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ted a meter erent lowed $nd \frac{1}{2}$ ces in use of d was very deep and exceedingly sticky, this investigator showed that in the majority of cases, both in fields and roads, there was from 35 to 50 per cent. in favor of the broad tire. Apart from the disastrous effect on roads of heavy loads carried by narrow tires the data presented proved the great economy in horse energy by adopting wide tires. This is a lesson that it is necessary for us in Canada to learn.

Dr. H. J. Wheeler, of Rhode Island, spoke on the acidity of certain soils in his State, and showed that this was due to their need for carbonate of lime. Good effects had followed the application of certain fertilizers, if accompanied by lime, though no increased yields resulted when the fertilizers were applied without it. Gypsum failed to give beneficial effects, showing that it was not a question of lack of lime, but also one of acidity, which prevented nitrification and injured plant growth. From the writer's experience in working on Canadian soils, he is led to the belief that we also have many upland, as well as lowland, soils which would be much benefited by a dressing of lime or marl more particularly when accompanied by other forms of plant food.

How to Sell Milk on the Basis of Quality" was the subject of a thesis by Prof. Georgeson, of Kansas, who favored rigid govermental supervision in order to ensure purity in the milk supply for domestic purposes. This was followed by papers "Should Milk be Sold on the Basis of Quality?" by Dr. E. B. Voorhees, of New Jersey, and on "The Most Profitable Way of Disposing of Skim Milk," by President Hills, of Vermont. Prof. Voorhees made a strong plea for the sale of milk on the basis of quality, tests showing wide variation in nutritive values.

Dr. Salmon, Chief of the Bureau of Animal Industry, gave a valuable and interesting address on "The Effect of the Tuberculin Test upon the Dairy." He believed in the test; it was thoroughly reliable. He argued, however, against its frequent use on the same animal, as repeated injections appear to develop an immunity and no rise in temperature results though tuberculosis may be present. The test does not aggravate the disease nor affect the health of cattle free from tuberculosis. The subject was evidently one of interest to the audience, as the questions fairly rained in on the Doctor at the conclusion of his remarks.

Mention must be made of the paper by Dr. Whitney, Chief of the Division of Soils, on "A New Method for Ascertaining the Amount of Moisture in Soils" in situ. The speaker claimed that by the electric apparatus devised by him the percentage of water, at any depth, could be quickly and accurately ascertained. When we remember the important roll of soil moisture in crop growth the value of any invention that gives us further and reliable information on the subject will be

apparent.
The following officers were elected for the ensuing year: President, Geo. T. Fairchild, of Kansas. Vice-Presidents—M. H. Buckham, of Vermont; Jas. Wilson, of Iowa; Jas. McBride, of Virginia; Alf. Wilson, of Iowa; Jas. Hempshire; and J. E. Hubbs. Kingsbury, of New Hampshire; and J. E. Hubbs, of Nevada. Secretary and Treasurer, J. A. Washburn, of Rhode Island. Executive Committee—H. H. Goodell, of Massachusetts; H. C. White, of Georgia; Alexis Cope, of Ohio; and T. J. Burrill, of Illinois. Bibliographer, N. C. True, of the Department of Agriculture, Washington, D.C.

An announcement was made by Dr. True to the effect that the Office of Experiment Stations was preparing for publication and distribution a list of all works—books and pamphlets—on subjects. This will prove of the greatest service to all engaged in teaching and investigating at our colleges and experiment stations.

STOCK.

A Review of Former Provincial Fat Stock Shows.

BY G. W. GREEN.

This year of grace, 1896, marks a milestone in the career of the Ontario Provincial Fat Stock Show Originally instituted by the Agriculture and Show. Originally instituted by the Agriculture and Arts Association of Ontario, it was, from its inception in 1883 up to the end of 1895 (with the exception of the agree 1899) and the agree 1899 and the of the years 1888 and 1889), carried on under the auspices of that Association, with some assistance from the local fat stock and other clubs in the different towns where it was held, while in 1892 the Dominion Sheep and Swine Breeders' Associations joined hands with them, thus insuring a large increase in the amount of prize money offered in the classes for should be added to the classes for should be a solution and a considerable the classes for sheep and swine, and a considerable

increase in the entries.

To Mr. Henry Wade, the secretary, is due the credit of furthering the idea of a Provincial Fat credit of furthering the idea of a tetral the Stock Show in Ontario. He had attended the Chicago Fat Stock Show the year previous, and Chicago Fat Stock Show the year previous, and Chicago Fat Stock Show the year previous, and rightly considered that Ontario, with her excellent stock, need not be behind the Windy City in the matter of making a fine display of fat animals. Accordingly, he pressed the matter on the Association and secured their approval of the project.

Toronto had the honor of being selected as the birthplace of the show. A good deal of difficulty

awards were being made. The number of cattle on exhibition was 83, of sheep 46, of swine 16, and of poultry 113. Shorthorns and Shorthorn grades monopolized the show, none of the other breeds

being represented.

