have no pedigree, having been forged into the herd book.

We would advise you to pay special attention to honest performances, to test your own stock, weeding out all unprofitable animals, and if you can find an unusually profitable animal with an honest pedigree, cling to it for all it is worth.

Has Science Come to the Aid of Stock Feeders?

The season has now arrived when the greatest economy should be exercised in the feeding of stock, and every useful system should be taken advantage of. The time is also at hand when the question will be discussed by scientific professors at the Farmers' Institutes. We listened to some of the lectures of these professors, and we noted some objections which we deem it our duty to state in the interests of all farmers who are earnestly seeking after truth. A lecturer on scientific cattle feeding has also been sent around by the Government under the auspices of our Dairymen's Association, who has fallen into the same blunders as the professors.

It is a very inconsistent proceeding on the part of our Government that they should send around professors from the agricultural college to teach farmers scientific feeding, while the practical method is still maintained on the Model Farm, and the authorities, whoever they may be (we suppose the Advisory Board is now responsible), should be called upon to explain. Even the feeding experiments at the Model Farm are conducted on a sort of practical scale—in such a manner that science has proved them to be absurd. If the College professors are right, the Farm should be abolished; and if the Farm professors are right, the College should be abolished.

Science has done a great deal for the cattle feeder, but it is better that he should have remained perfectly ignorant of the fact than that it should be boomed up for more than it is worth. Unless extreme caution and superior judgment go with the science, more harm than good will be the result. Science has not clashed with the best practice in the economies of stock-feeding, and it is therefore reasonable to suppose that the former, when it goes ahead of the latter, is to be relied on, especially when it is known that the science is based on the most accurate forms of practice; for we find that the truths of science are the results of elaborate practical experiments in which all the known conditions are carefully weighed.

The basis of scientific valuation is the chemical composition of the foods. Any given product is divided into two leading heads, viz., flesh-formers (albuminoids) and heat-producers (carbo-hydrates). The former are nitrogenous compounds, and the latter, which include the fat, starch and sugar, serve for the support of fat, respiration and heat—although the former, when the latter are deficient, slowly decompose into fat, at the same time producing respiration and heat. It has been found by experience that any ration which contains one part of the flesh-formers to five or six parts of the heat-producers brings out the best and most economical results in the production of beef, dairy products or labor, and that a ratio of one to twelve or thirteen merely sustains life without increase. By these estimates, the foods rich in flesh-formers are the scarcest and most expensive, which closely conforms to ordinary experience and market prices. From these principles, it appeals to our reason that the feeding value of any food cannot be known until its place in the ration be ascertained; a food which produces profitable results in one ration may be unprofitable in another, the greatest profits being in the best balanced rations. For example, a food rich in flesh-formers will not be economical except when fed in a ration rich in fat-producers. The Model Farm has ignored these principles which are taught in the College, and has sought to prove that one cereal or root is better than another for feeding purposes generally, whereas it can be made better or worse according to the other foods in the ration.

The objections which we raise to the above named scientific lectures are these: The professors are far too arbitrary in their demands. It is plain that scientific feeding will never be a success until a more correct idea of analyses of the foods be known, which is as yet unattainable at the Model Farm, much less so by our farmers. The professors base their calculations on German feeding standards, and it is well known that the chemical analysis varies very materially in different soils, countries and climates. A heavy, or well manured, soil produces much richer foods than light or poor soils, and the geological formation from which the soil is derived materially affects the composition of the plants which grow thereon. There is also as much variation in the individual character of the animal as there is in the composition of the crop, and there are many other circumstances which tend to lessen practical value of applied science. In the by-products, such as bran, oil cake, etc., there is still greater scope for discretion, as one process of separation leaves the product richer than another, or poorer, as the case may be, and in the feeding of cooked foods the question becomes so complicated that we question if any of our professors can solve the problem.

