

jelly made by pouring hot (boiling) water on the meal. A quantity of this can be kept on hand and need not be prepared daily.

Mature flaxseed contains practically no starch, a fact which makes it particularly valuable for early feeding. The digestive organs of the very young calf are not equipped for digesting starchy foods. Whole milk contains no starch and the nearer we can substitute so as to have no starch substances in our skim milk, the better the results and less the danger of setting the calf back through scours or other digestive disorders. Flaxseed in the milk is not necessary after the calf is five or six weeks old. Dry grain should take its place just as soon as the calf will eat it. A good plan to teach a calf to eat chop feed early is to put a handful or so in the bottom of the bucket each time after the milk has been consumed. The calf will be eating grain before he knows it and the practice has a further advantage in that it keeps his nose busy in the bottom of the pail for a few minutes after each feed and he has less time to devote to the serious calf business of sucking the ears of his mates, a tendency which seems natural among calves after drinking milk.

#### Determination of Sex. (CONTRIBUTED.)

The problem of sex, the causes or influences that control and determine it have been subjects of speculation among men since the earliest times. Much speculation has been indulged in to dispel the mystery but until comparatively recent years little intelligently directed inquiry has been made to solve the problem and ascertain the true causes or influences that determine the sex of every animal born into the world. In matters like these the human mind seems ever ready to accept almost unquestioned any theory men care to evolve, so we find that in all no less than five hundred theories are in existence covering the case each purporting to be the true one. At least four hundred and ninety odd of these so-called theories may be disregarded. This proportion of the whole have absolutely not a tittle of evidence to substantiate them. A few of the others are worth glancing at and we purpose considering one or two of the most reasonable of them here.

A theory which gained some measure of popular credence early last century, but which has never been thoroughly substantiated by experimental evidence, was that one which assumed that the age of the parent, the strength and vigor of the male or female at the time of mating were the controlling factors in determining the sex of the resulting offspring. Only two experiments are recorded in which this theory was put to the practical test. Sheep were used in both instances. A flock of ewes varying in age from two to five years were divided into two parts. One or the flocks was bred to produce female lambs, the other for males. The first was served by two rams, one fifteen months old, the other two years; the second by two mature rams, one four and the other five years old. The ewes with the young rams were strong and vigorous, with the old rams weak and ill fed. The principle of the theory was that from the flock in which the females were older and stronger than the males a greater number of female lambs would come, and from the strong rams and weaker ewes male offspring would predominate. The flock served by the weak rams produced one hundred and thirty-seven lambs of which eighty-four were females and fifty-three males. From the flock in which the strong rams were used one hundred and thirty-five offspring resulted. Eighty were male and fifty-five female. The second experiment gave almost identical results. The theory has been further substantiated by some evidence brought to light from inquiries made into the statistics of marriages and births but it has never been clearly shown that it has much to sustain it. In fact has been refuted on several occasions as conclusively as its exponents believed it to be proved.

A second theory that has apparently some substantiation, attributes to the general conditions surrounding the animals during the gestation period, in mammals, the controlling influence in determining what the sex of the offspring that springs from them shall be. Evidence in support of this is found in the proportion in which males and females are produced among some of the lower forms, for example plant lice and bees. It is a well known fact that plant lice in summer, and so long as favorable conditions of life are at a maximum, will go on producing generation

after generation of females, but in autumn when conditions become less favorable and the food supply decreases, males again appear. If the lice are kept in the artificial environment of a green house, in a perpetual summer of warmth, with abundance of food, it has been observed that females alone will be produced without a break, for years if necessary, and never a male appearing until the temperature is lowered and the food diminished when they are again produced and sexual reproduction resumed. Nutrition therefore is assumed by some to have a determining influence on sex, but unfortunately for this theory, though it works out fairly conclusively with some forms, operates exactly opposite with others. It is worth noting, however, that what little experimental evidence does exist on the point, in reference to larger animals, to mammals, points to the same general fact, though larger animals seem less influenced in this respect than the lower forms referred to. One experimenter divided a flock of ewes into two equal flocks, one of which was extremely well fed and mated with two young rams, the other scantily fed was served by mature rams. The well fed lot produced sixty per cent. females, the other lot only forty per cent. females. The age of the rams, introduced, of course, a second element, and if the results quoted in evidence of the first theory discussed here are considered, a very significant one. Had both lots been served by rams equal in age and constitutional vigor this element would have been eliminated and the results more conclusive, the facts, however, such as they are, have some significance and seem to show that the nutrition has some controlling influence in determining sex. Like theory one, this too has no further experimental evidence to sustain it and unless we go back and take the classic example of the bee, in which the food fed the growing larva during its early stages seems to determine whether it shall be a fertile queen or a sterile worker, there is no further evidence in the case.

