSOR OF BOTANY AT GUY'S HOSPITAL.

LECTURE I.

In commencing a course of lectures on a subject so extensive and varied as that now before us, it will be necessary to adopt some definite arrangement of our matter in order to avoid tautology, and at the same time to be consistent in its details. Carefully investigating the circumstances under which the results in question may be attained, two forms of such arrangement especially present themselves for our selection—firstly, that founded upon the application of plants or their products to corresponding purposes; secondly, that of classing the plants themselves according to their structural relations, or as constituting what are termed by the botanist *natural orders* or groups. Each of these plans possesses certain advantages which are wanting in its opponent, a condition that renders decision between the two somewhat difficult at the first glance, and open on either side to animadversion. The former certainly appears to be the more simple, and were a popular work to be written upon the subject, I might incline in its favour. The latter necessarily involves a certain amount of book-learning, as it is vulgarly called, and technicality; but, as a lecturer to the scientific student, I do not hesitate in awarding to it the preference. In the first place, the classification is more determinate; in the second, such orders or groups are readily distinguished by attention to a few general characters; and lastly, in the present instance, most of my readers are already acquainted with the leading facts upon which they are founded.

This being determined, we will commence our researches with an *order, group, tribe, or family* of the

vegetable kingdom, which appears, from times immemorial, to have been the earliest in occupying the attention of mankind, and to have yielded from among its multitudinous species the first objects of agricultural pursuit. We will examine the history of the grasses, having first inquired what is meant by the term *grass*. In the language of the farm its signification is often a wide one, including many plants of other natural families subservient to similar purposes with the ordinary vegetation of the pasture; while the idea popularly entertained of a grass is associated with that of a plant having long, narrow, flat leaves, a slender upright stem, and terminal bunches or clusters of flowers, the latter composed of little chaffy scales, within which seeds are produced. Neither of these applications will suit our purpose—the former because it is erroneous; the latter as being too superficial for even general definition, although correct so far as it extends. Were we to include in our list of grasses all plants admitting of such description, a group of vegetation which under the more restricted limits allotted to it in science comprises very nearly four thousand known species would probably be extended to twice that number. A more lengthy and positive definition is required to include the essential characteristics of a true grass.

It must be premised that, however different in appearance may be the flowers of a grass from those of other flowering plants, certain features are common to all. The production of a flower is a necessary preliminary to that of a fruit and of seed, while the coming into existence of the latter is only effected by certain correspon-

dent actions or functions of parts, without the presence of which no flower can be considered perfect, although other auxiliary, but less essential, organs of more conspicuous character may usurp, in vulgar estimation, the importance appertaining to the first alone, and with it the title of flower likewise. The wild hedge-rose is a perfect flower—its more prized and blooming sister of the garden a mere beautiful abortion; the one is a fulfilment of the general law of Nature—the other an example of the degrading interference of man. To comprehend this, an elementary lesson and examination of the component parts of a flower are necessary.

A flower, in its fullest state of development, consists of four or more series of parts or organs. Externally we find the *calyx* or flower-cup, usually of a green leafy hue and texture; such are the little green leaves at the back of the flower of a rose, and the long cup which contains the blossom of a polyanthus or a primrose; the pieces composing a calyx are technically styled *sepals*. Within the calyx is the *corolla* or blossom, generally the most highly coloured and conspicuous portion of the flower, the pieces forming which are called *petals*. The calyx and corolla constitute the *floral envelope*, and in the eye of the naturalist rank only as subordinate productions, requisite for protecting or assisting in the nourishment of the parts they inclose; hence one or both of them are absent in many instances where such functions are unnecessary, or where they are otherwise provided for by differences in the general structure of the flower. Within the corolla are the *stamens*, varying in character, but usually consisting of slender thread or wire-like processes, termed *filaments*, bearing on their extremity a coloured body called the *anther*. The anther is generally divided down the middle by an indented line, marking its internal separation into two cells or cavities, which contain a fine dust or powder styled the *pollen*; this is the male, or fertilizing apparatus of the flower, and consequently most important to the production of seed. The stamens vary in number, in the flowers of different plants, from one to several hundreds; and they are either free—that is, fixed only by the bases of their filaments—or they may be united to the calyx, corolla, or some other organ. In the centre of the flower is the *pistil*, the lower part of which is the *ovary*, becoming afterwards the fruit or seed vessel. The tip or summit of the pistil is called the *stigma*, which in some instances rests immediately on the top of the ovary, while in others it is separated by a slender process rising from the latter, denominated a *style*. The pistil is in many flowers a solitary organ, but occasionally there are two or more, and sometimes, as is the case with the stamens, the number is very considerable. At a certain period during the development of the flower, the pollen is discharged by the bursting or opening of the cells of the anthers, and, being scattered upon the moist surface of the stigma, influences the production of seed-germs or *ovules* within the cavity of the ovary. In some flowers another series of parts occurs,

occupying a place between the corolla and the stamens, and partaking of the character of one or the other of those organs; such is the cup in the middle of the flower of a narcissus or a daffodil; such are the rays in a passion flower: the name of *corona* is given to such appendages, and, where present, they afford valuable distinctive characters, but the function or office they may fulfil in the floral economy is unknown. As upon the reciprocal action of the stamens and pistils the production of seed is dependent, the presence of these organs, either together or separate, is sufficient to constitute a flower, and, as above stated, the others are often absent altogether. When the stamens and pistils grow separately, the flower is said to be *unisexual*, as in those of many of our ordinary trees and shrubs, oak, beech, birch, willow, &c. In some, both kinds of flowers grow upon the same tree or plant, as in the hazel, in which the catkins, so conspicuous in the early spring, are the male or stamen, bearing inflorescence; while the female, pistil-bearing and nut-forming, are at this time only traceable in the form of buds with minute purple threads, the styles and stigmas projecting from their points. In other instances, these important organs grow upon distinct plants; this occurs in the willows, the hop, &c., the plants of which are respectively male and female, barren and fertile. The unpractised observer will best acquire a correct notion of such differences by examining the contents and condition of some large flowers thus circumstanced, previous to his investigation of the more obscure. Any plant of the gourd tribe will furnish useful examples, as the common cucumber, the melon, pumpkin, or vegetable marrow, more especially on account of the conspicuous character of the ovary, or base of the pistil, and its relative position below the flower. The male and female flowers will be readily recognized by their contents, the stamens of the former being five in number, while the stigmas of the latter are only three. Beneath the fertile flowers the presence of the ovary or young fruit is distinguishable at the first glance, while no trace of such is seen beneath those containing the stamens.

Among grasses these peculiarities in the development of the reproductive organs are of frequent occurrence, though in the far greater number of the species the flowers are *hermaphrodite*, or bearing both stamens and pistil.

Dismissing this short analysis of floral structure, equally necessary to be borne in mind in our examination of other orders as in that of the one now before us, let us take the description of a true grass, as distinguishing it from any other grass-like plant, and I will give it, extracted, with some exceptions and additions, from my work on British Grasses.

Every grass, properly so termed, has its stems more or less cylindrical—never, at least, strictly angular—and divided by joints occurring at intervals throughout, the erect or ascending portion (the *culm* or straw) being almost universally hollow or fistular between the joints.

The leaves, which spring from these joints only, have the lower part, which corresponds to a flattened leaf-stalk, rolled around the stem, above the joint, in the form of a sheath; but the margins are not united, and it is thus capable of being unrolled without laceration. The upper, or spreading portion, the true leaf, is usually long, narrow, and tapering, and is always separated from its rolled stalk or sheath by a projecting membrane, or a collar of hairs or bristles—more frequently by the first, which is known by the name of *ligule*, from the Latin *ligula*, a spoon, scoop, or strap.

The flowers of the grasses present considerable variety in their arrangement. In some instances they are disposed in loose and more or less divaricated or spreading bunches, the inflorescence being collectively termed a *panicle*, as in the oat; while in others they form compact, rounded, or more frequently elongated masses, denominated *spikes*—see examples in the ears of wheat, rye, and barley. These flowers are always of a very different character from those of most other vegetable tribes, never presenting the bright hues, delicate textures, or symmetrical disposition of parts observable in those belonging to many of the higher orders of plants. The external accompaniments of grass flowers are small, dry, membranaceous scales, never arranged two or more on the same plane or level, but each occupying its own on alternate sides, being always inserted a little above or below each other, the lower one partially overlapping and inclosing the base of the one next above it—a disposition totally different from that of the sepals or leaves of a calyx, or the petals of a corolla. Hence neither of these forms of floral envelopes is considered to be present in grasses.

However closely crowded may be the flowers of a grass, they are always associated in little clusters called *locustæ* or spikelets; an arrangement readily seen by stripping those of an ear of wheat from the rachis or spike-stalk.

The outermost scales of a spikelet are termed *glumes*, from the Latin *gluma*, husk or chaff. Each spikelet has generally two glumes, but occasionally only one, and, in different grasses, they may contain one, two, or even several flowers. Each flower, considered apart, consists usually of two scales—rarely of only one—which are in most instances shorter and thinner in texture than the glumes; these are called *paleæ*, a Latin word of nearly similar signification with *gluma*. Arising from the back of the glumes or outer paleæ is frequently seen a peculiar bristle or hair-like process, denominated an *awn*, an appendage which in some grasses is of considerable length; such is the beard of the oat and barley. The paleæ often ultimately inclose the ripe fruit, becoming almost consolidated with its outer coat so as to be scarcely separable; this is the case in the common cultivated barley.

Within the paleæ we find the stamens, each consisting of a generally long and comparatively slender filament, bearing the anther transversely attached to its summit,

upon which the latter turns as on a pivot, and is therefore said to be *versatile*. In many grasses the filaments are so long as to extend far out of the flower, and suspend the anthers, so as to expose them to every breath of wind. The number of stamens in each flower is usually three, but in some of the grasses of warm climates, as in the rice, there are six, and in others a greater number, which, however, is usually a multiple of three: in a few instances we meet with only one or two; the presence of the latter number is a leading character of distinction in the *Anthoxanthum odoratum*, the sweet-scented vernal grass of our own meadows, upon which the peculiar odour of newly-mown hay is chiefly dependent.

The centre of the flower is occupied by the pistil, which in the grasses is always solitary. The ovary, a small oblong or rounded body, includes only a single seed. As this organ is in most instances inseparable from the coat or skin of the ripe seed within, although in the latter state a true fruit, it is only recognized as being such by the botanist, the term seed or *grain* being that by which it is usually distinguished. Thus we speak of grass seeds and grains of corn, though, strictly considered, they are the fruit of their respective species. From the summit of the ovary generally extend two slender processes—the styles, which terminate, in more or less feather-like extremities, the stigmas. The styles are frequently connected at the lower part, and rarely only one is present.

Few of the grasses, belonging naturally to cold and temperate climates, have unisexual flowers; but among those of tropical growth we find many so circumstanced, the two kinds of flowers being often very different in appearance and in their relative disposition. We have a very familiar instance of this in the common maize or Indian corn, in which the male or stamen-bearing flowers are produced in a large panicle or loose and branched cluster at the top of the stem; while the female (fruit or seed-bearing) flowers form their thick, compact, and cylindrical spikes within the bases of the lower leaves.

Though exhibiting throughout a marked uniformity in the general structure, in a group of such vast extent and universal distribution, individual character may still be susceptible of considerable variation, and in no instance is such difference more strikingly exemplified than in stature. Many of the most diminutive grasses of elevated and cold regions scarcely exceed an inch in height, while the most magnificent of the tribe, the bamboo of India, sometimes attains more than a hundred feet. The erect stems of our British and other European grasses are only of annual, or, rather, summer duration; but among those of warmer countries, and especially of the larger kinds, are many in which they are perennial, or last from year to year, branching in each successive period of growth. A few even retain this habit under cultivation in the English garden; as *Arundo donax*, commonly called the European bamboo, *Bambusa aurea*,

and two or three others capable of resisting the average winter cold of the southern parts of our island.

Whatever may be its size or duration, the grass stem is always proportionally slender compared with its elevation; but it is strengthened by a copious deposit of silica lodged in the exterior tissue, the quantity of this earth being often sufficient to maintain the form of the part to which it appertained, after removing all the vegetable substance by burning: the vitrified matter frequently left by the burning of hay or corn stacks is due to this circumstance.

The principal features by which a grass may be distinguished from sedges, spike, rushes, and other plants

most nearly approaching it in general aspect, may be enumerated within a few lines, and close this introduction. They are—1, the rounded, jointed, and usually hollow or tubular stem; 2, the rolled, sheathing, but not tubular leaf-stalks; 3, the presence of a ligule at the base of the leaf; 4, the transverse position of the anthers.

The nearest approach to grass structure will be found in the sedges and spike-rushes, in which the stems are ordinarily *triangular, jointless, and solid*; the leaf-stalks or sheaths, *tubular*; the ligule, *absent*; and the anthers *continuous with the filament*, never either transverse or versatile.

WAYLAND AGRICULTURAL SOCIETY.

MEETING AT WATTON.

The Wayland Agricultural Society, established some three years since by the energy and public spirit of the district, in accordance, we believe, with a suggestion from Mr. Henry Woods, the steward of the Merton estate, has attained, in what may be considered its period of probation, a success rarely experienced in similar trials. Within the last five or six years another association has sprung up, and kept firmly on its legs, in a second part of Norfolk—to wit, the fine agricultural district of North Walsham, and every season seems to promise a longer lease of existence. The secret of this success is probably to be found in the free and open principles on which the new associations are based. They seem to be strictly farmers' clubs. Stock appear at them in—if one may use the expression—a work-a-day dress, and things are managed a little more *au naturel* than in the county association. This society deserves, no doubt, to be spoken of with all respect; the motives of its managers are, no doubt, excellent; its past history has been a creditable one; but still one cannot exactly help coming to the conclusion that the farmers of the county "fight shy" of competitors at its shows. They like to engage more with one another at home; and hence, while the Wayland meeting had no existence in 1856, in 1857 its entries numbered 232, increased to 269 in 1858, and reached the very respectable total of 367 in the present season.

Wednesday was selected by the society for its field day, and great pains were taken to enhance, if possible, the *éclat* with which last year's meeting went off. But there was one drawback. A wet morning struggled into a decidedly moist day; and it has been remarked by that high authority, *Mr. Punch*, that Englishmen can stand fire better than (rain) water. It rained, rained, rained steadily till about one o'clock p.m., when the elements seemed to combine for a final effort, and the address of Lord Walsingham to the labourers—recipients of the society's rewards—was delivered amid a shower of drizzling drops which squeezed their way somehow through an ominously flapping tent. The

skies afterwards cleared a little, and the afternoon was tolerably fine; but the mischief was done, and an anticipated attendance of 2,000 to 3,000 dwindled down to a few hundreds.

It need scarcely be said that under these discouraging circumstances the show-yard did not present the cheerful aspect which it would otherwise have worn. The place of exhibition was a field, placed at the disposal of the committee by Mr. Massey; and the horses and stock were ranged round the four sides, the sheep and pigs occupying the centre. There was a fair show of horned bulls, but in polled bulls the entries were meagre; and no prize was awarded, on the ground of insufficient merit. In the former class Mr. John Sewell carried away the prize with a handsome well-conditioned animal, 2½ years old, bred by Mr. Ollard. Mr. T. Matthews, sen., was the successful competitor in the horned cow class. The cow entered by Mr. H. Oldfield was highly commended, and that shown by the Rev. W. H. Parker was also commended. The prize for the best polled cow was awarded to Mr. J. Marsh, while Mr. William Sutton's entry was commended. In heifers, Mr. Wyrley Birch took the prize in the horned class, while Mr. G. Jacobs was commended; Mr. Henry Stebbing was the most successful in the polled breed. A few calves were entered, and the prize was awarded to one shown by Mr. T. Wrightup; while Mr. W. Back's was commended. The animals shown in these classes were nearly all bred by the exhibitors, and were taken from their homesteads to the meeting; the consequence was that a few of the cows seemed; trifle out of condition, the hip bones standing out in unpleasant prominence in one or two cases. A well-filled-in animal certainly strikes the eye more agreeably. There were five pairs of working Devons on the ground, and Mr. J. Tingey carried off the prize. Near these were some fine fat beasts, especially a splendid animal shown by Mr. R. Dewing. The massive yet symmetrical and well-clotted proportions of this beast at once marked him out for the prize. Mr. John Allday was highly com-

mended, and Mr. John Tingey commended in this class. A pair of twin heifers, 15 months old, shown as extra stock by Mr. W. Reeve, were also highly commended. The number of horses entered was large, and made quite as good an appearance as at the county show. Considerable attention was devoted to "Roland," a fine thoroughbred stallion, twelve years old, exhibited as extra stock by Mr. Castendieck. This beautiful fine-actioned horse took the first prize at Windsor, and also obtained a £25 prize at a recent meeting of the Manchester and Liverpool Agricultural Society at Wigan: while a cup would have been awarded to him on the present occasion if there had been a class for thoroughbred stock. Lord Walsingham offered a special prize "for the best animal or pen of animals in the yard;" and the award was made in favour of Mr. S. Gayford's hackney horse, which also took a prize offered by the Rev. W. H. Hicks, "for the best hackney mare or gelding for saddle or harness purposes." This horse, which is eleven years old, competed closely last year for the general prize with a grey stallion shown by Mr. Tingey; he possesses considerable merit as a hackney and hunter, having great power and good easy action. There was a nice class of hackney ponies under fourteen hands, and three excellent hackney stallions; in fact, the class of hackneys was generally well represented. This is an encouraging circumstance, as the complaint of late years has been that the good old Norfolk hackney is going out of fashion. A Welsh stallion-pony, bred by Mr. David Havard, and shown by Mr. Kersey Cooper among the extra stock, was commended by the judges, and attracted a good deal of notice. This pony, "a horse in miniature," was exhibited at the late meeting at Warwick. The remark made as regards the bulls and cows applies equally to the horse stock, by far the greater portion of them being home-bred. The cart stallions and mares seemed deserving of commendation equally with the hackneys, and the class of cart foals was especially praised by the judges. The prizes awarded were distributed as follows: Mr. J. Tingey, for the best cart stallions (Mr. W. Back commended); for the best cart colt or filly not exceeding three years old, Mr. T. Matthews, sen. (Mr. J. Warman highly commended); for the best cart foal, Mr. J. Tingey (Mr. W. Paraley highly commended); for the best cart mare, special prize, Mr. J. Tingey (Mr. R. Dewing highly commended, and Mr. R. Salmon commended); for the best cart gelding, special prize, Mr. J. Allday; for the best pony under fourteen hands, special prize, Mr. J. George (Mr. T. K. Gayford highly commended, and Mr. J. Fergusson commended); and for the best hackney stallion, special prize, Mr. J. Warman (a horse shown by the executors of the late Mr. R. Beart commended). The sheep were generally commended, the lambs especially coming in for warm praise. Lord Walsingham did not put in an appearance, thus leaving the field open to the farmers of the neighbourhood. The favourite pens were cross-bred, between Downs and Leicester, a combination which seems to be popular in the district, as securing a maximum both of wool and mutton. The town of

Watton offered a special prize for the best ten brown-faced flock ewes (not Southdowns), and in this class there was also considerable competition; the prize was awarded to Mr. T. Matthews, jun., and the pen shown by Mr. R. Dewing was commended. The other prizes were thus distributed: For the best shearing ram, Mr. W. Back (Mr. J. J. Wing's and Mr. T. Wrightup's rams commended); for the best ram of any age, Mrs. E. Brassnett (Mr. J. Sewell, commended); for the best five shearing ewes, the best five ewes of any age, and the best five fat shearlings, Mr. T. Barton (Mr. R. Webb's and Mrs. Brampton Gardon's ewes of any age commended, the former highly); for the best five shearing ewes of any distinct breed, special prize, Mr. T. Barton; and for the best ten lambs, special prize, Mr. T. Barton (the class generally commended). The pigs did not attract much notice. Mr. Gardon carried away the prize for the best boar and breeding sow; the Rev. W. J. Partridge for the best litter; and Mr. W. Paraley for the best fat pig.

There was a very large and excellent show of roots, comprising long and globe mangel-wurzel, swedes, and white turnips. The mangel and swedes appeared particularly sound and good. Bronze medals were awarded in this department, cups and pieces of plate of more or less value being distributed in the other classes. Mr. H. Oldfield took the prize for mangel; several other exhibitors, including Mr. Walter Matthews, the Hon. Mr. de Grey, and Mr. J. Tingey, being commended. Mr. J. Warman was victorious in swedes (Mr. Barton and Mr. Rook commended); Mr. Robert Oldfield was awarded the medal for the best six turnips of any other kind (Mr. Tingey commended); and Mr. Munnings was the prizeman for carrots. In a tent close by, a collection of gourds (some of them of astounding size and almost infinite variety), potatoes, plums, pears, apples, and garden produce was laid out; and prizes to the amount of £7 5s. were distributed. Lord Walsingham exhibited—although, of course, not for a prize—some remarkable gourds, one of them (the custard squash) being a recent variety.

There were a few implements at work. One of them, which was shown at Warwick, was lent for the occasion by Lord Walsingham. It was an apparatus for making straw-fencing, and seemed to do its work rapidly and effectively. To give solidity and strength to the fencing, sticks are woven into it at intervals, and wire is employed to bind the straw together; but tarred twine can also be used for the purpose. It was stated that a man and a boy could weave with the machine 20 yards per hour. The price of the apparatus, made by Mr. O. Maggs, of Bourton, Wincanton, Dorsetshire, was stated to be £16.

At one o'clock, Lord Walsingham proceeded to distribute a variety of prizes, varying from 5s. to £1 10s., to a number of deserving labourers and domestic servants. His lordship had a kindly word for each; and at the close, addressed to the party a few practical remarks. He said he was glad to find that there was no want of steady, industrious labourers in the neighbourhood; and he must confess that, after having had many

opportunities of observing the labouring classes in other counties, he had always been of opinion that they were nowhere more handy in any work they were put to, than in Norfolk. At the same time, there were one or two things which he thought were scarcely so well done as they ought to be. He had always thought that the ploughmen of the neighbourhood were well acquainted with that department of agricultural labour; but he had heard a report that the late ploughing was not very good work. With regard to the stacks, although they were good in quantity and very respectable in quality, some of them leant a little on one side and some on another, which was not what it ought to be, as stacks should stand perfectly square and straight. Again he had seen stacks in which the thatch did not reach down to the eaves; and he should like to see the stacking of the district very much improved. The shepherds of the neighbourhood deserved uncommon credit for the number of lambs which they raised successfully. One man had reared 361 lambs from 245 ewes; while in some sheep districts in the West of England, they thought they did uncommonly well if they got a lamb to a ewe. In the case he had mentioned, the result had also been attained with the loss of only seven ewes. In another instance 350 lambs had been reared from 230 ewes, but there was unfortunately a loss of 22 ewes; and in a third case 242 lambs from 170 ewes, with the loss of only two of the latter. He thought he might say that there was, on the whole, some improvement in the condition of the labouring classes. The introduction of machinery had made an opening for every intelligent man, and the necessity for increased skill and ability had led to a corresponding remuneration. He had not heard that there had been any lack of men to supply those higher qualities which were required, and he trusted the cordial feeling which had long existed between employers and employed might continue.

THE DINNER

took place in the evening, in the Wayland Hall. Lord Walsingham presided; the Duke of Wellington, who has lately purchased an estate in the neighbourhood, supporting him on his right, and Sir R. J. Buxton on his left. There were also present Mr. Brampton Gurdon, M.P., the Hon. B. Grey, the Rev. W. H. Parker, the Rev. B. Edwards, and about 90 of the principal farmers of the neighbourhood. Mr. T. Barton occupied the vice-chair.

Several preliminary toasts were given, the "Army and Navy" calling up

The Duke of WELLINGTON, who was loudly cheered. The noble duke counselled the restriction of each rifle company to 100 men, and deprecated the adoption of too fine uniforms. These conditions observed, the proposed volunteer corps would be of the greatest utility.

To the toast of the "county members"

Mr. B. GURDON, M.P., responded, arguing that foresight as well as experience was an essential element in the composition of a good agriculturist, and that every effort must be made to meet the competition which prevailed in the agricultural and every other interest of the country—a competition which a man must be blind to suppose would not continue.

The Duke of WELLINGTON proposed the health of the chairman, who expressed his acknowledgments, and ob-

served that his connection, as president, with the Royal Agricultural Society—to which the Duke had alluded—was due to his association with poor land in Norfolk, and the attention which he had paid to it. He felt that he owed the honour also to the kindness of those friends who supported him in this object. He begged to congratulate the Society on the excellence of the show, although he regretted extremely the unfavourable state of the weather. The moment he went into the show field, it occurred to him that the animals shown were better than those exhibited last year; and he understood that the entries, which were more numerous, bore a very large proportion to those of the county agricultural society. But the Wayland Association was not a rival to the county society; its object was simply to show the kind of stock which was usually reared and fed upon the farms of the neighbourhood. It so happened, particularly with respect to sheep, that that stock was of a mixed breed. In the Royal Society of England, and in the Royal Society of the county, the stock was pure-bred; and nothing that he had ever seen had put him out of conceit with the pure breeds which were so ardently and anxiously cultivated. Nevertheless, he admitted that in the local system of sheep farming there was a great deal of good. In breeding first-crosses, no doubt they bred that which was extremely useful to the farmer, and which produced to the man of business in a most useful and practical manner a certain amount of money; but he would ask those present what would they do if they had not the pure breeds to resort to? If they had nothing but cross-bred sheep, their animals would by degrees so alter in their character, that they would hardly know what they had got. It was absolutely necessary that the pure breeds should be kept up, to supply them with the animals they wanted; but it was a most useful thing that they should have an opportunity of bringing forward the animals upon their farms, and he thought the result would be that, either in the shape of cross breeds or pure breeds, they would produce better animals. A man might think that he had a very decent sort of animal at home, but when that animal was shown by the side of others, he would possibly not look the thing, and his owner would then go back, and determine next year to have something better. Whether this would eventually lead to purer breeds he would not say, but certainly he was not disposed to give up pure-bred animals; on the contrary, he intended, in this respect, to be more careful than ever. The noble lord shortly afterwards toasted "The Judges," who were—for horses, Mr. C. Bloomfield, Hockwold-cum-Wilton, near Brandon, and Mr. J. Smith, Crownthorpe, near Wymondham; for cattle, sheep, and pigs, Mr. John Clarke, of Long Sutton, Lincolnshire, and Mr. H. Overman, of Raynham, near Roughton; and for roots, Mr. T. Pooley, Northwold, near Brandon.

Mr. CLARKE responded. The show, he said, had been to him an unexpectedly large one; he certainly had not anticipated such a number of respectably-filled classes. They all knew what judges' speeches were made of. They generally commenced with a sort of commendation of the show; that to select individual specimens would be invidious; that if there had been any error at all, it was of the head and not of the heart, and so on. But he might honestly say, that some of the animals shown during the day were fit to go anywhere. His colleague and himself had found a most excellent shorthorn cow, a most excellent shorthorn ox, some uncommonly good ewes, lambs, half-bred sheep and many others which he might enumerate. Upon one point, however, he would just say a word. One of the classes had not been considered of sufficient merit to receive a prize. The judges were as liberal as they fairly could be; but they really did not think that either of the two polled bulls ought to receive a prize. There was one particular prize which the judges almost smiled at—viz., that offered for the best animal in the yard. They hardly knew how to compare a pig, horse, or ox together; and they could only judge relatively, and look out for the best animal of its kind in its class. If a horse was the best animal in the horse-class, over and above what a cow was in the cow-class, they awarded it the prize. Their decision had been given in favour of a very superior hackney horse; and he believed they had acted satisfactorily to all. He did

not wish to be at all egotistical; but he might state that he had the honour, at the Chelmsford, Salisbury, and Chester meetings of the Royal Agricultural Society, of acting as a judge of the best application of steam-power to the cultivation of the soil; and, if it was thought desirable that he should do so, he would just say a word or two on the subject. He certainly entertained a very high opinion of steam-power as applied to cultivation; and he thought that, ere long, steam was destined to do pretty much for agriculture what it had done for manufactures, commerce, railways, and so on. They must not expect to do much with it just yet; but he thought the apparatus for its application was gradually improving, and that ere long it would assume a shape in which it would be possible to make great use of it. He believed it would be very useful indeed on light lands, as it would render agriculturists independent of wet seasons; and on deep soils and heavy clays, he thought it would also be of very great value—indeed, he fancied it would effect a complete revolution in the culture of such land. He was one of the judges at Lincoln, where Fowler's steam draining apparatus was first exhibited; and he believed this was the forerunner of steam cultivation. In laying its tiles 4 feet deep in tenacious soil, this machine moved the earth 4 or 5 feet on each side, thereby opening a space for the water to percolate through to the drain beneath. Now, on heavy clay lands, a great drawback to subsoil-draining would be thus obviated. You might subsoil-drain heavy clays; but the water would not find its way down, as it would with this improved implement. He had sometimes thought it would be advisable, with a piece of heavy clay land, to first cross it with this plough, and then lay the drains: a complete drainage would thus be at once secured. There were many other leading agricultural topics, such as the application of reaping machines to harvest-work; but he would not say anything about them now.

