

would not be sufficient to produce this fat. The highest figures given by any investigator allow 51.4 pounds of fat from 100 pounds of protein; so to form this 38.8 pounds of fat the metabolism of at least 75 pounds of protein would be required. In the urine, however, there was found only nitrogen enough to account for the decomposition of 33.3 pounds of protein or the formation of 17.1 pounds of fat, leaving 21.7 pounds of fat unaccounted for. In this fifty-nine days the digested food fat was only 3.3 pounds and the cow's weight increased 33 pounds without flesh formation as revealed by the disappearance of nitrogen. The fat then could not have been formed from the fat in the food, fat in the body or protein in the food, singly or all united; so part, at least, must have been formed from the carbohydrates of the food.

It is generally held that, to maintain the best results in milk flow, more than two pounds of digestible protein should be fed the cow in connection with a sufficient supply (12½ pounds) of carbohydrates. But the results of this experiment indicate that protein takes no necessary part in providing raw material for the secretion of milk fat. Then why is it necessary? The bulletin throws out the suggestion that its effect is stimulative—that protein excites and assists metabolic changes in other materials rather than enters into them itself. In all the varying changes of the rations fed during this long period, the composition of the milk remained very uniform.

Selling Stockers in the West.

A Word of Warning.

The number of stockers now being shipped out of the province of Manitoba to the United States is becoming alarming indeed. A deputation from the Winnipeg Board of Trade recently waited upon the Hon. Thos. Greenway, Minister of Agriculture for Manitoba, and asked that some action be taken by the Government to prevent the depletion of the Manitoba herds in this way. Mr. Greenway, in response to this appeal, issued a circular, calling attention to the fact that the stock interests of the country were likely to become seriously crippled for some years to come, both along dairy lines and the export of beef cattle, if the shipment of calves, yearlings, and two-year-olds were continued too far. The circular suggests that farmers' clubs, institutes, and other societies meet and talk over the effect these shipments will have and be guided accordingly.

The great scarcity of young cattle throughout the Western States is felt more keenly this season than last, and the American farmers are determined to have them at any cost. Last year a great number of stockers from all parts of Canada went to fill up the fattening stables and ranges of the Western States. The same thing is likely to be repeated again this year. Where is the stock to come from? Where will it come from in 1899 and where in 1900?

The mistake the feeders of the Western States have made is in trusting to buying stockers instead of raising them. Somewhat similar conditions exist in the ranges. But the stockmen now recognize their mistake and are after breeding stock as well as stockers. It is estimated that it will take three, four, or more years to stock up the Western country. The buyers are paying good prices for stockers, and are paying the cash, which goes a long way in making quick sales. It is reported that as high as \$15 apiece has been paid for fair-sized calves. The farmer thinks there is money in letting the calves go at this figure. Many of them believe that there is more money in \$12 for a yearling than in \$25 for a three-year-old, and as they can see no guarantee of better prices in the future, the cattle are sold.

The culling out of stockers made last year was a good thing in many ways, as it got rid of our surplus stock to good advantage, but we would advise farmers to be very careful about doing much culling this year. The demand for young stock will not cease with this year but will continue for another, and perhaps for several years. There-

fore let our farmers profit by the mistakes which our neighbors have made, and not sell the breeding stock, but keep all the best heifers and sell the culls only. Breed the ones you intend to keep to the very best bull obtainable.

The farmers of Canada will sacrifice their own best interests if they sell too closely their young breeding stock at the present time. It will be a case of killing the goose that lays the golden egg.

More Model Farms Wanted.

A deputation recently waited upon the Hon. Mr. Fisher and asked that a model farm be established near Fort William and within view of both lines of railway, so that travellers might see it in passing. The first cost would be \$10,000, and the annual cost thereafter about \$1,000. It was pointed out that the Wabigoon Pioneer Farm of the Ontario Government at Dryden had in two years attracted 500 people to an altogether unknown region. In reply to the deputation Mr. Fisher said he had requests for model farms from no less than eleven constituencies, and must be very careful as to the making of promises. He was, however, somewhat impressed with the arguments advanced. No doubt it would be an inducement to settlers to locate in the district around Fort William if a model or pioneer farm were located there to show what could be done in developing its agricultural resources, but we are somewhat inclined to think that the Government could spend \$10,000 to better advantage. The pioneer farm at Dryden has, without doubt, served to attract numbers of settlers to new Ontario who would not have gone there otherwise, and as the district around Fort William does not vary much from the district around Dryden in regard to condition for carrying on agriculture, another model farm does not appear to be necessary.

