

plant delights will be disturbed. By the two former hoeings the weeds will in a great measure be eradicated, still there are always plenty of weeds in spring; but this last hoeing is chiefly to break the crust and open the channels of the soil, allowing the air and dews to penetrate. Now these three hoeings come rather expensive if done in the usual manner, but the expense is not in proportion to the benefit derived by the crop, but I know of no hand-hoe, excepting the one I am about to speak of, which will do the work as I should wish to see it done. A man, generally speaking, is obliged to work too fast to do the work well, and as he often treads on the weeds after they have been cut off, they take root again; at any rate he presses down the soil with his feet, which instead of being left open and mellow to admit air and dews, is again closed up. My idea of a hoe is, that a man should have it entirely under his control, so that if he wishes to hoe exactly half an inch he should be able to do so, or 1 inch or 2 inches; and also, excepting by great carelessness, he should be unable to hoe up a single plant, and that he should not tread on a weed after it has been cut off; also that the soil should be left open and mellow, and above all that he should be able to hoe one acre a day. Such a hoe I trust I have invented, and if any one wishes to see it he can do so at 223 Stand, Smithfield Show, where he will see other original inventions. *Sigma*.

Large and Small Potatoes as Sets.—With respect to planting large Potatoes close in the drills, and giving the greater distances between the rows, I willingly give way to Mr. Knight's opinion as stated by "J. T." in the *Gazette* of November 29. It suits with my general rule of tillage better than planting them at equal distances each way. But it is not as only regards the advantage of exposure to the direct rays of the sun, which I believe they would obtain either way, but as allowing, in the greater distances between the rows, a freer passage of air; this I consider most essential as affording a more continuous supply of fresh aerial food to the leaves of plants. In rows at narrow distances, and more so in broadcast tillage, more or less stagnation of air must occur, and the plants be thus compelled to re-imbibe the excrementitious matters they have thrown off in perspiration. As the diffused light of the sun appears as effectual to the decomposition of carbonic acid as the direct one, I do not know that it may not be advisable to give the lines of plants the direction of the most prevailing winds instead of that of north and south. I have never planted whole large tubers so near to each other in the rows as Mr. Knight recommends, but I doubt not, in allowing them the greater distance from row to row, from the small leaf and manner of growth of the plant, that it is a plan deserving of all attention, and as productive over wider dropping as he, in his practice, found. If I do not change my mind I will adopt it to some small extent, say half an acre, in the coming summer. I shall take 4-foot rows, with Scotch Dons or Downs, and as Cabbages are found to answer well in our beds, perhaps try some between the rows; in their young growth they will not check the passage of air. *J. M. Goodiff*.

Thick or Thin Seeding.—Seeing in your Paper that a discussion on this subject is proceeding, I beg to give you an account of a field I sowed last autumn. The kind I sowed was what is locally called Kissingland, a red Wheat with white chaff. The field was sown about the middle of December broadcast, and three bushels and one peck of seed to the statute acre. It was then top-dressed with dissolved bones at the rate of three cwt. to the acre, and harrowed in along with seed. The crop did well and proved not at all too thick. The specimen I send will show you that it does not appear stunted or ill fed. I do not mean to advocate thick sowing, but the quantity of seed sown is so different from Farmer Newlight's, that the circumstance appears very uncommon, and my crop was not in the slightest way too thick. It obtained the prize at the Hale show held here in the neighbourhood on the 11th of September last, so I will leave you to form your own conclusions. No doubt there is much difference to be observed in locality, time of sowing, nature of soil and kind of seed. It was sown on a poor field, but the ground was fine and well harrowed. *Henry Ganthorp, Harnworth, Warrington*. [What was the produce per acre?]

Cross Breeding.—I have been lately connecting all the evidence which I can get from the information of others and my own, on the natural crossing of varieties of plants. The evidence in regard to Leguminous plants is curiously conflicting, but preponderates against their ever crossing without artificial aid. I should esteem it a singular favour if any of your correspondents would give in your Paper or send me any evidence showing either that Leguminous crops, when grown close together, do sometimes cross; or, on the other hand, that they may invariably be grown close together without any chance of deterioration. *Charles Darwin, Down, Bromley, Kent*.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: Dec. 3.—Mr. EVELYN DENISON, President, in the Chair.

FINANCES AND HOUSE.—Mr. Raymond Barker, Chairman on the Finance Committee, presented the monthly report of the accounts of the Society; from which it appeared that the current cash-balance in the hands of

the bankers on the last day of the month just ended was 650*l*. Mr. Barker, as Chairman, also read the report of the House Committee. These reports were adopted.

PRIZES FOR ESSAYS.—Mr. Thompson, Chairman, of the Journal Committee, reported the following awards:—

- I. To PETER LOVE, of Naseby Manor Farm, Northamptonshire: the Prize of 20*l*., for the best Essay on the different mechanical modes of deepening the staple soil, in order to give it the full benefit of atmospheric influence.
- II. To T. W. P. ISAAC, of Terrace Walks, Bath (Land-Surveyor): the Prize of 20*l*., for the best Essay and Plans for the construction of Labourers' Cottages, with special reference to domestic convenience.

