THE DAIRY.

Treatment of Milk for Butter.

Milk designed for butter-making, as a rule, should be agitated as little as possible until the cream has risen. We cannot say that such a moderate agitation of the milk as would arise simply from skimming, as above described, would lessen the quantity of cream. This has been abundantly proved by experiments made on milk, a portion of which has been retained on milk, a portion of which has been retained at the farm, and the rest sent by wagon and rail to the city. In numerous instances where a careful test of such milk has been made, the milk that has been least disturbed, threw up

that has been least disturbed, threw up the most cream.

Volcker made the following experiment: He took 100 measures of new milk and set it aside for twenty-four hours, at a temperature of 62 degrees Fahrenheit, when it gave twelve per cent. of cream by measure, while at the same time a little country of the man will be for time a little quantity of the same milk, after having been gently shaken in a bottle, threw up only eight per cent. of cream. This shows that the shaking to which milk is subject, when carried long distances in wagons or by railway, has the effect of breaking some of the cream globules, in consequence of which either the fatty matters remain suspended in the milk, or more probably the cream thrown .up gets richer in fat.—X. A. Willard.

Cheese, vs. Beef for Food

Aside from economizing labor, the cheese factory system has developed another great principle—the means of producing cheap food. An abundance of cheap, nutritious food is essential to the highest civilization of any nation. Poverty and crime always accompany a scarci-ty of food. Cheap food is one of the elements of the intellectual progress of the American people. The increase of our population is at-tended by a comparative scarcity of meats, and the price is already beyond the means of the poor, and this difficulty must be still further poor, and increased. It is an urgent question what other form of animal food can be substituted for beef. In the opinion of the speaker, the dairy

beef. In the opinion of the speaker, the dairy must be the means of solving the difficulty. To illustrate his meaning more fully, Mr. Willard drew a comparison between the relative cost of producing beef and cheese.

A good steer at four years old will produce 1,000 pounds of beef; and three would produce 3,000 pounds, net. A good cow will yield from 500 to 600 pounds of cheese per year. Taking her product at 450 pounds per year for twelve years, allowing nothing for the first two years of her life, gives 4,500 pounds of wholesome food. In other words, three steers, representing twelve years' growth, give 3,000 bs., against

er item to the difference. - Willard's Address.

PACKING AND TRANSPORTING BUTTER. J. T. Elisworth, one of the best New England J. T. Ellsworth, one of the best New England farmers, at a meeting of the Massachusetts State Board of Agriculture last year, being asked to state his mode of packing and trans-porting the butter which he makes, to market, said: "My whole aim is to keep it from the air. I do not want any kind of air to reach it. If it is pure air, it will abstract the sweet thavor; if it is bad air, it will do harm, of course. I cover it from the air from the time it is salted until it is worked. Then it is boxed as soon as it can be, and covered. I have three differ-ent sizes of boxes. My shipping-box is some-thing like an old-fashioned tool-chest, and holds four boxes of thirty pounds each. The ship-ping-box is two boxes high and two boxes wide. They are the common round butter boxes. but the shipping-box is a square box, with handles at each end. A rod comes up at each end, and there is a thumb-screw outside on the cover. Listing, such as comes on the sides of cloth, is tacked around the edge of the box. When the cover is screwed down, the box. When the cover is screwed down, the box is pretty tight. You will see that there is a vacant space between the two boxes, something like a three-square. I had two galvanized iron boxes made, three-square, or nearly so, that just fit into that cavity, and these were filled with broken ice, about the size of a hen's egg. The butter is then put in, and the cover rewed down tight, in time to meet the express train, and my butter gets to the stall at half-past II a. M. Two-thirds of the ice is in the boxes, and the butter, I have been told, is apparently as hard as when it started.

THE WAY TO RAISE A CALF WITHOUT MILE.— Farmers who sell their milk, with some show Farmers who sell their milk, with some show of reason declare themselves unable to raise their calves. But they need not. A calf is a long-suffering creature and easily adapted to artificial conditions, and its supply of milk being out off, a substitute may be found with which it may be kept in thrifty condition. For the first four days it is necessary that it should receive the milk, which is fit for no other corresponding to the supply of the s other purpose, and has certain medicinal uses for the calf. As soon as this period has passed it may be furnished with the substitute feed, as follows: Oatmeal, sifted from the busks, is boiled into thin gruel, strained, sweetened with brown sugar, and fed to the calf; having previously been taught to drink, the calf will previously been taught to drink, the calf will readily take a ration of a quart three times a day, which may be increased gradually as it be-comes older. Finely-cut clover hay, the choic-est of the early harvest, is mixed with scalded oatmeal, sweetened, and fed in small quanti-ties, gradually increased. If the bowels become too loose a teaspoonful of prepared chalk is given as a corrective. With this feed and good care a calf will thrive and grow better than on skim-milk.

