first three or four days. If the calf takes but little milk, the cow can be made comfortable by its attendant also drawing a little milk from the udder at fairly short intervals. Never milk a cow dry until the calf is at least three days old, and she will not suffer, nor will you, from milk fever."

Good Water Means Good Butter.

For some time past Prof. McKay and Mr. Larsen, of the Iowa Agricultural College, have been studying the effects of pasteurized and unpasteurized wash-water upon the keeping qualities of butter. The water used was from the deep college well, and is considerably purer than water used at an average creamery, and the results of the experiment are all the more pointed on this account. It is also evident that the very best of water contains germs which injure the keeping quality of butter. The results of the experiments are thus summarized :

Water contains germs which cause butter to deteriorate in quality.

These germs can be removed or destroyed in a practical and inexpensive way by two processes, viz., pasteurization and filtration.

Butter washed in pasteurized wash-water will keep normal much longer than the same butter washed in unpasteurized water.

Butter made from pasteurized cream and washed in pasteurized water retains its normal flavor about twice as long as butter made from unpasteurized water.

Butter made from pasteurized cream and washed in pasteurized water retains its normal flavor about twice as long as butter made from unpasteurized cream and wash-water.

Unwashed butter made from good and well-ripened cream keeps as well, and in some instances better, than the same butter when washed in unpasteurized water.

Salt improves the keeping quality of butter.

It pays to pasteurize the wash-water as well as the cream. The cost of pasteurization of milk and water after pasteurizer has been purchased is about .1 of a cent per pound of butter. The amount gained per pound of butter by pasteurization when the butter is about a month old, is .8 of a cent, leaving a profit of .7 of a cent per pound of butter.

Butter of medium firmness loses about 3 per cent. of moisture for every revolution it is worked in excess.

"Aroma" in Butter Judging.

Through the advocacy of Chief F. D. Coburn, of the Department of Live Stock at the St. Louis World's Fair, in the face of considerable opposition, the butter made there next year during the proposed cow demonstration will be judged by giving a possible credit of 15 points in a total score of 100 to "aroma" and 30 to "flavor," instead of ignoring the element of smell or aroma and giving a possible of 45 points to flavor alone. Chief Taylor, of the Department of Agriculture, under whose supervision the butter will be made and judged, is heartily in favor of recognizing aroma, and the representatives of the different breeders' associations furnishing cows for the test are said to be unanimously for it.

Horticulture and Forestry.

The Horticultural Show.

The Western Horticultural Society's annual show will be held in the Auditorium, Winnipeg, from August 26th to 28th. Entries close on the 24th. There are four thousand square feet of table space prepared for the exhibits. Indian Head and Brandon Experimental Farms will contribute largely; also Mr. A. P. Stephenson, of Nelson, and others. Mr. Harry Brown, of Brandon, will be in charge.

The Manitoba Beekeepers will meet at that time, and will also make an exhibit of honey.

A Preferential Spirit.

Charles F. Ferguson, a wealthy fruit-grower of Los Angeles, California, who has been in Great Britain for six months selling California fruits for shipment via Boston and New York, reports that the market for grapes, peaches and oranges, which California growers formerly controlled in the Old Country, is not now as good as it used to be, and he accounts for this by the fact that English fruit-dealers seem to prefer the Jamaica or the Florida orange, and are learning to buy their other fruits, such as peaches and grapes, from growers in the Ontario Peninsula.

He found a good deal of difficulty in disposing of California fruit to dealers who formerly purchased that article almost exclusively, and he says that if the present rate of progress continues, Canada will, in the near future, supply Great Britain with all the varieties of fruit grown here, as she does now with cheese. Canada is exceptionally well thought of in Great Britain, and the representatives of United States firms, in consequence, labor under a very considerable difficulty.

"English buyers," said Mr. Ferguson, "will patronize a Canadian firm in preference to an American firm every time, and therein is our principal difficulty."

PLOWING.

Mr. Colin Murchison's teams plowing, Carberry.

The Study of Insects.

BY PERCY B. GREGSON, PRESIDENT TERRITORIAL ENTOMOLOGICAL SOCIETY, BLACKFALDS, ALTA.

