

horses, but no pigs; and in 1877, 7,412 cattle, 6,325 sheep, and 373 pigs."

From the *Liverpool Telegraph* of the 2nd inst:—"The Dominion line steamer Mississippi landed 621 Canadian sheep yesterday in excellent condition. Mr. George Roddick, at Old Swan, to whom these are consigned, has made arrangements for 3,000 Canadian sheep to be delivered at Liverpool before the 15th August, in addition to which other large shipments are coming forward. A Government return recently published shows that 159,573 sheep were exported from the Province of Ontario to the United States in 1877. These were subject to a duty of 20 per cent. *ad valorem*. Vigorous efforts will be made to divert this trade to Great Britain. The Mississippi also landed 195 head of Canadian cattle and three horses.

Raising Pork.

When an article of general consumption commands a low price in market it is not always the part of good husbandry to abandon its production, but rather to investigate and see if by greater skill or selection the cost may not be cheapened in proportion. Thus, in feeding pigs, it is true the outlook for the high prices that prevailed during the flush years of the war is not favorable, yet thanks to enterprising and intelligent breeders, the farmers of this country may now obtain, at exceedingly reasonable prices, specimens of such pure and well bred pigs as will put on flesh in quantities far greater and at cost far less than that of common swine.

With pork at present prices no farmer can afford to breed, rear or feed coarse, heavy-boned, low-bred swine; and yet no farmer should abandon pork raising. Pigs consume material that would otherwise be wasted, while they probably convert certain kinds of food into meat as economically as any other animals. They are capable of remunerative returns when properly managed. Aside from the necessities of home consumption, it must be remembered that low prices always induce increased consumption, both at home and abroad. In 1876 the United States sent abroad \$39,664,456 worth of bacon and hams, \$5,744,022 of pork, \$22,429,585 of lard; while in 1877 the exports had increased to \$49,512,412 of bacon and hams, \$6,296,414 of pork and \$25,562,664 of lard.

The advantages of co-operation in agricultural matters could not be more practically nor more profitably illustrated than in the purchase by Farmers' Clubs, Grange Clubs, or even by a company composed of several individuals, of choice pigs for breeding. By the use among neighboring farmers of a single pure, well-bred animal, secured at a first cost of \$20 to \$25, for the purpose of crossing with and improving the common stock of the country, the profits of pork raising could be increased at least twenty-five per cent, and a business which, under common management, promises only loss, be made remunerative and satisfactory. Let farmers consider that, during the days of small profits, only those animals should be kept that give the best returns.—*American Cultivator*.

It is highly important to observe the utmost regularity in the hours of feeding cattle that are kept up, and also in the allowance given at those fixed times. Cattle become wonderfully observant on these points; are restless when the time for giving their food arrives, though until then they have been quite tranquil, and seem to have an instinctive perception of the sort of food which they are to receive at stated periods.

The sheep bites closer than the ox. He was designed to live where the other would starve; he was designed in many places to follow the other, and to gather sufficient nourishment where the ox would be unable to crop a single blade. Two purposes are answered by this:—All the nutriment that the land produces is gathered from it, while the pasture is made to produce more herbage than by any other means it could be forced to do; the sheep, by his close bite, not only loosens the roots of the grass and stimulates their spreading, but by cutting off the short suckers, causes the plant to throw out fresh, more numerous and stronger ones, and thus improves and increases the value of the crop. Nothing will more expeditiously or effectually make a rich, permanent pasture than its than its being occasionally and closely eaten down by sheep.

Barnyard manure is a nearly complete fertilizer in itself, containing all of the required elements of fertility, including potash, if it has been kept free from waste.

Dairy.

Refuse of the Dairy.

BY L. B. ARNOLD, SECRETARY OF THE AMERICAN DAIRYMEN'S ASSOCIATION.

In the June number of the *Advocate* was noticed a leak in the dairy from not keeping up the flow of milk in the midsummer drought. It is proposed now to speak of another leak which often occurs in utilizing the refuse of the dairy. This is a smaller matter, but since the price of dairy products has become so reduced, every little item must be looked after that will in any way help to bring the ends of the year together. The defect lies, first, in the fact that in some factories the whey is thrown away without attempting to utilize it. This is worse than losing it entirely, because it engenders a noisome stench that affects the products of the factory. In other cases it is fed injudiciously.

