no more to raise a good calf than a poor one, and any that are worth keeping at all are worth keeping well. Keep your cows protected from cold and storms in winter, give them warm stables, with good ventilation, and furnish them with plenty of water at all times where they can reach it without much travel. Feed regularly, and vary feed according to the season. Light, nitrogenous food, as bran in summer, while the cow is feeding on grass, and more heavy carbonaceous food, as shorts and corn, mixed, in fall and winter. Bran and oats mixed for spring feed, to thin the blood and avoid fever, and vary at all times to suit the nature and condition of the stock you are raising. Milk regularly, carefully and thoroughly, and you will find that good dairy cows, well selected, well fed, and well cared for, will pay a ten per cent. profit, even in hard times.

DISCUSSION.

Question — You speak of the mirror that a good dairy cow should have, a broad milk mirror?

Answer — Yes, it is generally considered to be one of the marks of a good cow.

Question — How many of these marks are there? It is the important question in the selection of a dairy cow. How many mirrors are there on a milch cow?

Answer — I am not prepared to answer that.

Question — There are sixty-four. There are eight classes, and eight in a class. It is the average rule that the cow with the broad mirror gives the greatest quantity of milk. This Flander cow that he speaks of, was driven to pasture by a poor boy, and one day, he noticed the dandruff on the mirror, and he began to scrape it off. He knew the cow was good for butter, and he commenced studying up that question. He saw the other boys' cows were different, and from that point he found out how much a cow would give, from her mirror. And the French experimental farm tested him, until he made it so perfect, that they gave him a premium, and gave his theory and experiments to the world. This was over forty years ago, and it was published and
sent to the United States government by our minister at that time, and several New York agricultural papers had it published. Forty years ago I studied it, and now I can say to you the larger that a milk mirror is, and the richer the dandruff is, the richer the cream.

Mr. Hiram Smith — My impression is that there have been grave doubts about this matter of the milk mirror. I should like Prof. Arnold’s views in regard to the dairy form of the cow, and in regard particularly to this milk mirror, that is relied on by so many.

Prof. Arnold — Well, I have no objections to giving my views of the general form of the dairy cow. I never believed in signs even when I was a boy, that had no connection with significance. I never planted potatoes in the full moon, nor weaned my children because the signs were present. Signs to be of any importance must have some connection with the things signified.

Now the form of a cow has some reference in her milk-giving qualities as it has to her powers of duration or her general constitution. When I look at a milch cow, the first thing I take into consideration is, has she got a good big stomach. She has got to make her milk, the butter and the cheese out of the food she can eat and digest, and she must eat and digest more than enough to support her body or she will not be able to give much to me. For that reason I look at her digestive capacity as the first essential. I see that she has a large stomach, she can take in a good lot of feed and digest it. Her ability to digest I judge from the general appearance of her coat and her eye and the size of her chest. If the animal has a dull expression to her eye and her coat, you may know she is not a very full feeder, because if she is, the pupils will distend the surface and she will be active and bright. I am pretty sure to go behind her and look at her mirror, but still I have never been able to trace any connection between that mirror and the milk-giving power. I don’t know but it is all fancy, but I do notice that the largest milkers are sure to have a large mirror. But, on the contrary, I find cows frequently that give large messes of milk and rich milk that have a small mirror. It has
been stated that this milk is the result of the arteries which supply that portion of the body with blood, and that is true generally with the animal economy; it shows that a large amount of milk flows to the udder and these arteries flow towards the udder from the back side. But suppose that it does indicate the amount of blood that flows into the udder, it can not of itself be a safe guide to determine the qualities of the cow, because there are so many other modifying circumstances that come in. The mirror is not going to save her if she has not the other qualities.

I also look at a cow’s mouth. When we have a cavity to be filled, the apperture to the cavity is an indication of the space we have got to fill. When you see a cow with a good broad mouth and thick lips it is an indication that she uses them a good deal. It is just so with the wide, open nostrils, she takes in a great deal of air. A person with a large mouth generally has a large stomach. The other forms, the broad hips giving capacity for the udder, and various other indications having the feminine look, the feminine form, are valuable indications. So the wedge-shape has an important bearing because the cow will not use up so much of the force of her feed in exercising if she has comparatively smaller heart and lungs than she has stomach. A cow that has a large heart and lungs will be active, stir around a great deal and use up the force of her feed in that way instead of converting it into milk. A cow that is a little sluggish gives the most milk for that reason. I cannot see any connection between the slim horn and the flat leg, yet most everybody wants them.

Question — Don’t they show good breeding?

Answer — It shows flat-legged breeding. I cannot see any connection in the form of the bone with the milk.

Question — Isn’t it true that no food can be digested until it is warmed up to a certain extent? Now, where do you get the heat, only from the lungs, together with the carbon? What is the big stomach to do with the food it takes in unless you have big lungs to take in oxygen to produce heat to cook it; isn’t that a true theory?
Answer — No, not exactly. You are asking a little too much of a good thing. You want heat enough to warm the feed and keep the cow warm, sustain her temperature, but you do not want an excess, to keep her making more heat than she has occasion to use, and develop force so she has got to stir around some way to drive it off, get rid of it.

Question. I ask if the lungs and stomach should not be in proportion?

Answer — They should be in proportion, but I would have the stomach rather the larger of the two.

Mr. Adams — This whole talk has been made upon the supposition that the lung power depends upon the size of the lungs. Is that a correct supposition?

Answer — Not any more than the size of a stick of timber is indicative of its strength.

Question — Is not the arterial circulation of as great importance as the lungs in the distribution of the oxygen?

Answer — Certainly., You want enough to give a good figure and growth, but no extreme development.

Mr. Faville — About this milk mirror, I want to say, the best milk mirror I have ever seen is a fine show in the pail. I never have seen a man but could tell a fine cow better after he had milked her a year, than he could by looking at all the mirrors she had got.

THE FEED AND THE COW.

By Hon. H. C. Adams, Madison.

I shall speak of the butter cow only. If I use positive, dogmatic terms, it is because they are concise. The butter cow has a feminine head. The bull head has no proper place anywhere in cow economy, on either male or female. The next point in importance is the udder. It should, not must, be stretched well over the lower line of the body; it should be broad at the base, between the flanks, and when empty should look as small as the pocket-book of the innocent who is ransacking creation for the general purpose cow. Large milk veins indicate a large milk yield. A soft, yellow.