The CHAIRMAN said the meeting must be much obliged to Mr. Clarke for his observations on steam-ploughing, as he spoke on the subject with authority and knowledge. He had himself ventured to say, nearly 15 years ago, that farmers would live to see their land ploughed by steam. He was laughed at for saying this; but he remembered making the observation at one of the meetings of the agricultural society for the North Riding of Yorkshire. He ventured also to make another prediction which had certainly not been yet accomplished; but he felt confident that the day would come when it would also come to pass, when the labouring classes would sit down to a dinner of meat every day. This was an improvement which he was very anxious to see, and he thought that in the Wayland district a great deal more meat was eaten now by the labouring classes than they consumed ten or fifteen years ago. He trusted, however, that they would not stop where they were at present, but that the time would come when they would sit down to a meal of meat every day. With respect to steam-ploughing, he did not feel himself competent to give any decided opinion. No doubt it had very much improved; but he could not yet see his way to recommending farmers to adopt such an expensive mode of cultivation without feeling more certain than he did that it had arrived at that sort of perfection that it would answer economically. Although he had seen statistics and calculations showing that it must pay, he himself could not see his way to it, and he thought one of the great difficulties was the constant breaking of the ropes and machinery. In a place like Watton and the neighbourhood the expense of sending for engineers to mend the machinery would add very materially to the calculated expense of doing the work. With respect to another observation made by Mr. Clarke, he had for some time felt that it was a very difficult thing indeed to determine the best animal or the best pen of animals in a showyard; although he was supposed to give a prize for this object, he was never satisfied that it was a point which could be satisfactorily decided. On the present occasion, the decision had been given in favour of a most useful and excellent animal, and the prize could not have been awarded in a more satisfactory way; but it was a sort of prize not attempted by greater societies, and he thought perhaps the present association was undertaking too much in endeavouring to give a decision upon such a point.

The "Officers of the old Wayland Association" (now merged in the new society).

Mr. BARTON, whose name, together with that of Mr.

Massey, was associated with the toast, replied; and with reference to the show of stock, observed that he thought it was one of which the district might well be proud. He agreed with the remark made by Lord Walsingham in regard to animals bred by a cross between pure Down and long-woolled. Three years ago it was said he (Mr. Barton) won a prize for his lambs because he trimmed them; but this year he had not trimmed them, and the result had still been the same. With regard to the fat wethers, the remark of Lord Walsingham was borne out; for while they could breed animals of such size and weight from pure Down ewes, they need not go to the black or brown-faced ewes. He had sold his at £4 each, and got twenty shillings' worth of wool from them besides; and he thought this was very well, especially as he had not lost any.

Mr. S. GAYFORD, in responding for the "Successful Candidates," said if the forefathers of those present had been told that the once-barren Wayland district would have produced such a show of animals as had been exhibited during the day they would scarcely have believed it. The district was much indebted to Lord Walsingham for the example he was setting. He had known Lord Walsingham's estate forty or fifty years, and he was glad to say that all feudal clauses were now removed from the tenants' covenants. It was useless to convene agricultural meetings and exhibit cattle, if the farmers' hands were tied and fettered so that they did not reap the full produce of the land they farmed. Formerly he would have defied any man in England to have farmed a considerable portion of Lord Walsingham's estate, as it was so overrun with hares and rabbits; but now he was happy to hear that this was not the case. England had now to expend vast sums annually in the purchase of foreign corn, and surely it would be much better if this money could be kept at home. How was this to be effected? Let the farmers have their hands unfettered, and their productions would be largely increased. There was now an air of comfort about the Merton estate, and he believed the noble owner's own labourers had now the good meal of meat once a-day which his lordship wished them to have. He (Mr. Gayford) should like to see the day when, in addition to the meat, they might also have a pint of good beer.

The CHAIRMAN said Mr. Gayford's remarks had afforded him much pleasure. He had spent a great deal of money, with the view of improving his estate, and he believed he had done so with some success. The land was certainly at one time wretchedly overrun with rabbits, which afforded him some sport and did him no good; but on the 3,000 or 4,000 acres which were once in their possession, there were now as fine flocks of sheep as could be seen in any part of the county (cheers).

Mr. WOODS, in reply for the "Secretary," said, looking at the results which had attended the efforts of the society, he felt proud of being associated with it. The results of good breeding were not merely accidental, but were based on mature judgment, experience, and foresight, by exercising which a farmer might not only expect, but almost demand, success. Mr. Woods, in conclusion, made an able appeal for increased support to the society from the commercial class of the district.

Sir R. J. BUXTON replied to the toast of the "Strangers," with some general observations on the necessity of union and good feeling between employers and employed, which he contended such societies as the present encouraged.

THE SHORT SCYTHE v. THE REAPING MACHINE ON HILLY GROUND.—At the South Tyne Meeting the Hon. H. G. LIDDELL, M.P., the chairman at the dinner, in proposing "Success to the South Tyne Agricultural Society," made the following important and practical remarks:—"Now there are only one or two observations that I would venture to offer in the course of these few remarks, and I tender them not by way of advice, for that would be presumptuous, but rather as a suggestion to be taken for what it is worth. Viewing, as I do, the progress that agriculture has made of late years—and there is perhaps no branch of industry in which greater progress has been made—it seems to me that there is little, if any, limit

to be placed to the extent to which the farmer can increase his productions, barring always that which nature herself imposes in the liability that your heavy crops have to be injured by heavy storms of wind and rain. But there is a limit, and it appears to me to be a growing want, likely to be placed to your means of cutting your harvest. You can no longer depend, as you formerly did, upon bands of Irishmen; and that for two reasons. In the first place the supplies of labour from Ireland have been conveyed to other and more profitable fields across the Atlantic; and in the next place Ireland has become a highly productive country herself, and there is pretty general employment in Ireland. Consequently, I say, we cannot look there for the same amount of hands that we formerly were in the habit of receiving for collecting our harvest. The ingenuity of men have done somewhat towards supplying by machinery the want of labour in cutting corn, and with all due deference to the exertions of ingenious inventors of reaping machines, this instrument still remains somewhat cumbersome and complicated in its machinery, and consequently somewhat liable to get out of order; and I think there are certain natural circumstances which must necessarily prevent at all times the use—the efficient use—of this implement for the purpose of collecting the harvest up and down over hill sides in the north of England. It is all very well on a flat plain; but depend upon it the reaping machine will be

a failure where the ground is very much tossed up, and the hill sides very steep. But there is an implement—and I refer now to the short scythe—to which I think we may look with confidence as the implement to employ in gathering the harvest; and I am quite sure I need not remind those who are acquainted with it that the use of this implement is as yet but imperfectly understood. I cannot help thinking it might be a very useful thing in some of these local societies to offer prizes for the best handler of the short scythe; and I think, and have always thought, it a very valuable feature in these local societies to spread among the ranks of the labourers themselves that same energy, that same activity, that same rivalry, which you have already produced in the classes of the tenant occupier. Depend upon it, gentlemen, if you can give the labourer an interest in the work he has to do, he does that work better. You identify his interests with those of his employer. You elevate the mind of the labourer—you practically shorten his hours of labour when you excite in his mind an interest and a pride in the mode in which his work is done. Now, I am so strongly impressed with the importance of encouraging the use of the short scythe, that I feel very much disposed to consult with the Secretary of our Northumberland Society, and myself offer a small prize another year for the best performer with that most valuable implement."

RIPLEY AGRICULTURAL SOCIETY.

The eleventh annual exhibition of this flourishing society took place Tuesday, September 20, in Ripley Park, by permission of the Rev. H. J. Ingilby.

The following gentlemen officiated as judges: For cattle, sheep, and pigs: Messrs. T. C. Maidens, Spilsby; F. T. Wetherill, Elmet, Durham; and C. Wright, Tadcaster. For horses: Messrs. T. Stafford, Marnham; R. Smith, Windermere; T. Farrington, Middlebro'. The following is their

AWARD OF PRIZES.

Best bull of any age, first, I. T. Shutt, Harrogate; second, R. Watkinson, Hartwith.

Best two-year-old bull, first and second, Mr. Nicholson, Givendale Grange.

Best yearling bull, first, John Greenwood, Esq., M.P., Swarcliffe Hall; second, R. Walker, Darley.

Best cow of any age, first, Mr. Sharp, Ripley; second, Mr. Plews, Skelton.

Best three-year-old heifer, first, Rawdon Briggs, Esq., York; second, Mr. Peacock, Haddock-stones.

Best two-year-old heifer, first, Mr. Yeates, Studley; second, Rev. S. H. Powell, Sharrow Lodge.

Best yearling heifer, first, T. Clayton, Stainley House; second, George Thaley, Staveley.

Best two yearling steers, first, Rev. H. J. Ingilby, Ripley Castle; second, Mr. Stead, Bishop Thornton.

Best dairy cow of any age, first, T. Dearlove, Killinghall; second, T. Ireland, Scotton.

Best three-year-old dairy heifer, I. Wood, Scarth.

Best two-year-old ditto, F. Smiddy, Ripley.

Best aged ram, first and second, I. Simpson, Spofforth Park.

Best one-shear ram, first and second, I. Simpson.

Best tup lamb, first, W. Smith, Burton Leonard; second, I. Simpson.

Best four ewes, first, I. Simpson; second, W. Walker, Goldbro'.

Best four shearing gimmers, first, I. Simpson; second, T. Hannam, North Deighton.

Best brood mare for agricultural purposes, first, I. T. Shutt; second, Mr. Peacock.

Best brood coaching mare, first, B. Dearlove; second, Mr. Harrison, Fountains.

Best brood hunting mare, first, Rev. S. H. Powell; second, T. Wilkinson, Cayton Hall.

Best brood roadster mare, first, Mr. Plews, Skelton; second, Mr. Riddale, Water Gate.

Best roadster of any age, first, Mr. Riddale; second, T. Hullah, Bishop Monckton.

Best pair farm horses, first, T. Clayton; second, R. Atkinson, Hartwith.

Best three-year-old hunting filly or gelding, first, Mr. Thackray, Dorking Bush; second, R. Teasdale.

Best two-year-old ditto, first, T. C. Wilkinson; second, Mr. Kirk, Westwick.

Best one-year-old hunter, first and second, J. Kirk.

Best three-year-old coaching filly or gelding, first, R. Waddington, Goldbro'; second, Mr. Carr, Harewell Hall.

Best two year-old ditto, first, T. C. Wilkinson; second, R. Waddington.

Best one-year-old ditto, first, R. Lewis, Markington; second, T. Claytons.

Best three-year-old filly or gelding for agriculture, first, W. Walker; second, Mr. Plews.

Best two-year-old ditto, first, I. Parker; second, T. Harland.

Best one-year-old ditto, first, J. Dury, The Moss; second, I. T. Thackray.

Best colt or filly for agriculture, first, W. Smith; second, I. Dury.

Best coaching ditto, R. Batty, Wormald Green; second, J. Houseman.

Best hunting ditto, first, Rev. S. H. Powell; second, J. Greenwood.

Best boar, small breed, first, Mr. Mangles, Givendale; second, J. Dury.

Best boar, large breed, first, Rev. H. Ingilby; second, George Cribbetson, Stainley.

Best ditto, under six months, first and second, T. Blake.

Best small breed sow, T. Harland.

Best small breed gilt, first, Mr. Mangles; second, J. Rhoads.

Best large breed sow, first, Mr. Sharpe, Ripley; second, George Cryer, Brimham.

Best large breed gilt, first, John Iveson second, T. Blakey. Best store pig, first, T. Blakey; second, T. Dearlove.

Best cottager's pig, who keeps a cow, first, R. Scott, Haverah Park; second, S. Broadbent, Ripley.

Best ditto, who does not keep a cow, first, M. Pearson, Ripley; second, T. Morrell, Ripley.

£10 for the best hunter, of any age, was given to W. Ingilby, Ripley Castle.

Silver cup for the best four-year-old hunter was awarded to J. J. Harrison, Harrogate.

RESULTS OF THE HARVEST IN FRANCE.

The results of the harvest in France are by no means matter of little interest to the farmers of the United Kingdom. On the other hand, the proximity of the two countries, and the commercial relations existing between them, render the question of a good or a bad crop in France an important matter with us all; and this importance is heightened by the inequality of the laws regulating the importation of grain. For whilst we admit it at all times and seasons at a nominal duty, the old sliding-scale is again in full operation in France; and at this time acts as a prohibition, the price, in defiance of the law, being low enough to ensure a duty that bars all importation.

As was the case in England, the harvest in France occurred this year from a fortnight to three weeks earlier than usual, but the unprecedented scarcity of hands prevented the farmers from beginning as early as they could have wished. It has been a practice of the French Government, through the Minister of War, to authorize the generals commanding in the several departments to place a certain number of the troops at the disposal of the farmers who may require them. This year, owing to the war in Italy and the threatening appearance of things in Germany, they were deprived of this resource until the harvest was nearly finished. Another means, however, was afforded for relieving the labour market, to a certain extent, in the large number of Austrian prisoners, who, by an official decree of the date of the 6th of May, authorized the police to cause these men to be employed in agricultural and manufacturing employments, under certain regulations, obligatory both upon the farmers and the employed; securing to the latter a supply of the necessaries of life, but also effectually preventing them from making their escape. It also fixes their pay, in addition to their board, at not less than 40 centimes (4d. English) per day.

Still, notwithstanding this new resource, the harvest dragged on heavily, and a great deal of the corn was shelled and lost for want of being cut in proper time. In addition to this, the storms had been heavy and general, and the corn was lodged in every direction, making the cutting still more difficult and tedious; whilst the excessive heat and the burning sun had prematurely ripened the grain, and thus deteriorated the quality, as well as lessened the yield. The bulk of the wheat, in the number of sheaves, was larger than usual; but they were found to be light in hand, and far from promising an average yield; and the apprehensions entertained were confirmed by the test of the flail or thrashing machine in several districts. In Saône-et-Loire, l'Aisne, and l'Oise, it was found, on thrashing, that the deficiency amounted to one-third of the average, whilst the grain itself showed a marked inferiority in quality to that of the average of years, owing to the two causes we have mentioned above; and this applies as well to the north as to the south of France, the three departments we have named belonging to the north. The south, however, was, if anything, in a worse condition still, the drought and heat having been much more severe there. The lightness of the grain will reduce the quantity of flour produced from it at least by four pounds per bushel, which upon the average crop of France (25,000,000 qrs.) amounts to nearly 1,700,000 sacks of flour. The deficiency in the crop of wheat, if it amounts to one-third (8,333,333 qrs.), is a more serious affair.

In a letter addressed to the "Journal of Practical Agriculture" (French), by M. Leonce de Lavergne, on "Good and Bad Harvests," the writer gives the fol-

lowing statement of the wheat crops in France in twelve years—

1846....	60 million hectolitres, or	20,634,000 qrs.
1847....	97 "	33,358,300 "
1848....	88 "	30,263,200 "
1849....	90 "	30,951,000 "
1850....	88 "	30,263,200 "
1851....	86 "	29,575,400 "
1852....	86 "	29,575,400 "
1853....	63 "	21,665,700 "
1854....	97 "	33,369,212 "
1855....	73 "	25,104,700 "
1856....	85 "	29,231,500 "
1857....	110 "	37,329,000 "

Average . . . 29,318,384 "

This gives an average of nearly 30 million quarters of wheat per annum; but it is probably exaggerated, as most of such estimates are. What the writer endeavours to impress on the public mind is the enormous difference between a good and a bad harvest, the latter still more aggravated by the necessity of abstracting from it the same quantity of seed wheat for the ensuing crop as from the former. This he estimates at 13 million hectolitres, or 4,470,700 qrs. The deficient harvests of 1853 and 1855 produced a scarcity, amounting to a famine, in the south and centre of France; and this was hardly made up by the superabundance of the crop of 1857, which, when the seed-wheat was deducted from each crop, was nearly double that of 1853, as thus—

1853....	63,000,000	1857....	110,000,000
Seed....	18,000,000	Seed....	18,000,000
	50,000,000		97,000,000

It was chiefly owing, however, to a large increase of wheat culture that the crop of 1857 proved so much greater than the average. This was stimulated by the previous high price, and it was said to have amounted to 383,000 hectares (936,000 acres). Still the yield that year was unprecedentedly large, and followed as it was by a full average in 1858, has left a large surplus on hand, which will probably prevent prices from rising in that country to any considerable extent until the spring of next year, when the deficiency of the late crop will begin to be felt.

It was unfortunate for the French farmers that the trial of reaping-machines at Fouilleuse took place at so late a period; but their success has been hailed with great satisfaction. It is probable that every farmer who can spare the money, or whose occupation is large enough to warrant the outlay, will, before another season, furnish himself with one of these machines, which are, beyond all doubt, the most economical and useful that have ever been invented. But not only in France has the want of hands for harvest-work been felt; it has been equally so in England, and in future no farmer ought to neglect supplying himself with the means of remedying the deficiency. We believe that the loss to the farmer, from the corn remaining uncut after it was ripe, was very great, probably amounting to more than was required for seed for the ensuing crop. Reaping and mowing are the most arduous and laborious of the harvest operations, as well as the most tedious and expensive; and a machine that will supersede hand-labour in their performance, ought to be hailed with joy by both master and man. The latter will find his labour lightened and the period of harvest shortened by the American reaper; whilst, in addition to these advantages, the farmer will have the satisfaction of

being able to secure his crops at the proper time with the ordinary staff of the farm.

Recurring again to the harvest in France, M. Barral, after stating the results of thirty-five districts, says: "In recapitulation, the advices of the state of the crops are not generally unsatisfactory. The wheats, being much laid by the storms, will not yield an average return. The sheaves are numerous, but very light. Almost everywhere the hay harvest is abundant; the oats are fine; the potatoes generally diseased; the colza various; the clovers good; the linseed perfect; the beet-root promising; the vines loaded with fruit in the north, but deficient in the south; the fruit-trees will yield nothing."

HOW DROUGHT BENEFITS THE SOIL.

"Dry and hot! Hot and dry! How much everything suffers for the want of rain!" exclaims the farmer, as the empty clouds melt, day after day, from his sight. And it is a sad scene now presented in many places in the country. We need not recall it for our readers—we would rather invite them to a brighter side of the picture. That seasons of drought—so often occurring, and so injurious to our summer crops—should still prove beneficial to the soil, seems strange; but chemical science shows us that droughts are one of the material causes to restore the constituents of crops, and renovate long cultivated soils. The "why and wherefore" of this, we may here reproduce, condensed from a paper by Prof. HIGGINS, Chemist of the State Ag. Society of Maryland.

The loss of mineral matter from the soil, results from the fact that it is taken up by the growing crops, and also carried away by the surface-water flowing into streams, and thence into the sea. These two causes are always in operation, and were there no sources of supply, would in time render the earth a barren waste. The diminution which arises from continued cropping, is in part restored by manures, and the same is true of the constituents washed from the soil by surface drainage; but this supply is small, uncertain, and of limited application, and Providence has provided natural means to restore lost mineral constituents to our arable land. At intervals droughts occur to bring up from the deeper under-soil, food for the use of plants when the rains shall again fall to dissolve and bring them into action.

A drought acts upon the moisture in the earth as follows: During dry weather, a continual evaporation takes place from the surface soil, above that supplied by rain and dew, which creates a vacuum (so far as the water in the surface soil is concerned), that is at once filled by water rising from the sub-soil—extending deeper and deeper as the drought continues and the moisture is exhaled—a circulation of water in the earth the reverse of that which takes place in wet weather. This progress to the surface of the water in the earth, manifests itself strikingly in the drying up of springs and wells, and streams which are supported by springs.

Not only is water thus brought to the surface of the earth, but also all that the water holds in solution. These are salts of lime and magnesia, of potash and soda, or indeed whatever the subsoil or top strata of the earth may contain. The water on reaching the surface is evaporated, but leaves behind its lime and potash, its phosphates, silicates, carbonates, and salts—all indispensable to the growth of the vegetable products of the farm. Rain water, as it falls, will dissolve but a very small portion of some of those substances; but when it sinks into the earth, it then becomes strongly imbued with carbonic acid from the decomposition of vegetable matter in

the soil, and thus acquires the property of readily dissolving minerals on which before it could have little effect.

Several experiments tried by Prof. Higgins, go to show this action of drought in bringing mineral matters from a depth to the surface of the soil. In one case he placed a solution of chloride of barium in the bottom of a glass cylinder, and then filled it with dry soil. After long exposure to the rays of the sun, the surface of the soil was tested with sulphuric acid, and gave a copious precipitate of sulphate of baryta. Chloride of lime, sulphate of soda, and carbonate of potash, were experimented upon in like manner, and upon the application of proper tests, the surface of the soil showed their presence in large quantities, drawn up by the rising of water from underneath, as in the case of drought.

The parched earth—all vegetation dwarfed and withered by the heat—seems suffering under a curse, but it is only an affliction for the present—"a blessing in disguise"—for the future. "The early and latter rain" may produce at once abundant crops, but dry weather is needed to bring to the surface from the depths of the earth, where else it would be for ever unemployed, food for future harvests. It is Nature's ordinance for keeping up the fertility of the cultivated soil.

RAINFALL IN 1859.

It is much to be hoped that all parts of England have not been suffering so much from the want of water as we have been doing in Kent. For more than two years the rainfall here has been below the average, especially in the winter months. The consequence is, that all our wells, streams, and other sources, are unusually low, and many of them quite dry, while grass and other crops have merely been subsisting from shower to shower, on the scanty supply of moisture it then received. The evil is the greater in places where rain-water forms the only source of supply for domestic use; and as so many wells have gone dry, every quart of rain-water is valuable. It does not appear that the past summer has been so dry in the centre of England; as I was lately told, when on a visit to Oxfordshire, that they had had a rather wet summer, while farther west, in West Devon and Cornwall, the season had been one of unexampled drought. This is the more strange, as that district has been invariably regarded a moist one. In Kent, I believe we have less rain on the average than they have in most counties, Suffolk perhaps excepted. Annexed I give the rainfall of the present season, in conjunction with that of the last three years, by which it will be seen we have had an extensive falling off—

	1856.	1857.	1858.	1859.
January ...	1.82	3.13	0.79	1.61
February ...	1.12	0.27	0.77	1.17
March ...	0.99	1.27	0.80	1.66
April.....	3.89	1.76	1.93	1.89
May.....	4.03	1.06	2.16	2.22
June.....	1.86	1.67	0.67	1.75
July.....	2.48	1.07	2.69	2.01
August....	2.03	2.93	1.20	2.12
September .	3.64	5.41	1.19	...
October...	2.09	3.12	1.45	...
November..	1.58	2.15	0.77	...
December..	2.71	0.49	1.91	...
Total...	27.79	24.33	16.33	...

The above gives the total rainfall in inches and hundredth part of inches; and we attribute the lowness of our springs to the extreme dry winter of 1857-58, and to all appearance it will be some time yet ere they be renovated, the water cart being seen everywhere.

Linton, Staplehurst.

J. ROBSON.

WHEAT GROWING ON LOIS-WEEDON PRINCIPLES, BOTH EASY AND PROFITABLE TO THE FARMER.

The agricultural world is not yet out of debt to the author of the "Word in Season," so opportunely spoken in a time of falling markets and general despondency. The Rev. Samuel Smith, the vicar of Lois-Weedon, near Towcester, in Northamptonshire, published his novel method of "growing wheat with profit," in spite of low prices, now nine years ago, and had then thrashed his third harvest. For several years new editions of his pamphlet truthfully recorded his annual experience; then the little volume, "Lois-Weedon Husbandry," described to us his equally skillful and profitable practice with spring corn, green crops, roots, and granges; and, lastly, a "sixteenth edition" of the original publication—rendered seasonable again by the late recurrence of a time of low prices and long faces—brings down the result to the last harvest. Yet, after no less than eleven years of satisfactory experience, Mr. Smith's example has been followed by comparatively few cultivators; and I bring the subject before the agriculturists of Great Britain in a somewhat new light, in order that a system so perseveringly and successfully carried out, and so modestly and generously offered for our benefit, may receive the practical attention which it deserves. Not that Mr. Smith claims to appear as a slighted and injured man, who has been devotedly ruining himself in experimenting for an ungrateful country; on the contrary, having reaped a handsome profit, he kindly and patriotically places his method at our disposal; and if we have been too timid or too proud to avail ourselves of his help, the loss is on our side and not his. The Lois-Weedon modification of the Tullian husbandry has not been protected by patent, and no farmer need pay a royalty for making use of the process. It has not been advertised day by day and week after week in newspapers and periodicals, till the farmer shall be worried into trying it; neither has it competed for agricultural societies' prizes, or pushed its way with handbills and pictorial catalogues. Probably a due amount of big-letter advertising, and well-got-up testimonials in favour of "the patent triple rows," or the "alternate stripes of fallow and crop," or the "double-spit digging," or the "combined method as described," would have attracted curiosity, and aroused experimenters to a considerable pitch of interest and excitement; but, as the Lois-Weedon plan of wheat growing with large profit has been modestly offered us, without any aim at self-interest, by an amateur or gentleman farmer, we are too diffident or too lazy to persevere in a few practical trials, judiciously adapted to suit our particular soil and circumstances.

There is time enough for farmers to reflect upon the matter, and, ere the next seeding-time arrives, to sound their landlords or agents upon their willingness to permit the commencement of experiments on a sufficiently

broad scale. Do not lose this year; for consider what a tedious thing an agricultural experiment often is: you must have two or perhaps three years of patient cultivation and harvesting, before you get reliable evidence for your own satisfaction, and the inducement of neighbours to follow your method. I believe the time will come when everywhere we shall see the wheat-fields marked and beautified with Lois-Weedon stripes, just as commonly as we now see the sowing effected by a drill—the invention so long despised and ridiculed in its early days. But you need not fear to make a first essay in the present case, because it is not the ingenious failure, but the thorough and long success of the propounder, that appeals to your enterprize.

Now, however, to a description of the system. My remarks will be chiefly confined to practical details; yet, in order to a clear understanding of the processes employed, it will be necessary to look a little into the principles on which they are founded; and, indeed, I believe that most if not all the unfavourable attempts reported have failed from want of proper perception of the use of each step in this peculiar culture—some persons pouncing upon the notion of wide-drilling, and others supposing deep trenching to be the secret; and this notwithstanding that the whole matter is abundantly simple: it has been repeatedly elucidated, and its rules laid down most plainly by Mr. Smith; and the details of management are as easy, as sensible, and as free from tricks or nostrums as Mr. Rarey's mode of horse-breaking seems when once you know it.

Tillage, or the mechanical division of the soil, occasions an increase of its fertility; and stirring and pulverization of the soil about plants promote their growth. On these facts our venerated Jethro Tull (who combined "practice with science" long before the Agricultural Society chose its motto) founded his "Horse-hoeing Husbandry;" sowing his grain crops as well as others in rows, so that he might plough and cultivate between them. Thus he could wholly or partially feed their roots by opening up to them what he calls "the pasture of plants;" just as he had seen vineyards made to yield crops of grapes and wood in perpetuity, without any manurial restoratives being supplied, simply by deep and repeated tillage between the vines. We have profited by his teachings so far as some of our root and green crops are concerned; but for white corn we use Tull's ingenious machine that he named "a drill," only to facilitate the eradication of weeds, to secure a regular plant, to admit the breeze and the sunlight between the flaggy stems—not to provide room for tillage while the crop is growing. To be sure, our shallow horse-hoeings and hand-hoeings do invigorate the young plant; but deep and effective stirring and comminution of course require far wider intervals than the seven to

ten inches generally thought indispensable for a yield. The fructifying of our wheat land by tillage, all takes place before the seed is deposited; and then for nine or ten months the ground lies undisturbed, receiving the rains and dews and melting snow, and the influence of frost and wind and sun, very partially and superficially; while we are unable to open up passages into the soil, and accelerate the introduction of all these agencies (except in the shallowest manner), as we do while other crops are growing and thriving by the treatment. Why, of all crops we should have supposed wheat to be most in need of tillage during its growth; for our climate requiring it to be sown in autumn, that it may get a sufficient start in spring to give time for filling and ripening the ear, there are many months longer than are taken by any other crop, in which the efficiency of the preparatory tillage may be lost, the fine particles of soil coalescing again, and excluding the atmospheric supplies of nutriment; so that long before the crop has reached maturity, or come to that critical period of the setting of the bloom and swelling of the kernel (when the plants need "good keeping," or will fail in fecundity), the land is almost as solid and impervious as it was before the seed-bed preparation began. Tull drilled wheat in double rows, ten inches apart, leaving intervals wide enough to plough and work in, and found that good crops could be grown year after year without manuring—of course sowing next year's crop in the intervals fallowed during this. His immediate disciples did not long prosper in the same experiment; but in an age of better implements, better workmen, deep drainage, and an insight into the merits of a subsoil properly used, and introduced into communion with daylight and fresh air, Mr. Smith has revived the practice with astonishing success, and an ample profit. Indeed, so far from wheat being found an exhausting crop, as compared with others under similar cultivation, eleven harvests have given him a large average yield of wheat grown without manure; while beans, mangolds, swedes, cabbages, and other produce experimented on have required the application of mineral and nitrogenous dressings.

Why tillage alone can maintain the fertility of a naturally good soil under a lengthened course of wheat after wheat, involves a long story; but the gist of the matter may be given in a few words. The crop requires two sorts of food. There must be present in the soil a sufficiency of certain "mineral" matters; and if each of these is not there in due proportion, the deficiency must be made up artificially, or the crop will not thrive. On Mr. Smith's clay land all the requisite ingredients exist in abundance: on his light piece, which is not proper wheat land, a dressing of clay supplied the known deficiency, and has hitherto satisfied the wants of many crops. To grow corn year after year successively, there must not only be a lasting stock of the crude "minerals," but sufficient quantities have to be chemically prepared and made available for each crop quickly enough to supply its wants while growing; and if tillage operations will not do this rapidly enough, manures must be employed to assist them. What prospect there is of our being able to feed successive wheat crops, by

means of tillage, on proper "wheat land," I shall subsequently consider.

To show that Mr. Smith has plenty of indispensable "mineral" matter for his crops, I need only adduce a few items from the chemistry of the question. The average of his twelve crops gives a yield of 35 bushels of good wheat, and nearly two tons of straw, per acre. Well, a wheat crop of 35 imp. bushels, weighing 60lbs. per bushel, and 4,200lbs., or over 1½ tons of straw, takes from the soil the following quantities of minerals, as deduced from 32 analyses of grain and 10 analyses of straw by Professors Way and Ogden.