Those were the days of very fat cattle, before the public taste had veered round, as it now has, in the direction of leaner meat, and consequently feeders devoted their energies to getting all the fat on their cattle that they could. Of such a kind were the massive animals shown by the Groffs, the McQueens, and others, which not only won prizes in the competition, but also sold at paying prices afterwards. In these days of low prices it makes one's mouth water to read of cattle selling readily for 12½c., 12c. and 10c. a pound. Will those good days ever return? Messrs. H. & I. Groff, Elmira, had 36 head on exhibiton, and won all the special prizes but one and the bulk of the regular prizes, their principal competitors being Messrs. J. & R. McQueen, Elora. Mr. R. Gibson, Delaware, had the well-known White Duke present, whose weight at 947 days old was 2,110. Besides these there were several exhibitors who showed small lots of cattle. The show of sheep was small but good; but that of swine was poor.

It was natural, when the A. & A. Association was selecting a place for its second annual fat stock show, that the claims of Guelph, that great center of the live stock industry, should be favorably entertained. In the drill shed was found a suitable building for the purpose required. Once more only Shorthorns and Shorthorn grades were present in the cattle classes, which were not quite so well filled as at Toronto, but there was a better representation of sheep and swine. Again the Groffs were to the fore in cattle, but the Shorthorn Breeders' silver cup, which in 1883 was captured by them, this year fell to Messrs. McQueen's inbred steer, Red Duke. Messrs. Groff's yearling grade steer, Red Ribbon Ranger, which won the sweepstakes for the best fat animal on the ground, was of course, not qualified to show for the former prize. This excellent steer showed the remarkable average gain of 2.65 lbs. a day. Considerable interest was created by the display of fat cattle from the Ontario Experimental Farm, which were sold in the building and which contained sold in the building and which contained representatives of the Shorthorn, Hereford, and Polled Angus breeds.

The next year the show was held at Woodstock Once more Messrs. Groff and McQueen contended for the Shorthorn Breeders' prize, as this year would decide whose property it would be, the terms of the competition being that the winner to hold it must win it twice. Messrs. McQueen had the honor of winning it with the same animal as in the previous year. Messrs. Groff's Ranger won the grand sweepstakes for steers, but was beaten by John Kelly's grade steer, John Cook, for the Empire Cattle Food Co.'s prize. This steer of Mr. Kelly's was a good one and had distinguished itself at the two preceding shows. Again as at former would decide whose property it would be, the at the two preceding shows. Again, as at former exhibitions, the gains shown by some of the animals here were surprising, ranging from 2.13 lbs. to 2.79 lbs. per day.

In 1886 Guelph once more claimed the fat stock show. The number of cattle present was somewhat smaller than usual. Messrs. Groff were the largest exhibitors and won all the first prizes for thoroughbred steers. John Kelly's Little Davie was successful in carrying off the special for the best fat animal bred by the exhibitor, while Mr. George Keith, Elora, won that for the best pair. There was a fair turnout of sheep and pigs; Mr. John Rutherford, Roseville, being a large prize winner in the cheep class. A feet we in the cettle classes was the sheep class. A feature in the cattle classes was a perceptible change in the age and size of the animals forward in the older classes, these being younger and more medium in size than formerly, a concession to the growing aversion of the public taste for overfat meat.

The success of the first exhibition held in Toronto induced the Association to try its luck there once more in 1887. The show, however, did not once more in 1001. The show, however, did not come up to anticipations, the number of entries being less than usual, although the quality was well up to the average. Neither Messrs. Groff nor Messrs. McQueen had any cattle forward, but in Messrs. McQueen nad any cattle forward, but in their place were some new exhibitors, among them being A. Johnston, Greenwood; Jas. Oke, Alvinston; Jas. Hunter, Alma; Geo. Deans, Paris Station; J. & W. B. Watt, Salem; and John Russell, Brougham; while John Kelly, Shakespeare, and Geo. Keith Flore, who had made entries in and Geo. Keith, Elora, who had made entries in and Geo. Reith, Liora, who had made entries in previous years, were also present. John Kelly's Little Davie won the sweepstakes for steers, and Geo. Keith's Daisy that for females. The show of sheep was better than usual, with John Rutherford a prominent winner, W. H. Beattie and Laidlaw & Lacken being also well up in the prize list. Swing Jackson being also well up in the prize list. Swine were but few in number.

In 1888 and 1889 there were no Provincial fat stock shows held, but the Guelph Fat Stock Club successfully carried on an exhibition during those years, the Agriculture and Arts Association granting them some financial assistance.

In 1890 the Agriculture and Arts Association once more united with the Guelph Fat Stock Club and held a Provincial exhibition. The entries of cattle were not numerous, but those shown were birthplace of the show. A good deal of difficulty was experienced in finding suitable quarters, and was experienced in finding suitable quarters, and eventually the Commercial Hotel stables had to be chosen in default of any better accommodation. Sufficient room was found to stable all the stock, Sufficient room was found to stable all the stock, but the ring for judging was so small that but few visitors could see anything of the animals while the

tyne & Son, Stratford; and Wm. Sharp & Sons, Everton. Messrs. Oke won the sweepstakes for steers and females, the former being a silver cup worth \$60, given by the FARMER'S ADVOCATE, while Thos. Ballantyne & Son won for the second year in succession the McAteer cup of the same value, thus becoming its owners.