RAISING CREAM.—Bossingault, in his new edition of Agriculture, just published, states, that under the most favorable conditions for churning, the whole of the butter is far from being extracted from the milk. Thus, 1,000 parts of milk contain forty of butter; after churning, some eleven parts of butter remain incapable to agglomerate by agitation. Milk, when allowed to rest for twenty four hours, presents three layers—the uppermost, cream; the middle, serum; and the lowest and heavest, caseine or layer this latter forms, the less curd. The quicker this latter forms, the less cream is "thrown up" because it sinks with the weightier curd. After twenty-four hours' rest! Boussingault found in milk containing rest! Boussingault found in min as 1.4 per 3.62 per cent. of butter, as much as 1.4 per cent. in the skimmed milk. The farmer's wife, cent. in the skimmed milk. The farmer's wife, who is ever, let it be remembered, less tenacious of routine than her husband, will note these essential points; it is the little streams that make the big rivers; it is by milk and butter, by the sundry products of the poultry-yard, by a mass of nothings, the wife accumulates large sums, ever welcome on rent day.

THE CHEESE BUSINESS.—Twenty years the United States did not export more than a million pounds of cheese. Now the annual ex-ports amount to more than sixty million pounds, and America has taken from England and Holland their monopoly of the cheese trade in Europe.

POULTRY NOTES.

Squash Seed Fatal to Fowls.

James N. Bookstaver, Rutherford Park, N. J. writes to the American Farmers' Club: I feel it a duty to call the attention to a discovery made by me that may not be generally known that character; but I could find no marks to warrant such a conclusion. A little while after-ward I found a dead pullet in the yard. This began to alarm me. I had heard of hen-cholera, and began to think some such disease had era, and began to think some such disease had made its appearance on my premises. An autopsy revealed to me the cause of death, they having shortened their lives by a little indiscretion in the selection of food. On opening their crops I found the contents to be corn and squash seeds. The seeds had created a watery fluid, greatly discolored, that could find no outlet. Farmers' wives should be careful to place such kitchen refuse beyond the reach of the fowls.

Pumpkin Seeds also Fatal.

William Anderson, Ann Arbor, Mich., also writes to the Club that he has lost many of his fowls in the following menner:—The first symp-tom that appears is lameness in one leg; after a few days both legs become so weak that they cannot stand, and pine away and die in two weeks, and sometimes less than that. In reference to this matter Washington Hills, of Long Island, says: "One cause of the disease complained of is allowing turkeys to cat the seeds of pumpkins. About the time farmers take in their corn and gather their pumpkins, almost invariably the cattle are treated to a meal of pumpkins. If the turkeys are around the barn-yard they also have a meal of seeds, and so sure as they do so they will be lame. Sometimes it kills them. At any rate they do not get over it. They will stay lame all the season. Nothing will fatten them. In fact I have known a whole flock affected in this way to be almost worthless, and nothing else caused weeks, and sometimes less than that. In refto be almost worthless, and nothing else caused it but pumpkin seeds."

Effect of Rum on Chickens.

A French doctor has recently been making ome curious experiments as to the effect of alcohol on fowls. The birds took to dram drinking with evident delight, and many an old cock consumed his bottle of wine a day, so that it became necessary to limit the allowance They all lost flesh rapidly, more especially food. In other words, three steers, representing twelve years' growth, give 3,000 bs., against 4,500 bs. from the cow in the same time.

A pound of cheese, being equal to two pounds of beef in nutritive value, increases the difference still more, giving 9,000 pounds of food from the dairy to 3,000 bs. of meat. The survived for ten months. Their creats also loss of bone and cost of cooking adds still anothcame unnaturally red. The Patt Matt Gazette doubts whether man is justified in trying experiments with the dumb creation with the view of ascertaining how far he may himself venture to get drunk with impunity; but hav-ing proceeded thus far, he may as well go a step further, and by the introduction of the teapot into the hen house find out whether there is any ground for the suspicion entertained in some quarters as to the innocent properties of tea. A few experiments in late hours might be made with advantage at the same time. A party of carefully selected cocks and hens might be allowed to mingle in the festivities of the London season, returning to their roosts at the hour when they usually commence to cackle and crow. It would possi bly be found that one week of political re-unions, concerts, balls, and crushes would be as disastrons in its effects as two months of ab sinthe drinking.