	Grain.	Straw.	Total.
	lbs.	lbs.	lbs.
Silica	1.18	142.55	143.73
Potash	10.50	25.50	36.00
Phosphoric acid	16.00	11.55	27.55
Lime	1.19	13.00	14.19
Magnesia	4.35	5.70	9.95
Sulphuric acid	0.112	8.10	8.212
Soda	1.35	1.26	2.61
Peroxide of iron, and loss	0.28	1.85	2.13
Chloride of sodium	0.042	0.46	0.502
	84.904	209.97	244.874

In Mr. Smith's clay land most of these ingredients exist in sufficient abundance to supply the wants of many thousands of such crops; and there is enough of those particular substances which are in smallest quantity (in proportion to the demand) to feed the successive wheat crops for many centuries. But as I wish to advocate the advantages of the system for loamy as well as strong lands, I will state what amount of these several substances we may expect to find in a common loamy soil; not a rich clayey loam, or yet with too large a proportion of sand for our purpose. The following actual quantities are calculated from an analysis of a loam containing 80 per cent. of silica, and 3½ per cent. of alumina; taking one acre of land 9 inches deep, as weighing (at 90lbs. per cubic foot), 2,940,300lbs., or about 1,312 tons.

	Lbs.	If the straw is returned to the soil, enough for 19,930,000 crops
Silica	2,382,000	
Potash	23,522	2,240
Phosphoric acid	11,173	698
Lime	38,223	31,850
Magnesia	32,981	7,700
Sulphuric acid	2,646	23,600
Soda	44,104	34,000
Peroxide of iron	99,970	357,000
Chloride of sodium	"trace"	abundance

If we take away both grain and straw without any return whatever, there will be sulphuric acid enough for 330 crops, phosphoric acid for 406 crops, potash for 653 crops, lime for 2,730 crops, and the other minerals in still larger profusion. Thus the only substances that a long-continued series of crops could sensibly reduce are those which can be readily supplied again in the form of a dressing of ordinary artificial manures. Of the 245lbs. of mineral matters in a crop of wheat, 210lbs. are in the straw; so that if we return the straw to the land (in the form of manure)—not ne-

cessarily every year, but the abstraction of several crops applied at one time—we have only to demand of the soil a perpetual supply of the 351bs. of minerals sent off the farm in the corn sold; to which must be added the waste of mineral matters during the conversion of the straw into manure. The table just given shows what an immense store of mineral food for a long succession of crops is contained in a common loam.

But it must not be supposed for a moment that we may go on exhausting these particular quantities of ingredients, and then no more will be left in our soil. A staple of 9 inches' thickness has been assumed, because this is the depth supposed to be ploughed and worked, but the subsoil may be equally well constituted and composed, and thus by our very gradual abstraction of material from the field, our staple will gradually sink lower and lower, incorporating the subsoil with itself by very slow degrees, besides which, the rest of the crops will fetch up mineral nourishment for themselves. In cases where an absolutely inert and worthless rock, or sharp, raw unmitigated sand underlies the staple, of course a dressing of clay or other application will supply the exhausted staple for another long series of years.

I have said that the requisite proportion of these valuable and necessary mineral ingredients may exist in the soil, and yet their liberation, solvency, preparation, &c., may not take place in sufficiently quick time to enable successive wheat crops to be grown. This will depend upon the mechanical tillage we employ to effect this end; hence the necessity for the deep and thorough pulverization of the ground, and the continual maintenance of a free access of air, water, &c., into it. Practical trial alone can determine how much tillage is necessary in every separate case, but there is plenty of evidence to show that on ordinary loamy soils the methods Mr. Smith employs are found in practice quite sufficient to accomplish the object of feeding any number of successive crops. The measured produce shows that, hitherto, Mr. Smith has found no lack of native mineral constituents, and the cultivation bestowed has secured their release, solution, or chemical activity rapidly enough for the use of his magnificent crops. According to the forebodings of some chemists, he may be slowly spending "the dormant capital of his land," but so slowly that at the eleventh year of the process the soil seems to be positively better instead of deteriorated in fertility.

Consider Mr. Lawes' wonderful experience at Rothamsted. On a heavy loam with a clay subsoil he has grown a long succession of wheat crops, following each other every year without intermission. The "unmanured" plot gives an average yield of about 16 bushels per acre; in 1855 there had been eleven crops, annually producing (on an average) 2,856lbs. weight per acre of corn and straw (that is, say 16 bushels of grain); and the requisite amount of mineral matters is furnished by the soil itself, under the developing and preparing operation of merely such tillage as farmers usually employ in getting in a wheat crop, the ground being ploughed, harrowed, &c., in the common manner. On the plot dressed annually with "am-

moniacal salts only" and tilled in the same way, the continuous produce was (on an average of eleven years) 4,534lbs. of corn and straw, say a yield of 26 bushels per acre. The salts were generally sulphate and muriate of ammonia: the sulphuric acid and chlorides these contain tended to supply two of the mineral wants of the wheat plant; but all the rest could come only from the land itself; and had the mechanical tillage extended to the depth of nine inches, and the preparation of minerals been still further increased by frequent stirring and pulverization of this deep staple, far larger crops would have met with all the properly cooked mineral food that their appetites could daily feed on. At Woburn, the continuous wheat-growing experiments gave similar results to those at Rothamsted; and at Holkham, on a light silicious soil, considered too light for wheat-growing, but which had been clayed many years before the trials began, crops were obtained for several years in succession without any mineral application.

The practice I have to describe will also show that by ploughing, horse-hoeing, &c., plenty of the mineral food naturally present in a loamy soil can be prepared for a series of good wheat crops.

I have endeavoured to show that a loamy soil contains abundance of "mineral" food for hundreds of good wheat crops, and that by easy and ordinary methods of ploughing, pulverizing, &c., plenty of this nutriment can be prepared for the appropriation and support of wheat crops following year after year. But this is not all: plants require "aërial" as well as terrestrial nourishment; and whether they gain much or little by their own absorptive power of leaf and stalk, it has been found that large quantities of gaseous matter, or liquid containing gases, or organic substances supplying them, must be present in the soil, or the crop cannot prosper. A deficiency of the costly and indispensable nitrogen was most to be feared, so great a consumption of this element being observed to take place during the growth of wheat; but whether or not this arises from a loss continually going on within the soil as it lies for many months shut up from the free contact of the atmosphere, or whether the nitrogen is actually dissipated by the functional processes of the plant itself, nobody has yet discovered. Probably plants are unable to fix free nitrogen from the air; but we knew they can inhale or absorb it in the combined form either of ammonia or of nitric acid; that these compounds exist in quantity in the atmosphere, and are brought down to the soil in rains and snows and dews; and that the earth also abstracts them with avidity from air with which it is in contact. Well, though some men of science despaired of having anything like enough nitrogen furnished naturally (without manuring) for the growth of wheat crops in succession, it is certain that, in addition to the ascertained supply in rainfall, there is such a vast absorption by the earth itself from the fresh charges of air with which Mr. Smith's tillage replenishes the cells and interstices of soil and subsoil, that his land does acquire nitrogenous plant-food in ample abundance. For, without the smallest application of manure, the latter crops, out of

a series of eleven, are the most prolific. And more than that, there has been an increase of the store of nitrogen present in the soil; while transacting so largely, Mr. Smith has accumulated a large balance in the hands of his most trustworthy banker. Analysis has shown that his staple soil is richer than the subsoil in nitrogen; and the staple has been deepened more than a foot—a stratum containing nitrogen thus taking the place of raw earth which held a small proportion; so that, instead of the unprecedented series of wheat crops having drawn up and exhausted the native nitrogen out of the subsoil, we have the remarkable fact that *a considerable deposit of this constituent has been acquired from the atmosphere*, besides that which has been consumed or appropriated by the crops.

The secret of success, then, lies in having such a depth and minuteness of tilth as will provide an area of “internal superficies” (or absorptive surface of the particles of earth) sufficiently large to obtain the requisite amount of aerial food in the time demanded by the crop—a depth and minuteness of tilth that will also bring enough of the proper mineral ingredients under atmospheric action to ensure their preparation in prompt and adequate supply. And Mr. Smith's experience has shown that this depth may be easily attained, and that it is sufficient for raising crops, if not in perpetual, at any rate in long succession. Most of us feared that Mr. Smith was exhausting the goodness of each additional inch of subsoil as fast as it was brought into play by the trenching-tool, and that when he ceased to go downward, his produce would dwindle. What is the fact? On the light land dressed with clay, the fork has never penetrated beyond thirteen inches; yet the average yield has not diminished, and the following is Mr. Smith's own account of the clay piece: “At the outset of my farming, fifteen years ago, the field was in grass, which I pared and took off the land; then ploughed it the full depth of the *five-inch staple* for a crop of oats, followed by vetches. After this came the first triple-rowed wheat crop with its wide intervals, which I dug one spit deep, bringing only a very few inches of *yellow clay subsoil* to the surface. The second year these well-stirred intervals bore the wheat crop, and the stubble was dug in. And thus year after year, alternately, the same acre of land has had a fallow and a wheat crop too. In the third and fourth years the spade went down a few inches deeper, and so, gradually and regularly, for four years more, till a depth of sixteen or eighteen inches was reached, when I stayed my hand; and, after that, was satisfied for the four following years with a single spit. Last year, however, I returned to the double spit and a fresh inch of clay.” When the double-digging shall have arrived at the limits of two feet below the surface, beyond which perhaps it may be too expensive to go, should the crops exhibit symptoms of debility, we may begin to prophesy the close of this lengthened experiment; until then, it is vain to be questioning how long it may last. And on the light-land field, the present indications are that the method may be pursued for ever, provided a dressing of clay may be applied at intervals of several years.

And now, before I proceed to details of management, let me say, that “wheat-growing on Loia-Weedon principles” does not involve flogging the land with crops, and withholding farm-yard or artificial manure. Mr. Smith would use farm-yard dung if his wheat would stand it, or guano, soot, or nitrate if he found such stimulants were wanted: he has given a mineral dressing, that is, clay to the light land; and if ever the time should come when the two-feet trenching is found insufficient, and more elaborate surface-tillage fails in its turn, doubtless the manuring of ground so long innocent of the muck-wain or the guano-bag would powerfully assist the growth of wheat or any other crop. In fact, you have only to walk over Mr. Smith's field, and then look at the soil of neighbouring fields (as I have done), to see what an improved texture and quality, and obviously augmented fertility, have resulted from his culture. While bearing prolific yields for so many years, the land has been wonderfully improved, which would soon appear were the old system of husbandry to be again practised on it. *Where the land requires it, by all means manure*; the logic of the case being this—if great yields of the healthiest and best grain can be raised by tillage alone, larger yields will be produced by tillage and manure together. And we are not obliged to view the system as perpetually self-maintaining. Mr. Smith offers us a more profitable mode of growing corn than any we have hitherto followed; and if it be so, we can make it a part of our rotation, without going to the extreme of trying how long it may possibly hold out.

Viewing the matter, then, in a moderate and reasonable light, let us look at the facts and figures.

I have inspected the astonishing crops on Mr. Smith's little farm more than once, and did the limits of my subject permit, I could tell of winter beans in single rows five feet apart, yet branching so as to meet across the intervals, with stalks bearing forty or fifty pods each, and yielding over six quarters per acre, while in the fallow spaces between were raised eight or nine tons of carrot besides. I could tell of twenty-seven tons per acre of swedes grown in single rows five feet apart, with their leaves touching across the intervals, and their bulbs of enormous size; of prodigious weights of mangolds, and marvellous drumhead cabbages 40 lbs. in weight, cultivated with the same wide spaces, by means of deep tillage, and heavy manuring, farm-yard dung being buried fifteen inches deep, and artificials plentifully supplied at the surface. But our business is now with the wheat only. Mr. Smith's land is just what he says it is: one field is the ordinary heavy wheat soil of the oolite formation, generally rented at not more than 30s. an acre. The four acres of lighter soil have chiefly a gravelly subsoil, and the claying having lasted a good many years, was not a very costly affair. There is nothing specially peculiar in the soils; the same qualities of land exist over tens of thousands of acres; and undoubtedly, any good wheat land may be brought by the same means to a similarly productive condition. The average yield for eight years on the lighter piece is about thirty-four bushels; on the strong land the pro-

duce has been as follows :—The average of eight years, beginning with the harvest of 1847, was fully thirty-four bushels; in 1855, forty bushels; in 1856, thirty-seven bushels; in 1857, thirty-six bushels; in 1858, upwards of forty bushels. The average amount of straw (which must be considered as part of the returns, seeing that it is never restored to the soil,) has been at least a ton and a half, and this last year quite two tons per acre. The quality of the grain is always so good, that Mr. Smith has usually made the highest red wheat price of his market, because being able to feed the crops by horse-hoeing and subsoiling, and support it by earthing up the rows just before flowering time, *his wheat is not lodged and damaged by the July rains*. A good deal of the straw of the last crop was upwards of six feet high, yet none of it was laid. Mr. Smith writes, "I believe the case is almost peculiar. With the exception of another piece of wheat in this parish on my plan, I knew of no other bulky crop that was not in part or wholly beaten down; and had only ten days' fall of rain come upon it in that condition, the loss to the country would have been immense, and in some cases ruinous. We were only saved by a providential succession of many weeks of sunshine unprecedented in our climate. Could we reckon upon such a season year after year, the open-handed intelligent farmer, with the aid he now has from artificial manure, might safely reckon year after year upon a yield of six quarters. As it is, the best authorities despair of any means, in the ordinary mode of farming, of guarding against an evil which so often partially blights or wholly destroys his hopes. I owe my immunity from this general disaster, not so much to the greater comparative stoutness of my straw, as to the broad space of my fallow intervals, which enables me to earth up my wheat with the mould-board."

I need not enter minutely into Mr. Smith's practice, because everybody ought to be sufficiently well acquainted with the details by this time. His average annual expenses are :—

	£	s.	d.
Digging and cleaning the moiety of each acre ..	1	14	0
Horse-hoeing ditto three times, 6s.; ploughing, 4s. ..	0	10	0
Hoeing and handweeding	0	5	0
Rolling with crusher at seed time and at spring ls. ..	0	3	0
Two pecks of seed, 2s. 6d.; dibbling, 5s. ..	0	7	6
Bird-keeping	0	4	0
Earthing-up wheat	0	3	0
Reaping, &c., to thrashing and marketing ..	1	13	0
Rent, £2; rates and taxes, 4s. 3d. ..	2	4	3

£7 3 9

To this should be added something more for interest, insurance, &c.; so that I will take the total outlay at £7 10s. per acre. The average returns for the last eight years, up to 1858, have been 36 bushels of wheat, and 1½ tons of straw per acre. The present (1859) crop, already harvested, is estimated at 42 to 44 bushels per acre; all the crop heavy, large-eared, high-strawed (nearly 6 feet high), yet none of it injured; though the wheats in the neighbourhood are fearfully damaged. You may reckon the amount of profit according to the price corn may happen to be selling at, but always in-

clude the straw too, because this is clear gain, seeing that it is never returned to the land.

	£	s.	d.
Say, 36 bushels at 5s.	9	0	0
Deduct expenses	7	10	0

Clear profit per acre £1 10 0

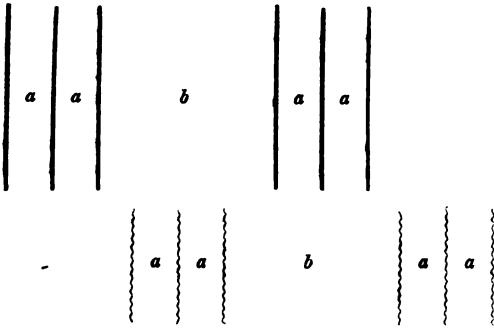
The straw is worth 40s. per ton to Mr. Smith, and to many other cultivators; but in some districts, 10s. a ton would be thought quite high enough. Adding therefore 1½ tons of straw at these prices, we find Mr. Smith's profit to be £4 10s. per acre; while in cheap straw districts the profit would be £2 5s. per acre, with wheat at 40s. a quarter.

It is a very noticeable fact that so little difference exists in the amount of produce and also in the clear profit, from the light gravel land (clayed), worked 13 inches deep, and from the fine clay soil that has been worked at least 18 inches deep—the former having annually given 34, and the latter about 36 bushels per acre during the last eight years. This seems to indicate that on loamy soils, suitable for wheat-growing, we have a good prospect of fair crops without cultivating to a greater depth than horse-traction implements can very well reach; the wheat will thrive if we plough and subsoil 10 inches or a foot deep, and "pulverize to the letter" with shallower-working horse-hoes and grubbers.

The chief practical objection to Mr. Smith's particular process, is the necessity for employing hand-labour in digging—which no farmer can ever be expected to attempt on a large scale. This difficulty I hope is now removed; for I have now practised the system for three successive years—ploughing and subsoiling between the rows instead of trenching by hand. Ordinary horse implements having thus been brought to answer well for the Lois-Weedon wheat-culture, the way seems open for the still more economical and greatly more effective performance of the tillage by steam-power; indeed, Mr. Fowler's parallel wire-ropes are exactly adapted for working between the rows of the young growing wheat.

My experiment is being conducted upon ten acres of alluvial or marsh soil—low-lying, flat, and naturally wet; a clayey loam resting upon a sandy stratum at considerable depth, but not a particularly good piece of ground. In fact it was chosen for the trial, because of its being less light and silty than the remainder of the farm; and it had been undergoing rather a heavy course of cropping. According to the value of the district, the rent may be taken at 35s. The last application of any manure whatever was a moderate coat of farm-yard dung for beans, in 1854; and the last fallow crop was turnips, in 1850. My first Lois-Weedon wheat crop was grown in 1857, after barley; and being got in late and very badly, never promised much of a yield. The ten acres produced within a trifle of 30 quarters, or 24 bushels per acre. The harvest of 1858 gave just 30 bushels per acre of dressed corn, and the third crop grown on this system (1859) has

yielded 33 bushels per acre. The wheat is drilled in triple rows, the "spaces" *a a a* being 10 inches, and



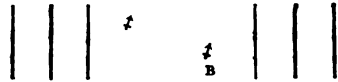
the "interval" *b* 40 inches; so that from the middle of one stripe to the middle of the next is 5 feet. Next year's crop is sown in the intervals of the last, as indicated by the wavy lines. As the intervals are ploughed and tilled, and, in fact, dead-fallowed, in preparation for the next year's crop, half the land is occupied by the wheat, and half is under fallow; yet the ten acres under this system gave last year as much produce as other ten acres did under the ordinary mode of culture—the harvest being a very poor one throughout the district. This is very remarkable, for as the wheat occupies only half the surface, the 37½ quarters from the 10 acres are, in reality, a yield of 7½ quarters per acre from 5 acres, while the other 5 acres lie in intervening strips of fallow. The present (1859) crop is harvested, and is estimated at from 32 to 34 bushels per acre—that is 40 to 42 quarters altogether: the straw standing up well, although the crops in the neighbourhood are exceedingly mild and storm-broken.

Then, as no manure has been applied, the straw has also been clear gain to the extent of its value, at whatever you may please to fix this debatable item. There has been about 1½ tons per acre each year. It is possible that I may find it advisable to manure in future years (though at the present depth of tillage the crop has been quite heavy enough in the straw, and would have been much lodged, and the yield damaged, had it been any heavier); if so, I propose to give a dressing of artificial manure equivalent in money value to the worth of the straw, and then the oora alone will form the source of profit.

The details of management are very simple. After harvest, fork out couch from the closely mown stubbles. Broadshare or scarify the fallow intervals, to keep down the weeds. Shortly before seed time, again scarify and harrow; prepare a suitable mould by harrowing, taking care to set the harrows widely apart, in order to miss the stubble rows, and drill with the distances shown in the diagram given above. Sow 3 pecks per acre (that is, using the same drill-wheel that would sow 6 pecks an acre, if the rows had been 10 inches apart); and be sure and sow early, say the latter part of September or early in October.

When the wheat is well up, take a plough (with two horses in length), once up each interval, the coulters running within 6 inches of the wheat row on the near

side, the furrow slice covering up the old stubble. A subsoiler, drawn by say three horses in length, is to follow along the furrow bottom.



This ploughing is represented by the harrow *A*. In spring, say in February, or as soon as the land is dry enough, after a time of frost and snow, perform the same process along the opposite side of the interval, as at *B*. In March or April, hand-hoe the wheat rows. In April, when the upturned furrow-slices are in a crumbling state, tear them down by passing a narrow harrow along the intervals, and then stir up deeply with a good grubber set about 26 or 28 inches wide, the horses walking in length. It will be necessary to go over the field with a hand-rake to pull off any clods that may fall upon and bury the outside rows of wheat. Horse-hoe the fallow intervals deeply, say twice during the summer, and hand-weed the wheat when requisite. When the ears are fully out and in bloom, take a ridge-plough up the intervals, so as partially to mould-up the wheat-rows on each side; this will prevent many stalks from being blown down by winds or borne down by rains. A subsoil-plough may break up the bottom of the furrow left open in the middle of each interval. The crop may be mown or bagged close to the ground; and it should be borne in mind not to obliterate the lines of stubble by harrowing or otherwise, because these form the "guideways" marking the place of the next sowing.

Expenses will vary in different localities and at different periods, and according to the high or low rate at which you value horse labour. During my experiment wages have varied from 10s. up to 12s. per week; and I have reckoned half-a-crown for a day's work of a horse, equivalent to £37 10s. for 300 working days in a year. The cost per acre of the several operations has been as follows:

	s.	d.
August..... Scarifying fallow intervals.....	1	6
September .. Forking out couch.....	3	0
Scarifying and twice harrowing intervals.....	2	0
October Drilling and harrowing.....	2	5
Seed, 3 pecks (at 4s. 9d. per lb.)..	3	7
December.... Ploughing and subsoiling.....	3	6
March Ploughing and subsoiling and removing clods off the wheat....	3	7
April Hand-hoeing the wheat	1	6
Harrowing and scuffling the intervals	1	4
May..... Hand-weeding the wheat	0	9
Horse-hoeing the intervals	0	10
June..... Horse-hoeing the intervals second time	1	0
Moulding up wheat	0	8
Hand-weeding wheat	0	4
August..... Mowing and harvesting	21	0
Thrashing and marketing.....	10	0

£2 17 0

To this must be added for rent, say £2; for tithe, rates, and direct taxes, say 13s.; making altogether

£5 10 0

Add also for 5 per cent. interest on the outlay, say 5s., and the total cost per acre is £5 15s. Is my ton-and-

a-half of straw worth 15s. ? If so, there will be only £5 left as the cost of an acre's produce of marketable corn. At 40s. per qr., 20 bushels per acre yield just meets the expenses, and all above this quantity is clear profit. Well, my first year's crop was 4 bushels an acre over the 20; the second year's crop (1858) was 10 bushels over; and the present year (1859) it is larger still—probably 12 or 14 bushels over. So that, reckoning the price at 40s. per qr., I have had £1, £2 10s., and probably £3 or £3 10s. an acre clear profit during the several years of the experiment.

As compared with Mr. Smith's management, I find that his clay-land wheat (yielding 35 bushels on an average) costs him 4s. 3d. a bushel, and his light-land wheat (yielding 34 bushels) costs 4s. per bushel to grow; while my wheat, taken as yielding 30 bushels an acre, costs only 3s. 4d. per bushel.

My experiment has been undertaken partly to prove how far tillage alone can be trusted to for wheat crops; but, of course, if tillage brings so much produce, tillage and manuring together may be expected to bring still more. A much greater yield than 33 bushels per acre may stand and ripen on the land, as shown by Mr. Smith's 40 bushels yield; so that were I to expend 10s. worth of guano on each acre, in addition to the present expenses, I should be just as sure of recovering more than that sum in extra produce, as farmers now are when applying artificial manures upon ordinary crops.

Then, again, what need is there for prolonging this successive corn culture to an extreme period, or altogether abandoning the sound and valuable practice of rotation of cropping? That for three years together a common description of soil will produce (upon Loise-Woodon principles, yet with simple horse-tillage) three good and very profitable harvests, my experiment has

satisfactorily proved; and there is no reason why we should grow corn on this plan in perpetuity, or else not at all. I feel sure that on any suitable wheat soil two good crops at least may be obtained successively by the means described, and give a clear profit of about £3 per acre each year, when the market price is 40s. per qr. Why then might not we take a couple of wheat crops from each of our fields in succession, following with other varieties of corn, or with green cropping?

A.	B.	C.
----	----	----

Suppose 300 acres arable, in three portions (A, B, and C). Let A and B be in wheat, and C in other produce. Next year have B and C in wheat, and A in other produce. The year after that, C and A in wheat, and B other produce. Thus the wheat would be as it were down two years, like artificial grass, only of course having to be sown. Every year there would be 100 acres of wheat after wheat, 100 acres of wheat after various crops, and 100 acres of wheat-stubble broken up for green crops and other produce. Two hundred acres of wheat, at £3 per acre profit, would be £600 clear annual income; and I fancy the other 100 acres, with all the straw from two-thirds of the farm, might be made profitable in a very similar ratio. How many farmers are able to realize £800 a-year clear surplus above their expenses when wheat is down to 40s.? Of course I do not mean to urge this particular rotation of "two-thirds wheat" as the most advisable; but it is an illustration of the advantage promised by the Loise-Woodon system of husbandry.

JOHN ALGERNON CLARKE.

AGRICULTURAL MACHINERY, AND THE PRIZE SYSTEM.

If we compare the present condition of the manufacture of agricultural machinery, with that presented at a period dating some five-and-twenty or thirty years back—for the retrospective glance will embrace an extent little more than this—one cannot fail to be surprised to note the rapidity with which a state of comparative perfection and efficiency has been attained. For, while we remember that at the period above alluded to, the spade, the plough, and the harrow comprised the three great, if not the only, classes of mechanism in use, will we be less surprised to witness the number of various machines and implements in use, and in peculiarities of construction, which the exigencies of a more systematic, because more scientific system of cultivation has called into requisition. Many circumstances have conspired to aid this rapid development of the invention and manufacture of agricultural mechanism. A superior mode of culture; the resources of chemistry; the daring innovations of speculators; the quieter, but not less powerful efforts of practical farmers, and the exigencies of a new political and social organisation, have led to a

system of cultivation in which finer management of the soil, more certain and economical methods of sowing have in turn demanded and brought about the introduction of mechanism to aid in the securing and preparing for market of the crops, and of systematising the housing and feeding of stock. Nor have the labours of the press, and the influence of rapid and certain modes of conveyance been less marked. The press has diffused a knowledge of improvements in quarters where formerly the light of intelligence never flashed, and our "iron ways," and the plashing steamers of the deep have offered facilities for the transport of those aids which improved practice has brought into use. In this, as in other departments, then, we see the clear connection—the links which bind many different agencies together, all working to serve one common end. But chief, according to some, of the agencies which have aided so effectually in bringing the manufacture of agricultural machinery to its present stage of what by some is so complacently called perfection, is the establishment of agricultural shows, and the prize

system generally, if not universally connected therewith. Whatever views may be held as to the influence of the "prize system," or the progress of the manufacture now, there can be little doubt but that at the period of the institution of "shows," that it was strongly operative for good. It gave an impetus to invention and an incentive to produce good manufacture, which in the peculiar state of agricultural science then existing, would wholly have been wanting. For it must be remembered, that while comparing the apparently slow progress of agriculture with that of the splendidly rapid development of manufacturing mechanism, a very different state of matters obtain with the former not found in connection with the latter. The manufacturing mechanic can patiently plod on in his experiments and trials without any interruption; the fault shown by the labour of to-day can be rectified by the trial of to-morrow. Not so with the trials of agricultural machinery: in many branches, especially those connected with the cultivation of the soil and the securing of the crops, limited trials only can be obtained, in the course of a whole year; and the correction of the faults of one season have to lie over for trial till the period of another. Progress in some departments is, therefore, necessarily slow; and the difficulties thus arising, and the tardy realization of hopes, rendered means in some measure necessary by which an artificial stimulus could be given to the development of new and improved mechanism. Hence arose the "money prize or bounty system"—a system which political economists condemn as unsound in principle, and productive of no real progress in practice; but which, nevertheless, has done much to foster, in times of early weakness and of difficulty, a manufacture which had special circumstances of an adverse nature to contend with.

This early weakness having now, according to some, given way to material strength, and those difficulties having been wholly overcome, an agitation has within the last year or two arisen, which has for its aim the abolishment of the money prize system. Independent of a variety of minor articles in the pages of our agricultural newspapers and magazines, this agitation has found exponents in two pamphlets: 1. "The Manufacture of Agricultural Machinery, considered as a branch of National Industry;" by a Manufacturer; published for the Association of Agricultural Engineers, by E. Stamford, Charing Cross, London. 2. "Mechanical Science and the Prize System in Relation to Agriculture;" by Wm. Day. London: Harrison, Pall Mall. Price 1s.

To the views promulgated by the first of these pamphlets we propose, at present, to direct attention. Passing over the first three chapters, which contain an able *resumé* of the causes which have led to the rapid development of the trade, we come at once to that on "The Prize System considered," which is the gist or main kernel of the pamphlet.

Commencing with a statement of the advantages arising from the bestowal of a "money prize," at the early period of the history of the trade, as giving those manufacturers who had attained the distinction "a status throughout England, which they had previously

no means of obtaining, beyond a very limited sphere," it proceeds to point out how, as years of trial of the money prize system rolled on, "suggestions for improvement in the mode of trial and objections to the whole system became numerous and urgent; and as there was much reason in those complaints, improvements were from time to time adopted by the Royal Agricultural Society of England. "Still," continues the writer, "the evils complained of by the makers were only partially remedied. The hurry and bustle of trials, which settled in minutes what could scarcely be settled in days, still continued, and the frequent occurrence of those contests began to be more seriously objected to as the necessity for a complete revision of the whole system became more apparent." In order to remedy in some degree the evils here complained of, the triennial system of trials was recommended and adopted by the Royal Society. By confining each year's trial to a definite class of machinery, the bustle and hurry usually attendant upon the trials were in a great degree obviated, and the results became more satisfactory. But still the evils complained of existed. The number of machines tried was doubtless reduced; but the principle on which the trials were carried out was still characterized by the same defects.

