

## EDITORIAL.

Mr. L. G. Jarvis has been appointed in charge of the new poultry department at the Ontario Agricultural College.

Secretary J. W. Wheaton, of the Western Ontario Dairymen's Association, announces that the annual convention will be held at Stratford on January 15th, 16th and 17th.

Joseph E. Stubbs, LL. D., President of the State University of Nevada, has been made also Director of the Nevada Agricultural Experiment Station, vice Stephen A. Jones, resigned.

Major H. E. Alvord has accepted the presidency of the Oklahoma Agricultural and Mechanical College, Stillwater, Oklahoma. He has also been offered the presidency of his Alma Mater, Norwich University, Vermont.

Mr. E. G. Lodeman, instructor in horticulture at Cornell University, has sailed for Europe, to study the diseases of grapes in France and Italy, and the methods of treating these diseases there, by spraying and otherwise. He will spend the summer among the European vineyards.

Prof. Collier, in Geneva (N. Y.) Experiment Station report:—"In no other way can the corn crop be so economically harvested, and both grain and stalks be so well prepared, almost regardless of the vicissitudes of weather, as in placing it, when at its maximum food value, promptly in silo, where, until consumed, it requires no further care and expense."

The Ontario Good Roads Association, of which Mr. Andrew Pattullo, of Woodstock, is President, are arranging to hold the annual convention in Toronto some time in February next. Through the Provincial Department of Agriculture, 20,000 bulletins were distributed during the past season. The work of educating the public on the subject of improved highways will be energetically pushed during the coming season.

Do not feed the cows, that are giving milk, straw and allow idle horses to eat all the hay. It is also poor economy to feed young cattle and horses hay at the beginning of winter and have to feed dry straw during the warm spring months. Fresh straw is relished in the early winter, while nothing but shear hunger will induce stock to eat it in the spring season. When one has a supply of both clover and timothy hay, the former will do much better service to all kinds of stock in the spring months.

A plow that will not scour is often the cause of many bad thoughts, and sometimes bad words. This can easily be avoided, if the mold-board is a good one and properly taken care of. A plow should never be left in the furrow over night, as when the team is stopped, but hauled back, rubbed clean with a wisp of grass, and turned mold-board down, so that rain or dew cannot lodge upon it. As soon as ploughing is over, it should be placed under cover, and all the bright parts given a coating of grease or oil, to prevent rusting, when it will remain bright and ready for work for an indefinite time. All repairs should be made before forgotten, thus saving time when the implement is needed.

By this time all the food for the coming winter is housed or put in safe keeping, except, possibly, some of the roots, which will be in by the end of this month. When this is all done, a farmer generally feels satisfied that his stock will fare well till grass comes next spring. That will be quite right in many cases, but there is sometimes danger of a shortage, caused, perhaps, by waste in feeding, or the waste may come from cold and draughty stabling, which will demand a more liberal supply of food to keep the stock from failing. There is an easy and practicable way out of this difficulty. Tanned felting or building paper can be bought very cheaply, and the amount of tacks and lath to fasten it to a wall will not cost much. Two men, in two rainy days, can line up a large building. The effect will far exceed your expectations. Some old stables get a supply of sawdust between the siding and lining; but this is a troublesome method, and has the effect of harboring mice and rats. Tar paper will last for years, and its tarry odor is wholesome. The writer recommends it from his own experience with an old clap-board stable five years ago.

## Our Illustration.

We take pleasure in bringing before the attention of our readers, as a first page illustration in this issue, an excellent portrait of the famous old-time English Thoroughbred horse, "Touchstone," bred by the Marquis of Westminster, in 1831. He was a brown horse by Camel, out of Banter by Master Henry, her dam Boadicia by Alexander, out of Brunette by Amaranthus—Mayfly, by Match'em—Ancaster Starling. Not only was he a handsome horse of typical conformation, very "breedy" in appearance, but a race-horse as well. The records of his day give the following list of his winnings on the turf for five years, the Cups and Plates being given by their value in specie:—In 1833, £50; in 1834, £2,675; in 1835, £1,200; in 1836, £1,040; in 1837, £450. Total, £5,475.

Between 1838 and 1843 he stood at Moor Park and Eaton, his service fee being 40 guineas per mare.

The following were some of the principal winners got by Touchstone:—Auckland, Ameer, Audry, Blue Bonnet (winner of the St. Ledger), Cotherstone (winner of the Derby), Celia, Dil-bar, Fanny Eden, Gaiety, Jack, Lady Adela, Orlando, Phryne, and Rosalind.

His stock first came out in 1841, as two-year-olds, when they won amongst them, in public money, £300; in 1842, £9,530, and in 1843, £20,454.

Our portrait is reproduced from an old steel engraving.

## Wheat as a Stock Food.

In another column we give space to a letter from a reader, "F. J. S.," on the above topic. There has never been any doubt as to the value of wheat as animal food; but not until within the last two years would the price of that cereal induce even the consideration of putting the feeding of it into practice. There have always been, however, here and there an exhibitor of pure-bred stock desirous of obtaining the greatest possible growth at a given age who never thought of leaving wheat out of the ration. Considerable quantities of wheat have been fed by men whom we deem prudent, to all kinds of stock, but especially to horses and sheep. Such a practice would not have been indulged in for any length of time had it not been paying, but it did pay, and some of the persons who know its value to-day are not lamenting the low price of wheat (from a selfish standpoint). We mention this to show that its value for the purpose of inducing early maturity was recognized long ago by live stock men of high standing.

