In the study of efficiency, there are certain evidences of its presence that are recognized by the trained mind in that which is being considered, whether and as are demonstrated by their actual relation between conformation and accomplishment in what constitute the type of the dairy cow. We are

View showing the wedge shaped conformation as viewed from front; from shoulder along top line to hips; from shoulder down over ribs and body and from hips to the rear an inverted wedge.

it be a man, a factory, a machine or a cow. Some of the evidences recognized by the eye are to be considered in this article as they apply to the dairy cow compelled to recognize this by results when we compare the different kinds that have been developed under diversified conditions, when the ultimate
results of feeding, breeding and selection will to the end be the economical production of milk. It is not the type that has developed the capacity to produce milk economically, but the intensified ability with its hereditary breeding powers that have produced the conformation of these animals, have made it their universal formation and thus standardized the type, and when we allow this to be the fact, we must now take this as a base to select and maintain our efficiency of dairy herds.

Dairy Conformation

The first indications of the pictures as the outstanding features of these cows that are in common are the clear-cut conformation, good size, lack of any superfluous meat, with a strong bony frame, neatly put together and in such a manner as to insure a capacity for cramming and assimilating a large amount of food, and then a good indication of a milk manufacturing plant with a good creative and transformative

A clean-cut, well defined head, broad between eyes, and full, good eye, clear and bright, but not wild and nervous; open nostril, wide muzzle, with a strong jaw.
system, with health and vigor. These things we take in as we make the first general survey of the cow and they constitute the type of the dairy cow. But to study this type further, we must analyze it and take up her specific men and the udder should indicate a greater depth through from the rump.

Then as a front view, we notice good, wide chest, with a gradual widening through the body to the paunch. This should show a well filled and dis-

A clean udder, well attached at rear, broad and deep. No meatiness but capacity for manufacturing milk and butter fat.

conformation as it is and why, with results.

We naturally look to the body first, as it is the larger portion, and from the side view we notice the wedge shape, first, starting with the chest as the point, it gradually deepens through the abdo-
tended body conformation, and on top line a close, clear, sharp shoulder, and as we view the top line a gradual widening as the ribs spring from the back as they near the loins and thus the hip bones set out as a base of the wedge, and thus as we look above,
down on the side of this wedge, we notice it develops another thought—the body, chest and abdomen.

This gives the general outline of the body, but some more specific points yet to be considered, at the chest it must indicate plenty of room for those vital organs, the heart and lungs, which are so important in the dairy cow, as in her work more blood and necessarily more air must be mixed in for in here is a big factory, manufacturing out of the rough and concentrated foods and water such elements as may be transported by the blood to the body for their needs and to the udder the elements to make into milk, and here the more of this work that can be accomplished the bigger producer our cow should be.

The loins are broad and well supported, giving plenty of support for her lungs than in the lungs of any of the rest of our animals. With size considered, that means plenty of depth and width.

Then the back must be strong with a long, well spread vertebra, indicating a strong nervous make-up, also making a good roomy body. The ribs, while not as flat as a beef conformation, yet coming out well and broad, making a large barrel and well spread, giving plenty of give and take in this barrel, the foetus and good connection to the fore body with the rear parts. Here we come to the supporting frame of the udder. The hips should be wide apart, with plenty of width extending back to the pin bones, with an arched rump to give room and strength.

As we come down to the udder, the real milk factory, we find first plenty of room to denote capacity and ability, then the conformation is one well attached in all directions, from front,
back and high up between the thighs, with plenty of width, both in fore udders and rear, and here is where the thin thighs and wide-set limbs give room for the udder. The attachment should be firm and even, and avoid a loose and pendulous attachment, with no fleshiness or meatiness beyond a necessary sufficient amount of frame to load up the supplies of the milk-making elements between periods of secretion, the lower parts four well placed, well shaped and easily operated teats.

The veining of the udder should be prominent, its texture very pliable, with a looseness of the skin and a softness that indicates a good circulation, which should be noticed by thin, not papery, but pliable with good secretion; the hair soft, not long and wiry; the milk veins large and branching, with wells large giving plenty of carrying capacity for the blood flow from the udder.