Now, as to the prejudicial influence of the *principle of trial* adopted at our shows, no one at all acquainted with the trial system then carried out can have any doubt. There can be no question that the trial system, from the very first, was based on erroneous principles, the bad working of which only became strikingly evident as the number of machines to be tried increased. The results of show-yard trials can in no wise be depended upon, for the mode of trial adopted is not at all representative of the system of actual work for which the machine or implement under trial is designed. No trial can be satisfactory which does not embrace all the exigencies of actual practice, and these only can be developed by the *lengthened* trial of the implement under ordinary farm practice. How this can best be done it is not our province here to show; certainly no other method will be thoroughly satisfactory, and in this we but echo the opinion of the most practical and deep-thinking men of the day.

With the opinion of the author of the pamphlet now under review, as to the defects of the present *trial* system, all who know aught of the subject will cordially agree. Not so, however, with the remedy he proposes, namely, the placing of the "reports of the judges, in such form as may express their approval (either entire or qualified, as the case may be)," in the "hands of the exhibitors before the general exhibition day, in *substitution of the individual money prizes as heretofore offered in the Society's prize sheets*." We have italicised the important point of this proposed plan, namely, the withdrawal of the "money prizes." Before entering into the consideration of the bearing of this proposition, we should glance at the plan proposed to make the "trials" more complete, so as to give results to be depended upon; for although the abolition of "money prizes" is proposed and wished for, the retention of the

trial system is advocated. The following are the proposals for obtaining efficient trials : 1st. That trials of agricultural machinery should be of longer continuance than heretofore, and conducted as much as possible on the same manner and under the same circumstances that such machinery will be used in the ordinary practice of farming. 2nd. That a committee be appointed by the Council of the Royal Society, composed of the consulting engineer, and of farmers and manufacturers, who shall consider the best mode of conducting trials, and settle what shall be regarded as the "points of excellence" of each implement or machine, and fix the relative importance of each point. 3rd. That the trials shall be conducted upon the plans so settled, and that a full report of such trials be instantly published, and sold with the catalogue, on the first day of the show."

Having now before us plans by which the real efficiency of the trials is proposed to be secured, we shall be able to test the likelihood of their utility, contrasting them with the evils assumed and presumed of the *money prizes* as expounded by our author. We have already said that the author admits the advantages which were derived from the "money prize" system at the earlier stages of the development of agricultural machinery, but he is of opinion that "prizes" now "for the ordinary standard implements have lost their significance, and that the application of further stimulus would prove injurious." "We do not maintain," he goes on to say, "that any machine has reached positive perfection; indeed, we would set no limit to improvement. But we are convinced that a stage has been reached where artificial stimulus is needless and baneful, and that such a state of progress has been attained in a great number of machines, that they now may be safely left to the simple principles which regulate the great business of bargain and sale all over the world." Now, it appears to us that this conclusion is arrived at from an assumption altogether erroneous. In view of the fact that not a few of our practical men are of opinion that many of what are called "standard" machines and implements are mere necessities of a bad state of practice, the use of which will be done away with as improved practice is inaugurated; and in view also of the train of thought which many are now at great expense in working out into practice, and of the amount moreover of philosophical deduction, all tending to the probability of a totally new method of working being introduced; it is very difficult and hazardous to say that any one of the numerous machines or implements, which, be it noted, received at one period the advantages acknowledged by our author of an artificial stimulus, had its position so well defined and its perfection so marked and decisive, that its further improvement is impossible, or at all events, not likely to be further developed by "artificial stimulus." If there is any one implement which is pretty generally looked upon as "standard" and as comparatively perfect in principle and operation, it is the plough: and yet it is in connection with this very implement that discussion is now rife, as to its merits or demerits as a cultivator, and which implement by not a few is considered to be doomed speedily to be

superseded by mechanism more economically worked, because more philosophically adapted to the work it has to perform.

But the present prize system is productive of other evils. "Its maintenance can only lead," says our author, "to a further development of a practice condemned by all parties concerned. We allude to the practice well-known to all in the trade of so preparing machines intended for competition, which whilst they comply most fully with all the conditions of the prize sheet, and carry off the premiums offered, are so little calculated for actual wear that no manufacturer who values his reputation would put them into the hands of his customers." We do not see how this evil will be remedied by the abolition of "money prizes" merely, and the substitute therefore of carefully prepared "reports," as suggested by our author. If the "money prize" system with all its acknowledged or assumed worthlessness, offers a too highly seasoned stimulus, and urges on this reckless competition, we do not see how the stimulus will be lessened by the substitute proposed; for the higher the real value of the reports which are to be given in lieu of money, the greater we conceive the stimulus will be, and the greater the evil complained of, if indeed the evil arises from the public stimulus. We conceive cause lies nearer home: the judges should not give a prize to a machine which is avowedly made for competition and not for every-day work; and if from the nature of the condition of the prize sheet they cannot help themselves, the difficulty will be got over very simply by altering the conditions. In point of fact, this suggestion has been already offered to the consideration of the Royal Society by Mr. Fisher Hobbs, in his "remarks on the trials" of the Carlisle Meeting, in 1855. He says, "I think it will be absolutely necessary in future for the Society not only to make such conditions, in reference to the construction and trial of portable steam-engines, as may prevent a recurrence of this evil, but to secure the Society and the public from disappointment in their practical value by submitting the prize engines to subsequent trials for a lengthened period under the ordinary management of a farm establishment." Alas, for our present trial system! "to this complexion must it come at last." In the above quotation it will be perceived that the remedy for the evil lies in the hands of the framers of the prize conditions. The evil has no connection with the principle of the "money prize" system *per se*.

But we have not yet exhausted our author's list of the evils arising from the "money prize" system; like "Banquo's line," they come up "another, and yet another," till we begin to think that "they will stretch out till the crack of doom." The prize system encourages, says our author, "a continued straining after novelty, and such restless desire for change obliges manufacturers to make alterations to meet this requirement; the effect of which is, that the old standard of the *greatest simplicity* with the *greatest utility* is overlooked, and that constant and progressive cheapening which uniformity invariably produces in all manufactured articles is sacrificed." Again, by the prize

system "the energy of the manufacturer is dissipated by frivolous rivalry on unimportant detail, unfitting him for the more solid requirements of business. The invention and construction of machines require the steady and patient application of the very men who are unnerved by the anxiety consequent upon ceaseless excitement, and on whose steadiness of conception and clearness of design, which are so essential, such circumstances are more injurious." Still further, "another weighty reason for the change we advocate, is the great expense entailed upon the manufacturer by these competitive trials." But further still, "Prizes in some instances have retarded the very object which they were intended to accomplish. For instance, in the case of reaping machines, notwithstanding the utmost conscientiousness and pains-taking on the part of the judges, the awards have been so conflicting that inventors and makers have been greatly discouraged, *buyers have been perplexed*, and consequently the introduction of these machines into general use has been delayed." Now, we confess to some difficulties in saying how the substitution of published "*reports*," after patient and well-conducted trials, the favourable ones of which will be as anxiously looked for by manufacturers as are the "money prizes" now given, can operate less strongly than the present system in encouraging "a continued straining after novelty," or how it will prevent the energy of the manufacturer being "dissipated by frivolous rivalry in unimportant details;" or how the manufacturer will be saved the expenses "entailed upon" them by the present competitive trials, inasmuch as we presume they will be as anxious to obtain a "favourable report" under the proposed, as they apparently are now to obtain a "money prize" under the present system; nor have we less difficulty in saying how the proposed plan of issuing reports instead of giving money prizes, will lessen the *perplexity* "of buyers," as the awards, we presume, under equally conscientious and pains-taking circumstances, will be as conflicting as ever. If all these evils so graphically described by our author arise from the "money prize" system, we incline to think that they will be aggravated by the plan he proposes in lieu of it; as to our mind it is evident, that the more thoroughly the plan is carried out of having correct, legitimate, and philosophically conducted trials, the more trustworthy will the results be considered, so that in process of time farmers may begin to place more confidence in the "*reports*" of these trials, than they do now in the certainly doubtful issue of the present system; and as soon as the value of these "*reports*" is made known, the manufacturer will, we take it, be infinitely more anxious, by correct principles of operation and sound workmanship, to obtain a trustworthy "*report*" than they are now to obtain a "money" prize. A "*report*," with a real trial, will mean something definite: a money prize without it is comparatively worthless. Indeed, it is just in view of the increased attention which manufacturers will give to the perfecting of their machines, under a system of "correct trial," the results of which will be depended upon, that the haphazard, worthless scramble of the present system

is denounced, and a correct business-like trial advocated.

So axiomatic indeed, does the matter appear, that the more perfect the "trial" system adopted, the greater will be the desire of the manufacturers to compete, to enter into generous rivalry with each other, and to spare no expense to carry off the best report; that we are constrained to express some surprise how our author should have overlooked the obvious fact, that the *substitution* of a more reliable report for a less trustworthy money prize—for be it noted the money prize is simply an exposition of the value of the report on which the prize is founded, and by which it is preceded—cannot lessen the evils which he desires to avoid from the artificial stimulus of money prizes. The truth is, if we mistake it not, that the error lies not in the way in which the value of the reports is expressed, but in the too often well authenticated worthlessness of the reports themselves, founded as they are on the worthless data of hastily-conducted trials. Let the trials be conducted in the way suggested by our author, or in any other way deemed best calculated to work out the end in view, and it will be found to be a matter of comparative indifference whether the value of any machine or implement is expressed in a "favourable report," or a five, ten, or twenty pound note. Catalogues would read as well with "took the first class report at Warwick," in flaming capitals, as "took the first prize of £10" at Salisbury.

If the author had advocated the total abolition of *all* artificial stimuli, we could, perhaps, have understood the drift of his argument, but with his proposed substitution of a system which would prove even more stimulant than the system it abrogates, we cannot reconcile the following sentence: "It is also in favour of our views that this is the only branch of industry subject to the artificial stimulus of prize-giving; and surely the most zealous advocates of this system will scarcely maintain that as great excellence has not been attained in other engineering and manufacturing departments as in that of agricultural implements." Political economists would say that it is just because these other branches have been left to the principles which regulate supply and demand, that they have made such progress; but our author apparently forgets that he is not arguing in favour of the abolition of *all* artificial stimulus, but simply altering the nature of the prize given, which is to act as the stimulus; he proposes still to have the trial system, giving the prize of a favourable report instead of that of a five, ten, or twenty pound note, as the case may be. This trial system which he proposes, however perfect it may be, involving as it does the bounty or prize principle, is *not* leaving the trade open to the same free course which has enabled other branches to attain to such a state of comparative perfection. The race of scholarship is eagerly run, whether the stimulus be expressed in the form of a "certificate of merit," or that of a "scholarship," or money bounty. The stimuli may differ in degree: the principle upon which they operate is the same in kind. Just so with the prize system we are discussing; a "re-

port" will act as a stimulant equally with a "money prize;" the competitors are the parties to judge of their relative values; some will think more of the "report," some more of the money. With these manufacturers possessing a high status, it is possible that the desire for "reports" will be more decided than that for money.

The question of the comparative advantages of the "free trade" and "prize system," is not the question at issue, so far as this pamphlet is concerned. Its object, so far as we can trace it, is the advocacy of the abolition of the money, and the substitution of the report prizes. Of the comparative values of the two systems, there will be, doubtless, a variety of conflicting opinions. Much can be said on both sides of the question, more possibly in favour of giving money prizes. Agricultural machinery has not reached that stage of perfection to enable it to dispense with the services of men of humble means, yet of rare inventive talent, to whom the money prize is an object of some importance. Nor is there anything looming in the future of agricultural prosperity to warrant us to believe that the peculiar circumstances of agricultural practice are likely so soon to change as to obviate the necessity of availing itself of the services of those humble mechanicians scattered throughout our rural districts, to whom the onward progress of agricultural mechanism has been so much indebted. We are of those who believe that there is yet a rich future for agricultural mechanism, and that much of the wealth which it is to develop will be aided by the efforts of

those men to whom we here allude. All are at one as to the comparative worthlessness of the present system of trials; let this be amended, so as to be productive of reliable results; and with the advantages of the money-prize system, we believe that as much healthy stimulus will be given to the development of agricultural mechanism, as the best and most ardent friends of agriculture would desire to see.

"Money prizes" or "reports," no matter which may be adopted, to express the value of trial results, the trials upon which these are founded must sooner or later be conducted in a manner more reasonably, because more philosophically and mechanically correct, than they are at present. Nor must the system be half amended, patched up here, a piece taken out there; the system as a whole must be reformed, and dealt with in a broad and liberal spirit. The subject is one which requires thorough ventilation, nay, agitation if you will: and all works which assist to develop this should be hailed as contributing something useful to the common cause. Valuable in this respect will be the well-written pamphlet which we have ventured to review; a pamphlet which, though with its main conclusion we cannot sympathise, we have great pleasure in recommending, as containing much that is interesting to the agricultural reader.

R. S. B.

[This pamphlet was noticed by us on its first appearance, but the present consideration of its merits comes very well timed to the recent controversy.—EDITOR FAR. MAG.]

IMPLEMENT DEPARTMENT OF THE HIGHLAND SOCIETY'S SHOW.

Resuming our "notes" commenced in last number, we have to take up consideration of the remaining sections, beginning with section fifteenth, common swing-trees for two horses, and section sixteenth, swing-trees for two or more horses; the first prize in both of which was taken by William Grey, of Cambusnethan, Wishaw; and the second by George Ponton, Woolston, near Linlithgow. The swing or whipple-trees of Mr. Grey have points of good construction worthy of notice. The loose hooks on the ends of the "trees" are superseded by sockets, which carry small hooks with broad points, turned in nearly to meet with the socket. The link on the trace chain is flattened so that it can pass into the opening of the hook of the socket in one way only, and as it cannot be freed from its position without being turned, the link is prevented from slipping off the hook, should the chains become slackened during working.

In sections 17 (broadcast sowing machines for grain, &c.), 18 (drill sowing machines for grain), 19 (sowing machines for grass seeds), 20 (sowing machines for turnips), 21 (sowing machines for turnips, with manure), 22 (dibbling or drop sowing machines, with manure, *no entry*), 23 (sowing machines for mangold), 24 (sowing machines for carrots), 25 (three-row sowing machines for beans), and in section 26 (one-row sow-

ing machines for turnips), the Scotch makers had nearly all the exhibition to themselves; for out of forty-four exhibitors in these sections, only three English firms entered: Smith of Thrapston, Reeves of Bratton, and Williamson of Kendal. In broadcast sowing machines all the makers were Scotch; nor is this to be wondered at, for this class of machine meets with comparatively little favour in England; although, oddly enough, it was introduced into Scotch practice from that country. In the older forms of this machine the seed-box was made of one length—the length of this (18 feet) preventing the passage of the machine through a gate. To obviate this the seed-box was generally lifted and placed at right angles to the wheel shaft, being replaced in its position parallel to the shaft as soon as it had passed the gate. In the improved machines now made, the seed-box is generally divided into three sections, the two outer ones folding in upon and over the central one. Various modes are in use for effecting this arrangement, all of them of considerable ingenuity. Of the machines exhibited in the section now under consideration, that of George Finlayson, of Gighty Barn, Arbroath, took the first prize; that of Alexander Dick, Smithy Green, Liberton, the second. The machine exhibited by Messrs. Shireff, of West Barns, Dunbar, has a registering apparatus attached, by which

the quantity of seed delivered is regulated as desired. We fear this is a refinement in construction which will not be appreciated in practice; very little experience in the field working of a broadcast sowing machine is needed to tell the workman when he is sowing too thinly or too thickly.

In drill sowing machines there was much to interest the English visitor more especially; for contrasting the simplicity of arrangement and construction, and the low price of the Scotch machines there exhibited, the question was apt to arise, why, with few exceptions, the English machines are so much more complicated, and so high in price. There can be no doubt of this, that the Scotch machines do their work well. Cheapness with them does not bring inefficiency. In many of the departments of agricultural mechanism the Scotch makers are undoubtedly behind their English brethren; on the other hand, it is clear, we think, that in some the English makers might take with advantage a "leaf out of the book" of the Scotch makers, and this department of "drill sowing machines" is one of them.

Seeing the increased and increasing attention now paid to the subject of thin or dibble sowing, it is to be regretted that no "drop" or dibbling machine was exhibited at the show. We should have been gratified to have seen Sigma's dibble, or Maynard's dibbling machine, exhibited at Warwick.

In the section of sowing machines for turnips, Charles Hay, of Rutho, exhibited a machine with a revolving coulter. The seed falls into the furrow before this coulter leaves the ground, so that it is immediately covered by the earth.

Of section 28—machines for distributing guano—the first prize was awarded to Reeves, of Bratton, Westbury, Wilts; the second to Mr. Shireff, of West Barns, Dunbar. In Reeves's distributor the guano is pulverized or kept mixed so as to pass easily out of the box without clogging. A shaft is made to revolve in the lower part of the box, which is made semi-circular. This shaft carries on its periphery a series of blades, projecting, not at right angles, but inclined to the central line of axis, in such a way as to form a species of screw or helix. These blades are not, however, all inclined in one direction, two being set at one angle, and two in the opposite. The effect of this arrangement is such, that the guano is not moved in one but in contrary directions, and "rubbed" out as it were through the apertures. In Mr. Shireff's machine the guano in the box is kept in a pulverized condition by the action of a "stirrer." This extends from one end of the box to the other: it is made of a flat piece of iron, provided with fingers projecting from its sides. The stirrer has a reciprocating motion given to it by means of a crank movement from the axis of the main driving wheel. On passing out from the aperture into the bottom of the manure box, the manure comes in contact with a revolving shaft, provided with a series of projecting snugs or blades, which divide the guano still further, and pass it to the ground in a pulverized condition. By a simple arrangement of lids or valves in the manure box,

Mr. Shireff's machine is easily adapted for drill husbandry.

In section twenty-nine (liquid manure distributing machines) Crosskill's took the first prize of £4; James of Cheltenham, the second; of these the peculiarities are too well-known to our readers to require description here. In the same section Mr. James Kininmouth, of Inverall, Kirkcaldy, the author of a well-known prize essay on *Liquid Manure Tanks*, exhibited a distributing apparatus, which is attachable to a common cart-barrel. The main feature of this is the adaptation of a four-way valve in place of the ordinary crane or conical cock. This valve is free from liability to choke, affords full water way, and is easily taken out for repair or cleaning. It is worked by a lever which is carried forward to within easy reach of the driver, who can thus easily regulate the flow of liquid according to circumstances, without either leaving his horse or getting drenched with the sudden flow of the liquid, as is the case with the ordinary form of cocks attached to water-barrels. The liquid is discharged into a trough extending across the breadth of the cart, and punctured with holes. When used for drills, a series of boards are placed in the bottom of the trough, so as to cover a certain number of holes, corresponding to the intervals between the drills. Mr. Kininmouth has had in view, in inventing this distributing apparatus, to introduce a cheap appliance to an ordinary water-barrel, so that for the price of more complicated apparatus, the farmer may have two or more distributors. Thus while one is going over the field to be irrigated, the other is being filled at the tank: thus economy of time is ensured. Mr. Kininmouth, whose persistent and highly successful use of liquid manure during a period of many years entitles his opinion to all due weight, insists strongly upon the utility of having two or more simple water-barrels, so as to keep up a constant supply to the fields, rather than one expensive apparatus. Another point to be attained by the use of the water-barrels with this simple distributing apparatus, is that by them "dreg," &c., from breweries, &c., can be conveyed by them, as also water during the summer to the cattle-courts, when they are not used for liquid manure distribution. The taint of the liquid manure is very easily got rid of, by allowing clean water to stand twenty-four hours in the barrel, thereafter driving the cart a short time, so as to shake up the contents. When re-filled with clean water or "dreg," no cattle, says Mr. Kininmouth, will refuse to drink from it. In section thirty-three (singling machines for turnips), the first prize of £4 was awarded to Messrs. McGregor and Sons, of Keith; the second to John Eaton, of Kettering. Mr. Eaton's machines are of simple and ingenious construction, requiring small draught, or rather pushing power. The cutting blades, or rather knives, are set round a wheel or disc: this is not hung vertically, but at a considerable angle; the action of the blades in entering the earth is thus less violent and disturbing. Although considerable attention has of late been paid to this class of machines, still we do not know of any yet introduced which offers all the advantages which would induce purchasers to

invest in it. Indeed it is open to considerable discussion whether the operation of singling turnips is that in which machinery is at all available. With many, if not the majority, of practical men, we are inclined to think that a certain degree of mind or discriminating knowledge is required in the operation; hence the value of manual labour in this department of field practice. Although some lay claim for this class of machines that they can do all that is required in singling turnips; it is evident that they can really do only a small, and that by no means the most important, part of the duty, so that on the score of economy it is doubtful whether their use can be advocated. We know that many first authorities are in favour of hand-labour.

In section thirty-four (machines for raising potatoes), Messrs. Smith Brothers took the first prize of £4; Mr. Law, of Shettleston, near Glasgow, the second. Of this class of machines we have in the previous paper, given an incidental opinion, when discussing section fifth, double mould-board ploughs, with attachment for lifting potatoes. While viewing the operation, and admiring the construction and arrangement of these potato-lifting machines, it is difficult to get rid of the idea that their operation cannot be altogether innocent of cutting and mangling the roots. Their advocates point, however, to another advantage obtained by their use, namely, the complete mixing of the manure with the soil. This, however, is a duty altogether beside their professed one, which is potato lifting, not manure mixing. It is said, doubtless, that this latter advantage is incidental, and is obtained without any loss; but apart from this, the fact still remains that the principle of their action is pretty much opposed to that of hand-labour. We should indeed consider a labourer doing anything but his duty if he voluntarily dug his spade or fork into the drills and threw the potatoes about with such force as to require a netting to catch them, as these same potato lifting machines do. The man doubtless might attempt to silence objections to his style of working, by telling us that he was doing double duty, mixing manure as well as raising potatoes. We would be apt, we confess, to tell him to do one thing at a time, and do that well; his primary duty was to lift potatoes, and that only. These remarks are not altogether uncalled for, at this juncture in the history of agricultural machine making, for they have a wider tendency, and embrace other departments of mechanism as well. It is, we hold, altogether an unsafe principle to go upon, that which attempts to effect a combination of duties by one machine. The simpler any apparatus is, the better: let it do a single duty only, but let it do that duty as efficiently and as economically as possible.

In reaping machines, the chief feature was the offer of a prize of £10 for a one-horse machine, as well as for one for two horses. This endeavour to introduce an apparatus offering to do less work at a time, is a good one. The result of the public trial of reaping machines, like that of most of the late trials, went to prove that notwithstanding all that has been done, and much has doubtless been effected, in this department of mechanism, a reaping machine available at all times,

and for all conditions of the crop, is yet to be invented. With perhaps one exception, no machine is calculated to cut, with equal efficiency and economy, grain lying against and with the knives: many indeed cannot cut both ways, and nearly all are placed *hors de combat* in some states of the crop. Now a machine that is placed out of use by a state of the crop not unusual in this climate of ours, is far from that standard of perfection which requires that the machine shall be of practical service in times of difficulty. A boat suited for fair weather only would be of little use to the navigator. Much has yet to be done in reaping machines before they can and will be extended to holdings of all sizes.

In section forty-one (thrashing machines for steam-power), the prize of £50 was divided between Mr. Foster and Mr. Robey, both of Lincoln; the working of both showing a remarkable equality. In this department of farm-stead mechanism may it not be reasonably suspected that makers attempt to do too much, especially in the "dressing or cleaning of grain"? If the grain was required only for one purpose, that of the miller, it might be all very well; but it is required for another—seed for the farmer. Now that condition which is best for the one is, unfortunately, anything but good for the other. On this point it will serve some purposes of utility to note what a first authority says: "It is well, indeed requisite, that a thrashing machine should take the grain from the straw, and divide the grosser impurities of chaff and roughs from the grain, but a question may reasonably be raised whether the grain should be cleaned to the degree fit for market by the thrashing machine. For our part we have never yet seen a thrashing machine that cleaned the grain as it should be for market, according to our judgment of cleanliness; and in our opinion, the English machines attempt too much, and run the risk of injuring the grain. Now the Scotch machine, by its slow motion, never injures the grain, and few attempt to clean it for the market; but the cleaning process by the Scotch fanners and the hands of women-workers is perfect and innocuous. * * It is believed that if the downy substance at one end of the grain of wheat is taken away, the grain loses its vitality. * * * It is the true object of the farmer to preserve the vitality of the grain he sells, that it may be sold alike to the farmer to be sown, or the miller to be ground. If the miller finds that the farmers' extent of cleansing the grain does not suit him, he must himself prepare the grain for his own purpose; but the farmer, for his own purpose, must on no account adopt any process that will deprive the grain he has to sell of its vitality." These views, if correct, will always render good fanners or corn cleaning machines detached and separate from the thrashing machine of prime importance. In this department the only novelty we have to notice is an improvement in the corn-dressing apparatus of Mr. R. Hislop, Jun., of Preston Pans, near Edinburgh. In November 1858, we gave a description of this apparatus, the leading feature being the adoption of two tests—the test of gravity and the test of size; the test of size being carried out before that of gravity. The test of size, in the

machine exhibited this year, is on a new principle. Two sheets of zinc are similarly and exactly pierced with a series of holes, in such a way that when laid flat the holes coincide with each other. These sheets are placed round the screw in the form of cylinders, the one passing over the other; the inner one, next the screw, is made fast; the outer one is moveable. By moving this outer

one, the holes in the two sheets can be made to coincide so that their full opening may be made available if required, as for beans; or the one cylinder may be passed over the other in such a way that the solid part of one may be placed over the aperture of another, thus giving apertures which may be adapted for good wheat, or for oats, barley, &c.

PROGRESS OF SCIENTIFIC AGRICULTURE.

Any one who looks back upon the progress of the past half-century, will not refuse to admit that Agriculture has shared largely in the advantages resulting from scientific inquiries and improvements, and their practical application. The time has gone by when men were sceptical on schemes of novel innovation and doubtful expediency, or resolutely objected to every new suggestion or modern improvement. But there are those among us who have lived long enough to remember the days when gas was unknown, save as the mysterious term of philosophy, or when steam-boats were deemed an impossibility, when railroads and their speed were not appreciable either in practice or utility by the minds of even intelligent men of the day, and when the man who would have hinted at ploughing by steam would have been looked upon as a madman; yet all these things have come to pass, and are now to us household words, while science has tamed the very lightning to our uses.

*"New wide the sun of Science flings his beams,
And Wealth her liberal fertilising showers
Diffuses; while Industry, all nerve, but waits,
Impelled by them, to work such wonders, as
In days long flown and dark, had miracles
Been deemed."*

The present method of British farming is based on great natural laws, which require men versed in science to explain and enforce, and men with enterprising, yet patient and obedient minds, to carry into practice.

The science of Chemistry, applied to Agriculture, has furnished analyses of soils, and by determining the nature of the elements or constituent parts of the various kinds, and the combination of these also in the vegetable productions, has enabled many to judge as to what are the elements needed to be applied in the form of fertilizers. Similar investigations have been made into the character of the substances generally used as manures, and the result has been to develop the principles which constitute more especially the nutritious parts of these fertilizers of the soil. Many substances before unknown, as respects their practical bearing in this point of view, have, on trial, proved to be very valuable; and, after the analyses have been completed, and the elements known, it has been found that new combinations still more effective may be made at a less expense than the natural ones. In bulk, too, manures are thus greatly reduced, as the essence of the principle by which the plant is nourished is extracted and applied without the adjuncts which are usually

found with it. How much of the success of farming, and indeed of all other arts and manufactures, depends upon the economy of waste substances, upon the saving of material, upon imitating that beautiful law, which chemistry teaches us, that in nature nothing is lost! It is by means of waste substances, decaying animal and vegetable matters, weeds, and bones, and every such material, that the soil is enriched, or if exhausted redeemed, and its annual produce increased. With what care are not bones collected here and on the continent, every grain of bone-dust being gathered up like gold, and commerce bringing us thousands of tons, whether it be from the pampas of South America, the prairies of North America, the battle fields of Europe, the interior of Africa, or the cities of Australia! What fortunes have not the gathering of bones realized! and how has the turnip-fly been cheated out of his favourite morsels by the application of bone-dust!

Cultivation is the economy of force. Science teaches us the simplest means of obtaining the greatest effects with the smallest expenditure of power, and with given means to produce a maximum of force. The unprofitable exertion of power, the waste of force in agriculture, in other branches of industry, in science, or in social economy, is characteristic of the want of true civilization. We sow, we reap, and we thrash by machinery, and steam has been harnessed to the plough, and by proper drainage, the skilful rotation of crops, the application of guano, and various artificial manures, applied in due proportions according to the nature of the soil, as shown by analysis, we double and treble our grain crops.

Agriculture in this country is advancing in all its branches, and in none more than in such as are promoted by, or depend upon, the use of improved machinery.

Already the colonies are beginning to be alive to the advantages of steam husbandry, for British Guiana offers a premium of £1,000 for the successful introduction of a steam plough into that colony, and a similar amount for the successful introduction of a steam-digging or grubbing machine.

The wheat grown in Great Britain (Ireland not reckoned) in 1801 to 1810 was but sufficient to supply, at the average rate of 8 bushels per head, 11,000,000 of persons: at the present time the land produces sufficient wheat to feed more than 17,000,000, to say nothing of the additional quantities of other produce

raised. Agricultural chemistry has enlarged the domain of knowledge in that important branch of scientific research.