The present market value of wheat, as compared with other cereals, has caused very many to place that grain on their bill of fare, and, according to the results of experiments conducted at almost every experiment station on the continent, and also by private individuals, confirms the old idea that wheat, as a stock food, has a value more than its market price at the present time. Corn is and has been the great pork and beef producing food of the West, and as far east as it could be obtained at a reasonable figure; but while corn will produce about fourteen pounds of pork for one bushel fed, wheat has shown its ability to increase a growing pig's carcass about seventeen pounds for the same quantity fed. For mature stock in the process of finishing for the block, corn is said to make a better showing, but, where there is a demand for bone and muscle as well as fat, wheat takes the lead in increasing live weight. The great objection to pure corn feeding is that it increases the fat at a much more rapid ratio, as compared with flesh and frame, than the best interest of development will warrant; hence the proneness of corn-fed animals to disease and sterility. Wheat has no such bad effect, as the very elements necessary to build up muscle, etc., predominate sufficiently to cause the most vigorous development. The following table shows the digestive component in 100 pounds of the grains with which Canadian and United States feeders are most familiar, with their nutritive ratio:—

NAME.	Protein			Nutritive
	Lbs.	Lbs.	Lbs.	
Wheat.....	9.3	55.8	1.8	136.1
Corn.....	7.1	62.7	1.2	130.1
Oats.....	9.1	44.7	1.1	133.9
Peas.....	18.	36.	.9	133.2
Barley.....	8.	58.9	1.7	17.9
Corn Ensilage.....	1.0	10.19	.51	111.4

According to numerous experiments, a ration with a nutritive ratio of about 1.7 gives the best results in dairying; therefore, dairy stock feeding on ensilage can have as a grain ration a mixture of wheat and oats to good advantage, as the nutritive ratio will then be about perfect.

In a carefully prepared bulletin on "Wheat as a food for growing and fattening animals," by the U. S. Department of Agriculture, the following statement is given regarding its analysis:—

"Wheat contains practically the same amount of protein or muscle-forming element as oats, and both wheat and oats contain 30 per cent. more protein than corn. On the other hand, wheat only has about one-half as much fatty matter as corn or oats. In carbo-hydrates the position is about half-way between corn and oats. Protein—that is, the albuminoid constituents of grain—goes to build up the albuminoid tissue of the animal body, of which the muscles are the most prominent part; but it may also be changed into fat. The fat in the animal body comes, therefore, both from the fat and protein of the food which is eaten. The carbo-hydrates sustain the heat of the body, and must be present in sufficient quantity, or the more valuable fat which has already been assimilated will be used for this purpose. Young growing animals require more protein than older ones, and also more than fattening animals, in order to supply material for building up the muscles, tendons and other albuminoid structures."

It is the tendency of the age to demand pork and beef considerably before the mature stage has been reached; therefore, the wisdom of using wheat in the production of pork and beef. In the grain ration for milk cows, wheat has been found to form a valuable adjunct, as the composition of the valuable part of milk is largely fat and albuminoid in its nature.

While corn is receiving our attention as compared with wheat, we do not wish to leave our Ontario coarse grains out of consideration. Barley, at 35 cents and less, can well be fed in addition to other grain, but the present price of 40 odd cents per bushel, puts it out of reach as compared with wheat at present quotations. In certain cases, peas, too, could well be sold to buy wheat for feeding at the present market values, though the time and labor involved would need to be carefully reckoned. Oats have always a place on every stock farm, but with the present price of wheat, a combination of the two should be used in preference to either of them alone.

For horse feeding, wheat has a high value, as has been found by the experience of many in the last six months. Some claim to have had good results from feeding it whole and dry, while others advise boiling or soaking it, to get all there is in it. There is one thing certain, that when the excrement shows perfect grains, the mill-stones or a few hours in water would greatly improve its condition for feeding. We notice "F. J. S.," in his article on "75 cents for wheat," advocates grinding it fine for horses. While that may be done with advantage when fed mixed with moistened cut feed, or boiled or pulped roots, we think it would be a much better plan to have it rolled along with oats or alone, as in such a case it may be fed to good advantage with any other food, and if fed alone no evil result could follow, except given in too large quantities. When finely ground, horses object to its sticky nature, as it forms a pasty mess in the mouth, and is also inhaled, causing the animal to blow and cough a great deal of it out of the manger, and over everyone who comes near; while rolled wheat is relished by all stock, and even should some of it pass the mouth unmastered, it is in good form to be acted upon by the juices of the stomach and intestines to be perfectly digested.

For hog feeding, grinding or rolling seems to be very satisfactory to those who have given them a trial. To those who prefer feeding grain dry, we would say, get it rolled, as then it will be relished, and the waste caused by blowing it about will be very little. Our preference is for a few hours' soaking.

For cattle feeding, very fine grinding is not so advantageous. Our best feeders seldom feed one sort of grain alone, or without being mixed with coarse fodder. There is a great deal in furnishing animals with a palatable ration, and this is most readily secured with a mixture. For slopping milch cows, finely ground wheat gives good satisfaction. To its use with ensilage we have already referred.

For sheep feeding, wheat should be coarsely ground or rolled, and mixed with whole oats. A Western sheep raiser who recently called on us, stated that his plan was to allow his fattening lambs or sheep to help themselves to whole wheat or wheat screenings, from a trough arranged to just allow a very slow stream to fall before the sheep as they partook of it. This gentleman is perfectly satisfied with his plan. Another instance is given by a Shropshire breeder, of our own Province, whose lamb discovered a leak from the granary, where he made regular quiet visits, and ate the slow stream of wheat as it fell. The result was one of the most thrifty and rapid-growing lambs he ever owned.

There are precautions to be observed when one is commencing to feed wheat. It is a well-known fact that when full-fed horses are changed from old to new oats, they are liable to attacks of indigestion, colic, and founder. Such a radical change, as from oats to wheat, requires more caution than a casual observer would imagine. For this reason, wheat should at first be fed in small quantities. A