Dr. Wm. Saunders.

One of the things we regretted very much when FARMING was changed from a monthly to a weekly publication was that we were not able to carry out our pre-arranged plan of issuing a special edition illustrating the Dominion Experimental Farm System. It was not due to any lack of appreciation of the good work that the farms are doing but that other considerations influenced us in making a change in our plans. It is, therefore, with added pleasure that we present the readers of FARMING this week with a splendid likeness of the able Director of the Experimental Farms, Dr. Wm. Saunders, and the accompanying short sketch of his life and work.

Dr. Saunders was born in Crediton, Devonshire, England, in 1836, and came to Canada with his father's family in 1848, when they settled in London, Ontario. From early boyhood days he has been closely associated with scientific pursuits, which accounts for the fund of practical and wide knowledge of scientific subjects which he possesses. He became a chemist, and conducted a successful business for many years in London, paying special attention to the scientific aspects of his calling. He afterwards became closely associated with every movement for the advancement of his chosen profession. In 1871 he assisted in the organization of the Ontario College of Pharmacy, and was for many years a member of the council of the college. In 1873 he was elected president of the American Pharmaceutical Association. Several of his papers written for this association were republished in English journals and translated and published in Germany. In 1882 he was appointed Dominion public analyst for the western division of Ontario. On the organization of the medical faculty of the Western University of London in 1882 Dr. Saunders was appointed to the chair of materia medica, and on his retirement in 1886, to accept his present position, he was made an Emeritus Professor by the Faculty.

Dr. Saunders began the study of Canadian botany and entomology when quite young and made it one of the special features of his early training. He has contributed many valuable papers on these

subjects and was editor of *The Canadian Entomologist* for many years. He has given special attention to fruit culture, and operated a farm near London for the purpose of experimenting along this particular line. In 1883 he published a volume on "Insects Injurious to Fruits," a work which has had a wide circulation and is still in demand as a guide to American fruit growers.

When the Royal Society of Canada was organized in 1881, Dr. Saunders was selected as one of the original twenty Fellows which formed the biological section of that body. He has long been a Fellow of the American Association for the Advancement of Science and has been an active member of the American Forestry Association since its organization. In 1880 he was selected as one of thirteen by the Ontario Government as a special commission to enquire into the condition of Agriculture in the Province. In 1885 he was requested to undertake the preparation of a fruit display at the Indian and Colonial Exhibition, and was successful in making a display of Canadian fruits which was a revelation to the visiting public at that exposition.

In 1886 when the Experimental Farms were established, Dr. Saunders was appointed Director. Previously he had been commissioned by the Hon. John Carling, then Minister of Agriculture, to visit the American Experimental Stations and to make enquiries regarding experimental work in agriculture in Europe and elsewhere. A report was presented embodying the result of his enquiries by which the government was guided in establishing the Experimental Farm system. Since that time Dr. Saunders' work is well known to every farmer in the Dominion, and it is not necessary for us to elaborate upon it here. Suffice it to say that under his able management the Experimental Farms have become a great educational factor in the agricultural progress of the country, and have done much to help the farmers in every section of the Dominion, and to induce them to adopt better methods of farming. The mass of valuable information distributed each year cannot help but be of immense value to the agriculturists of the Dominion.

NOTES AND IDEAS.

Since the Germans prohibited the importation of fruit from the United States there has been some little stir in England in regard to the matter. The whole question is being carefully investigated by the Agricultural Department of the British House of Commons, and the interests of the fruit-growers will be protected.

Indications point toward a large crop of wheat next season. If so it will be difficult to maintain prices for wheat up to their present standard. The wheat situation is every day developing more and more in favor of the consumer, and unless a war or some other unforeseen event takes place, the holders of large stocks of wheat are likely to lose heavily.

There is a growing sentiment in the United States in favor of the Canadian banking system. One of the features which commends itself most strongly is the system of branches which the Canadian banks have, extending from Nova Scotia to British Columbia. This gives the farmers and others in comparatively isolated quarters banking facilities vastly superior to those of the farmers similarly situated in the United States.

The producer of food products in England seems to be in continual hot water. Recently it has been reported by some scientific men that frozen imported meat had equal nutritive qualities to that which is home fed. This report has aroused the producer of home fed meat, who has relied upon the extra nutritive qualities of the home product over that imported from foreign countries, for the sale of his products. If this lever is taken away from him his chances of competing with foreign meat becomes all the harder.