



For Uniformity and Symmetry Ayrshires Hold a Place That is All Their Own.

These three cows are all from the herd of Senator Owens, who made his first appearance at Toronto this year. The cow in the foreground, Dutchess of Montebello, was first in the mature milk class. Notice the splendid udders and good sized teats of all these cows; they exemplify the type desired in the Canadian showyard.—Photo by an editor of Farm and Dairy.

safest means whereby increased production may be brought about on average farms. No man should be satisfied with cows which produce less than 6,000 pounds of milk or 250 pounds of butter per cow yearly. Many dairy farmers are now adopting standards of 8,000 to 10,000 pounds of milk and 300 to 400 pounds of milk-fat a cow in a year. While cow-testing associations, official tests, etc., enable us to locate the unprofitable cows in our herds, these methods alone can never increase our production per acre or on our farms as a whole. This can be brought about in one way only—by breeding, which is both a science and an art. Unfortunately, we know very little as yet about the principles of breeding, but we are getting new light each year. One of the stumbling-blocks which has held back the breeding of improved dairy stock is that proverb or maxim so frequently quoted, "Like produces like." While there is an element of truth in the saying, the newer scientists are recognizing the great principle of variation.

Variation or "Mutation"

De Vries, a Dutch scientist, was the first to bring this principle forcibly to the attention of scientific men. He makes use of the term "mutation" when speaking of an inherited variation and the word "fluctuation" when referring to a non-inherited variation. Right at this point is a very important principle. The wise breeder needs to distinguish between "mutations" and "fluctuations." Too many of the "flash" producers of phenomenal records are but "fluctuations" without the power to transmit producing capacity to offspring. What we need among dairy stock are more "mutations" and animals possessing what we have called the power of transmitting "upward variation." In this connection there is room for one of the greatest studies to be found on any dairy farm or in any scientist's laboratory—using this term laboratory in a very wide sense.

Pasteur, the great French scientist, said: "Nothing is more agreeable to a man who has made science his career than to increase the number of discoveries, but his cup of joy is full when the result of his observations is put to immediate practical test." The foregoing observation was made soon after the system of pasteurization, which he had worked out, was applied with success on French farms for the preservation and improvement of the wine industries which had been threatened with extinction.

The same scientist left an inspiring motto for young men, when he said: "Work can be made into a pleasure and it alone is profitable to a man, to his country, to the world."

This brings me to a brief consideration of the last principle we shall consider at this time.

4. The man. After all, it is the man beside the cow, working for and with the cow, who largely determines success or failure on the dairy farm or in any line of dairy manufacture and commerce. "The greatest study of mankind is man." He is the least understood of all animals. Who can fathom him? This animal, called man, may be guilty of the most foolish, inconsistent, barbarous, inhuman acts, and for these he may be lauded to the skies. Other men will strive for a place in the sun, while his fellow-men will do everything possible to keep him in the shade and shadow. These latter also expect to be praised therefor. Others, again, have worked practically all their lives to find some principle that will help mankind in the upward struggle, while they themselves have received scant reward for their efforts.

The dairyman needs to be a Reader, a Thinker, a Worker, and above all, Clean. If he be a reader he will probably have seen the statement of an American cow scientist who wrote: "Large animals within a breed are on the whole preferable to small ones, and may be depended on to make both the largest and most economical production of dairy products." He may also have seen that wonderfully comprehensive definition of Heredity by Burbank: "Heredity is the sum of all the effects of all the environments of all past generations on the responsive ever-moving life forces." The same scientist's definition of environment is

enlightening: "Environment is the architect of heredity." Thoughts like these are stimulating to the Reader, and tend to make him a Thinker. Someone has said, "the best part of a man is all over his ears, because here is located his thinking tank." Booker Washington advised his fellow-countrymen not to put "a five-dollar hat on a ten-cent head."

Brain Power

Brain power is needed on our dairy farms—even more so than other kinds of power. Because brain power is the most expensive kind of power known to mankind it tends to gravitate to towns and cities where such power is more likely to be paid for at remunerative rates. Because farmers in the past have been content with cheap brain-service and because they think the farm will not sustain expensive grey matter, the tendency is for this expensive material to leave the farm. How cheap some people regard brains, may be gauged from the following advertisement clipped from a Toronto daily on December 19th, 1914: "Wanted, immediately, legally qualified, experienced Ontario school teacher, to tutor boy entering High School. Fifteen dollars per month and board and room."

The whole social and financial systems need reorganizing so as to make it profitable for the brightest minds to be connected with productive agriculture. When this condition is brought about, we shall see not only the fertility of farms increased, but large producing cows kept on our dairy farms, fed on scientific and economic rations. When all this is done, which includes the third quality of our dairyman, a Worker, he will demand a fair and just price for the goods produced. This involves a knowledge of the cost of production, which includes interest on capital invested, at current rates; running expenses or what the manufacturer terms "overhead charges," labor cost, and manager's salary, or what some term "Labor Income," for the owner. Gross cash returns of less than \$2,000 a year on an average 100-acre farm in Ontario, means, as a rule, loss to the owner. Dairy farming, as well as all other kinds of farming must be placed on a sound business basis if agriculture is to prosper as it should. The Chinese have a proverb that a nation is like a tree—agriculture is its root, manufactures and commerce are the branches and leaves; cut the root, the limbs and leaves wither, and the tree dies. In this country it would seem as if the roots of the national tree have grown in the wrong place—the branches and leaves are regarded as roots and receive most attention from the husbandmen who are caring for the tree called "Canada."

Sterility in Female Animals

The Causes and the Cures—When Curable

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BARRENNESS in females is not uncommon, and is often a source of great annoyance as well as financial loss to the owner. In some cases the cause is easily detected, while in others it is most obscure, and occasionally cases are found in which it is impossible to locate any cause. Sterility may be either transient or permanent; the former is curable, the latter incurable. Transient barrenness may arise from occlusion of the neck of the womb, due to chronic inflammatory processes, or to scarred strictures due to laceration during delivery of calf. Such cases are usually successfully treated by opening up the neck of the womb before breeding.

This operation should never be performed except when the animal is in heat; the hand and arm should be washed in warm water and then oiled, when with a little patient effort the arm can be forced into the vagina, when the neck or

opening into the womb can easily be felt. The smallest finger should be gradually forced through, then a larger, till the opening will admit the forefinger. Sometimes an opening cannot be made with the fingers, and an instrument has to be used, in which cases a veterinary surgeon should be consulted.

Causes

Stricture or tightening of the vagina will sometimes prevent conception in cows. This condition may be overcome by gently forcing the arm to the elbow into the passage and dilating it. Displacement of the womb, or the partial prolapse of the organ, or growths therein, are all causes of sterility, and as it is often difficult for even a man of experience to diagnose such cases exactly, the ordinary farmer would not be very likely to succeed, and in any case, when it came to treatment, a professional man would be

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