Since 1890 the Provincial Fat Stock Show has remained at Guelph in spite of the efforts of other towns to secure it. In 1891, owing to the short notice given of the date of the meeting, the number of entries was not so large as it might have been, and some of the animals lacked the finishing touches requisite for success at a fat stock show. For the first time this year there were other breeds than Shorthorns represented, there being single entries of Herefords, Devons, Galloways, and Jerseys or their grades. Messrs. Oke once more won the FARMER'S ADVOCATE sweepstakes for the best steer and also the McAteer cup for females. best steer and also the McAteer cup for females. Messrs. Ballantyne, Stratford, and Messrs. Weir, St. Mary's, were the principal winners in the thoroughbred class, and also showed grades. Messrs. Oke; W. C. Short, Salem; and A. Armstrong, Fergus, won some of the principal prizes. The exhibit of sheep was of rare quality. John Rutherford, John Kelly, and Wm. Oliver were the largest exhibitors in this section of the show exhibitors in this section of the show.

As previously mentioned, in 1892 the Sheep and Swine Breeders' Association joined hands with the Agriculture and Arts Association and the Guelph Fat Stock Club and issued a generous prize list. Prizes were offered for other beef breeds besides Shorthorns, but these did not attract a large number of representatives of these breeds. In the sheep and swine departments, however, there was a large influx of entries. Mr. Adam Armstrong had some good steers in the Shorthorn sections. To his twogood steers in the Shorthorn sections. year-old Redmond fell the championship prize for the best fat animal. Mr. Armstrong's principal opponent in the steer sections was Mr. W. B. Cockburn. Messrs. Oke, as usual, were strong in grades. In Yorkshire pigs Mr. Levi Pike showed a barrow, Markham Baron, which won the sweepstakes for pure-bred barrow of any breed. This pig, not yet eleven months old, turned the scales at 575 pounds.

The succeeding year witnessed a splendid exhibit of stock. The entries numbered over four hundred, being in the proportion of one of cattle to two of swine and four of sheep. The rules in the sheep and swine departments had been altered to allow breeding stock to enter, with the result of a large increase of entries in those two branches. A noticeable feature was the care that had been taken generally in the fitting up of the animals. As in 1892, other breeds than Shorthorns were slightly represented, there being a couple of Herefords, the same number of Galloways and Devons, and one Polled Angus present. The thoroughbred Shorthorn sections were mostly rather weak, but the competition among the grades was very keen. Among the three-year-old cows and heifers were some grand animals, especially the winner, the beautifully compact heifer shown by Mr. James Rennie, Wick, to which deservedly went the sweepstakes prize for the best fat animal. Messrs. sweepstakes prize for the best fat animal. Messrs. Oke, as usual, had some good things present, as had Messrs. Cockburn; Smith, of Hay; Caldwell, of Fergus; Wilson, of Seaforth; and others. Swine showed up well, except Yorkshires, which class missed the exhibits of Messrs. Brethour and Featherstone, which did not get back from the quarantine after the World's Fair in time for the show. The show of sheep was especially fine, nearly all our prominent exhibitors having been present. The display of poultry was very good.

"Better all round than ever" was the verdict of every one who attended the show at Guelph in

every one who attended the show at Guelph in every one who attended the show at Guelph in 1894. In fact, the large rink in which the show was held was only just large enough to contain the stock. It was a three-days show. In the thoroughbred Shorthorn class the most noticeable animal was Messrs. Smith's (Hay) white two-year-old steer, Village Hero, which won the Shorthorn Association's prize. Grades were numerous and good. The plums here were Jas. Rennie's wonderful two-year-old heifer. Messrs. Leaman's cow, and ful two-year-old heifer, Messrs. Leaman's cow, and a steer calf of Mr. D. D. Wilson's. This show will always be remembered for the deadlock that occurred in deciding the sweepstakes prize. The four judges having failed to agree, two others were called in, but still matters were in the same state. Then another judge was sent into the ring to decide between the two animals that had been selected, who gave his vote for Messrs. Smith's white steer. The most unsatisfactory part of it was that Rennie's heifer, which was certainly the best one and entitled to the sweepstakes, was not one of the animals which was selected. Over three hundred sheep were present and a grand lot they were, with no culls among them. Nearly every prominent breeder of sheep and swine was present with a number of choice animals, and the judges had a difficult task in many instances in coming to their decisions. Space will not allow me to refer to the exhibits more fully. Poultry, dressed and undressed, formed a splendid exhibit.

We now come to the last exhibition held under the auspices of the Agriculture and Arts Association, viz., the one in 1895. As will be remembered, a dairy and live poultry show was held in connection. tion. Cattle and pigs were hardly as numerous or as good as in the previous years, while sheep made a better display than ever. There were a few good Herefords, Polled Angus, Galloways, and Devons exhibited. The show of Shorthorns was fair, being compassed.