

one of the large exhibitions, unless it be the Industrial, were the classes filled sufficiently to capture all the prizes, and in many instances the prizes, if given at all, must needs be given to animals not at all high in the order of merit.

This does not arise from any weakness in the prize-lists, for these are now about as good as during those auspicious times when the great fat ox was regarded as the feature of the exhibition, nor is it that people are giving up meat eating and addicting themselves to vegetarian habits. The questions naturally arise, what has led to the change, and is it a change in the right direction? The answer to the first question will have a very direct bearing on the answer to the second. The lessons of the fat stock shows themselves have done more, perhaps, to drive away these aged giants than anything else. They have brought home to the farmer with much directness the folly of wasting feed on steers in preparing them for the shows or for market, beyond the age of three years. Some of them may have known this years ago, but not in the way in which they view it now in this calculating age of weigh-scales and records of daily gains. The price of beef is lower than it was in years gone by, and the price of cheese and butter are quite as good, if not even better. The idea has gone abroad, and no doubt rightly for the present, that these pay better, which has led many to abandon feeding steers and to become patrons of the creamery or the cheese factory.

While we rejoice in the attention given to the two latter rising industries, we shall regret to notice any tokens of decay in the former. The Anglo-Saxon races are not going to substitute butter and cheese for beef altogether, even in this esthetic age. There is every reason for believing that they will want beef as long as the world lasts, and that they will want it good. The prices of meat may not be altogether satisfactory now, but these are not going to continue so through all time. Prices, like variations of the waves, oscillate; at one time they are crest high at another trough low, and so they come and go amid the changes of the years.

Let those, then, who have been in the habit of turning off a good bunch of steers every year, think twice before they give up the practice. They have facilities for doing it that others may not have, and so can do it more cheaply and more effectively. It has proved a fair thing for the farmer's land wherever tried, and until recent years it was a fine thing for the farmer's pocket. Those who do not realize from the business now, should make a change with the utmost caution. No one excels in many branches, even of the same business, hence the successful producer of meat cannot be sure that he will be an equally successful producer of milk and butter until he has tried this, and proved it for himself.

It takes time to bring about changes in any live-stock department, and unless skilfully done, will entail more or less of loss either in the selling or the buying. By the time that the new industry is fairly launched, probably the old one will have revived and will then give better returns than the other. Continuity of purpose during a term of years is usually rewarded, while change is always attended with hazard, and more so in the case of those whose days may be in the yellow leaf. We have grand facilities for producing a fine class of beef in this country, and shall we not continue to do what we have proved ourselves so well capable of doing in the face of a world's competition, backed up by the rich nutrition of even prairie grasses?

We frankly admit that it is not wise to offer prize money for fat aged beast of any breed. It would

probably be wiser to take them off in the aged classes and to offer additional prizes for those that are younger.

At all events we think it very unwise to cease to make meat-raising one of the most prominent of our industries, both for the reasons that are given and for many that have not been given. The breeders of other than Shorthorn cattle should not lose the opportunity afforded them by the exhibitions of shewing what their favorites are capable of doing. If they are to become important factors in our meat production, we cannot conceive of a more direct way of bringing them before the notice of the public than by showing them pure or crossed in the fat classes of all our exhibitions.

Why Burn Food Wastefully?

Coursing through the animal body, that genial current, the blood, replete with nutritive material and its minute corpuscles laden with oxygen, it glides through minute capillaries to the uttermost extremities of the body. Tissue already stored up in the animal is decomposed, and diffusing into the blood it comes in contact with these oxygen carriers, and as a final result heat is evolved. For the rebuilding of this used tissue food is necessary, and thus it is that an animal in a cold stable will use more food to keep up its vitality than one that is stabled in warm, comfortable quarters.

The normal temperature of the cow or horse ranges from 99° to 101° Fah. Any variation of even 2° Fah., either up or down, indicates that disease is present. Thus they differ from what are termed cold-blooded animals, such as frogs, etc., as the temperature of these vary with the medium in which they live.

Placed in a stable heated above the temperature of the blood, the animal sweats and is cooled by the consequent evaporation. Thirstiness is then felt, and this feeling is only satisfied when the blood regains that water it lost in the process of sweating. It is not to cool the blood that we satisfy our thirst, but to replace the water that has been evaporated.

