

Dairy.

Milking Machines.

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The blood vessels of animals are valves opening always in the direction in which the blood flows. Those in the arteries open away from the heart and toward the capillaries; those in the veins open toward the heart and away from the capillaries. The blood therefore must always move onward. Like water in a pump, it can never go backward. If, by some outside pressure, the walls of the blood vessels are pressed together, the blood will be pushed along in the direction it naturally flows and its motion hurried, and the moment the pressure is removed, the empty vessels will be instantly filled with blood from the opposite direction. Thus, the alternate opening and closing of the hand pushes the blood along, and, as it were, pumps more through it than would have passed if the hand had remained motionless. This increased flow of blood through the hand has the effect of furnishing a larger supply for assimilation, and thereby increasing its size and strength. A similar treatment applied to any other part of the body must produce a similar effect. The alternate contraction and relaxation of a muscle must always tend to an increased circulation of blood through it and promote its size and vigor. The unusual action in the foot and leg of the pedestrian, and in the hand and arm of the blacksmith, give to those organs unusual size and power. Use, by producing motion, is the basis of all bodily development and power, while disuse tends in an opposite direction—to feebleness and diminished proportions.

It is from an application of these well-known laws that the enormous development of the bovine udder has been effected. The manipulations in milking—the gentle pulling, rubbing and squeezing of the teats and udder, repeated again and again in the process of milking, are the most efficient means of hastening the circulation of the blood through the udder and thereby invigorating and developing all its parts and augmenting its secretions. From the increased tendency of blood to the udder from the manipulations in the process of milking, a much larger amount of milk is secreted while the milking is going on, than at any other time. The oftener and the more (within certain limits) the milk glands are emptied and manipulated, the more are they developed, the more milk will they secrete and the greater will be the tendency to continue the secretion because of the greater flow of blood invited to the udder during its handling.

No better treatment could be devised for promoting large secretions of milk and a large and vigorous udder than the manipulations of a skillful milker afford, and they are as well calculated to get the last drop from it—a necessary result to continued secretion—as they are to promote size and action.

Though the bunting of a hungry calf promotes a lively circulation in the udder, it is not equal to hand-milking. The extraordinary activity of the young bovine's nose is the result of hunger from separation from its mother. It is of short duration and does not occur to any great extent when the cow and calf are allowed to run together, and the effort of the calf in sucking, while it exhausts the milk very perfectly, does not develop the milk glands like the human hand.

Whenever, for a few generations, the calf is allowed to run with its dam, her bag diminishes in size and the amount of milk decreases.

The Texan cows afford a good example of this. The original stock, like all the so-called native

stock of the country, were fair milkers when subjected to hand milking, but since running at large and suckling their young, their milk product is quite inferior, although their food is abundant. A similar condition accompanies all native cattle. The buffalo, in its wild state, gives but little milk, but when domesticated and milked, its yield is far beyond what occurs in its native habits.

High feeding and breeding and care have contributed their quota toward developing the milking capacity of the domestic cow, but it is to the manipulation of the human hand chiefly, that we owe the extraordinary size and enormous secretions of her mammary glands.

Any device or mode of milking which should fall short of giving the teats and udder the treatment they now receive in hand-milking, would have an effect like putting a hand or arm in a sling—it would abate their supply of blood, diminish the size and power of the glands and consequently lessen the flow of milk. The rage for milking machines now occupying the attention of dairymen both in Europe and America, does not seem to look in the direction of improvement. If some inventive genius shall by means of atmospheric pressure—the only means possible—be successful in his aims at drawing the milk to the last drop while keeping the teats and udder in a comfortable, quiet and motionless condition, his success could hardly prove otherwise than an injury to dairymen. It would at once put a stop to further development of milking inclinations, and inaugurate a retrograde tendency.

Under some peculiar conditions such a machine might not only be convenient but useful. But looking through a physiological eye its general use in the dairy does not appear to be desired.

An International Dairy Congress.

The dairy and everything pertaining thereto are now, more than they ever were, subjects of great interest to Canadian farmers. This season, it is true, has not brought profit to the dairyman, but there are reverses in every business, and we must, nothing daunted, prepare for the ensuing season.