The food of animals consists of two classes of materials entirely distinct in their effects. One builds up the body and the other supplies fat and heat. Sugar is one of the latter kind, and is the chief element of value in whey. It can do nothing toward replacing the steady waste of the body, and there is but a mere trifle of anything in whey which can. Whatever there was originally in the milk for this purpose has nearly all gone into the cheese. Animals which are young and growing fail at once on whey alone, because their bodies are so poorly nourished by it. Those which have come to maturity can stand it longer. But nothing can maintain health and vigor long on a diet of sugar and water, which are the chief substances in whey, and it is of little use to attempt to support animals upon it, yet this is a common practice at cheese factories and occasions a considerable leak in the profits. Some nourishing food should always be supplied to whatever animal consumes it, or it is fed at a loss. The best thing to supplement whey is oil cake, but this is too costly for feeding hogs, and besides, is not always conveniently obtained. But if calves are to be raised, it will pay to use oil cake in the place of milk. There is no substitute for milk which I have ever used, or seen used, for raising calves in a cheese dairy, equal to oil cake and whey, if used in the proper proportions—which are about a half pound to the gallon—and the mixture fed warm and while the whey is fresh and sweet. If pigs or shotes are to use whey, grass is the cheapest supplement to it. Grass furnishes the needed nourishment and has the further advantage of being bulky enough to distend the stomach, which is a circumstance quite necessary to animal comfort and prosperity. If a good grass plot can be furnished for shotes at a cheese factory, no other food than whey will be required. They will grow and fatten upon it, and turn the whey to the best account. If grass cannot be had in the vicinity of the factory, wheat bran is the next best thing that is always available. It is not quite as good as grass for swine, and is not quite so cheap, but it makes a very good supplement to whey, as it furnishes both bulk and the needed nutriment. If there is any convenient way for taking the whey home, it will be decidedly the most profitable to take it to the farms of the patrons and there use it with grass and other material which swine are accustomed to consume. It then becomes an adjunct to other food instead of the principal diet. In such a relation it gives the most profitable return.

The skim milk of the butter factories comes much nearer being a perfect food of itself than does whey. It has an excess of flesh-forming material in the curd, a cheesy matter of the milk, and has also sugar or its equivalent, but it lacks

fat. It will sustain life much longer, and pigs or calves will do much better on it alone than they will on whey only. But neither will do as well on skim milk alone as they will to have some other food with it. Skim milk has only half the feeding value of whole milk.

When whey is fed alone, as it often is to shotes of about 100 lbs. weight to begin with, it makes about 1 lb. live weight to 100 lbs. of whey, varying somewhat with the richness of the whey and the condition of the shotes. In an address by J. S. Van Duser, read at Cleveland before the American Dairymen's Association, last winter, it was stated that in the factories of Col. H. C. Hoffman, a large operator in creameries in Chenning, Co., the receipts per cow for whey fed to shotes is \$1 a season. Mr. Hoffman feeds some grain and credits to the grain the gain due to it. But he estimates that the grain this year is not paid for by the increase of weight it has occasioned, but it was necessary to feed it to put the pigs in a saleable condition. His net returns for whey are, therefore, put at less than \$1 per cow for the last year. This would make less than 1 lb. of live weight to 100 lbs. of whey, and make the value of the whey fall below forty cents for 1,000 lbs. A few years ago, when prices of pork were somewhat higher than they are now, Prof. Stewart made the net returns of whey for the season \$10 per cow. In this reckoning the gain was all credited to the whey and the cost price of the grain deducted from the net returns. Prof. S. reports feeding skim milk with proportional advantage, getting, when fed to pigs till they would reach 200 lbs. each, 1 lb. of live weight for every 15 lbs. of skim milk. Experiments in calf feeding, recently published, show parallel results. Where this can be accomplished it is better than making the milk into skim cheese. It takes about 15 lbs. of milk, fully skimmed, to make a pound of cheese, and at this time it would net so much money as the growth of pigs or calves. But usually, when fed alone to adult hogs, it takes from 25 to 40 lbs. of milk to make a pound live weight. Such is the difference in results from the mode of feeding and the selection of animals to consume the refuse of the dairy.

If young and thrifty animals are selected to consume the waste of whey or skim milk, and a proper supply of cheap food is given with it, and the waste fed while it is fresh and in its best state, it will make a considerable addition to the returns of the dairy, whether the milk is manufactured at the farm or at a factory. But if it is fed alone to unthrifty or old animals, and is kept till it is sour and stale, the results will be so nearly neutralized as to do little more than pay the trouble of feeding.

Half-Breed Buffaloes for Dairy Purposes.

The apprehensions hitherto entertained regarding the untamable nature of the buffalo, and that the characteristics of this branch of the bovine family would be certain to crop out through indefinite crossings, appears to be totally groundless. The buffalo, or more properly, the American bison, is being used extensively in portions of the State of Nebraska, bordering on the wild plains of the far West, for stock purposes, and half and quarter bred females of the bison family yield an abundant supply of rich milk. A remarkable feature connected with this cross of the bison with domestic cattle is the fact that the color of the bison and the majority of its distinguished characteristics disappear after successive crossings. Its outward conformation is also, in process of time, in a great degree lost sight of. The haunch or lump of flesh covering the long spinous process of the dorsal vertebrae becomes diminished with each successive cross, and will, doubtless, disappear entirely as the original type becomes merged in the domestic animal.