If the temperature of the stable is about zero, then the cow has to burn up sufficient food in her body to sustain her temperature, which is at least 100° Fah. Cannot this be done more economically, by making the stable warm, which is comparatively more lasting in its effect, than to be continually supplying food for this purpose? But not only that. If a cow, part of her energies are diverted from the production of milk, and if a steer, that fat which should go to increase the animal's weight is used up to produce animal heat.

Is it better to crowd the cows as close as possible that they may live in a tainted atmosphere, and make them warm a stable rather than the stable warm them?

Experience and science both combat this false and hurtful idea that possesses some, though happily few. Brother to this is the thought that a cold atmosphere must be purer than a warm one, simply on account of its coldness. Crowd animals in an unventilated stable, and be it cold or warm, it will become tainted and polluted.

Agriculture in our Rural Schools.

(Continued from October.)

This paper was read by the previous editor at the annual convention of the Teachers' Association, held in Toronto, 16th August, 1888.

It is very evident the author of this book will have no easy task. He must be a thorough master of his subject and cunning in the art of book-making above most of his fellows. Such a one will indeed be a public benefactor. Show me the man who has successfully accomplished the task and I will show you

the man worthy of double honor. He it is who should wear the lordly apparel and the garland of dignity, and before whom it is meet they should cry as they lead along his lordly steed through the public places, behold the man whom the Government and all Ontario delights to honor!

In the general directions of the departmental regulations I find the following in reference to the use of the authorized agricultural text book: "Special attention should be given to such points as, how plants grow and what they feed upon; how farms are beautified and cultivated; the value of shade trees; what trees to plant and when to plant them; the relation of agriculture to other pursuits; the effect of climate on the habits of a people; poetical selections on rural subjects; talks on natural history, should form part of the instruction of every Friday afternoon." I don't know who wrote these regulations, but with all due deference to the gentleman, I fear he was a book farmer. It is very well to know "how plants grow and what they feed upon," and something of this should be embodied in the text-book. Nor is it unimportant to know how to beautify farms, but less so than to know how to make them profitable. "The relation of agriculture to other pursuits," and "the effects of climate on the habits of a people," are not of little moment, but the study of these is certainly better adapted to maturer minds. The "poetical selections on rural subjects" I would relegate to the farmer's fireside, and leave the "talks on natural history" as part of the Friday afternoon exercises.

In the compilation of our text-book it should never be forgotten that the large majority of those who study it will never attend a higher school, and therefore the overwhelming importance of having it filled brimful of knowledge that is intensely practical.

I need scarcely dwell here upon the best mode of teaching it, for this has been already indicated. To my mind the mode of imparting and impressing truth by question and answer is much more effective than by means of the lecture. The first method compels some measure of attention, and is a sure gauge of the degree of interest taken by the pupil, while the latter gives unlimited latitude to listlessness and abstraction. Such a work would of necessity be adapted only to the higher forms, but children in the lower might be reached by an occasional lesson in the reading books on some feature of the great, grand science. Why wouldn't a reading lesson on the art of butter-making, free from all scientific technicalities, prove of immense service to the maidens and future matrons of the farm, and what harm would it do to any one? I am not one of those who find pleasure in saying that the former days were better than these, but the grateful memories that linger around the reading books of the old national series lead me to say this, that they were not only useful as text books to teach reading, but were at the same time replete with information on useful subjects. In that respect they excelled the readers of to-day, which have scarcely one lesson where reference is made to agriculture.

The relative importance to agriculture has already been touched upon in an incidental way. Its relation to other callings is not obscure. It is to these what rain and the sun are to agriculture. In most countries the measure of agricultural prosperity is the measure also of the prosperity of the artisan, the mechanic and the manufacturer, and of the professions as well. It is the oil and wine that mollifies the festering wounds of depressed business periods, and brings about more auspicious times. Improved agriculture means higher pay to workmen generally, whether handling matter or mind. Teachers of schools will form no exception; therefore, viewing the matter in the low light of self-interest, they should be diligent in teaching this subject. And because of its beneficial reflex influences upon all other material interests, the educational authorities should be diligent in procuring suitable text books.

The communities to whom agriculture may be taught should be clearly defined. It is surely reasonable that teaching it should be obligatory in all rural public schools, if the teaching of any other branches is made obligatory, for all dwellers in the country are more or less directly interested. In villages it might be left optional with the parents whether their children should study it, and in towns and cities with the school boards whether it should be taught at all.

It is quite possible that all the landmarks that fix the limit of its claims upon other classes may not be very easily pointed out. That agriculture has claims upon the favorable consideration of the whole com-