Scientific investigation has lately opened up a very fertile field of inquiry in this matter, and researches now under way may in the near future furnish us with important additional data on this most perplexing problem. The investigations so far as they have been carried out seem to show that the sex of the offspring is determined at the moment the spermatozoa of the male unites with the female cell, and that external conditions favorable or otherwise, the age and vigor of the parent, or anything else aside from the two uniting cells have any influence whatever in determining results so far as sex is concerned. Facts disclosed by these investigations seem also to indicate that man cannot control even in the smallest way, the sex of the offspring that results from any particular mating. Chance is the potent element in determining this. The inherent nature of the particular germ cells that come together seems to determine the sex of the resulting individual. Present knowledge in the case can go no further, but here at last there seems to be a fundamental cause of sex determination. Enough is already known to show that none of the "traditional beliefs" or any of the theories previously held are warranted by known facts. Science may be a long way yet from the truth in this matter, and future research may alter radically present-day ideas in the case, but we are measurably nearer a true explanation of the mystery. The problem is at last being enquired into intelligently. Speculating and theorizing are giving way to sane research.

#### The New Meat Inspection Act and the Dressed Meat Business.

An Alberta farmer wrote us the other day to look up for him in Winnipeg a market for dressed beef. Unable to find a market for live stock in his own locality, he and his neighbors conceived the idea that later in the season they would slaughter their stock and sell it down here as fresh frozen beef. Hence the enquiry. Whether dressed beef could be disposed of to advantage this way in Winnipeg, other things being favorable, is open to serious question. There are plenty of butchers in the retail trade who handle meat in considerable quantities and might readily handle it by the carload, as these farmers desired, but they are so entirely dependent for their supplies, for practically the whole year, on the larger dealers and abattoir men; the majority of them are little better than agents for the wholesalers and packers, as the beef commission inquiry disclosed, so that they cannot or dare not depart

from the regular routine of the retail trade which the so-called "trust" lays down for them. What the penalty for such an offence would be has never been clearly shown. Mighty few Winnipeg retail butchers have ever got away from the wholesalers long enough to buy from anybody else even if they had cash sufficient to do so. The credit system has quite a few of them too safely entangled to permit of much outside buying.

But the new Meat Inspection Act raises a new barrier to trade in dressed meat between the farmer and retailer or consumer. It has no effect on such trade within the provinces. In each it can be carried on now as formerly. But it does provide that all meat destined for export and interprovincial trade shall be stamped "Canada Approved" on each carcass, by Government Veterinary Inspectors, who examine the animals before killing, inspect the sanitary condition of the killing plant, etc., and after slaughtering pass inspection on the carcasses, stamping them in the manner indicated if they come up to the requirements *re* freedom from disease demanded in the Act. Unless meat is so stamped no railway company is privileged to transport it, or dealers to buy and sell it.

It is impossible, therefore for farmers to engage in the dressed meat trade outside their own province. While it might be possible for them to conform to the requirements of the Act in all matters, it is doubtful if it would be worth their while doing so. The Government have appointed something like forty inspectors under this law, but they are stationed at large killing plants, at Calgary, Winnipeg, Toronto and so on. For a farmer to avail himself of the inspection service is impracticable if not impossible. The aim of the Act is to raise the quality of the meat products of the country and it is doubtful if this end can be attained if farmers and others, without proper plants and appliances, are allowed to engage in export or interprovincial trade.

#### Would it be Safe?

EDITOR FARMER'S ADVOCATE:

In the editorial note to my letter in the *ADVOCATE* of 6th inst, you say, "the obstinate fact remains that there is no pleuro-pneumonia in Canadian cattle from which the British herds require to be protected."

Supposing this to be true at the present time what of the American cattle that are admitted—sometimes in thousands—across our boundary? Is there such effective inspection and quarantine that Canada can guarantee that pleuro-pneumonia will not be introduced into the Dominion by cattle from the United States?

That is the crux of the whole question, but it is persistently ignored by those who condemn the British Government, for maintaining the embargo under false pretenses.

Man.

WM. WALLACE.

(This does not do the Dominion Health of Animals branch full justice. There is little doubt of the ability of the Canadians to guard against the spread of pleuro-pneumonia should it develop in the States.—Ed.)

## FARM

#### Likes Huron Still Better.

EDITOR FARMER'S ADVOCATE:

Seeing the letter from "Newcomer" in your issue of November 6th I thought I would give my experience for the benefit of others who may not be quite satisfied with "Red Fyfe", and although I am not growing "Preston" I think I have something a little better in "Huron." It is much stiffer and coarser in the straw and the grain a good deal darker in color. With me it yields well, last year going 33 bushels to the acre off fall plowing and graded one northern. This year I have equally as good a crop both in yield and quality. "Huron" is fully two weeks earlier than "Red Fyfe." Last year I started to cut on August 14th and this year on the last of August when it was fully matured, and everybody knows when "Red Fyfe" was ready to cut this year. One thing you will notice about "Red Fyfe" and that is, about two weeks before cutting it seems to stand still and is slow about ripening up, while "Huron" comes in quickly after it begins to turn.

I am holding my "Huron" this year for seed believing the demand for it will be quite brisk after our experience of "Red Fyfe" this year.

High View, Sask.

J. A. DORRENCE.