Combination and discussion have done much good. They have driven away the old lethargy and apathy, the bigotry and ignorance which often prevailed among those engaged in husbandry. The proceedings and transactions of the Royal Agricultural Society, the Royal Dublin Improvement Society, the Highland and Agricultural Society of Scotland, the Farmers' Club, the local agricultural societies, and the numerous journals devoted to agriculture, have all diffused a large amount of practical and scientific information.

How much has been done, too, in the introduction of new plants and seeds—whether for forage or for food—in the selection of new varieties of wheat, barley, oats, and turnips, &c. The choice of suitable varieties is even of more importance than the choice of a good soil. Our scientific agriculturists no longer regard the plant as a mere machine, acting a mechanical part, and guided by certain chemical changes: it is a far more subtle thing, it is guided in its development by the laws of life, which overrule all chemical action. Thus chemistry is no longer the solitary guiding star of the scientific farmer: physiology must go with it, hand in hand, in all that relates to improved cultivation. When improved varieties are once obtained, high cultivation is necessary for the continuance of those properties that render them valuable. When cultivated plants are neglected, and allowed to grow in a poor soil, they soon revert to their wild condition. It therefore requires a continuance of suitable conditions to perpetuate those peculiarities which render them useful to man; hence the great attention requisite to keeping up the supply of those elements essential to the building up of the structure of the plant. If they are not present naturally, they must be supplied in the form of manure, which may be of various kinds, according to the circumstances of the case. As Sprengel observes, "a soil is often neither too heavy nor too light, neither too wet nor too dry, neither too cold nor too warm, neither too fine nor too coarse; lies neither too high nor too low, is situated in a propitious climate, is found to consist of a well-proportioned mixture of clayey and sandy particles, contains an average quantity of vegetable matter, and has the benefit of a warm aspect and favouring slope;" but although possessed of all these advantages, it is yet unproductive, because it wants some mineral constituent required for plant food. In new countries there is a strong tendency to carry off annual crops from the land, without giving anything back. This was especially the fault, for a long time, in Canada, and Australia, and in the tropical islands of the West Indies, Ceylon, Mauritius, &c. Little or no manure was given to the coffee trees. The stalk of the sugar-cane, after being pressed for the juice, was burnt for fuel, instead of being returned to the soil. Now, however, better practice prevails. The sugar planters of Bar-

bados, Mauritius, &c., find their interest in importing large quantities of guano and other manures, and by high cultivation succeed in obtaining enormous annual returns of sugar.

In a comparatively short time, systematic draining has completely changed the aspect of extensive tracts of country in Britain, converting the cold morass into fertile fields, and greatly increasing the annual produce, even on soil which was before bearing crops sufficient to satisfy the most exacting expectations.

The late Professor Johnston, in his lectures in America, pointed out the following among the greatest practical improvements in the treatment of land, by means of which British agriculture has been advanced to its present condition: The alternate husbandry, a judicious rotation of crops; the introduction of thorough drainage and deep and subsoil ploughing; the judicious and continued application of lime, and the use of bones in various forms—generally what is called "high farming" comprehending the culture of green crops extensively, the making of rich loams, and the purchase of valuable foreign manures of various kinds, to a great extent; the rearing and feeding of improved breeds of stock; the custom of full feeding both for plants and animals; the introduction of lighter and better contrived implements, and of machines to economise labour, and horses having a quicker step.

Such, then, are generally the practical methods or processes by which British agriculture has been advanced to its present condition. To most of our readers these are well known facts, which it may almost seem superfluous to recapitulate and comment on; but the new settlers in distant colonies, and the rising generation at home interested in agriculture, may well be reminded of the great practical improvements which have enabled the British farmer to sustain the prolific yield of his soil, and to compete with the abundant produce obtained with little trouble in new lands, requiring at present but little care, culture, or science. The lesson of perseverance and progress, in the successful adoption of new processes of culture and new machinery, whether for ploughing, sowing, hoeing, or reaping, &c., will at least not be lost, and may stimulate further invention and enlarged experiments.

BATS AND SWALLOWS.—It is curious, by the way, to mark the analogy that exists between the swallows and bats. Each of these groups loves the air, and is mostly seen on the wing. Their food consists of the flying insects, which they chase by their exquisite command of wing; and it will be noticed that, as soon as the swallows retire to rest at dusk, after clearing the air of the diurnal insects, the bats issue from their homes, and take up the work, performing the same task with the insects of night, as the birds with those of day. Then, as the dawn breaks, out come the swallows again, and so they fulfil their alternate duties.—*Routledge's Illustrated Natural History*, by Wood.

THE KENT AGRICULTURAL SOCIETY.

MEETING AT ASHFORD.

The Royal Agricultural Society of England will hold its next great anniversary meeting in the county of Kent. Any such similar exhibition of the district itself consequently comes to be regarded with something more than a merely local interest or importance. The Kent show of this year may be considered as a prologue to the more comprehensive proceedings of next, just as a country poet will occasionally pen an introductory address to some standard work about to be performed. But depending even on its own merits the county society has here some especial claims to attention. It is in fact the first time that the experiment of a migratory meeting has been fairly tried. Hitherto the chief of these gatherings have been at Maidstone, and so when last season an association was announced which should be more general in its action, the selection of the site for the opening day qualified it to something very like the Maidstone show over and over again. This year, we repeat, the new society has enjoyed a far better opportunity of demonstrating its object, and it has done so with some very encouraging success. The meeting at Ashford was altogether an improvement on that of 'fifty-eight. There was more heart and life in it. The competition was greater, the attendance was better, and the farmers themselves had evidently a warm feeling in the business of the day. What certainly looked at starting like a very uphill game promises now to work on into a useful and influential exponent of the agriculture of the district.

And this, be it remembered, is peculiar. It is difficult to say how far the farming of Kent is before or behind the rest of the world. It is a nice point whether the great National Society will come to teach or to learn. Most assuredly the customs of the county stand quite out from those of other quarters. We see cattle, sheep, and implements prized and persevered with here that are almost entirely ignored elsewhere. The more, however, other people denounce them, the more do their own friends uphold them. The Southdowns have spread because of their known excellence. The Shorthorns have multiplied on the same showing; and the Coleman cultivator and the Crosskill clod-crusher are found far beyond their own immediate range, simply from their general usefulness and applicability. But in Kent they argue all the other way. They are the first of exclusives. What will not suit the common run of folks suits them exactly; and so they hold on to their turn-wrest ploughs, their Sussex beasts, and their Romney Marsh sheep. We must do them the justice to say that none could speak stronger as to the correctness of their own practice and opinions. At the recent meeting of the Highland Society we met on the plough-field with a well-known man of Kent, and inspected, in company with him, some of the work. He glanced at the ad-

mirable performance of Howard's, he turned to the next best doings of Sellar's Scotch implement. He honestly admitted they both did very well, while he was fain to add, for the credit of his county, "But it is not ploughing, after all, you know. You can't plough without four horses." And at this very show on Wednesday last, we saw a man stop opposite one of Mr. Selby's good-looking Southdowns, with a sort of half excuse to his friend for doing so, "I don't know anything about these sort of sheep, but still I like to look at them." He was home-bred, no doubt, and rather proud than otherwise not to know anything about them. Then at the dinner, Mr. Tinlay Dun, one of the judges, spoke to the capital performance of one of Fowler's steam-ploughs, which had been at work on that and the day previous. He stated the increased depth to which it went—the better condition it left the land in—and the small cost it might be employed at. This was all very well, and so far the company went quite with him; but when he wound up by adding that "it did its work far more effectually than the best Kent plough", he was at once met with loud cries of "No! no!" That could not be—that must be impossible.

"Up from King George to Sir Watkin I have seen,"

as the Welsh gardener sings to his Jenny Jones, if you like. There cannot be anywhere so great a man as Sir Watkin, and there can be no other implement equal to a Kent plough.

Still there is no denying that the county is being gradually invaded; and this Ashford show itself turned out rather a traitor. Mr. Fowler's plough found many friends quite ready to go so far with the times; while Burgess and Key, also through the agency of Mr. Aveling, sent their reaper, and their new mower. They both did "excellent well," the mower being an especial favourite. In fact no invention on its first coming out has ever had such a run. From "the Royal" downwards there has not been a show this summer but where Burgess and Key's mower has been one of the chief features of the meeting. It has been as invariably approved, and certainly the Newgate-street firm may congratulate themselves on their introduction of two implements that have now both a strong hold on the English farmer. It is a pleasure to make such a record as this, when we know how honestly the support has been deserved. But it is not with such artillery alone that the good men of Kent are to be driven from their fastness. If cultivation by steam dared to compare with that of four horses all in a row, there were Shorthorns to vie with the famous Sussex cattle. Even the Prince Consort has sent them a bull by way of example, a grand heavy

animal, now the property of Mr. Noakes, of Brockley, who has won three or four first prizes in the county with him. Then the indomitable Lady Pigott came over from Cambridgeshire with a very strong display of her forces. She took the first prize for cows in calf with one of Mr. Ambler's breeding; had another "best cow or heifer" from Babraham, and took the one premium for a two-year-old heifer with Empress of Hindostan, bought of Mr. Jolly, of Warlaby. Not to be quite overshadowed, Mr. Wells, a county gentleman, entered two-yearling bulls, purchased of Mr. Douglas, of Athelstaneford, one of which, with the choice between the two, had the premier place in his class. This was Prince Imperial, a bull of great promise, and wonderfully good quality. Then Mr. Hales, of Hadlow, Mr. Betts, of Preston Hall, Mr. Morland, and Mr. Murton, of Smeeth, were also amongst the distinguished, and the show of Short-horns was altogether most creditable and encouraging. The eye must surely want fresh tutoring, when it turns to "the other breeds," or, in other words, to the Sussex stock. There was, however, numerically a strong entry of them, and what was considered to be a very good one; but the bulls were generally superior to the cow classes, the aged animals amongst the latter showing to anything but advantage. They looked delicate, and yet evinced little breeding; were leggy, narrow, and very demonstrative as to the line of the back-bone. But keep has been short, and somehow or other a Sussex never *seems* to carry much flesh. They must, indeed, be intended more for work than meat, and so the progress of the steam plough will tend more and more to their detriment. By far the sweetest cow of them all, to our fancy, was one the property of Mr. Murton, of Smeeth; but she stood no higher than a commendation. This gentleman was almost as forward as last year with "the pure-bred Kent" sheep; although there was more competition, but not equal to what was expected of the neighbourhood. Mr. Murton entered as extra stock a lot of sixteen rams, which were put up for auction during the day, and one, we believe, sold for as much as sixteen guineas. Mr. Selby turned the tables on Mr. Stanning with some Southdowns of Mr. Rigden's blood; and Mr. Betts had the best of the few Cotswolds sent. There were five prizes for pigs, and ten entries in all to compete for them. So that if Kent does get up a series of special classes for the Canterbury meeting, it would seem to depend on Sussex stock and long-woolled sheep.

But, above all things, the Canterbury week must not be without a dinner. The Kent people do shine here. We have seen few better managed, and seldom any one that went off with more spirit than that which concluded the business at Ashford. The attendance reached something over three hundred. There was some good sensible manly talk, well directed by the Chairman, Lord Sondes, deservedly popular hereabout as a landlord and a country gentleman. With some appropriate reference to the especial proceedings of the day, the leading topic was still the national defences,

and the formation of rifle corps. Introduced in the first instance by the Lord-Lieutenant for the county, Lord Sydney, the establishment of such forces was supported by every succeeding speaker, with only one very marked exception. This was in the case of Mr. Hugesen, the member for Sandwich, who attempted to poohpooh any idea of danger, or the necessity for any further defences. The meeting, however, rose almost in a body against the speaker, who with very bad taste attempted to weary them out, after an unmistakable demonstration that they would not hear him. The Earl of Winchelsea, on the contrary, who associated a becoming system of defence with the prosperity of agriculture itself, made decidedly the most effective speech of the day. Almost every sentence showed the heart of the man was in what he said, and again and again was he interrupted by rounds of cheers. We must allow our readers to have a taste of his lordship's mettle:—"He had listened with much pleasure to the speech of Sir Richard Tufton, who, notwithstanding a French accent, had given utterance to true English sentiments (cheers). He had ably drawn a contrast between the peace and quiet and comfort existing here, and the danger and anxiety to be found on the other side of the Channel. He (the noble earl) was not an alarmist, but it was said that when a strong man armed kept his palace his goods were safe (cheers). Let us keep our palace well armed, containing, as it did, more riches than all the world put together. Many would come and seize those riches if they dared, but let us show them that they dare not (cheers). The Emperor of the French did not mean to come here—it would be the last place against which he would make a hostile attempt; but at the same time we were ready to receive him, and he did not believe there was an Englishman, even including 'Bright the belligerent Quaker, who would not take up arms in defence of his hearth and home (cheers). What was the use of bulls worth from £200 to £1,200 if there was not peace at home; if the farmer was distracted by continual alarms and unable to obtain those productions which fertilized the hungry acres here. That was the result of peace, but we could not have peace on sufferance (cheers). Englishmen were ashamed to enjoy it on those terms. With our army and navy in an efficient state, we could thrash any other power with one hand; and if we let down the other we could thrash all the world (cheers). The Bright party knew this, and if there were any real danger they would be among the first to come forward in defence of England's honour (cheers). The great wealth and importance of this country was owing to the peace we had enjoyed at home for so many years. It was peace which had turned a middling sheep into a model: it was peace which made bulls worth £1,200 (cheers). Look at other nations not so well favoured; their farmers, following our example, might set up a society; but all their arrangements were upset in a moment, because one autocrat gets up from dinner with something uncomfortable on his stomach and quarrels with another autocrat. In England, with free institu-

tions, all were alike secure; the farmer did not interfere with the manufacturer, nor the manufacturer with the merchant; and that was the reason England produced in the aggregate a greater amount of wealth than all the rest of the world together (cheers). Among that large assembly of those who lived by the land, some owned it, and others worked it. The interests of landlord and tenant were the same (Hear, hear). He was happy to see that the humdrum system customary thirty or forty years ago had been done away with, and each one used his energies to promote the interests of agriculture. For these reasons, when he heard that there was a chance of having the exhibition of the Royal Agricultural Society in that district next year, he for one did everything he could to secure that object; and he was happy to say their efforts had been attended with success. He hoped that Kent would maintain its rank in the competition; but at all events, if they did not show anything to astonish Mr. Mechi and others, they would have the benefit of their experience. (Hear, hear.) There was nothing like knocking people together—they learnt nothing by staying at home, and seemed to think they knew everything by intuition. (Cheers and laughter.) The other day he went with the Lord Lieutenant to see the gunnery practice at Hythe. Before he went he thought he was a very good shot, and no man could teach him anything more; but, after he had been there about ten minutes, he began seriously to consider whether he had ever fired a gun off before. (A laugh.) Young

men in a short time gave him more instruction than he should have obtained if he had gone on shooting by himself in Eastwell Park for 3,000 years. (Laughter and cheers). That was the reason he always approved and supported meetings of that sort. They might depend upon it that if twenty people discussed a subject together, their collective opinion would be better than that of any one person, however high he might stand in the estimation of himself or his friends. Independently of that, these meetings called into play all the kindly feelings of human nature, and tended to promote influences of the best and most wholesome nature. (Cheers.) The noble Earl concluded by giving "Success to the Royal Agricultural Society," with the expression of a hope that the next year it would meet with an enthusiastic reception at Canterbury. (Cheers.)

That is the speech of an Englishman, and worth going a long way to hear. We only trust that the men of Kent will take up the points hereafter as warmly as they did in the room. In fact, the Ashford dinner went well to the finish. Lord Sondes himself dwelt very ably on the position of the Society; Mr. Tinlay Dun, as one of the judges, on the character of the show. And if the interests of landlord and tenant are not well united in Kent, we must not judge from what we saw. The County Agricultural Society may do a deal of good in many different ways, although we suppose that next year its meeting will merge into that of the greater body.

THE MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY.

MEETING AT LIVERPOOL.

Like many others, this Society has now for some years been gradually increasing in influence and importance. It has, in fact, outgrown its own strength. It is clearly embarrassed with its own riches. It has more funds and more general support than it really knows what to do with. The committee might answer with the Yankee skipper when hailed as to who commanded his ship? "Well, I undertook her, but she's a little too much for me!" So it most assuredly is with the Manchester and Liverpool Agricultural Society and its Direction. In all our experience of such meetings we never remember such a one as this. Never was there such a thorough jumble, such helpless and hopeless mismanagement, and the elements of a good show so completely negated by the want of some order and proper provision. The arrangements—that is, the erection of the shedding and the adjustment for the stalling of the cattle—were being calmly proceeded with when we left on the Friday afternoon, the last day of the meeting. On the morning of that previous, when the stock came in, there was nothing ready for them, and one of the exhibitors told us he had to set to work and put up the pens for his own sheep. There were the most valuable cattle hanging about,

without either place or protection. There were horses that their owners or grooms, in very self-defence, as it were, rode up and down, and in and out, at half speed. And in the midst of all this, as if by way of appropriate commentary on the proceedings, one of the fiercest of Lord Derby's Brahmin crosses broke loose and went full tilt through the ground. He chiefted one unfortunate, tossed another outright, and at length with some sense of justice charged bodily at one of the directors, who very narrowly escaped. As it was, the horn of the brute cut through the catalogue which the official had in his hand. Even this compliment evinced some discrimination on the part of the offender; for, if the stewards were not much to blame, the catalogue of itself was quite enough to confound them. Surely there never was such an olla podrida ever issued before! There were open-to-all-England prizes, and tenant-farmers' prizes, and landlords' prizes; and then there was open-to-all-England and tenant-farmers, and so on, over and over again. In due course there came horses, cart-stallions and thorough-bred stallions, and mares and pairs, and colts and fillies; and then there were sheep, and pigs, and roots, and poultry. And at last, when you came to the

end of the list, you had to go through it once or twice more. There was a series of "special local prizes" to follow: the phrase "local," when properly interpreted, meaning "open to the United Kingdom." This second, third, or fourth division—we can scarcely say which it was—included classes of old and young bulls, of cows and heifers, of cart-horses and thoroughbred horses, of colts and fillies, of working pairs, of pigs and poultry, and, in short, as we have said, nearly the whole thing over again. In the course of our wanderings we noted at least five first-prize stallions, as best adapted for agricultural purposes. There must have been nearly as many shorthorn bulls similarly distinguished; if, indeed, such a word is in any way admissible where number eight hundred and something stood side by side with eleven hundred and odd, or where often enough the animals were heads and tails with each other, some in the line and some out of it. As for the horses, they just went anywhere or anyhow, many preferring to recognize no distinct standing whatever. And certainly these, for personal considerations, had the best of it; for Friday was a somewhat windy day, and the loose half-secured canvas was continually flapping about the heads of those tied up. At length a lot of it came down with a crash; fortunately, as it was said, "without any accident to anyone." But only fancy a number of high-conditioned horses tried in such a way—hanging back and breaking their head-stall reins, and threatening every moment either to injure themselves or some of the spectators. There was a fine of five pounds to be paid by any exhibitor who took his entry away before the conclusion of the meeting; but surely this was conditional on proper accommodation being provided. On such an understanding nothing can be fairer nor be more judiciously enforced, but without due provision we much question if the penalty could be recovered.

We must repeat that it was a good show spoilt, for in the horses and cattle classes there were some superior stock sent. At the same time the former, especially, were quite a lot of all sorts—good, bad, and many of them terribly indifferent. The Shorthorns were more generally commendable, some of the tenant-farmers of the district exhibiting with great credit to themselves, and really standing very well with the famous herds that came in competition for the all-England prizes. Although, rather remarkably, neither Colonel Towneley nor Mr. Eastwood made an entry, Lord Hill, Captain Gunter, Mr. Ambler, Colonel Pennant, Mr. Jolley, the Messrs. Turnbull, and others nominated and brought some of their best animals. Captain Gunter, however, was the lion of the meeting, and took with his attractive army of Amazons every premium for which he competed. These included the first prize for two-year-olds with Moss Rose, the first for yearlings with Duchess 77th, the first for pairs of heifers over two years old with Fair Maid of Wetherby and Princess Royal, the first for the best pair over one year old with Duchess 78th and Duchess 79th, and the first for heifer calves with Duchess 80th and Nanny. The class of heifers over a year old, al-

though not a large was a particularly good one, headed by the Captain with a couple of the best quality in the show. These are *twix* Duchesses, out of the 67th dowager of that family, so that perhaps never was there so complete or so fair a match. Mr. Turnbull, who was placed second, confessed himself to be fairly beaten, notwithstanding that one of his two, the Lady of Bonhill, was the prize heifer at Edinburgh, that we then spoke of as very sweet and neat looking. Still "the talk" of the Grange herd was the yearling Duchess 77th, who showed in great form, and was much nibbled at. Six hundred was offered by the Australian market, but another hundred held out for. Lord Hill was more accessible, and his first-prize bull, bred by Mr. Bate, of Kelsterton, goes to the fifth quarter of the world, at a long price. But the best of the prize bulls was Mr. Dickinson's Prince of Prussia, which just at present is in great repute in Lancashire, having very recently at another local meeting run Royal Butterfly so very close, that people said the Colonel did not care about meeting him again. Mr. Dickinson has the further credit of having bred this promising young bull himself, and the dam and an own brother were both also at Liverpool. He is by a bull bought very well at Sir Charles Knightley's sale. The Prince of Prussia is, above all, remarkable for a famous level quarter; but he is hardly as perfect before, and his head, though placid and good-tempered, has scarcely grandeur enough for a male animal. Colonel Pennant's bull, of Booth blood on both sides, fairly beat him for this one point, although on the whole not entitled to more than the good second place he held. In the next class Mr. Ambler was successful with the white "Talleyrand," and Mr. Jolley second, and highly commended with the two young bulls he entered; but there were only four in the class. In the yearling bulls there was actually no competition, and Mr. Ambler walked over with "Great Eastern." (In fact, the prize-sheet was so cut up, and so divided, and so sub-divided—There were so many opportunities for a man placing an animal with "a certainty" that almost all wholesome rivalry was out of the question. The Society, as it is, suffers chiefly from a plethora of funds. By another year let them learn how to use these. Let landlords, tenants, and breeders come all together. Let them offer a series of good valuable open premiums, and they may have one of the best and one of the most interesting meetings in England. Instead of this, the money is now frittered away in classes that bring entries of three, and two, and four, and none, and one, and so forth. Such an occupation of our columns would be altogether impracticable, but if we did give the prize list it would be simply as a curiosity. As it is, we are afraid we shall be unable to do justice to the many good animals we, literally, almost tumbled over, but we must mention such men as Mr. Atherton, Mr. Lowndes, Mr. Norris, Mr. Higson, Mr. Forrest, Mr. Price, and Mr. Parr. Mr. Higson was especially prominent amongst the tenant farmers with his young bulls Towneley and Knight of St. George, and Mr.

Heawood, of Woodville, showed a prize lot of four as good roomy useful cows as one need wish to see, all duly numbered and pedigreed. These collections of cows were, indeed, generally noticeable for the size and quality with which they were made up. Mr. Atherton stood second amongst them, while Mr. Parr and Mr. Aspinall were each highly commended for so reliable a test of what they were doing with their herds.

Beyond the Shorthorns the stock only included a few Channel Island cattle, one or two fat beasts, and the late Premier's pair of Brahmin crosses. The latter were housed-in almost too securely at last, for it was difficult to get a peep at them. The death warrant, however, of the one which got away was signed before the meeting was over. He had broken his horn badly in his jousts about the ground, and a Liverpool butcher announced himself as the purchaser.

Notwithstanding that the sheep show was said to be larger than usual, the Society makes no great stand in this way. Mr. Smith, of Sutton Maddock, and the Shropshires had the best of it. He took six prizes with six entries, and one of his rams was as good a specimen of the sort as we ever saw. He was particularly true before, while his head showed far more distinctive character than is usual; and we were pleased to find Mr. Davis making a study of him. Sir Robert Gerard had some fair Cotswolds, and Mr. Harland, of Bradley, Shropshire, the best of the Leicesters. The entries of sheep, however, were, on any reading of the word, by no means great, and the same may be said of the pigs. Mr. Harrison and Mr. Hindson, indeed, had it nearly all to themselves; the former giving this section a strong lift with the Warwick and Edinburgh prize boar, and a sow nearly as highly honoured. There was a root show, which we believe was never quite arranged; and another, of poultry, that we fear hardly commanded the attention it should have done. A Liverpool fowl of the pure Hotel breed has neither size, flavour, wing, nor breast, and he is certainly susceptible of a little improvement.

If we plume ourselves on anything it is on being able to get out of a horse's way, or, in other words, to look him over without courting absolute danger. But they put one to the trial at Liverpool. Every man who had a nag that he fancied could go set him going, and kept him going. As, moreover, some of the premiums had to be awarded to anything that had ever looked through a "bridle, there was no end to this kind of display. In all the flush of prize cards they came on you with shortest of *his-hies*! and as you deferentially turned out of the way, there was a thorough-bred one playfully lashing out at you—or a ton weight of agricultural purposes ready to stamp your toes off—or a chaw-bacon with a long hold on a young one that saluted you there and then with both heels. Luckily the judges were at work during the greater part of the first day coram populo; so that by joining the ring we did get a chance of seeing what was what. It must be remembered that here, too, it was "all over again and again"—prizes for the best stallions—and prizes for the

best stallions. But we must really confine ourselves to what is worth recording. The open competition, then, produced two very good entries of cart and thoroughbred stallions. In the first of these were included England's Glory, the prize dray-horse at Warwick; Matchless, the Salisbury horse; and Mr. Robinson's (of Broughton) Napoleon, which is said to have taken no less than fifty-nine first prizes "about the country." The judges here gave him another, ranking England's Glory second to him, and taking no notice whatever of the grey. There was a good deal of debate over the award, and Mr. Taylor was so offended that he took his horse away after the first day's show, despite the five pounds penalty. Napoleon is unquestionably a fine topped horse, with a beautiful neck and shoulder, but his hind leg action is bad, and his joints but indifferent: when out, England's Glory had quite "the pull" of him. Matchless has not worn well, but we hear he has had a hard season. Colonel Pennant made an exchange this year with him for the noted Nonpareil, supposed to be the best cart-stallion we now have. The thorough-bred ones included the elegant Backbiter, the game Alonzo, the showy Caledon, and the well-known Yorkshire horse, Poynton. The judges preferred the last-named of these, an animal of great power and substance, and not so coarse-looking as he once promised to be. Old Alonzo, astonishingly fresh after all his hard work, they placed second; and then highly commended the other two. The roadster stallions ran up to ten entries, and the selected were both of much the same style—more of the riding-horse or hunter than the famous Phenomenon or Fireaway trotters, which reached no higher than commendations. The first prize horse, Mr. Cockshott's Harkaway, took similar honours only the day previous at Keighley, in Yorkshire. Mr. Fowler, of Preston, was second with Pallister; and Mr. Burton and Mr. Hairsine were commended—the latter for the prize horse in this class of last year. The hunters were only a middling entry; a good-looking brown horse of Mr. Worthington's, ultimately the selected, had no action, but otherwise he was a long way the best of them. The brood mares were as ragged a lot as ever we met with, and the young stock was made up of such odds and ends that we honestly did not care to identify them. The Liverpool and Manchester Society offers prizes for young thoroughbred stock, the policy of which we can scarcely see. Of course you must have thorough-bred sires to get hunting stock, but what can come of premiums to thorough-bred colts and fillies? If they are thought good enough to race they will be put into work, and the Liverpool Society will see no more of them. There can be no complaint on this score with the entry of fifty-nine, for a worse set of weeds were never brought together. Plainly, a good-looking thorough-bred yearling or two-year-old colt is too valuable an investment to hazard for half a week or so in a show yard, especially when they take such care of him as Messrs. Ellis and Co. did here. With a cruel attention to the importance of their position, the catalogue opens with an imposing list of the directors of the show, nine or ten for the Society's

prizes, and nine or ten more for the Local or Special. In very charity we shall not repeat it.

One of the features of the horse show was an American, "of the Black Hawk Morgan breed," shown in the first instance with the roadster stallions. Obtaining little attention amongst these, he was put into a light go-cart, and rattled about the ground by his owner, Mr. M'Kie, of Washington. "Cambridge Chief," certainly displayed himself here to far more advantage, twisting and turning when going at a great pace on the slightest hint from his driver, although with nothing more than a plain snaffle in his mouth. One of the greatest attractions of the same section was the pair of cart mares sent by Mr. Farrington, of Bickerstaffe. They were wonderfully handsome for their purpose, and at the same time of ample power and weight, with a beautiful, clean, flat leg, neat heads, and the promise at any rate of light clever action. The one stood eighteen hands and an inch, and the other seventeen three; so that they were declared here to be the very thing for a plough-pair team, the big one in, and the other out of the furrow. There was a further sprinkling of useful agricultural horses, mares and young stock, but a large majority of what was shown was very moderate in its calibre; and the President, Lord Sefton, was openly censured by Mr. Hannam, one of the judges, for the stallion which he intended should, according to the conditions, serve the mares of his tenantry. Still, we believe his Lordship's horse took a prize!

An exhibition of implements of course formed an important part in the proceedings. The trials, however, which took place the day previous to the opening of the show were, we believe, confined to cultivators and combined mowing and reaping-machines. Coleman, of Chelmsford, took the prize for the first named of these, while Hill and Smith, of Brierley, were highly commended for their performance. The leading firm in these parts, that of Messrs. Richmond, Chandler, and Norton, then came on and took the prize for the mower and reaper with one of Wood's invention; as well as the prize for the best two-horse cart, and other medals and commendations, including three for Howard's ploughs, which were exhibited in their stand. Cambridge, of Bristol, Pickaley and Sims, Sawney of Beverley, Keyworth of Liverpool (with one of Clayton and Shuttleworth's engines), Forsshaw of Liverpool, Clarke of Formby, Tinker of Penrith, and a number of other more local makers, were also distinguished either by medals or commendations. These went, as often as not, for general collections, and the interest of this department of the show was not much increased by the manner in which the premiums were awarded. Indeed, it was not known until late on the Friday to whom such honours went, so that much of the effect must have been lost. Not that any great excitement appeared to exist on the subject. As with the stock, the management and arrangement of the implements require a deal more attention and revision. Their disposition was quite on a par with the wild and primitive fashion in which almost everything else was done.