The Dairy Congresses of Europe and America will doubtless be heard of with interest by all concerned in the manufacture and the sale and purchase of dairy products. From the *American Dairyman* we reprint the following report of the Dairy Congress at Paris:—

An International Dairy Congress was held in Paris on the 16th, 17th and 18th of October. The attendance was large, and the discussions were interesting and instructive. From the reports of the proceedings in *L'Industrie Laitière* we condense the following: The first day's session was presided over by M. E. Gayot, member of the National Society of Agriculture, and Counsellor of the French Dairy Association. M. de Brevans delivered an address on the milk production of the Department of Jura, which has an annual value of 20,000,000 francs. M. Pouriau made a report on the quantity of cream required under certain stated circumstances for procuring 1 kilogram of butter, and on the proper temperature to be preserved. M. Gayot remarked that the irregular variation in graduation of thermometers caused great differences in the notation of temperature. Dr. Gerber expressed a wish that the French Centigrade thermometers might be exclusively used in conducting experiments of this sort. M. Pouriau enumerated briefly the advantages of the method of separating cream by centrifugal force. He also disputed the theory of butter-making with milk at a low temperature. Dr. Gerber, on the contrary, believed that cold preserves the aroma of butter, and that the causes of its loss were to be found in the defective process of manufacture.

The second day's session was presided over by Count Toustain, President of the Agricultural Society of Bayeux, and President of the French Dairy Association. The chairman informed the

meeting that Spain, desiring to take part in the Congress, had sent three representatives, Messrs. de Santos, Vincente Alonzo and Eduardo Navesco. Dr. Gerber described several different methods of analyzing milk, and exhibited a very simple and ingenious apparatus for the purpose of his own invention. A long discussion was held on the subject of the inferiority of the butter of Brittany as compared with that of Normandy. The principal reasons assigned for such inferiority were, defective manufacture, and the existence of oleomargarine factories in Brittany. It was determined to offer a prize for the invention of a practical method of detecting promptly the adulteration of butter with oleomargarine. On the motion of the chairman, it was also unanimously resolved, "that the attention of the Government be called to the existing trade in butter adulterated with oleomargarine, in order that such adulteration may be vigorously prosecuted in conformity to the law of 1851." M. Calvet made some inquiries relative to the milking qualities of Breton cows after removal to other districts. The third day's session was likewise presided over by Count Toustain. M. Chevalley delivered an address on the action of cold upon milk, in relation to the dairy manufacturers of the Tyrol valleys, where the old systems of manipulation have been abandoned in favor of the low temperature method. M. Delalonde, General Secretary of the Association, explained the nature of the effect of low temperature upon milk. M. Schmitz announced that an exhibition would shortly be given in Paris of the creamer worked by centrifugal force, invented by Messrs. Lefeldt & Lentsch, of Schoningen, in Brunswick, Germany. M. Evillard, delegate from Sarthe, made some interesting remarks on the general dairy interest of his department, on the process of raising cream, the methods of making butter, and the best breeds of dairy stock. He laid great stress upon the advantages offered by goats. He also urged the Association to encourage closer relations between producers and consumers, and concluded with the wish that the Association would provide for the education of women of Sarthe in dairy schools, where they might receive special instruction, and be treated with consideration. This terminated the proceedings, and the Congress was brought to a close by the President thanking, in the name of the Association, all who had taken part in the Congress, and the distinguished strangers who had attended; and expressing the feeling of grateful remembrance in which the occasion would always be treasured in his own memory. Similar courtesies were tendered and reciprocated at a grand banquet given the same week by the French Dairy Association.

Profits of Winter Dairying.

In the proceedings of the Eastern Pennsylvania Experimental Farm Club, Mr. Benjamin Swayne, as an experienced dairyman, stated that he was satisfied that the dairy interest or dairy department is the most profitable, and especially the winter dairy. He had kept a regular account of the money expended and received, and gave the figures of the proceeds of his (not large) dairy one year from the first of April, 1876, and he would take this opportunity to impress upon the members of his club the necessity of keeping a regular farm account. He started in the spring with seven cows, valued at \$336; afterwards purchased a heifer for \$40.50, and up to this time milking well. On the 13th of November purchased three cows more, making the total cost of cows \$556. He had fed 496 bushels of feed at a cost of 31 cents. He sold during the year one cow for \$25, ten calves for \$113, 1,853 pounds of butter at an average of 38 cents, ten cows on value at \$400. This gave him a profit of \$557.28 on the cows, not counting hay eaten or pasturage. He considered the manure increased in value to the amount of hay and grass eaten. He used a vault for his milk both winter and summer. He had not found it of any advantage to cut the hay or fodder. He fed both meal and hay, or fodder dry, and long feeding, about nine quarts of feed, one-third corn-meal and the other two-thirds wheat bran. Many members of the club expressed their minds upon the subject of feeding cows and were of the opinion that there was a saving of at least one-third in the amount of hay or fodder by cutting or steaming.

Butter packed in kegs made from white fir staves is said to have imparted to it neither taste nor smell. It is extensively used in California.