A similar neat and out-standing nervous system should be shown in the face and head, which should be of a size in conformity with the body, set on a clean neck. The face should be broad between the eyes, with good indication of plenty of brain development; nostrils that are capacious, with a clean-cut appearance, also a muzzle that is broad and strong in connection with a strong, well muscled jaw. The eyes indicate a good deal; they should be bright and alert, clear, but not staring or wild.

With all these individual features of the dairy cow, we must have them harmonize and mingle in a symmetrical conclusion that precludes all description and can only be appreciated by one who studies them in an entirety and then appreciates the uniform coincidence of production and dairy type.

Grade Jersey Cow Lassie, owned by G. B. Newcome, Tomah, Wis., a 7-8 Jersey produced from common stock by the use of good sires. What a farmer’s cow may be.
DISCUSSION.

Supt. Norgord—Do you think it is possible by selecting from the dairy type and dairy conformation, by means of the Babcock tester and the scales, getting the total production of each cow, to combine pretty continually the dairy type and production so that we will be more and more able to select the highest producing cow by the dairy type?

Mr. Wyatt—That is a point I have tried to illustrate with these pictures this afternoon, showing the relative type as we have it developed in the different breeds, showing the cows themselves that have gained big records, and then the matter of different conformation as a result as shown by weighing and the Babcock test.

A Member—Do you find that the judges in the show ring always recognize these things? Isn’t it a fact that those high producing cows are put at the foot of the list by our judges often?

Mr. Wyatt—That may be the case where the judges are judging from fancy points, but where we have sensible judges, the two combine very closely.

Supt. Norgord—Isn’t it a fact that you find more high producing cows on the average from cows that belong to what we call a dairy type than those off from the dairy type?

Mr. Wyatt—Yes, among several hundred records that has been proven.

A Member—Then we should look for the dairy type in buying cattle, even though some good cattle are found outside of that type?

Mr. Wyatt—Some of these cows that have produced these big records have had special lines of points that will not conform entirely to the type of the dairy cow, and some of those cows were not strong breeders either; but when we put the two together, we have the ideal con-
dition, linking together the type and the production.

A Member—Isn’t it a fact that the best show cows have made very small records, I refer to the show type, not to what we call the dairy type? As a whole, haven’t they made very small records, both for short time and long time tests?

Mr. Wyatt—I haven’t the figures, but I have noticed the judging in several rings where the judges’ decisions were in the same order as the record of butter production placed them. Furthermore, many of these cows that have won these prizes, if they had been given the opportunity to demonstrate their ability have not produced the highest records, though they have produced very satisfactory results.

Supt. Norgord—Isn’t it a fact that every one of the world’s champion cows has had a good large barrel, good capacity, a pretty fair sized, well developed udder and good milk veins? That they have had the main points that stand out and indicate a good food-consuming and milk-producing machine?

Mr. Wyatt—Yes, they have had to have all those things to do the work of necessity.

Chairman Imrie—In other words, you have to have the machine to fit the type, just as in going through this automobile factory out here every machine for its place and to fit the type has to be a machine of wonderful development. It must be there.

Mr. David Imrie—At the Minnesota State Fair, looking at the show animals, I asked for a certain bull, and they said, No, he isn’t a show bull, but everything along this line is his. It seems to me there must be something wrong when all of his stock was there but he couldn’t be there because he wasn’t a show bull.

Mr. Wyatt—We have many of the best bulls that breed that have never done anything for themselves in that
FOOT-AND-MOUTH DISEASE

Herbert Lothe, D. V. M., College of Agriculture.

Foot-and-mouth disease, a most dreaded malady of animals, is paying the United States its sixth visit. Outbreaks occurred in 1870, 1880, 1884, 1902, 1908 and the last and most extensive of all during the fall and winter of 1914.

Definition

Foot-and-mouth disease, or aphthous fever as it is technically called, is an acute, highly contagious disease, affecting principally cattle: (hogs, sheep, goats and other cloven footed animals and sometimes man are also affected). It is characterized by fever and accompanied by the eruption of vesicles or blisters on the mucous membrane of the mouth and on the skin between the toes and immediately above the hoofs.

Cause

The cause of foot-and-mouth disease is not known; that is, the germ causing it has never been seen or grown outside the animal body as has that of many other diseases, such as typhoid fever and diphtheria of man and anthrax and blackleg of cattle. We do know it is contagious, for we can see it spread from animal to animal, which fact leads us to think that foot-and-mouth disease is caused by a germ, for all other con-