Saving only the dinner, which was well attended and

well served. The toast list, moreover, was judiciously arranged. There was not too much of it, and those who had something to say about the business of the day "came on" in good time for a hearing. As a consequence, Mr. Grey, of Dilston, and Mr. Hannam, of the Yorkshire Society, who spoke for the judges, were both listened to with due attention and respect. We append a summary of what they said, from which it will be seen that Mr. Grey kept to his last year's text on the manufacture of beef and mutton, and that Mr. Hannam, although a judge of horses, dwelt almost entirely on the uses of machinery. We should prefer to hear judges go more to the duties they had been employed on. In fact, a judge's speech on such an occasion should be somewhat of a report of what he had seen. We can sincerely congratulate Lord Sefton on the way in which he discharged the office of chairman. Almost entirely inexperienced, as at his age he must be, in such matters, he was never at fault; and one of his illustrations, in proposing this very toast of the judges, was peculiarly happy: "When I was at Eton," said his Lordship, "being but a light weight, they used to put me to steer. Well, if the boat won of course it was no thanks to the steersman, but if she lost it was sure to be his fault. I am afraid it is a good deal the same with the judges. If an animal wins it is no thanks to them; if he don't, they are certain to be blamed for it." How hard this hits on all the "rot" and absurd abuse muttered about the judges during this very summer! Let us see, however, what they have to say for themselves.

Mr. JOHN GREY said the judges had done what they thought best, but their duty on such an occasion was not an easy one, when the competition between animals was so close that the decision depended upon the very shade of an opinion. Some questions might be reduced to the statement of a mathematical proposition, but an excellent property in an animal could not be stated so easily, and required a great deal of explanation, and a delivery on such a subject demanded maturity of judgment and long experience. It was not a difficult thing for a man with a correct eye to tell the best form, and to see that within certain straight lines there was a greater solid content of meat; but a man required by putting his finger on an animal to tell the quality of the beef or mutton, and whether it was of that kind which would quickly bring the animal to maturity with economy of food to the farmer, to whom it made a material difference whether an animal arrived at maturity in eighteen months or two years. He thanked them for the pleasure of seeing this glorious exhibition, with so many animals in such a state of perfection. True, their description of breeding and feeding might not suit every farmer; but yet each was indebted to those who improved their own stock, for it was that which the British farmer was peculiarly called upon to look after. In order to profitable breeding it was necessary to secure the best description of animals, which, by coming to early maturity, would produce the greatest remunerative return, and to combine with this care that good cultivation which would

produce all the year round a succulent, nutritious food to bring them to perfection. Butcher's meat and wool were the most remunerative portion of the British farmer's produce. We were brought into competition with many countries in the production of grain; many, from their soil and climate, were better calculated to mature it than was ours; but there was no country in the world better calculated than ours to produce butcher's meat; and it was a happy thing that our operatives were now fed on that substantial food beef and mutton. Long might they enjoy it. It used to be the case that butcher's meat once or twice a-week was a great treat. If it was the most remunerative produce in the country, it was the duty of farmers individually and nationally to do their utmost to feed and maintain the increasing population of this country upon its produce. He had observed that a description of stock considered to be most remunerative in other countries was little cultivated in this: he meant sheep, which gave not only carcase but wool, and wool sold and would continue to sell at a remunerative price. But sheep would not thrive upon rushes, nor were they partial to damp beds; but they required that land should be drained. In his progress here he saw flocks in fields luxuriant in rushes. He knew well that those farms commanding the greatest advance in rent were well stocked with sheep. Whilst we had to compete with many countries in the production of wheat, which could be carried by steam anywhere, there was no country which could compete with us in our oxen and sheep, and it was these he would recommend to the farmer. He did not speak to the amateur or gentleman, but to the rent-paying farmer, who kept his land to pay his rent and support a family; that man would he recommend to attend to the growth of his roots and the description of stock he kept. By improving his cultivation he would improve his stock and increase the amount turned over year by year; so that the sooner stock arrived at maturity the better would it be for the country and for the farmer's pocket.

Mr. HANNAM, secretary to the Yorkshire Society, also returned thanks for the toast. He looked with great interest to the general introduction of machinery, which would do away with unproductive labour. He did not believe that in the agricultural districts any such feeling existed between employer and employed as that which did among a certain class in the metropolis.

They found that the more machinery was introduced to do the unproductive work of the farm, the better was the employment of labour, and the lighter the task upon the physical energies. If a farmer paid thirty men to thrash his wheat, whatever wages he gave them must come out of his capital, for it produced nothing. There was no improvement in the raw material, which went out of the barn such as it came in. It was not like wool being converted into cloth—it was still wheat, and so much physical power had been wasted. Mr. Hannam then humorously referred to one of the horses exhibited by the Chairman, and remarked that as his lordship had spoken of the need for improvement in all things, there was some room for improvement on his lordship's part as regarded some of his stock.

The following is a complete list of the gentlemen included in the toast of

"The Judges."

CATTLE.

John Grey, Dilston, Northumberland.
John Mackenzie, Barn Hill, Dumfries.
John Patterson, Hall Beck, Ulverston.
John Unthank, Netherscales, Penrith.

HORSES (AND SADDLERY).

Richard T. Beckett, Oulton, Tarporley.
Edward Sale Bell, Burland, Howden.
Stephen Cox, Stamford-street, Blackfriars-road, London.
John Hannam, Kirk Deighton, Wetherby.
John Knowles, Lytham.
William Mason, Waddesdon, Aylesbury.

SHEEP AND PIGS.

Joseph Beach, The Lower Hattons, Brewood, Penkridge.
John C. Etches, Harley Thorn, Newcastle-under-Lyne.

IMPLEMENTS.

John Jephson Rowley, Rowthorne, Chesterfield.
William Palin, Stapleford Hall, Chester.
James Teasdale, Liscard Farm, Cheshire.

POULTRY.

Thomas Chaloner, Whitwell, Chesterfield.
Richard Teesbay, Fulwood, Preston.

SEEDS AND ROOTS.

John Nickson, Hale, Warrington.
James Wood, Haigh, Wigan.

CHEESE AND BUTTER.

William Tyleston, 15, Redcross-street, Liverpool.
Henry Warburton, Withy Grove, Manchester.

CONSULTING VETERINARY SURGEON.

B. Cartledge, Sheffield.

ON ENTERING FARMS IN SPRING AND AUTUMN.

Two periods of the year have been chiefly adopted at which possession is taken and vacated of farms or land—on the 12th of May and on the 29th of September—and are called respectively the May and Michaelmas entries. The former term prevails over the whole of Scotland, and over an extent of England; the latter is adopted over the southern counties, and in some other places of the same custom. Entries are made in November and March; the former being very similar to

the Michaelmas term, and the latter progresses towards May, which affords the greatest convenience, and the easiest transfer of the occupation of the farm from the outgoing to the incoming tenant. That season of the year divides the labours and productions of the farm in a more complete manner than any other period, and is therefore preferred for the special purpose as a spring entry.

When the month of May arrives, the grass crops of

the year begin to grow in pasture and in hay, and the entry is most direct to these productions by the incoming tenant. The wheat crops have been sown during the previous autumn and winter by the outgoing tenant, and also the oat and barley crops of the spring on the ploughed leys of grass, and on the lands that have yielded a crop of turnips during the previous season, and now receives grains and grass seeds.

The ricks of grain of the former year have been all thrashed and manufactured into sale and into dung in the cattle-yards, in which the animals have consumed the root crops, in the same number of beasts and quantity of roots as in the past years of occupation. The dung and any straw left for summer use pass into the hands of the incoming tenant free of any charge, the dung being carried to fermenting heaps in the fields for next year's green crop fallows; the labour of carriage is paid by the new tenant to the old occupier, and also the cost of ploughing during winter in the usual way the lands for next year's fallows for wheat or green crops, and of spring ploughings and harrowings to prepare the lands for potatoes, beet, and Swedish turnips. Stable-room for two pairs of horses is given to the new tenant from the 1st of January, in order to carry dung, stones, and to perform ploughing, as may be necessary. The incoming tenant buys the growing crops of grain by a valuation made before harvest begins, and pays the cost of the grass seeds that were sown in the previous spring, from which hay and pasture will be derived to him. The labour of sowing is also paid. Artificial manures, as bone and guano, are paid by a tenant-right of three years, and lime in the same way.

This arrangement of outgoing and incoming creates the smallest possible amount of valuations to be paid by the new occupier, and on that account the term of entry bears the highest merit of commendation. The custom has been, and yet prevails, that the incoming tenant assembles a number of ploughs from the customary charity of the neighbourhood to winter-plough the stubbles for the year's fallows, which is always very imperfectly done, from the hurry and confusion, and from the lateness of the season, arising from the desire of having a long day, to get much work done. No subsequent working of land will compensate the want of the early winter ploughing; and the provision is most beneficial which enacts, by a clause in the lease, that only the stubble grounds are ploughed in the usual way and proper season by the outgoing tenant as if on the farm was intended no change; the labour to be paid by the incoming tenant at the current rate of the country, and also the cross ploughing, harrowing, and rolling of the spring fallows for green crops. The purchase of the growing crops just before full maturation by the incoming tenant prevents the unnecessary carrying and fetching of grain and straw to and from the farm, and also every appearance of change of occupation, with much trouble and annoyance to both parties. It is a very beneficial regulation. The carrying of the dung from the cattle-yards to the fermenting heaps in the fields is an invaluable benefit, to prepare the dung in proper time, as no future management can regain the lost opportunity. And two pairs of

horses being lodged on the farm for two or three months previous to the 12th of May enables the planting in proper time of potatoes and beet, with due preparation for Swedish turnips, which require to be sown about the time of entry. The outgoing tenant performs the operations of ploughing and harrowing, and the lodged horses execute the detail work.

The enactments have very seldom been introduced into a lease, and have been but lately mooted, that the winter and spring ploughing of fallow lands, and the carrying of dung into heaps in the field, be done by the outgoing tenant, on being paid for the labour; and that the growing crops of grain are bought by the new occupier, which is a purchase, and not a valuation. But the adoption of these regulations is certain when known and duly considered, as the removal is effected of much loss and inconvenience. My own very long and extensive experience in practical farming most strongly exhibited the loss incurred by the late winter ploughing of the stubbles, generally done in April, and from the dung not being moved from the cattle-yards to the fields in the proper season. The inconvenience is wholly unnecessary of selling growing crops of grain in patches by auction, and of the new occupier bringing from distant sales the grains and straws in return. All these losing customs are beneficially removed.

Recent ideas have proposed to give the outgoing tenant one-half of the value of the farmyard dung that is made during the last winter of occupation, and which is placed in heaps in the next year's fields of green crop fallows, and to give one-third of the value of the dung that was applied to the turnip crop of the previous year. This proposition is an introduction, instead of an abolition, of valuations; and when the farmer gets the dung in gift on entering to the farm, and will get the same privilege on the farm to which he removes, the balance is most justly true, and no loss is incurred or any advantage gained. Nothing can be more simple or easy than to give the dung "free," except the labour of preparation in being carried to the heaps in the fields, and that a special clause be inserted in the lease that an equal number of cattle be kept during the last winter as was maintained during former years. The valuation for lime during the last three years will not very often happen, and the use of artificial manures only on extensive turnip farms; so that, in the majority of cases, the only valuation is the grass-seed bills of the previous year, with the labour of sowing the seeds and of ploughing the winter stubbles and spring fallows, and of carrying the farmyard dung to heaps in the fields. The dung of the yards is a production of the farm, and reserved for its use; composed of excrements and straws, from which the farmer has sold the grains to repay the expenditure, it remains in bulk as a stationary article. The direct acts of labour claim a specific value, as the performance is evanescent, and disappears from view. The one article is permanent, the other vanishes.

The great object is to obtain a perpetuity of occupation in farms of land; and since the nature of the business denies this absolute attainment, the next point raises the nearest approaches to it by continuing the re-

semblance in easy changes and simple transfers of occupation. For this purpose the connection must be made small as possible between the outgoing and incoming tenant, and no obligations must be imposed that can be avoided. The essential performances are to be made agreeable and convenient to the outgoing tenant, and valuable to the new occupier; the execution to be in the regular business of the former, and appear to be for his own behoof; the incoming tenant to have the work done as if executed by himself, and find everything in readiness for the further progress.

Not the smallest work must be in arrear, but done in the proper time by the labours of the outgoing tenant, and by the two pair of horses of the new occupier, which are lodged for the purpose of executing the detail work of the farm. Every arrangement must bear upon the main point of a simple change and an easy transition.

The Michaelmas entry to farms, on the 29th of September, finds the entire grain and green crops in full maturity, ready for manufacture and disposal, and a very large confusion ensues. The houses and grounds are vacated on the day of term. The crops of grain are reaped and stacked by the outgoing tenant, who keeps the use of the barns during winter, in which to thrash the crops, of which the straw is delivered free to the new occupier for carrying the grains to the market, or at a market or fodder price. The fallow grounds for autumnal wheat, and the lands planted with green crops, are valued in the labour and manure applied, and in the rent and taxes for one year, and the amount paid by the new occupier to the outgoing tenant, and any new performances that seem to have a prospective value. A portion of underwood, copse, or coppice is generally attached to the farm, which is cut periodically by the tenant for the special purposes of use. On quitting the farm, the years of growth are valued, and paid by the new occupier, and relatively to the cutting in twelve or fourteen years. The timber trees are reserved by the landlord. In this way, the whole labours of a year are valued in the performance, and for hire by another person.

This term of vacating and taking possession of farms raises a large amount of valuations, to be paid in money by the incoming tenant; and it forms a very chief consideration in calculating the amount of capital required for the management of the farm. It is an unnecessary and useless expenditure, as other terms can be found which avoid the large intermixture of quit and entry. By paying rent and taxes for the fallow grounds, the incoming tenant is made the occupier of lands he never knew, and pays for labour he never superintended, and for manure of which he never saw the quantity or the quality; and pays the estimate, the green crops being good or bad. The occupation of the barns during winter for thrashing the crops often gives occasion to very unpleasant collisions; and the straw being produced without consideration of the timely use is diminished in value, as the thrashing is regulated by the will of the gone tenant, not by the convenient wish of the new occupier. This want of control inflicts a loss in the use of the straw. When underwoods are half-grown or less, years

must elapse before any return is got from that quarter, and the minor articles may be worth little to the system of use that may be adopted. The entry has been improved by landlords retaining possession of all woodlands, the farmer buying at periodical sales the wood required for fuel. A further improvement may be effected by the incoming tenant purchasing the standing crops of grain, as in the May entry, which would sever all connection during the winter of thrashing.

The inconvenience is considerable when the former occupier has removed to a distance, and has business of some value to attend, in thrashing and marketing a whole year's crop of grains. The hay-ricks are valued, and sold at a current price to the new tenant. When these alterations have been adopted, the tillages of the fallow ground still remain to be valued; and as the charges are only now mentioned, and nowhere yet introduced, the entry comes to be viewed, as originally stated, in paying for partially-grown woods, the tillages of the fallow crops, and in the use of the barns during winter in which to thrash the way-going crop. This mode of entry is yet almost universal in the southern parts of England; and, having long obtained a footing, the custom prevails without much animadversion on the subject.

The entries to farms at Martinmas in November, at Candlemas in February, and at Lady-day in March, are worse adapted for the purpose of easy transfer than the Michaelmas term; and, in order to lessen the amount of charges, it is stipulated what articles are to be paid for, and what go free from the old to the new occupier, thus acknowledging the grand attainment that the change of occupation be made easy as possible, and not burdened in the extreme. At the winter-terms of entry, the business of the farm is very largely intermixed, and does not admit a separation without bearing charges for the entry, and then many concessions, to make the burden at all tolerable.

Each entry prescribes its own customs, which are all liable to the same objections that are produced by the time of the year at which the vacation takes place and the entry happens. An unnecessary outlay of money is made, and much business that is not required: the interest of the incoming tenant demands the winter-ploughing of stubble-grounds for fallow, and the carting of dung to fermenting heaps, all in due season; but the proprietor has to settle that the farmyard dung remains for the use of the farm, and the incoming tenant receives it, accordingly, free of charge, as a fixed article of expected inheritance.

The comparison of entries, in the advantages and disadvantages, is very justly laid between the autumn term of Michaelmas and the spring entry in May; the winter terms of November, Christmas, and March being included in the Michaelmas entry, as the conditions are very similar, arising from the circumstances that exist in the business of the farm. Valuations for tillages are made at all the terms, except in May, modified and changed by the peculiar customs of the locality. At the Michaelmas entry, the incoming tenant finds an amount of money to be paid in ready cash, for tillages and

dung, rent and taxes, being articles not required to be purchased for any specific use, and therefore not an essential performance. In May, it is imperatively necessary that the stubble-grounds are ploughed in the proper season, and that the dung be carried from the cattle-yards to heaps in the fields, to undergo the preparation for use to green crops. The dung is free of any price, as a permanent article for every succeeding occasion of use on the farm. At Michaelmas all collections of dung are valued; and generally much exertion is used in making gatherings of such articles, in order to raise the amount of valuations. Then comes the valuation of underwoods; and the custom of some districts goes back to the previous year, and includes the value of the unexpired benefit on turnip and clover lands, under the name of "half-tillages." This large amount is reduced to at least one-fourth of the sum in the May entry, for ploughing stubbles and carrying dung, and the grass-seeds of the previous year. On this point, the advantage is very largely in favour of the entry in May, as the difference is great between the sums of valuation, and the largest amount is paid for attachments, and the least sum for the most valuable essentials. In May, the full and entire possession is obtained of houses and lands on the day of entry; the connexion is wholly severed by the payment of labour performed in ploughing and carrying dung; and the purchase of the grain-crops is a subsequent transaction of common traffic, made by stipulation. At Michaelmas, the incoming tenant pays rent and taxes for one year of the fallow lands, when he holds no possession, and the outgoing tenant retains the use of the barns for six months after the tenure is vacated, thus forming a very mixed possession of the farm for a whole year. This usage is very inconvenient, and gives occasion to many misunderstandings and unpleasant collisions. The tillages are not performed by the direction and superintendence of the person who pays the value; and the quality of the work cannot be seen. In May, the ploughing is evident, and the dung, if properly heaped. A very considerable secondary advantage is found, on these latter points, in favour of the May entry, which retains the superiority in making the easiest transition and least perceptible change in the occupation of the farm. The amount of valuations subtracts a large sum from the cultivation of the land; and, though it be duly calculated in the estimate of the farm, yet the ready payment of the amount claims the first place, and other most necessary demands are postponed. Very hurtful consequences follow this arrangement of entry: a due provision of money for its demands does not remove the objection of paying a long sum for attachments, and not wholly, as should be, for essential performances. There is required, after the amount of valuations is paid, the quantity of capital usually allowed to manage the undertaking, which will be the greater in amount, in proportion as the valuations are reduced. It may be said that this sum only constitutes the foremost item in the capital of farming; and, if it was removed, the calculation would be the same, and only divert the means into different channels of use. But it hinders the use of

small capitals, by barring the access of operation; and it squanders large capitals on unnecessary points of expenditure.

The general conclusion recommends the entry to farms on the twelfth day of May, as the most convenient, the easiest, and the most simple. It severs the connexion on the day of entry; and it values for payment only the ploughing of stubble-lands and the carrying of dung, there being included the cost and sowing of the grass-seeds of the previous year. The hay and root-crops are wholly consumed; and the farm-yard dung, with any thrashed straw, pass "free of charge" into the hands of the new tenant, as an article of permanence at all times for the use of the farm, and never of vendition or commerce between old and new possessors. No arrangement will ever be found that is more just and simple.

The chief consideration in entering to a farm of land at any term is, the possession of sufficient capital for the purposes that demand an impelling force of money; and an equal provision remains to be established in a reserve fund of a third, or at least a fourth, part of the aggregate sum. This amount lies at interest, and is ready and available at any time to strengthen the weak points of application, to meet any exigencies of demand, and to supply accidents and casualties that attend active undertakings of any kind. Of all the evils that can afflict landed property, no damage is sustained in any degree so hurtful as the want of capital by the proprietor who enjoys the heritage, and the insufficiency of means in the hands of the farmer to reap the temporary benefits. The first want prevents the necessary furniture being provided, with which the temporary use of the lands can be made fruitful; and the second want debars the realization of the value of the furniture that has been provided. And both wants are joined in preventing the further improvements that are required during the progress of cultivation, and in which both parties are agreed to certain specific portions of the undertakings. Hence the irrefragable argument, that landed property be farmed in possessions large rather than small, and able to improve itself from an amount beyond the social provision of the occupants. The greatest injury to landed property may be sustained from this source, as it forms the base of the edifice to be built by other means. The want of capital to use the foundation completes the irreparable detriment that is inflicted. Both wants are equally hurtful, as neither can produce the proper fruits without the other. The intending farmer must exercise a very careful and most steady judgment, that an eagerness does not carry his efforts beyond the power of his means, and to overstep the bounds that are prescribed by practical skill and a sober discretion. Professional experience and local knowledge will be able to determine the amount of the necessary capital, which will vary with the circumstances of country and districts. The accidental circumstances of several abundant crops in succession, and of high prices for a time, have sometimes produced large results from small means; but the exception is rare, and constitutes no foundation for calculation.

These events are the chances of business, and not the grounds of it, and cannot enter into any estimate of an undertaking. The full means must be allowed, and ordinary returns calculated.

The possession of a reserve fund constitutes the safety of any business, whence are drawn the reinforcements to any point of weakness, and the supplies to fill up the losses that occur from accidents and misfortune. From want of a reserve, very many undertakings are wholly ruined, by reason of the whole force being expended at once, and no supplies being left. The least accident or misfortune deranges the whole operations. One weakness creates others; the infection proceeds; and any weakening of one point to strengthen another, produces a universal diminution of the necessary force. Losses must be repaired from a special fund, that is wholly separated from the chance of accidents, and placed independently, with a ready and available freedom. A strong reserve that is ready in hand, and timeously used, is a most effective implement, and more powerful than the first application of force. No professional skill, no energy, no activity, no extraordinary display of other sorts, will compensate for the want of sufficient capital. Much, no doubt, may be done; but the controlling circumstances still remain; and, however the force may be thwarted and warded off for a time, the irresistible power will at last prevail. It is the first, the second, and the third requisite that a capital is provided that is sufficient for the purpose of cultivating a farm of land, supported by a reserve fund of one-third or one-fourth of its amount.

The young farmer must be careful to place upon the land a quantity of strength that is able to perform every operation of necessary work in the due time and season. The force must be located on the farm, in order to be always ready and under command, and kept in full condition and efficient vigour. The want of sufficient strength is equal in disadvantage to the inadequacy of capital. The former arises from the latter; and both proceed from a desire of effecting results from small means. At the same time, all superfluous applications are to be avoided, which consume and devour a substance, without returning an adequate compensation. Economy must be practised, but not the misunderstood meaning of the word, in a parsimonious insufficiency of means to perform any object, but in the true and just acceptation, of getting things not cheaply done, but well done. That is true economy which adapts the just means to the end, in order that the fullest result may be obtained. Niggardliness and lavishness are the same departures from the meaning of the word. The object to be attained is the chief consideration, and the ultimate result the value and possible realization; and then follows the calculation and organization of the means that will be required for the undertaking. No extravagant views must be entertained, but sober discretion and sound practice, and such conceptions put in force as can be supplied with means from the available funds of use. A reckless enthusiasm must be sobered and restrained: a freezing niggardliness must be disregarded and wholly expelled.

It is an object of importance that the grass and root-crops of a farm are not attempted to maintain a larger number of animals than can be supported in good condition, and advanced into a fattened maturity or into the thriving progress of the store flocks and herds. Pastures must be understocked, rather than pinched in the maintenance afforded by a scanty herbage: the bite of grass must be ample, and procured without unnecessary trouble and fatigue. The winter provender must be ample, and more than adequate for the number of beasts. Waste need not be incurred, nor must scantiness be adopted. The farmer will provide his herds and flocks from the best breeds of the locality, which, bearing the identity that ever prevails between the soil and its productions, possess a vast advantage over the importations from a distance, that require a time to become habituated to the new impressions that prevail.

The farmer who removes to a distance from his old abode, and places himself under new and very different circumstances, will do well to take lessons from his neighbours, and to get acquainted with the ways and customs of the district. Agriculture is now so generally well known, that each locality has adapted to its use a system of practice that may well be imitated, if not in every point, at least in many performances. A slavish routine or a servile imitation is not here recommended, nor an implicit adoption of the customs of any country; but to exercise a most careful examination of practices and alterations, with a steady use of the former till the latter are seen to have a firm base of introduction. Nothing more clearly betrays a want of practical judgment than the hurrying into action of a series of practices which prevail in the head, and exclude all others, without consideration of the circumstances that will direct and establish the performances. Great losses have been incurred by this inconsiderate course of action, the result of ignorance and conceit. Success under an accustomed course of circumstances is allowed to infer the same effect under totally different circumstances: pride forbids imitation: obstinacy pursues the adopted system of conceit, and stops not till much ruin has been effected. No error is more epidemic among the sons of men than the arrogance which dictates the same course under all circumstances, on the supposition of our own opinion being superior to all others. The highest geniuses in the world have foundered on this mistake: that is very easily seen, and invisible only to wilful blindness. Mostly all practical arts are subjected to variations from time and place; and agriculture is, beyond most arts, exposed to different performances, arising from the varied effects of soil and climate. This recommendation is not by any means intended to forbid any alteration whatever, and to follow a slavish routine: the obstinate conceit and arrogant pride are only warned of the effects of persisting in a course of action, against the reason of observation and the knowledge of experience. Alterations must be cautiously adopted, and gradually and steadily introduced, after time has shown the most despotic of all lessons from the powers of soil and climate.

An advantage is derived by the incoming tenant en-

gaging the services of labourers who have been employed on the farm to which he enters, or in the neighbourhood of similar circumstances. Their general experience is useful; and hints may be taken, though advice is not asked. A local knowledge must be

speedily acquired from every source of information, and notices and observations compared. Old opinions must be given up, and new ones substituted, drawn from the circumstances under which the farmer is now placed, in a new locality.

THE SCARCITY OF HANDS AT HARVEST.

With "the strike" still in obstinate continuance, and as much as ever the difficulty of the townspeople, the farmer may surely congratulate himself on having got through his busiest time. It is true this has been at serious cost. Never was the rate of wages so high—simply because the supply of labour was never so short. In no occupation, perhaps, does the one so directly regulate the other. Both master and man know well enough what is coming. There is no need of Associations or resolutions to proclaim this. The employer faced the recent harvest with one other anxiety beyond the customary prayer for fine weather. Only coequal was his hope that he might command the means for making the best of such an opportunity. On the whole, he has accommodated himself more easily to present circumstances than might have been anticipated. We have heard of no great interference to the onward progress of harvest home. At the same time, we repeat, the outlay in this branch of his business has been much heavier than usual. To be sure, we have now for some seasons had stronger and stronger warning of such an advance in prices. We have gradually come to miss the bands of strollers that turned up so opportunely for reaping, and that disappeared again so obligingly when their work was done. The war, or the diggings, had got hold of them, it was said. But the God of battles, alas! keeps many a hostage, and although men do come back from the gold mines, it is not often to work on the farm.

It may, then, be fairly assumed that, for some time at least, the command of agricultural labour will be by no means so easy as it proverbially has been. For the general business of the farm nearly all will take care to be still properly provided, and the great point will be to make the most of what we have. Men no longer are to be had for the asking, or to be whistled on and off just as it may suit our convenience and temporary requirements. Some political economists will argue that this is in reality coming to a better state of things; that the workman so takes his proper position in the social scale, when he has not to ask employment as a favour or a charity. However this may be, the employer must be prepared to deal readily with the case as it now presents itself to him. Nothing sounds more ruinous than crops spoilt for want of harvesting. When once the farmer is put in this dilemma the profit of his occupation is gone. And yet, even in this very season we have been close on such a crisis. Again, we ask, how should we meet it?

The answer is surely self-evident. There was a day

when the master actually lingered over his harvest work almost as a duty to his own people and parish—leisurely cutting and carrying this field, and then as leisurely going on to another. There is no question either but that the labourers and their families came to look on this system almost as their "rights"—when the Irishmen were driven out, and the use of machinery denounced. But such an era and such rights are rapidly passing from amongst us. The one great maxim now must be to make the most of what we have—of the seasons, of our produce, and last, but not least, of our workmen themselves. Everything is certainly tending to this. The attention of the upper to the lower classes has of late years vastly improved in its character, while the aspirations of the latter have proportionately risen. There is a far finer feeling being steadily engendered between the two than that of coals and blankets. The allotment system, the encouragement of skilled labour, and the equally public acknowledgment of good conduct, have all tended to the one same great object. The disaffected may go to the diggings, and the lazy lounge into the militia, while the sober industrious servant is sure not only of a fair day's wages for a fair day's work, but almost as certain of the sympathy, the care, and the respect of his employer.