Value of Hen Manure.

Mr. J. S. Gribble, of South Carolina, in a recent letter to the Rural Carolinian, says:
"I will tell you all I know about hen manure.
One dellar's worth per acre, made of equal parts of the hen manure, plaster, ashes and a half part salt, increased my crop 50 per cent.
— or, in other words, where there was no manure, I picked six pounds, and on the manured ground nine pounds of cotton on an equal space of ground. On one acre of land, worked in cotton for years in succession with-out manure, one dollar's worth of hen manure other acre adjoining it, manured with one hundred and thirty-five pounds of commercial fertilizer, produced one thousand pounds.

I have no hesitation in saying that sixty

chickens, if properly housed and attended to will produce ten barrels of dry manure in one year—that ten of plaster, ten of ashes, three of salt, will be thirty-three barrels, or say five tons, at a cost of about eight dollars a ton-enough to fertilize a two-horse farm.

The Farmer's Motto.

Let the farmer's motto be: "Good farms, good stock, good seed and good cultivation." Se said tien. Bierce at the close of an agricul-tural address, in Ohio, in 1857. More than this, make farming a science, in which your heads as well as your hands are employed; let there be system and reason in all your opera-tions; study to make your farms beautiful, and your lands levely. Entice, by kindness, the birds to visit and cheer your dwellings with their music. We would not associate with the man or boy that would wantonly kill the birds that cheerfully sing around our dwellings and our farms, he who would do this is fitted for

Who does not, with the freshness of early morning, call up the memory of the garden of his intancy and childhood; the robin's nest in the old cherry tree and the nest of young chip-ping birds in the current bushes; the flowers planted by his mother and nurtured by his sisters? In all our wanderings the memory of childhood's birds and flowers is associated with our mother and sisters and our early home.

Farmers of California, as you would have your children intelligent and happy, and their memory in after life of early home pleasant or repulsive, so make your farms and your childrens' home.

Caution to Farmers- Hemp.

The Farmers' Home Journal says: The other day (Sunday evening, it was) two of our most prominent hemp manufacturers were observed to be holding a very earnest conversation, and the interchange of knowing glances was fre-quent. In their enthusiasm they did not take sufficient precautions to keep from being over-heard, and so a friend of ours happened to catch these words, as they fell from devout lips: "You have the money, and the under-standing is that we will stand firm at four-

there must be no flinching."

We want Granges in this vicinity, to put a stop to such rascality and rings. Hemp is now everywhere worth \$5, with a decidedly upward tendency.

THE APIARY.

Natural History of the Honey Bee.

Of the distinctive character of the cells of the honey bee Prof. Agassiz remarks:

The workers lay out the cells as systematically as if guided by a superior intelligence, special cells adapted for the eggs, out of which thousands of imperfect females or workers are to be produced; others somewhat larger, intended for the development of the less numerous drones, and a very few so-called royal cells, still larger than those of the drones, many times larger than those of the workers, and of a very peculiar form, out of which perfect females or queens are to grow.

The queen cells stand out from the rest of the queen cens stand out from the rest of the comb, and have a large opening. In old colonies, it often happens that no provision is made for the advent of a new queen, and in that case no royal cells are built; but in a new community several such cells may often be seen upon one comb. Still more perplexing than the impulse, or instinct, or unconscious perception, by which the workers are guided in the preparation of these cells, is the intel-ligent selection shown by the queen in distributing her eggs among the various kinds of cells. She finds thousands and thousands of small cells, and in these she deposits fecun. for the breeding of high blooded animals than dated eggs out of which nothing but workers California; and they base their belief on the

In the royal cells, or, as is the case in many hives, in one royal cell, she lays an egg, also fecundated, out of which is sure to grow a perfecundated, out of which is sure to grow a per-fect female, or, in other words, a queen. The eggs of the perfect and imperfect females do not differ originally; the ultimate difference is brought about by a special mode of nursing and feeding the royal egg, the workers supply-ing the royal cell, in advance, with pollen from the stamens of flowers and honey; so that when the little grub comes out of the egg, it finds itself in the midst of the nourishment

necessary for its development into a queen bee.