VETERINARY LECTURES.—Mr. Raymond Barker and Mr. Thompson, as the Chairmen respectively of the Finance and Journal Committees, brought up a joint-report, which was referred to the monthly council in February.

SALISBURY MEETING.—Mr. Cavendish, Vice-Chairman of the General Salisbury Committee, reported the recommendation that the Country Meeting of next year should be held in the week commencing Monday, the 20th of July. This recommendation was adopted by the council.

PRIZES FOR IMPLEMENTS AND STOCK.—On the motion of Mr. Fisher Hobbs, the preliminary arrangement of the Country Meeting Prize Sheets for next year was referred to the Implement Committee, and a Special Live-Stock Committee then named, with a request that they would report their recommendations to the Special Council of Thursday, the 11th of December.

STEAM-PLOUGHING.—The Council received from the Stewards the Judges' report of the trial of Mr. Fowler's plan of ploughing by steam-power. The President directed a Special Council to be summoned for the ensuing week, when their report on the trial of machinery competing for the Society's prize of 500*l*. "for the steam-cultivator that shall in the most efficient manner turn over the soil, and be an economical substitute for the plough or the spade," may be taken into deliberate consideration.

DECEASE.—Notice was given that the vacancy in the Council, occasioned by the lamented decease of Mr. Woodward, would be filled up by election at the monthly meeting in February.

COMMUNICATIONS were received from Mr. Pain, Mayor of Salisbury, on the subject of Prizes for Hampshire Down Sheep; from the Board of Agriculture of Lower Canada, on the establishment of an Agricultural Society; from the Smithsonian Institute of America, a present of books; from the Agricultural Society of the Duchy of Nassau, on the entering into communication; from the Baron de Forrester, a valuable collection of his works relating to the capabilities of the soil and climate of Portugal; from Mr. Knowles, a copy of his Pocket Herd-book; and from Mr. Brown, a copy of his Farm-Account Book: along with various other presentation-copies of works connected with agriculture, for which the Council ordered their usual acknowledgments.

The Council adjourned to their weekly meeting at 12 o'clock on Wednesday, the 10th of December, open to all Members of the Society.

BIRMINGHAM CATTLE SHOW.

THE Midland Counties gathering has been this year a week earlier than usual, in order that its interests and those of the Smithfield Club may not clash. It has gained by this in the appearance of many good animals, which will no doubt reappear in Baker Street, and would have been sent there only, had the meetings been together.

A new section for Welsh Cattle has been this year opened, which ought to have some influence on the cattle of the Principality, considering its nearness to the scene of the show. The Herefords were as usual a very excellent class, Mr. Philipps, of Berkshire, Mr. Naylor, of Welshpool, and others, contributing to it first-class animals. The Devons were an unusually good class. The short-horns hardly came up to their usual standard, first-class animals, however, being exhibited by Mr. Stratton and others. The best division of the exhibition was that of pigs, which is more useful than any of the others, seeing that prizes for breeding stock are offered, and a very excellent class of animals, better probably than have ever before been seen in Bingley Hall, were gathered to compete for them. As to the numbers shown, we may say that last year and this have been on the whole nearly equal, viz., cattle, 112 against 109; sheep, 107 against 46; and pens of pigs, 28 against no fewer than 101. A good show of roots was exhibited, and the poultry show, especially in the principal classes, was as usual the finest thing of the kind that is.

The following is the award of premiums:—

FAT CATTLE.

- Class I. Hereford Oxen.—10*l*., Mr. J. Phillips, Ardington, Wantage.
- Class II. Hereford Steers.—10*l*., Lord Hatherton, Teddesley Park.
- Class III. Hereford Cows.—10*l*., Mr. E. Herbert, Powick, Worcestershire.
- Class IV. Hereford Heifers.—10*l*. with Gold Medal, Mr. G. Pitt, Chadnor Court, Leominster.
- Class V. Short-horn Oxen.—10*l*. with Gold Medal, Mr. R. Stratton, Swindon.
- Class VI. Short-horn Steers.—10*l*., Duke of Beaufort, Badmington, Gloucestershire.
- Class VII. Short-horn Cows.—10*l*., Mr. R. Stratton.
- Class VIII. Short-horn Heifers.—10*l*., Mr. J. Armstrong, Patterton, Chesterfield.
- Class IX. Devon Oxen or Steers.—10*l*., H.R.H. Prince Albert.
- Class X. Devon Steers.—10*l*., Earl of Leicester.

Class XI. Devon Cows.—10*l*., Mr. A. Umbers, Weston Hall, Leamington.

Class XII. Devon Heifers.—10*l*., Mr. A. Umbers.

Class XIII. Long-Horn Cows or Heifers.—5*l*., Mr. D. B. Holborow, Knockdown, near Tetbury, Gloucestershire.

Class XIV. Cross-bred Oxen.—10*l*., Mr. J. Naylor, Leighton Hall, Welshpool.

Class XV. Fat Cows.—10*l*., Mr. J. Faulkner, Bretby Farm, near Burton-upon-Trent.