It is with such reliable aid that the farmer may yet concentrate his forces. The straightforward reply to his inquiry as to what he is to do for men, is met at once in this way: If you have less men, you must have more machinery. If you have fewer hands, they must be better skilled. These are palpably the two great points to attend to: the proper education and treatment of the labourer, and the use of really efficient implements. It is here that our Agricultural Associations and their annual meetings become so serviceable. It is for such ends that we uphold premiums and competition, and become guilty of such "absurdities" as offering an *honorary* of ten guineas to the manufacturer of a useful piece of machinery, or two or three sovereigns to a servant for the best piece of work. It is by this means, by publicly showing what an implement or a man can do, that we introduce improvements into a district, which otherwise might long languish without them. One of the first effects of the extended employment of agricultural mechanism is to raise the intelligence of those with whom it comes in contact. Many a man, ere now, has been educated by steam. But still the lesson is scarcely ever self-taught. Send a new invention, however simple in construction or action, to a customer who has

never seen it in work, and the chances are that he makes but little of it. • His labourers know nothing of it, and he can tell them nothing, and so they break down with it in experiments, or he returns it at once in disgust as useless. The meeting, however, of an agricultural society, will at once supply a lesson so essential, not to one, but to a whole class of pupils. Here master and man may see how the makers themselves turn their wares to the best uses. It is for this that, amongst other reasons, we require continual trials and competition even at minor or "out-of-the-way" gatherings. It is for this that we would have even the great people put to further demonstration as to not only what they have done (*vide* catalogue), but to what they can do. We are sanguine enough to suppose that such a course would be as much to their own advantage as to that of those whose patronage they solicit. Of course we speak with "a bias," and this is for public tests and open competition. Moreover, the less the actual value of an implement is known, the more are these required. Can there be anything so negative or absurd as to have four or five inventions exhibited in a comparatively new country, on the strict understanding that no positive opinion shall be passed upon them; saving, that is, by the exhibitors themselves, every one of whom will be at liberty to assure you that he is "doing by far the best work in the field?"

But to keep to our proper subject. The great want just now has not been a plough or a steam-engine. Our more immediate care has been some means for facilitating the ingathering of the harvest; or, in other words, some agency to supply the deficiency of hand labour. At such a critical period it is really quite pleasant to turn to a firm who appear to be acting thoroughly straightforward. We do not know whether Burgess and Key are members of the Engineers' Society, but we should imagine not; and for this reason—For some seasons they have now been declared to have one of the very best reaping-machines in use. Farmers

from all quarters testify to its excellence. And what, then, is their course of proceeding? If they belong to this mystical Society they announce at once that they are satisfied, they can compete no further, they have no faith in general trials, they are bound down not to enter on them, and so forth. Strange as it may sound, Burgess and Key have done nothing of the sort. They commenced the year with confessedly the best reaper out, and they have been competing ever since. They don't wait for the four or five years turn of "the Royal," but wherever there is a meeting, there almost as certainly are they to be found. One week they are in Kent, and the next at Hexham, and the North Northumberland Society. There is no curious edict to consult, no mysterious "gentleman" to advise with; but, confident in the powers of their implement, they have been competing everywhere that competition was admitted, and everywhere with success. This is, be it understood, no awkward puff to serve any especial purpose or person. We are writing, speaking, and feeling strictly for the farmers themselves. They have been in something of a dilemma during this last harvest. Let them look to the public estimates of those agents that have fulfilled their promises to serve them. Let them not be hoodwinked by unintelligible provisos of what should be and what should not. On the contrary, let them trust a little more to what men of their own order—north, south, east, and west—have pronounced to be worth their attention. Let them remember this when harvest comes round again. Let them bear in mind the implements that have courted test and trial throughout the year; and let their first object be to make their labourers thoroughly acquainted with the management of them. We counsel nothing more than the public records of what has been done—and by this, associating good workmen with good machinery, one of the farmer's greatest difficulties will surely be surmounted.

THE YEOMANRY OF ENGLAND, AND THE NATIONAL DEFENCES.

The poet, with more or less truthfulness, has ever pictured the husbandman as flying before the warrior's tramp. He turns in a moment, leaving house and lands, and beeves and flocks, all at the sack of the stranger. His very wife and children in their utter helplessness may have to beg for life and mercy. The arts of peace and war, in a word, cannot flourish together; and the shepherd and the ploughman fall at once prostrate before the hand of the despoiler. At least, so it is that the unequal conflict has generally been said or sung. The poor Arcadians stand all huddled together, like a scared lot of their own sheep, watching without ever influencing the fortunes of the day, and only waiting to see to whose dominion they shall pass over. This is not a flattering reflection to dwell upon, and we have only to trust it is no longer susceptible of any self-application. Still, what would

the yeomen of England be able to do for themselves should the invader suddenly appear before them? Have they devised any means of action? Have they any known signal that would bring the strong men of their district in a moment together? Could they show any front, or attempt to stay the attack until some further aid could reach them? Have they made any preparation whatever of this kind? Or would they get huddled together, hiding one under the other, conscious only that they could do nothing to help themselves?

These are awkward questions to put, and, it may be, somewhat humiliating to answer. But they must be pressed home nevertheless. In our many excursions through the country, we scarcely see that systematic consideration of national defence that we could wish. Every now and then, certainly, we meet some smart

rifleman hurrying through the street to his evening drill, as occasionally you will find on the mantel-piece or study-table of the Mayor or Town-clerk a War-office communication "on her Majesty's Service." But the movement is not so general as it should be, and the towns so far are more active than the country. Harvest, to be sure, has been just now engaging all the attention of the farmer; but this once well over, and he, too, must look about him. The very name of a yeoman of England at one time carried its weight with it. And we hope still to be able to put him in manly comparison with the pipe-and-crook pastoralists that the habits of a country life seemed only to imbue with a feeling of indolence and cowardice.

It is, of course, just possible that such provision may be never actually needed. It may happily happen that the most expert of riflemen will never be called on to take any more anxious aim than that at the face of his target. But surely the knowledge that we should be ready to strike a blow for ourselves is something. On the other hand, there can be nothing more depressing or uncomfortable to think over, than that, should the worst come, we can do nothing to avert it. It is a bold man who can, just at present, dare to read the signs of the times, or at any rate who can make any reliable deduction from what he is permitted to see. The sword may be hanging over us, dependent only by the single hair, and that to be broken by the hot breath of an angry man. Should it fall in amongst us, have none the skill or courage to turn it against the tyrant, who would think to scare us by its very glitter?

But, after all, it may not be the temper of an angry man merely that we have to guard against. It may be, rather, the circumstances of a needy one. The world is the more inclined to regard the matter in this light. It is impossible for some people to exist without excitement, and such a necessity may apply almost equally to a nation as to an individual, to a monarch as to a fine gentleman. We are no alarmists. We should be the last to put the country to a useless expense or our friends to unnecessary trouble. But what we advise would, as we take it, be conducive to neither one nor the other. The very fact, indeed, of anything like a general raising of volunteers would tend to diminish the more direct calls on official provision. At the same time a Rifle Corps might be made quite as pleasant a gathering as that of a cricket club or an archery meeting. There would be the like trial of skill, the same friendly rivalry, only with a more commendable as more honourable object. And, say nothing more comes of it, every one of us will be the better for his drill. Like Lord Winchelsea, when he went to Hythe the other day, we do not know how much we may improve till we try our hand. We care not whether it be in the Militia, the Yeomanry, or the Rifle-band; but let no able man refuse at such a period to learn how to take his own part.

To be sure, we are fast in the blessings of another established Peace—while we hear from Paris that

"Government has given orders at Creuzot for the construction of twenty frigates, iron-plated." And, again, "Fifty large steam transports, each capable of containing 3,000 men, will be finished in a short time. Preparations for defence are being made along the whole coast. Besides the casemated batteries of which the *Nouvelliste* of Rouen has recently spoken, the forts on the Mediterranean and the ocean, which have been abandoned for a long time past, are being re-armed. The forts of St. Malo are also taking in new ordnance." Then, the Continent abounds with such rumours as these (it is a correspondent of *The Times* that is speaking):—"You will notice in the *Presse* a Paris letter taken from the *Indépendance Belge*, which is not unworthy of attention, from the fact of its being from the pen of a person who is known to have occasional access to the Emperor's Cabinet at the Tuilleries, and is therefore believed to take his views on these subjects from the *genius loci*. According to the writer, or his inspirer, the Emperor's object in making the peace of Villafranca was to gain the alliance of Austria; and his object in the alliance was to accomplish the mission assigned to the second French Empire, namely, the abolition of the treaties of 1815, and the lowering of the moral domination of England!"

There can be but one answer to such gossip as this. We must be "above" it—not by the old conventional indifference to coming danger, but by due regard to our proper position and "moral domination." Although we, as usual, address ourselves more especially to one class, this is a duty by no means confined to them. The initiative, in fact, must proceed from what is called higher quarters. It is to the Lord Lieutenants, county magistrates, and country gentlemen that we must look to encourage the spread of the volunteer movement. They have only to go thoroughly into it, and the feeling will soon become "fashionable." We regard it, in short, as one of the most telling points for an after-dinner address at any of the autumn meetings now on. Let the chairman, or his friend at his right, not merely assure the company what they may do by supporting such associations as these, but let him glance at another kind of association in which they should be all equally interested. It is but the old story of Cincinnatus told the other way; while its moral has thus even a higher rendering.

REMEDY FOR THE BITE OF MAD DOGS.—A Saxon forester, named Gastell, now of the venerable age of 82, unwilling to take to the grave with him a secret of so much importance, has made public in the *Leipzig Journal* the means which he has used for fifty years, and wherewith he affirms he has rescued many human beings and cattle from the fearful death of hydrophobia. Take immediately warm vinegar or tepid water, wash the wound clean therewith, and then dry it; then pour upon the wound a few drops of hydrochloric acid, because mineral acids destroy the poison of the saliva, by which means the latter is neutralized.

SMALL FARMING AND AGRICULTURAL ASSOCIATIONS OF SWITZERLAND.

[TRANSLATED FROM THE FRENCH OF THE "JOURNAL D'AGRICULTURE PRATIQUE."]

Has it not often happened to you that when you allege, as an example, the agricultural progress of England, that you receive the following desponding reply:—"All that is easy enough to the English—they have still large properties; but we, with our soil reduced to infinitely small ones, how can we do the same?" In order to encourage these honest people, advise them to read a very small, but very good book, namely, "*The Systems of Cultivation*, by M. Hippolyte Passy." Perhaps they will then be able to see, or at least will be in a way to learn from other countries which have adopted our French laws relative to the transmission of real property. They will see, alas! unfortunate persons there; but they will also find in them those who have no reason to envy England in regard to agricultural production, and sufficient to prove that that production is not the consequence of the laws which regulate property; and we maintain the hope that we shall arrive at the same in France, without repealing, in the name of the public good, the arrangements introduced, by the legislators of 1789, into our code, in the name of Justice. The public good, well studied and well understood, will always be in accord with justice.

Some of the Swiss cantons may serve us for studies in this respect. But before speaking of them, let us establish the foundation of the question.

In England the father is at liberty to divide his landed property as he will; but if he dies without making a will, the law awards it to the eldest son. As to the moveable or personal property, it is shared equally amongst all the children. Besides, every proprietor has the right of entailing his estate, and thus making it indivisible for ever.

In France we make no distinction, as to their transmission by inheritance, between real and personal property. The parents cannot favour one of their children to the injury of the others, beyond a certain limit, and, in the event of their dying without a will, the effects are equally divided amongst all the children: the law imposes equality. The cantons of French-Switzerland and some of those of German-Switzerland have imitated these articles of the French civil code.

Thus, in England the division of the property is fettered; in France it is promoted.

Large property does not necessarily imply large farming [Ireland, for instance], but it allows it; whilst small property hinders it. The characteristics of large farming have a tendency to increase the price of hand-labour, and consequently to favour the employment of machinery, and at the same time a more economical employment of machinery: up to a certain point, the division of labour, &c.

Such are the advantages that English agriculture owes to its large farming, and nothing else. Its prosperity arises, above all, from the application of large capital to improvement and cultivation. But why do not the small proprietors procure and employ similar capital? Good laws, like that we have in France, for irrigation and drainage, allow the performance of these works in a country of small farming. Small proprietors may, as well as large, procure for themselves by economy, or on credit, the capital necessary for their execution. If our peasants have a passion for purchasing land at ruinous prices, and for injuring trade by the blind competition they raise in those purchases, that belongs to a want of intelligence and not to the number of hectares they possess. For the working capital we may say the same; and, if we estimate in money the amount of hand-labour in Flanders expended upon the small holdings, we shall find it larger than on any of the fabulous farms in England.

And, as to the entanglement (*enchevêtrement*) of the lands, MM. Villeroy and Muller have given us an example of the means employed in Bavaria to remedy it.

Already Mathieu de Dombasle had spoken of an analogous union of parcels in the two adjoining communes of Roville. The part of France where the subdivision (*morcellement*) appears to have produced the most disastrous consequences is the north-east; above all, Alsace and German-Lorraine. Many of the cultivators there are ruined; and as these are small proprietors, it is concluded that it is the smallness of their properties that is the cause of their ruin. Nothing is more false: they possess, on the contrary, too much land relative to the means they have of cultivating it. They purchase at insane prices, often on credit, and pay enormous interest for what they still owe. It is not surprising that, giving 8 and 10 per cent. per annum for the capital representing land which, purchased for 15,000 francs and sometimes 20,000 francs per hectare (or from £253 to £397 per English acre), returns them only 1 per cent., they make a bad affair of it. They show a want of intelligence; but I do not think that intelligence diminishes with the diminution of property. The editors of the *Univers* have not yet proved that. The true cause of the miseries which coincide with an extreme division of land, but which are by no means the consequences, is this: *the education which develops intelligence has not made in France a progress so rapid as the increase of the number of proprietors*. Is it necessary, in order to re-establish harmony, to stop the subdivision, or to hasten the extension of primary instruction? Let good sense decide. The example of the Swiss, with whom

small farming is general, shows that the cultivator prospers everywhere, when he is educated.

However, let us admit that the soil is subdivided beyond desirable limits. By that very reason that its culture becomes then too expensive, there will be a tendency to the reunion of parcels; for the small cultivator will find it profitable to sell his land to a neighbour richer than himself, and to become a farmer or a workman. The final end of our civilization, in an agricultural point of view, ought to be to support upon a given surface, of a given fertility, the greatest possible number of persons. This amount of population has its limits, varying with the times and the progress of the arts. When the redundancy arrives, it should have an overflow; an emigration should take place towards countries where the forces of Nature, inactive, claim the hands useless elsewhere. It is necessary for the hives to send out their swarms. Algeria, the *landes* and the marais of the centre of France await the swarms of the north. But there are means of throwing back this limit, and these are what we now wish to consider.

Switzerland has shown us that one of these means consists in the union of agriculture and manufacturing industry.

Whilst the small proprietors occupy the winter and the cessation of labour in the weaving of linen and cotton fabrics, as in the cantons of Salzkil, Appenzell, and Zurich; in that of silks, as in the neighbourhood of Basle; in the manufacture of clockwork, as in the Jura; these divers industries find in them workmen at prices moderate enough to enable them to compete, without any protection, against the English competition. Besides, the workmen, stimulated to economize by the desire of improving or increasing their small domains, acquire habits of order unknown in our large city manufactories, where they live from day to day, expending on the morrow what they have gained the previous evening, and threatening the property of others, because they have none of their own to defend. In France the protection granted to our manufactures has not only led astray the hands, but the work-shops of the country where they might have found, in the waters, economic motive-power.

In the Emmenthal, one of the richest and most fertile valleys of the canton of Berne, and in some other cantons, the fathers of families seek, as much as it is possible for them, to accumulate enough personal property to enable them to transmit their landed property intact to the youngest of their sons, leaving the shares of the others in money. In numerous families it rarely happens that they are able to make such an equivalent division in capital. In the meanwhile, the land is given to the youngest, on the condition of paying to the others an annual rent equal to the interest of the capital which ought to accrue to them. Some communes in Alsace, amongst others the prosperous villages of Kochersberg, near Strasburg, have adopted the same custom, and display the exercise of a prudent foresight, little emanating from our own laws.

In the localities in which the division is made in kind, the Swiss do not insist on a separation of each parcel in a number of pieces equal to that of the children. Suppose there are four children and eight pieces, some arable land, others meadow, vineyards, &c.: they know that by dividing each of those eight pieces into four equal parts, they would not be merely each four times less rich than their father, but five or six times less rich; and they therefore arrange amongst themselves to make the shares equal in value with as little division as possible. This shows that a healthy intelligence of their interests has taken place of the jealousy which divides to infinity the territory of many of the French communes. The justices of the peace who preside over our family councils ought to use their influence to make more rational ideas prevail.

You have all heard speak of the famous reforms of the Duke of Sutherland in the mountains of Scotland. He had on his vast domains a crowd of small tenants who were living in nearly the same miserable state as the inhabitants of certain French villages, poor, and ignorant of all means of bettering their condition; but also of a better condition, and therefore contented with their lot, like true Britons. What would you say if our Government, instead of giving to our Bretons schools, roads, canals, railways for the importation of the means of culture, and the ideas of progress, and the exportation of produce, forced them to emigrate to Algeria? Well, this is what the Duke of Sutherland has done* on his property, which is almost a kingdom. Thinking that large farming would be more profitable than the small, and that it would be more advantageous to have many sheep than many men upon it, he has, what the English call, brutally *cleared* the country; he has driven away the peasantry, and created some immense farms, which feed sheep, in winter with turnips cultivated in one or two valleys, and in summer with pasturage on the mountains. But now, since good highroads have placed the highlands in easy communication with the great central consumers, the experiment has shown that these soils, reputed sterile, can, for the most part, support the five-shift course of husbandry, (turnips, oats, two years trefoil and ray-grass, and oats); and this is precisely the division in pieces *let gratis* for a certain number of years, then at a price gradually advancing to peasants whose arms are nearly their only capital, who are taught the most ready means of clearing it. But the population is too thinly scattered for the improvements to proceed fast enough

* The writer of this paper must have been either grossly ignorant of the facts relating to the affair on which he was writing, or he has wilfully maligned the Duke of Sutherland, and imputed to him charges as false as it is possible to be. Fortunately, all Frenchmen do not write in the same bitter spirit of England and Englishmen. M. L. de Lavergne, in his admirable work on the Agriculture of England, Scotland, and Ireland, has given a full account of the Duke of Sutherland's reforms, and has with a manly candour done the noble Duke (noble in every sense of the word) that justice which his benevolence and that of his excellent Duchesse deserve; and M. Eugene Riatier would do well to read that work, and make himself acquainted with the subject, before he dared publicly to malign a noble character for the sake of elevating the policy of his own ever-changing Government.—*The Translator.*

for the old inhabitants to find themselves still on the property. On the other hand, the large farms have great difficulty in finding farmers rich enough to work them. I do not speak of the English army, deprived of those its best recruits, nor of the manufacturing establishments which, seeing the sources dried up from whence they drew their hand-labour, suffer from the progressive rise of wages; and see the moment approach, in which, thanks to the abundance of their operatives, their rivals on the continent will struggle against them with arms more and more powerful.

I have cited this example because it shows the consequences of the indivisibility of property pushed to their last extreme, and in order to oppose to the Scotch the example of the Swiss, whose country resembles theirs in agricultural conditions, and in which it is easy to see that *small farming is better adapted to the cultivation of mountainous countries than large*. In fact, the difficulty of that cultivation consists in obtaining winter food enough for the animals (horned cattle in Switzerland and sheep in Scotland) which pass the fine season upon the high pasturage. Now, for that purpose it is necessary to avail themselves of a number of small valleys, and even all the nooks, where a more moderate rising ground, and the natural decomposition, have allowed the accumulation of arable soil. There must therefore exist a great number of centres of cultivation. Our French Vosges owe also their admirable irrigations to small proprietors.

But admitting that the soil be subdivided, it remains to examine the application of a fruitful principle which can correct its abuses, as the employment of machinery has been introduced in manufacturing industry to neutralize the fatal consequences of the division of labour without depriving us of its benefits, as associations by shares have discovered the way to concentrate in their employ the personal fortunes, at the same time leaving to the great number the privilege of their enjoyment. It is association in various forms that can invest, and not the association which threatens liberty, under the pretext of protecting the rights of labour against capital, and that divides two elements of prosperity which it ought to unite; but the free and voluntary association which extends the advantages and diminishes the expenses of production, as elsewhere it makes the strength by union.

It is in the Canton de Vaud that an institution has originated, that we have had the happiness to see introduced into Franche Comte—that of the *Fruitières*. It is to be wished that it may be extended to other regions of France. It is a subject to which might be applied the beneficial influence of agricultural committees.

When the consumption and consequently the price of milk and fodder became increased in the city of Geneva, the *Fruitière* Association of a neighbouring village started the idea of applying the same principle to the sale of pure milk instead of making cheese, which only paid for the milk at 15 centimes the pot (1 l-7 litre, or not quite 2 pints), the associated farmers bring it to a dairy, where they charge it at 22 centimes. The asso-

ciation, which in the *Fruitière* diminished the expense of manufacture, not only reduces the expense of sale of the milk, but it also increases the facility of the sale.

We have said that the chief disadvantage of small farming consists in the impossibility of its employing machinery with the same economy as on the large farms. It is true, that the profit we can derive from a machine depends much on the price of hand-labour. Whilst the farmers of La Beauce may have Flemish harvestmen in abundance, they will not purchase reaping machines. The English have begun to employ mechanical means of cutting their cereals, only from the moment at which the Irish workmen have failed them. Now, it is the small farming, which retaining in Flanders and Ireland a numerous population, and preventing it from emigrating, rendered hand-labour approachable. Thus the country of small farming, or the neighbouring countries of one of small farms, have, in order to produce wheat at the same price as others, less need of machines than those. But they have not less need of some of these amongst them, and this will increase more and more in proportion as the price of land and mechanical improvements make progress. A peasant, the owner of a few hectares of land, is unable to purchase a threshing machine, unless he threshes for his neighbours; and this frequently takes place. Special machinists may also undertake the work, and let their machine with or without the motive power. These means are excellent, and apply to different kinds of instruments. It is simply what takes place every day in countries of small properties, with various operations.

He who has had capital enough to purchase these means of economic cultivation, lets them; and the more he does so, the more he derives from his capital. But for more costly machines, such as threshing machines, drilling machines, &c., these large capitalists may be wanting, and at all events their aid at a given moment depends on their good will, and not on a positive arrangement. This reason has decided a certain number of the farmers of the Commune of Meyrin in the Canton of Geneva to form a *company with shares of 25 francs each, for the purchase and use of machines and implements of husbandry*.

With their first funds they have purchased a portable threshing machine, with its winnowing machine, a drilling machine, for the wheat, by Chevalier, &c.; they have set the price of its renting at 25 per cent. per annum, or its equivalent per day or half-day of the value of the instrument.

In some places the forge is communal. The buildings, and even the implements belong to the commune, who adjudge the use of it to a blacksmith, on condition that he works at a given price.

At other times the wine presses are common; and more than that, there are in some of the vine districts societies for the improvement of the culture of the vine, which cause the works to be inspected by common surveyors. This is very useful for proprietors who have not the time or the knowledge necessary for this inspection, and who have the work done and the harvest gathered by vinedressers, at so much per hectare, say

from 220 f. to 250 fr. per hectare, and 6 f. more per char of wine of 6½ hectolitres. The Vaudois cultivators, associated for the conversion into cheese of the produce of their cattle, have naturally formed the idea of a society of mutual assurance against the mortality among cattle. These societies are communal, and a great number of them are in existence. Certain of them insure only horned cattle; others comprehend horses. The indemnity granted in case of a loss amounts to from two-thirds to three-fourths of their value for cattle, and half for horses. The valuation of the animals takes place immediately after the purchase, and afterwards twice a year. As in the societies for mutual assurance against fire that exist in France, the members pay an entrance fee, destined to defray the expense of administration, and at the end of each year the amount of the indemnities granted is shared amongst them, according to the value they have insured.

The insurance against fire is equally mutual in the Cantons de Vaud and at Geneva; it is managed by the State, and is compulsory. All the proprietors are satisfied with this organization. In what precedes, the association is applied to the reduction of the expenses and the chances of production. It may have also for its object to reduce the chances of sale.

In order to escape the occasionally omnipotent influence of the butchers, the Genevese cultivators have become butchers themselves, with a capital of 4,000f. to begin with, to be increased to 8,000f.; they have established a society by shares of 20f. each, called the Stall of the Agriculturist, which kills the beasts, and pays the owners for the meat at fixed prices, deducting the expense of slaughtering, and sale at the price current on the market of Geneva. Thus all intermediate parasites between the producer and the consumer are superseded, and real services are only paid. The farmer who sends a beast to the stall, enters it upon a register *ad hoc*, pointing out the principal exterior marks of the animal, so that it may be identified, and indicating approximately the condition in which it will be presumed to be found at the time of killing, the fat, good meat, mid-dling, &c. For the security of the register, he pays to the dépôt the sum of 15f., which go to the Society in case the beast is not sent. Recent cases of disease or accident, which in no respect alter the quality of the meat, do not exclude the animal from admission. The beasts are slaughtered in order of entry. In case of accident, the owner can compel them to kill it immediately, if the cantonal veterinary surgeon declares that a prompt slaughterage is necessary, and that the quality of the meat is not affected. One of the employés of the stall is charged with informing the owner by letter, two days before the slaughtering, pointing out the hour for its arrival. The owner ought to conform to this order on pain of losing the deposit for the entry. When the meat is cut up (which takes place at the municipal abattoir) it is submitted to the inspection of the jury of butchers, in presence of the owner, and a person appointed for the purpose, by the committee of administration of the Society. It is classed according to its quality, as 1st, 2nd, 3rd, 4th, and 5th. The prices which

the Society pays for those different qualities of meat are fixed every month by the committee of administration, as well as those of the hides, tallow, and all other offals. The owner is paid, according to these prices, as soon as the meat is carried from the abattoir to the stall, deducting from it only 2 per cent. of the weight of the fore quarters, for the difference between meat warm and cold. The committee of administration fixes, in the same manner, the price at which each quality of meat should be sold in retail. For calves, there is a system of subscription. On subscribing, the farmer declares the number of cows he possesses, and the approximate number of calves he expects to supply to the stall during the period of his subscription. In the eight days that follow each birth, he gives notice to the administration, which demands the calf when it thinks proper. When the subscriber sells a calf to another butcher, he pays 15f. forfeit, a guarantee of the exactness with which they fulfil their engagements. The subscribers, non-shareholders, deposit 15f. on contracting their subscription. This is the only difference that is made between the Associated Farmers and those who do not belong to the Society. Instead of dividing the profits, they have employed them in purchasing new machines. At present their capital has doubled, and each share is worth 50 f. When they shall have no new acquisitions to make, they will divide the profits annually. The following are the rules of the Association, which thus may serve as a foundation for similar institutions:—

Art. 1. The implements shall be granted for use, in preference, to the shareholders; then to the inhabitants of the communes; then, lastly, to strangers. They shall be returned according to the order of application.

Art. 2. The member or hirer shall not hire the implement for more than one day if it is required for another shareholder. The thresher alone can let himself for several days.

Art. 3. Persons who use the implements are answerable for accidents known to be caused by their own neglect. Payment is made in ready money. They are taken and returned at the hirer's expense.

Art. 4. For each tool a register is kept, which serves as the basis for application.

Art. 5. In case of an implement being deranged, the registry shall follow immediately after the repairs are made.

Art. 6. The hirer of the wheat threshing machine is bound to take it at his own expense, and to return it the evening of the day his registry is finished. It is the same with the winnower, which accompanies the threshing machine.

Art. 7. The wheat thresher does not go out without its attendant, who shall be fed at the expense of the hirer, and pay him according to a scale fixed by the Society.

The scale of hiring, for instance, is for the drill 3 f. per day, and 1½ f. per half-a-day; for the wheat thresher and its manager 7 f. per day in summer, of 10 hours; 4 f. per half day, of 5 hours; 5 f. per day in winter, of 8 hours; 3½ f. per half day, of 4 hours.

In the Commune of Grand Saconnix, a wealthy man,

who wished to encourage the employment of improved machinery, (M. Giroud Perin), formed at his own expense a dépôt of these implements, which he let out at from 2 to 3 per cent. of their cost price, enough to give the hirers an interest in returning them as soon as they have finished working them; this dépôt consists of a subsoil plough by Read; a wheat drill, by Chevalier; a hand-barrow drill for colza, an excellent roll, Valcourt harrow, &c. The same M. Giroud has advanced to the Commune a sum of 1,400 f., to establish a fixed thrashing machine. The Municipal Council regulates the working of this machine.

To how many subjects might we apply this organization in small shares of from 25 f. to 50 f.? Why do not the beet-root distillers thus combine like the fruitières, for the making of cheese?

The vineyards, which produce the wines, employed in the manufacture of Champagn, have no enormous profits, which are given to the great houses of Epernay, Rheims, and Chalons. Why should they not have their tuns, their cellar, and their business?

The small farming is reproached with being incompatible with the rearing of sheep. This is not strictly true, for in le Berres and le Poitou, it is the small bordagers who rear the most sheep. They also might apply to the sheep the system of communal shepherds, which exists in many of the villages of the east of France for horned cattle. This is what took place in the Canton de Vaud. The sheep are in the stables of their respective proprietors only during the bad season. The rest of the year they are under the care of a common shepherd. They pasture and lodge together, when they are not penned, thus passing the night in a common sheepfold. Commonly, the number of sheep that a proprietor may intrust to this shepherd is in proportion to the extent

of the land which he gives up to the sheepwalk. The communal pastures are at the disposition of the flock, gratuitously, or at a very low price. The milk, the flesh, and the wool of the sheep, return to the master; the foldage and the dung are sold at so much per day or per week. From this revenue they deduct the expense of hiring and keeping up the sheepfold, the salary of the shepherd, the medicaments, the fee to the surgeon; the balance of this amount is divided amongst the shareholders. These associations tend to disappear with the communal pasturages, and with the fallow. In the mean time we should observe that it is not the small farming, but conditions of production independent of the state of the property, which regulates by degrees the rearing of sheep in the country of extensive culture and large farms.

In many Vaudais Communes there is a common oven and a public baker, who supplies the wood and bakes the bread, charging so much per cent. of dough.

As the farms of the Canton of Geneva do not fatten sheep, and as the State proposes to supply its connection with all kinds of meat, it has created a reserve fund, by means of which it purchases sheep from Savoy and the south of Germany.