How do these careful nurses know the
amount and quality of food needed by the eggs
they have in charge? To this question there is no answer. But there is no doubt of the fact, and they perform their work with surprising accuracy and economy. In the drone cells the queen lays only fecundated eggs, and these pro-duce males and males alone.

The faculty by which these acts are per-formed, without teaching, without preceding experience, without any antecedent knowledge of the conditions necessary to the life and growth of the eggs, that faculty we call instinct, contradistinction to those mental processes involving argument, rational consideration. combination and adaptation, by which acts are performed under full consciousness of all ontingent conditions.

THE BEST BEE-HIVE,-Mrs. Tupper, of the what hive is the best, as he is just starting in the honey business, as follows:

hive men. I am getting used to that, however, and so venture to say that if real cheapness and convenience be required, a simple hive, such as "Novice" recommends, and which can be made for one dollar, is as good as the best. I am putting into some of these how, and am well pleased. Everything that is essential may be made for one dollar. Some, however, would prefer a few extras in the way of paint and finish, but these are tolplease the eye, not help the bees. The moveble comb principle you must have, and a deep frame is far the best. Make a frame about one foot square, and have your hives arranged so that the hive will hold eight, ten, or even twelve of these frames if you wish. If the extractor is to be used (and you will find this to pay best), the extra frames can be placed at the sides of the hive; but if you want box honey, or honey in the comb, have your hives made so that one can be placed above the other, then you can have double or single hives at pleasure. Make all alike; don't be tempted to try several kinds of frames; in that way you lose half the advantages of movable combs; and don't be tempted into bothering the bees, or making hiding places for the worms, by investing in "frost-proof" or "moth-proof" humbugs. Moveable frames, on which there is no patent, and a plain box, are all you need.

Hop Circular.

approaches, we beg leave to offer a few suggestions to the growers and dealers. From our latest correspondence in the growing districts, we are lead to believe that the coming crop will we are lead to believe that the coming crop will and damp and really severe upon the more be a light one, but the quality will be good; delicate breeds of animals, if no provision is although we have the month of August that may make some changes.

In issuing these instructions, we take it for granted that the grower has performed his part in giving the hops the attention necessary to bring them to maturity. When they have arrived at this stage, the whole crop should be picked as nearly as possible at one and the same time; the object being to have them as near alike in color as possible. If not picked at the same time, the late picking should be cured and baled by itself. Never mix it with the other, as it injures the sale when they come

In picking, care should be taken to pick each In picking, care should be taken to pick each hop separately. Never strip them from the vines—even when in clusters they should be separated. No leaves, stems, or rusty blossoms should be allowed to fall in the hops. Hops to sell well must be cleanly picked in the first place; you cannot be too careful about this. The most important branch of the business is the most important branch of the business is the curing. A man may have a beautiful crop, but if it is not properly cured, it may be worthless, either from over drying or insufficient drying. If dried too much, they lose their flavor; if not enough, they are very likely to heat in the bale and become entirely useless.

The best time to bale is on a rainy day, as the hops are more pliable and pack better. The bales must be in good shape; no small, loose-packed, irregular or shaggy ones among them, as they are invariably rejected by the in-spector when the lot is sold. Hops should be put up in bales of 2,000 pounds, or as near that as possible. The bales should be 4½ feet long, 2½ feet wide, and 18 inches thick. To prevent bursting of the bales, the best three ply twine only should be used. The bale should be resident. should be neatly and plainly marked with simply the grower's name or initials. A stencil plate should be used, which we will furnish

gratis on application.

No marks should be placed upon the ends of the bales; the proper place being the side near the top: Use turpentine and lamp-black for marking purposes. Never use kerosene oil, as it is an injury to the hops. An invoice, stating growth or number of growths, and bill of lading, should follow the shipment by mail, always. All telegrams, and all samples sent by mail or express, must be prepaid. We wish to impress upon the mind of the ship-pers, the importance of following these instruc-tions to the letter.

California hops, owing to their superior quality, have been for the past few years an impor-tant feature in our market and have ruled higher than any hops offered. One point of superiority that they have over others, is the care used in gathering and curing, while the dirty, badly cured and badly packed, will be almost impossible to dispose of at any price, and had much better have been sold at home. Correspondence solicited. Davis & Surrox, Commission merchants, 75 Warren street, New York.

Deterioration of Blooded Stock.