Class XVII. Scotch Oxen or Steers.—10*l*., Duke of Beaufort.

Class XVIII. Welsh Oxen or Steers.—10*l*., Colonel Pennant, Bangor.

SHEEP.

Class XXI. Three fat Leicesters, Wethers under 22 months.—10*l*., Mr. J. Smith, Riseborough, near Kirbymoorside, Yorkshire.

Class XXII. Three fat Leicester Wethers, under 34 months.—10*l*., Marquis of Exeter, K.G.

Class XXIII. Fat Long-wooled Wethers, under 22 months.—10*l*., Mrs. Sarah West, Blethington.

Class XXV. Three fat Southdown Wethers, under 22 months old.—10*l*., Lord Walsingham.

Class XXVI. Three fat Southdown Wethers, under 34 months.—10*l*., Lord Walsingham.

Class XXVII. Fat Shropshire Wethers, under 22 months.—10*l*., Mr. S. Pilgrim, Burbage, near Hinckley.

Class XXVIII. Fat Shropshire Wethers, under 34 months.—Mr. Henry Smith, jun., Sutton Maddock, Shiffnal.

Class XXIX. Fat cross-bred Wethers under 22 months.—10*l*., Mr. A. C. Keep, Wollaston, Northamptonshire.

Class XXX. Fat cross-bred Wethers under 34 months.—10*l*., Mr. H. Thornley, Marston Hall, near Birmingham.

PIGS.

Class XXXI. Three fat Pigs of one litter, under 10 months.—10*l*., Mr. G. B. Morland, Chilton, Abingdon.

Class XXXII. Three fat Pigs of one litter, under 15 months.—10*l*., Prince Albert.

Class XXXIII. Fat Pig over 15 months old.—10*l*., Mr. R. H. Watson, Bolton Park, Wigton, Cumberland.

PRIZES FOR BREEDING PIGS.

Class XXXIV. Pigs of a Large Breed. Pen of five Pigs of one litter, exceeding three and not exceeding six months old.—10*l*., Mr. J. Smith, Henley-in-Arden, Warwickshire.

Class XXXV.—Pigs of a Small Breed. Pen of five Pigs of one litter, exceeding three and not exceeding six months old.—10*l*., Prince Albert, Windsor Castle.

CHEMICO-AGRICULTURAL OF ULSTER.—At the annual meeting of this society, the annual report was read, and the following remarks were made by Mr. Andrews of Comber:—He thought it was fair and right when they met on any occasion like the present, that they should express their feeling that while other societies, having greater show and parade, received a far greater extent of support from the great body of the community, the silent operation of a society of that kind, whose objects were not of less importance than others but even of greater importance, was comparatively neglected. It was not for the purpose of depreciating the efforts made in other departments that he would ask them to adopt the resolution that he had to propose to them, but merely that they should endeavour to induce those who were so deeply interested fully to appreciate the importance of the Chémico-Agricultural Society, and to place them more nearly on a footing with the efforts made in other departments, and which were individually of very great importance, but certainly not in a relative degree to the support which they received compared with that society. As to the improvement of implements, it was a matter of unquestionable importance, and in the efforts that had been made for the improvement of implements there had been but a moderate expenditure, and no waste of power whatever. He believed it cost the great Agricultural Society very little to reward exhibitors of implements, and it was both an economical and an extremely useful appropriation of the small sum which they applied to that purpose, but they found enormous sums applied to the improvement of stock. Now, there could be no question of the great utility of improved breeds of cattle. They knew that they tended to economise the food. They knew that the same quantity of food applied to the feeding of a good race of animals would produce a greater return than in feeding an inferior race; but it was a matter of not less importance that food should be produced in sufficient abundance, and in the most profitable manner, for the purpose of sustaining the cattle. Hundreds of pounds a year of premiums were applied in rewarding the breeder who had lengthened, by a few inches, the hough of an ox, or produced, in some degree, a little more circular or rotund development of some muscle which was admired, and was, no doubt, useful. But the observation he made was, that while the breeders who produced some of these beauties in utility and fashion were largely rewarded, a very small sum was considered quite enough to give to those who applied themselves to produce the means by which the animals were supported. He did not speak for the purpose of depreciating their efforts, but for the purpose of inducing persons to believe that the efforts of their society were, at least, of equal importance, and that they were entitled to some little support beyond that which had been doled out to them. The resolution which he asked the meeting to adopt was as follows:—

"That, in the present state of agriculture, it is obvious that while the efforts of the national and provincial societies have been conspicuously successful in the improvement of stock and of implements, sufficient attention has not been given to the diffusion of the knowledge of the fundamental principles which govern the nutrition of plants that, for the prosecution of these objects, the funds hitherto supplied by the public have been found inadequate, and the society is again compelled to appeal to the proprietors and all persons interested in agriculture who have hitherto withheld their support to enrol their names in the list of subscribers."

Mr. Andrews went on to say that it was not on the ground of either taste or fashion that he asked support for that society. It was really as a matter of absolute gain. It was quite impossible that the farmer could prosecute his labours with advantage if he had no knowledge of the grounds which grew certain crops best. They had at-