Let us add to this example that of the alimentary societies of Grenoble, which the generality amongst you (the French) ought to know; and you will know how the consumers on one part, and the producers on the other, can be brought together by association, and suppress the miller, the baker, the butcher, the merchant, when these attempt to add unlawful profits to the just remuneration for the services they render to society. When the intermediaries league against you, you must combine against them.

EUGÈNE RISTIER.

THE TRADE IN NITRATE OF SODA.

The large importations and increasing use of nitrate of soda as a fertilizer necessarily give the subject of the trade statistics an importance in the eyes of the agriculturist. And by the favour of Mr. Bollaert, F.R.G.S., who has prepared a paper for the approaching meeting of the British Association at Aberdeen, we are enabled to furnish some valuable details, showing the progress of the trade in this important staple of Peru from the commencement of the export to the present time. Mr. Bollaert is a gentleman of great local knowledge, who has personally examined the whole of the districts yielding the important salts of commerce. His paper is entitled "Second Series of Observations on the Geography of Southern Peru, and on the Salt, Nitrate of Soda, and Borax deposits in the province of Tarapaca." The first observations were read before the Royal Geographical Society, in April, 1851, and are published in the Society's Journal, and have been greatly referred to by scientific men and geographers.

The salitre is found between the 10th and 22nd degrees

of S. latitude, in an arid table land, with salt and borate of lime, about eight or ten leagues from the coast. Deposits of salitre are also found in the Pampa del Tamagraul at an elevation of about 3,900 feet above the level of the Pacific. These beds, which are inexhaustible, extend to within six leagues of the coast.

The Peruvians designate the salitre mixed with sand and clay by the name of "caliche." The white crystallised caliche is nearly a pure salt; and at certain times it is so hard and compact that it is necessary to use powder in working it. The caliche is deposited in beds of from six to ten feet in thickness, and of varying extent.

To separate the salitre it is heated with boiling water; the solution is evaporated by fire, and when the salt is dry it is carried to the port of Iquique, whence it is shipped to Europe and the United States. There are generally about a dozen vessels loading in this port. The town is attractive from the vast amount of business going on. There are five principal varieties of nitrate;

one in particular called "azufrado," containing iodine and chrome.

The rough nitrate is broken into small pieces, put into boilers, water introduced, and the whole boiled; the nitrate is held in solution, whilst the earthy matters, salt, sulphates, &c., are separated, and fall to the bottom of the vessel: the saturated solution of nitrate is let into a reservoir, where it deposits any remaining earthy matter; the clear liquor is run into shallow troughs, exposed to the sun; crystallization takes place, containing only 2 to 3 per cent. of impurities, and is ready to be conveyed to the coast for exportation.

The following return brings down the total yearly exports from Peru from the date of the first commencement of the trade to the present time. From this it will be seen how rapidly it has increased, now reaching to about 6,000 tons per annum. The total shipments from the commencement have amounted to about 600,000 tons. And the return, which is brought down to June of the present year, shows that a considerable impetus has been given to the trade in the past three years, the annual shipments having nearly doubled since 1856.

NITRATE OF SODA EXPORTED FROM IQUIQUE, AND OTHER SHIPPING PLACES (CALETAS), FROM 1830, TO 30TH JUNE, 1859.

Years.	No. of Ships.	Quintals.	Years.	No. of Ships.	Quintals.
1830..	4	18,700	1846..	66	390,148
1831..	12	40,385	1847..	60	333,097
1832..	15	52,500	1848..	73	435,089
1833..	26	92,700	1849..	69	430,102
1834..	36	147,800	1850..	81	511,845
1835..	39	140,399	1851..	89	599,406
1836..	45	158,534	1852..	95	562,989
1837..	38	165,369	1853..	124	866,241
1838..	31	129,610	1854..	101	720,465
1839..	56	149,576	1855..	121	936,888
1840..	45	227,362	1856..	98	811,603
1841..	52	278,488	1857..	123	1,095,833
1842..	65	359,918	1858..	124	1,220,240
1843..	67	369,317	1859..	70	796,288
1844..	74	380,191			
1845..	70	376,239		1,949	12,897,322

In our Board of Trade returns nitrate of soda is still entered under its old name of Cubic nitre. Our direct imports of nitrate of soda from Peru in the last five years have been as follows:—

	QUANTITY.	COMPUTED NETT
	Cwts.	VALUE.
1853	282,651	
1854	367,616	£317,069
1855	299,374	246,984
1856	259,720	220,762
1857	293,517	295,245

Hence it will be seen that at present we take only one-third of the total imports. A large quantity goes to the United States, and some to European ports, Mauritius, &c.

Considerable fluctuations have taken place in the selling price of nitrate of soda in London, as will be seen from the following range of quotations at the close of each year named:

	£ s.	£ s.
1851	14 10 to 15 0	per ton.
1852	15 0	"
1853	18 0 to 18 10	"
1854	17 10 to 18 0	"
1855	18 10 to 19 0	"
1856	17 10 to 18 0	"
1857	22 0 to 23 0	"
1858	16 0 to 18 0	"
1859	16 0 to 17 0	"

The moderate price at which it is now obtainable will doubtless cause its extended use in agriculture.

At the shipping port, the current wholesale value at the latest accounts was 21 rials = 10s. 6d. per quintal of 100 lbs.; so that, adding freight charges and profits, the present current price is by no means disproportionate. We need not go into details here as to the fertilizing value of nitrate of soda. The experimental researches of scientific chemists and practical farmers have already determined this point, and its special advantages in certain cases are well understood. Those who have not used it have ample data for reference in the "Journal of the Royal Agricultural Society," the "Transactions of the Highland Society," and the "Farmers' Magazine."

The inferior nitrate of soda is so like coarse-ground, dirty, common salt (chloride of soda) that it may be, and is often, mixed with it. It is, therefore, of consequence to the cultivator to be able to distinguish what is good and pure from that which is adulterated or originally impure. The price of common salt is far below the price of nitrate of soda; and if it answers for manure, the purchaser need not throw away his money upon a mixture containing perhaps one-fourth of common salt, or more. Fortunately there is a very simple mode of testing the nitrate—not a regular analysis requiring chemical knowledge, but one that must prove the presence of common salt at once; and that is, to throw a small quantity of the nitre into the fire, and if it contains salt it will produce a crackling noise; if it is pure, it will burn very rapidly with a sort of hissing noise, and no crackling at all. Every one knows the noise produced by throwing common salt on a fire, and if the nitre be pure no such noise should be heard; and in proportion to the quantity of common salt so will the noise be greater or less.

Nitrate of soda is applied to many of the purposes for which nitrate of potash is used. It is not adapted for the manufacture of gunpowder, if impure, but we are informed that when perfectly pure it appears red to deliquesce. It may be employed in fireworks, and used as a substitute for nitre (it being cheaper) in the manufacture of nitric acid, of sulphuric acid, and other cases in which large quantities of nitre are consumed.

The common nitre is used in the manufacture of sulphuric acid. The residue consists of sulphate of potash; for which there is a considerable demand in the alum works in the north of England. The residue from nitrate of soda, which is sulphate of soda or salt-cake, is inferior in value to sulphate of potash, but meets with a purchaser in the soda manufacturer.

PECULIARITIES OF THE TRADE OF THE MISSISSIPPI AND ST. LAWRENCE WATERCOURSE.

Western trade stands in much the same relation to the eastern markets of the United States as does the Dutch and Russian trade to the trade of Hull and London. Chicago is so distant from New York, that a cargo of wheat shipped from it to New York can scarcely be expected to arrive inside of thirty days; and from November till May severe weather cuts off the transportation of every kind of cereal product. The European winter is not of so long continuance, and perhaps less time than thirty days suffice to bring cargoes to the Thames from Dantzic or the Elbe. The markets of the Elbe and Dantzic are, therefore, if anything, more accessible to the English trade than are the markets of the Western States to the Atlantic seaboard.

Nor can railroads, nor the Victoria Bridge at Montreal, remedy that western isolation. Cereal products are of great bulk and weight, in proportion to their value, as compared with many other articles of merchandise; and that great bulk and weight, together with the low money value, leave an insufficient margin for railroad transit. Sixty pounds weight of wheat is almost as bulky as sixty pounds weight of tea; and while sixty pounds weight of tea carried from Chicago to New York would not be perceptibly enhanced in value by a transit charge of two shillings sterling, sixty pounds weight of wheat so carried from Chicago to New York at a like charge would be unmerchable in consequence of its excessive cost. Chicago wheat carried by railroad to New York could not be sold on the same terms as Chicago wheat carried to New York by water; and as a consequence western railroads are entirely useless for the transportation of low-priced products, unless the distance is very short. Taking this well-ascertained fact in connection with the rigorous climate of the Western States, there is no hope of ever moving western crops during winter to the Atlantic seaboard, no matter how urgently these crops may be required in Europe. What the Victoria Bridge at Montreal will secure will be an uninterrupted passage of the St. Lawrence River; but the passage was never interrupted more than a single week throughout the year, when the river ice was either setting or breaking up.

If then at any time it were desirable to supply the English market with western wheat and corn when the western rivers and canals were frozen, some other outlet must be looked for than that by New York and Montreal. That other outlet is to be found in the Mississippi river. That river, as high up as Cairo, some twelve hundred miles above New Orleans, is open throughout the winter; and Cairo connects by railroad with all the great wheat and corn-growing districts of the Mississippi, the Missouri, and the Illinois. Nor is Cairo so distant from these growing districts that the cost of railroad transit absorbs an undue proportion of the market price of cereal products, and leaves an inadequate return to the western farmer. It is quite otherwise. The western farmer can at all times afford to send his crop to Cairo, as well as to Chicago; and in sending it to the former the supply of western grain would be maintained in Europe throughout that period of the year during which at present not a single bushel is supplied. This is an important consideration to

the English grain trade. With the Mississippi open to Cairo, and with railroads stretching from Cairo into all the growing districts, the entire western crop could with the greatest ease be diverted past New York and Montreal into English ports, long before the Erie Canal and St. Lawrence River had been released from ice.

In point of fact, the Mississippi River presents the best outlet at all times to western trade. To a great extent, in summer an unbroken watercourse would be secured to western crops by the Mississippi to New Orleans, at a full saving of twenty-five per cent. to the farmer, both in market price and in time saved. Not more than ten days would be consumed in transportation from the Upper Mississippi to the Gulf of Mexico; while not fewer than forty days are now consumed in transportation from the Upper Mississippi to New York and Montreal; and while fourpence a bushel would carry wheat from the Upper Mississippi to the Gulf of Mexico, not less than four times that amount is required to perform the present service by way of Chicago and the lakes.

Yet hitherto these great natural advantages of the Mississippi have been unperceived; and gigantic efforts are still being made to carry western produce through the Eastern States. It is proposed to cut a canal across the state of Michigan, from Lake Michigan to Lake Erie; and to cut a canal from the Georgian Bay into Lake Ontario. It is proposed also to enlarge the Erie Canal sufficiently that ships of eight hundred tons burthen may carry freight from Chicago to New York, and *vice versa*. A similar project has long been in agitation in Lower Canada, whereby Lake Champlain might be made available for carrying cargoes from Chicago by the St. Lawrence River to New York; and the Victoria Bridge at Montreal has the same diversion of western trade in view. People seem to think it quite unnecessary to look around them to see what the conformation of the American continent really is; and it might fairly be inferred that there was no Mississippi River. This is a great mistake. It is quite conceivable that the advantages of the Mississippi River may be successfully ignored for years to come, but nothing is more certain than that ultimately its cheap open water transit will draw towards it the great bulk of the cereal products of the Western States, and that it will become the great ocean highway of the other hemisphere.

One of the great obstacles to the development of western trade by the Mississippi River has been the obstructive policy of the people of St. Louis, than whom none would profit more were western trade transferred wholly from the St. Lawrence and the New York canals. The St. Louis Board of Trade have long maintained high standard grades of wheat and flour, and, practically shut out inferior kinds. The object of the restriction was to induce a more improved system of cultivation than that usually followed on new prairie lands; and although it has completely failed in that object, still it is adhered to, to the great prejudice of St. Louis and the Mississippi. But for that restriction, it is really questionable whether Chicago would have been anything more to-day than the mere outpost that it was

ten or fifteen years ago. This much, however, is certain, that the great bulk of the produce now drawn by Chicago from the Upper Mississippi would have found its way direct to New Orleans, and the navigation of the Mississippi and Ohio rivers would then have received much of the attention and a large proportion of the outlays bestowed on the New York canals and the canals of Canada. The effect of the restriction, in the face of a rapid filling up of the Western States, was to turn inferior wheat and corn and flour away from St. Louis and the Mississippi: and Chicago presented the next best market. Accordingly the Chicago market was supplied with the inferior first crops of the new western farmers, and means were taken for the movement of these to New York. When the crops of the new western farmers improved, these improved crops were not sent to St. Louis, but to Chicago; and the western trade was thus wrested from its proper channel.

Another practical obstacle to the development of western trade by the Mississippi is chargeable to St. Louis. While in Chicago every possible inducement was offered to the movement of produce, nothing whatever was offered in St. Louis. In Chicago enormous warehouses were constructed with enormous bins, into which cereals could be securely stored; and by an application of the common bucket-pump principle, grain was unloaded from canal and river boats with great economy and expedition, and when wanted to be shipped to New York was elevated from the bins and run in great continuous streams down the ship's hatchway. Here is a description of two of these grain warehouses built on the Chicago terminus of the Illinois Central Railroad:

"The buildings are 103 feet by 204 feet, and 120 feet high. In the operation of the machinery, the grain is elevated 128 feet. The cost of the buildings will be about 200,000 dollars each (£80,000). The machinery for handling the grain is worked by four steam-engines in each building; and every part of it is perfect in every particular. The brick walls are bound together by massive bolts, only a few feet apart; and, to give some idea of the quantity of timber used, 29 ship-loads were put into one building. Two hundred and thirty-six car-loads of grain were unloaded by one of the houses in a single day—between 80 and 90 thousand bushels."

The aggregate elevating storage provided by Chicago is over 4,000,000 bushels; and the aggregate capacity to ship each day is 1,340,000 bushels.*

* The following is a memorandum of the number and capacity of the Chicago elevating storage:

Elevating Warehouses.	Capacity for Storage. Bush.	Capacity to receive and ship per Day. Bush.	Capacity to ship per Day. Bush.
Illinois Central (Sturgis, Buckingham, & Co.)	700,000	65,000	325,000
Do., New Warehouse ..	700,000	65,000	325,000
R.I.B.R. (Flint, Wheeler, & Co.)	700,000	55,000	200,000
Chicago and Galena Railroad	500,000	50,000	125,000
Gibbs, Griffin, & Co.	500,000	50,000	150,000
Munger & Armour	300,000	50,000	100,000
Murne, Gill, & Co.	300,000	30,000	75,000
Flint, Wheeler, & Co.	180,000	20,000	50,000
Burlingame	100,000	25,000	50,000
S. A. Ford & Co.	100,000	20,000	40,000
Jas. Peck & Co.	60,000	20,000	40,000
Walker, Bronson, & Co.	75,000	30,000	60,000
	4,095,000	490,000	1,340,000

RATES OF STORAGE IN CHICAGO.

1. Railroad grain, taken from cars and deposited in bins, and subsequently put free on board vessels, at an aggregate charge of 1d. a bushel. That charge also covers warehouse-rent from the opening of the season till the close, should grain remain so long in store.
2. Canal-boat grain, taken from canal-boats and deposited in

While Chicago has provided these facilities, St. Louis has done nothing in the same direction; and steamboats loading grain at St. Louis lie alongside the quay, and have the grain backed on board in two-bushel bags. This is a slow process in a fast country, and conducted at ten times greater cost, and with ten times more delay, than the process in Chicago. In Chicago, a vessel carrying 20,000 bushels of wheat is filled up in two or three hours; and the shipping of a like quantity at St. Louis would not unfrequently occupy a week. Then another great advantage of Chicago elevating is, that the grain of one bin may be turned into another bin as often as may be wished, and for the merest trifle; while grain-turning, in St. Louis, is accomplished by manual labour, as in England.

This almost culpable apathy on the part of the St. Louis people, is scarcely accounted for by pertinacious adherence to high grades of grain and flour, but is in a great measure owing to the produce trade not occupying, in St. Louis, the supreme position usually assigned to it. The people of St. Louis are largely interested in manufactures; and the bulk of their floating capital is, therefore, withdrawn from the produce trade. But for that circumstance, it is just as likely that St. Louis would have given as many facilities as Chicago, and that the back loading of grain would have been discontinued years ago.

Such a feeling in St. Louis, on the subject of the produce trade, does not give promise of an energetic and speedy movement in behalf of the Mississippi outlet. On the contrary, it clearly indicates that, so far as St. Louis is concerned, the present *status quo* will be maintained, and Chicago suffered to drain the growing-districts of the Upper Mississippi. Nor can any movement be expected to originate in New York. The interests of New York and the Atlantic seaboard are inseparably bound up in the course of the Western produce trade continuing as it is. With the Western produce trade diverted into the Mississippi, New York and Boston would draw their supplies from New Orleans, the numerous benefits accruing from the inland carrying trade would cease, and the carrying interests be destroyed. If a movement is to be made at all, it must be made in Europe. Attention must be given to receipts at New Orleans, which are second only to the receipts at New York; and orders to any extent, for Illinois and Wisconsin wheat, can be filled there, with a little effort, whether sent in summer or in winter. Or parties interested in the produce trade may establish themselves on the Mississippi at Cairo or St. Louis, and operate with their friends in Mark Lane or Liverpool. Never was there a better opening. In the winter, when the demand from Chicago and the East has wholly ceased, and the farmer has no inducement to send his stuff, on speculation, to be stored in the Chicago elevators, grain and flour can be bought anywhere throughout the West with a wide margin on current rates in England; and, as already stated, every facility exists for its cheap and rapid movement to New Orleans. That course is infinitely to be preferred to the other; and its risk would not necessarily be spread over a greater period. It is alike deserving of the attention of the English grain trade and of the English capitalist; and, even in a period of low prices, like the present, it

bins, and subsequently put free on board vessels, at an aggregate charge of 0½d. a bushel. That charge also covers warehouse-rent from the opening of the season until the close.

3. Grain received from railroads or canal-boats, from 1st November, and held till 15th April, and subsequently put free on board vessels, at an aggregate charge of 2d. a bushel. That charge also covers rent from the one date to the other.
4. Deficiency in store deliveries, a state-prison offence, rigorously enforced.

cannot be entered on a single day too soon. The West overflows with plenty; and wheat is grown upon its prairies at the low producing cost of 1s. a bushel of 80lbs., or 8s. a quarter; and, during winter, gold invariably commands a premium.

On the subject of comparative prices, I had occasion recently to furnish the following to a leading Chicago journal; and it will bear reproduction here, embracing as it does some of the most prominent peculiarities of Western trade:

"On the 1st inst., there was a margin of 1s. 1d. a bushel, for freight, charges, and profit, on wheat shipped hence, from Chicago to New York. To what extent did that margin influence shipments? Until the 6th, or five days after, not a single bushel of wheat left Chicago to any port; and it would, therefore, seem that the margin was not great enough. To test this supposition, let us take the operations of another date. On the 25th inst. (July), wheat was 5s. 10d. in New York, and 5s. in Chicago, and the through freight 10d., leaving nothing at all for risk and charges; and yet within the next five days the shipments were 38,781 bushels. Operations are not, therefore, controlled by the difference of price in Chicago and New York. But it may be objected that wheat at the moment is an unfair criterion: let us, therefore, ascertain whether corn shipments are governed by quotations. On the 25th July, there was a margin of 1½d. for profit and charges on corn shipments to New York; and for the five days following, the shipments were 546,000 bushels: while on the 1st inst., when the margin for profit and charges was twice as much, the shipments for the five days following were only 487,000 bushels. The trade is not, therefore, governed by the rates ruling in New York.

"The trade is in this shape: Chicago takes the risk to Buffalo, Buffalo takes the risk to New York, and New York takes the risk to Liverpool, and on a basis generally intended to keep all safe."

The basis is the probability as to the range of prices in England when the produce in question is supposed to be likely to arrive there. Prices therefore in Chicago follow the movements and probabilities of Mark-Lane, almost as closely and independently as prices do in New York. Generally speaking, it is, therefore, immaterial what relation prices at one point bear to prices at another point, as under the most unpromising circumstances, looking merely to prices, produce will be sent forward. In forming an opinion, therefore, as to whether the western produce trade could or could not be engaged in profitably, mere comparative quotations as to prices in Chicago and New York and Liverpool, are of no value. Transactions are governed by vague and indefinite probabilities as to the future, which look beyond the present, and necessarily so, as wheat shipped at Chicago for England either by way of the St. Lawrence or the Erie Canal cannot be laid down inside of two months. Each bushel of wheat and barrel of flour is sent forward on the presumption of being ultimately disposed of two months afterwards in Mark-Lane or Liverpool. It is immaterial if a particular quantity of wheat or flour shipped from Chicago goes no further than New York, and is consumed there, as New York prices are governed by English prices in precisely the same manner as Chicago prices are. The question on the New York Corn-Exchange is, What will wheat and flour be worth a month hence in England? The time consumed in transit, and the uncertainty thus entering into each transaction, give rise to the great multiplicity of transactions so peculiar of the American corn trade. It is not so in England. To be sure, here probabilities as to future influences are well considered, and go far to regulate the price of cereals; but the probabilities are more tangible, and as a consequence there is less fluctuation in prices from day to day.

In the American grain trade there is, therefore, more frequent opportunities of buying well than there is in England, and in proportion as the American markets are remote and inaccessible, the opportunities of buying well are the greater. New York at any season is not more than a month removed from Liverpool or London; but Chicago, if the Mississippi route is ignored, cannot supply New York or England with a single bushel of wheat or a single barrel of flour from November till May. While, therefore, there is no more than the probabilities of a month before the New York operator, the Chicago operator at the close of harvest has the probabilities of half a year before him. The question then before the Chicago operator is the probable price of wheat next summer; and the wide difference of opinion which usually prevails on that question brings the price of wheat down invariably to a low and safe level, whatever contingency may arise, and thus affords an unequalled opening to the English buyer.

As a consequence of the great distance between the growing western districts and the consuming and exporting points east, the consignment of grain into the hands of a class of people named receivers, is practised to large extent in the United States, and that practice accounts for grain movements under the most seemingly adverse circumstances, from west to east, and from New York to Liverpool. The New York receivers generally restrict their business to receiving, not operating otherwise in grain, and offer receipts on the New York Corn-Exchange. The parties sending to these receivers reside in Buffalo or Rochester, or in Chicago even, and when a consignment is made to a receiver, it is usual for the sender to value on the receiver at sixty or ninety days to the extent of seventy-five or even ninety-five per cent., as the appearance of things may warrant. Supposing then that a Chicago shipper of grain requires to move a portion of his stock, and is not pleased with the price offering in Chicago, even although that price is so high, compared with New York rates, as to leave no margin on shipments from the former to the latter, he effects his purpose by shipping a portion of his stock consigned to a New York receiver, valuing upon the receiver to the extent agreed on. Thus under the most unpromising looking circumstances enormous quantities of grain go forward from Chicago to New York without any sale being made.

Then with respect to trade between New York and Liverpool, receivers not unfrequently send wheat and flour across to Liverpool when there is neither margin nor prospect of margin. The explanation is very easy. The receiver has control of wheat or flour or corn as the case may be, and under the impression of something favourable turning up in England he prefers to take his chance there, he valuing on the firm into whose hands he entrusts the property. Or a New York receiver may have positive instructions to send consignments forward, which accordingly he does, it being no concern of his whether the consignment is likely to pay or no.

The facilities offered by receivers in Chicago to merchants and others who collect grain in the western states, and the facilities offered by receivers in New York to merchants and others in Chicago, attract a numerous and often reckless class into the grain trade. Last summer it was said that a Chicago operator who by some means or other had borrowed one hundred and twenty-five dollars (twenty-five pounds sterling), succeeded in shipping to New York on that small capital no less than one hundred and twenty-five thousand dollars (twenty-five thousand pounds) worth of grain. He was favoured by a succession of small advances in the market price, which covered the margin required by the banker in negotiating the consignment drafts, and being favoured with corresponding advances in the market-price in New York a small

fortune was realised by the speculation. Such incidents are not rare, even in New York; and such being the case, the most desperate means are frequently resorted to, to excite or depress the prices of the day. It is quite common to suppress important telegrams until the market is over, while those in the secret have been buying in or selling out all they could; and it is quite common to depress the market by large sales and unfounded prognostications, with the view only of being enabled to buy in more largely than before at a lower price. Men without means to allow a banker's margin of five per cent. on consignment drafts have no other means of getting on, and they never hesitate to use their power. One potent means of starting the market a few pence on the bushel—and the practice is not a bit too vulgar for New York—is to represent a stranger then present on the Corn-Exchange as a buyer on account of English firms, and the thing is done. Large quantities of grain, which for the bare want of a few pounds could not be touched before, are next day put on ship-board at Chicago for New York, or at New York for Liverpool.

These movements of reckless operators, as said before, are not calculated to keep out men of means from participation in the trade, but, on the contrary, they create openings which probably would not otherwise occur. A combination to depress the market below its proper level, while it enables mere speculators to fill their hands and profit by the recoil, at the same time enables others to buy at a vastly lower price than otherwise they would do.

But it would be unjust not to say that there are firms of high respectability and undoubted means both in the Chicago and the New York trade. There are many such; but considering the enormous quantity of grain handled, and bought and sold—it may be ten times over—before being finally shipped from Chicago to New York, or from New York to Liverpool, it is quite impossible that these can control the trade, particularly when the trade is without restriction of any kind. To be sure, there are boards of trade established in all important towns; but it is rare indeed to expel a member for default, if his annual subscription has been paid. These boards of trade possess the power to do so, but in the presence of so many feeble members nothing can be done.

There is another very notable feature in the Western trade which of itself offers a strong inducement to English buyers. It is very unusual with Western grain operators to prosecute both the wheat and the corn trade at the same time. The trade for the time being is either in wheat or corn; and while wheat is sought for, corn is let alone, and *vice versa*. During the wheat-shipping time corn can be always had on unusually advantageous terms, and during the corn-shipping time wheat can usually be had quite as advantageously. This is owing, chiefly, to the mere whim of convenience to the receivers in New York. These only condescend to talk about wheat at one time and about corn at the other, and the particular article about which they do not talk suffers temporary neglect. These periods of oversight and neglect are of course the occasions for men of means to step in and derive the full benefit of the long distance from Chicago to New York, or from New York to Liverpool.

Of course the Western farmer, in the first instance, gave occasion to this rather strange usage. When the navigation of the lakes closed, the farmers set to work and thrashed out wheat, and sent it into the Chicago elevators; and when the navigation opened in the spring, there were large supplies of wheat in store in Chicago, and nothing else, and the

farmers had got their wheat well off their hands. All the shippers of grain from Chicago were, therefore, inquiring after advances on wheat consignment only, and, in return, the receivers into whose hands the wheat went had only wheat to offer for the time. While these shipments of wheat were going forward from the Chicago elevators, the Western farmer had been giving attention to his corn, which he had been actively getting husked and cleaned. In the absence, then, of any further considerable receipts of wheat at the Chicago elevators, the stock of wheat gave way, and the corn which the farmers in the meantime had been sending in had accumulated. In this way, the action of the farmer gave an early and distinctive character to the Western trade, which it still retains; but the peculiarity cannot possibly be long maintained. The Western farmers, in the presence of buyers, would supply wheat or corn, as either might be desired; but at the moment there are good openings for wheat purchase in Chicago and New York, when the hands of receivers are full of corn, and *vice versa*.

Such are the peculiarities of the trade of the Mississippi watercourse. Sixty million bushels of grain, chiefly wheat and Indian corn, are at present practically without a market price and without a purchaser from the middle of November until the first of May, and yet every facility exists for its profitable movement and exchange; but that enormous Western grain surplus is being augmented largely every year. In 1850, the State of Iowa produced twelve million bushels of wheat, and corn, and oats; and in 1856 it produced forty-three million bushels. In 1850, the State of Illinois produced seventy million bushels of wheat, and corn, and oats; and in 1856 the estimated yield was two hundred and eighty-five million bushels. It is much the same in Wisconsin, in Minnesota, and in Missouri; and people do not trouble themselves to move these enormous crops down an open water-course to a shipping port, but wait until the Western winter of six months' duration has been broken up. Never was there a better opening presented to European enterprise than that of the diversion of this trade into its proper channel. Every possible inducement is held out; and when the Mississippi shall have become the outlet of Western produce, it shall have become also the great highway of emigration to the Western States.

KINGSCOTE AGRICULTURAL ASSOCIATION.—

This society held its annual meeting on September 16 with complete success. There is no question but that this and similar societies have a great tendency, not only to improve the cultivation of the soil, by applying those implements which the progress of science has made practical, but they still have a greater tendency to bring together, and thereby to unite in their social relationship the capitalist, the farmer, and the labourer. That such an effect is being produced in the neighbourhood of Kingscote there is not the slightest doubt, mainly attributable to the existence of the Association. The annual ploughing match took place in a field of 35 acres of old lay, in the occupation of Mr. Ed. Drew, of Calcot. Fifty ploughs had entered, 47 of which started. The competition was exceedingly good, and had not some of the competitors been in such haste to complete their task, some of the ridges would have looked more regular. The attendance in the field was good, and had not the weather been so unfavourable in the early part of the day, it would no doubt have been much larger. The annual dinner was held at the Hunter's Hall Inn. About 70 sat down. The Right Hon. T. H. S. Botheron Estcourt, M. P., Lord of the Manor of Dursley, occupied the chair, supported on the right by J. Rolt, Esq., M. P., and on the left by Col. Kingscote. Mr. F. Burnett occupied the vice-chair.