The time and money which our farmers spend in obtaining these scientific lectures are thrown away—at least for the present. When our farmers begin to understand the effects of soils, manures, temperatures, method of harvesting, etc., upon the composition of their crops, and the various other conditions which change the agricultural values, with the exercise of sound judgment and practical experience, they will learn how to economize in the feeding of their stock. They should know nothing about scientific cattle feeding until they learn the nature and composition of soils and manures, and these are questions which they can turn into immediate practical account in all their operations in husbandry.

Feeding Work-Horses.

The following methods of feeding working horses, taken from a report in the "Country Gentleman," illustrates the differences of opinion existing between practical feeders in companies where a large number of horses are kept. The investigation arose from a demand for the necessary information, occasioned by the death of valuable horses from careless and ignorant feeding. These companies, although their methods differ in detail, seldom have sick or dying horses. The report reads as follows:

"You can't lay any rules down about feeding horses," remarked the proprietor of one of the largest livery stables in the city. "For different horses you require a change in the method of feeding. Large horses require more feed than small horses, and horses that work hard more than those that do little. But take a horse in good health, and, the quantity of food being regulated by the amount of work he does, I find that the best feed is oats twice a day with cut feed once a day. The latter is composed of corn meal, bran and cut hay mixed together. There is no necessity of feeding horses warm food unless they are sick, and while there are a great many kinds of horse feed invented and placed on the market, yet, like human food, the staple articles remain unchanged and form the best and most important element in the feeding of horses. If people allow themselves to be gulled into buying all kinds of concoctions and giving them to their horses, they have a perfect right to do so, but they ought not to complain if their horses become sick. There are no substitutes for hay, oats and corn. Now the latter is, in my opinion, rather too heating to be used much as feed during the summer, but I use it during the winter. There is no great secret in the way of feeding horses. All that is needed is to follow the plain simple rules and not adopt the suggestions of every one who comes along. A horse after all is much like a human being, and is apt to get sick from pretty much the same causes. If a man treats his horses as well as he does himself, the animal, as a rule, will get along very well. But this would not be a general rule."

THE METROPOLITAN RAILROAD HORSES.

The horses of the Metropolitan street railway are in good condition, in spite of the hard work which is their lot. It is supposed to be the most trying life which a horse can lead, and, as a rule, a few years' time uses up the best horse. This natural result, however, is overcome in this instance to a large extent by careful and judicious treatment. "We feed our horses," said Mr. Pearson, the president of the road, "on a mixture of corn, oats and hay, ground separately and then mixed. We find that this is the best food, and in the end the cheapest. There is no change of diet except in cases of sickness, and then the horses are physicked much as human beings are whose systems are out of order. We feed no long hay, because a great portion of hay thus eaten is lodged in the crop, and does not reach the stomach at all. You never heard of a racing horse being fed uncut hay. It interferes with their wind, and so of all horses that are used on the road where speed is a consideration. In the case of car horses, it is necessary that they should be kept going. For instance, on this road a horse works three hours and a half per day and goes sixteen miles. This is a day's work. Of course this three hours and a half is not continuous. There are short intervals of rest. But by feeding our horses three times a day with this feed and cleaning them well, we are able to keep them in good condition and make them useful for years."

THE FIRE DEPARTMENT HORSES.

"We feed on oats principally," said Chief Engineer Cronin of the fire department, speaking of the horses of the department. "We feed on oats and enough chopped feed to keep the bowels open."

"Do you feed any long or uncut hay?"

"We give the horse six or eight pounds to stand to at night, but the principal feed is oats; no corn meal. We give a horse a peck and a quarter or a peck and a half of oats a day; we feed them three times a day—morning, noon and night—giving them about half a peck each time. Then we give them chopped hay two or three days in a week. We feed our horses very much as race horses are fed. Our veterinary says that oats are best. You will find that the flesh of our horses is very solid. Oats make solid flesh and bone and muscle. Our horses, when they work, have to expend in a short time as much energy as other horses expend in a whole day's work. We could not feed our horses on chopped feed, as I understand some street railroad companies do. It might do for their horses, but it would not do for ours. Half a peck of oats in a horse's stomach is not like