Of all pursuits in which we may engage, there is none more enduring in pleasure than that of the study of insects. It is a pursuit which never palls, and is attractive to old folks equally with the young, and in truth becomes more and more fascinating as a knowledge of insect life is gained. There is so much to learn from insects, and such an infinite variety of characteristics, that one might almost shrink from taking up such a study ; but it is this very variety which lends to us its charm.

In this paper I can touch only on an infinitesimal part of insect life, but I shall try to show something of the interest this subject possesses. Every boy and girl is fond of collecting something, and if the study of insects were to be cultivated, it would never be abandoned in after years. I know of several farmers' sons—strapping fellows—who are not ashamed to be seen studying insects, and there is no reason why they should. We have passed the time when such a pursuit was ridiculed. There is in the commonest insect something worth knowing. Take the ordinary life-round of a butterfly for example. If we watch one we shall find that that kind only settles on certain kinds of plants, and other butterflies on other kinds of plants; and so with beetles, some choose one kind and some another kind of food, for the female, by an unerring foresight, will only lay her eggs on the food suitable for the existence of the caterpillar or grub of its species. This rule of selection of food applies to all insects, so that in the case of leaf-eating insects, a simple inspection of the damaged plant will, in most cases, be a sufficient clue to show what kind of insect has attacked it, without the insect even having been seen. Every kind of insect has its own fixed habit and characteristic, and those that eat plant leaves will never eat roots. A Colorado potato-beetle will not eat turnip leaves, an onion-root maggot will never eat potatoes, though growing side by side; an ox bot-fly will never attack a horse, a bird louse will never trouble a pig, nor a carrion fly a healthy animal, and yet everything is liable to be preyed on by some particular class of insect—cattle, horses, birds, bees, grain, garden produce, grasses, trees, flowers, household goods, flour, bacon, cheese, meat, rice, woollens and furs, books, paper, even medicines, Cayenne pepper, baking powder, iron piping, tobacco, minerals : all these are devoured by some insect or other.

But infinite as the variety of insects seems, their eggs are just as varied in their shapes and markings, for besides dissimilarity in shape, they are for the most part externally ornamented with a variety of such beautiful figures, compared with which the work of the most skilled engraver would be coarse and uncouth. Some eggs are figured on one side and plain on the other; some are always orbicular, some always cylindrical; others are shaped like a flask, and others indented; some are covered with hexagonal reticulations, some ribbed; some are covered by imbricated scales, like shingles or tiles of a roof; of course, all very minute, and requiring the aid of a lens to observe.

A remarkable circumstance connected with the eggs of insects is the intensity of cold the eggs will stand, the vital principle in the eggs of many insects not being destroyed by a very low temperature. It is also interesting to notice that different orders and species vary greatly in the number of eggs which they produce. In some cases 500 is the maximum number, but in others, of which the queen bee may be taken as an example, as many as 2,419,200 have been known to be deposited in a single season.

The next stage in the life-round of an insect is the caterpillar or grub, which emerges from the egg. These are fashioned in as great a variety as the fully-developed insect which they represent. The proper and scientific term for this stage is "larva" (plural larvæ), meaning a mask, because the real insect is now under a mask. The larvæ are extremely small when they first issue from the egg but they grow rapidly and to a great size in proportion to their original bulk. The maggot of the blue (or blow) fly is in 24 hours one hundred and fifty times heavier than at its birth ; and the larvæ of a certain other species, when they have arrived at their full size, are seventy-two thousand times heavier than when they emerged from the egg.

The quantity of food which is daily eaten by a caterpillar is surprising, being greatly more in proportion to its bulk than is consumed by any other animal. The reason is that their stomachs have not the power of dissolving vegetable matters, but merely the faculty of extracting a juice from them. As caterpillars enlarge, which they do very rapidly, they cast their skins several times. The skin does not come away gradually, like human beings are understood to change, but intact. The caterpillar crawls out of it with a brand-new skin, leaving its old skin behind.

When we know of the great number of eggs produced by insects, we may wonder what becomes of them, for the insects, or even the cater-

LOGGING SCENE AT ENDERBY, B. C.