Within the last two years, a very great expense has been incurred by many of the best stock-growers in California, in the introduction of high blooded animals of the choicest breeds, including horses, cattle and sheep. These importations have generally been well selected, and success has, in almost every instance, attended their transportation hither; so that now there is no want of genuine, blood from which to breed direct full bloods, or cross upon the native herds. It is the opinion of some of our most observant and careful breeders, that no country in the world presents a better field for the breeding of high blooded animals than California; and they base their belief on the general supposition that a mild and equitable climate, free from the extremes of heat or cold, and particularly the latter, cannot but prove highly favorable to the fullest development of animal life in its most perfect forms. It is under this belief that many have imported full blooded animals, of both sexes, purposely to test the capacities of our climate and country for the transmission in full, if not even allowing of an improvement in the blood of the animal. By blood, we simply mean, in this instance, an improvement of the animal form, or a more perfectly developed physical organi-

There are others who believe that greater advantages are to result from judicious crossings of high blooded animals upon our native herds, as likely to produce a stock better adapted to the peculiarities of the climate and food of California, than can ever be obtained by breeding only full bloods. It is undoubtedly the long habitat of a particular district of country by any description of animals and their progeny, that best fits them for its occupancy. It is this that has produced the numerous fine, but distinct breeds of English cattle, and each, to a very great degree, adapted lowa Homestead, answers a novice who inquires to their own particular district, by certain conditions of climate, soil and food. But it remains to be shown whether judicious cross-Our friend opens a wide question, and if I ings, upon our native stock, will produce for give an honest answer I shall bring down upon us a better acclimated breed than a closer my head the maledictions of worthless patentbreeding of higher blood.

Trealment of Stock.

There is one fact, however, connected with the breeding of our future herds, to which it would be well if breeders would give more attention. It is the importance that attaches to the proper care and treatment of high blooded animals. It is important to the improvement of any breed of animals, that they receive kind and gentle treatment, with a generous fare. It is useless to hope for any great improvement in the breed of animals, if little or no care be taken to protect them from the vicissitudes of climate, food, or half starvation.

Attempts have been made in repeated instances, to our knowledge, to rear the Durham short horn upon the same fare that the old New England red cattle thrive upon; but every such attempt has been a failure. The short horn must be better fed, and better cared for, or their progeny will relapse into inferior stock, even though the blood be pure on the part of both sire and dam.

In California, there is a general, almost bronic, habit among farmer stock; very little provision is made, except As the season for harvesting the new crop what nature makes to carry them through the cold, rainy weather of our winters. With only now and then a frosty night, and seldom, if ever, snow, our winters are, nevertheless, cold the case with our native stock. Such neglect to provide additional comfort, with a generous fare, will of itself work a rapid deterioration of

Quality of Pasturage.

Already the complaint is heard, that dairy cows, of choice breeds, are rapidly losing their milking qualities. This can be attributed to one of two causes—perhaps both—improper food or climate. We cannot believe yet, that our climate is uncongenial, for a more ally healthy one for horses than California presents is unknown; then why not for cattle and sheep, in their appropriate districts? We believe the fault to lie entirely in the want of care for the comfort of the animal, in not screening it in summer from the intense heat of the mid-day sun, and in the winter from the cold and wet; but more particularly to the parsimonious habit of feeding. Breeders will find, and dairymen will find, that, upon the dried herbage alone, of our summer and winter pastures, the high bred and high fed Durhands of the Atlantic States and England, will deteriorate in more than one of their prime qualities; and what is true of the effect of their ood here in summer, applies with still greater force to the winter and spring, when almost all that the animal now gets to sustain nature alive, is a meager bite of unwholesome, innu-tritious weeds. Nor will the rule apply only to the heavy Durham, but to all our improved to the heavy Durham, but to all our improved breeds of cattle. The causes that induced, and the efforts that were required to establish a high grade of blood, or an improved breed of animals, must be continued, or their progeny will degenerate. Will the stock-growers of our state please give this subject a further and careful consideration? And should the matter of giving our imported stock more care than is at present bestowed upon them, meet their approval, we would be glad to hear our views endorsed by those engaged in stock-growing. Pacific Rural Press.

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San Francisco Journal, or Commerce.—Chicago, June 12, 1873.—The Pacific Coast Mercantlle Direction, which has been conducted with the usual skill, tact and ability characteristic of San Francisco journals, for twelve months, now comes to us in name, form and arrangement changed and improved. Every great city must have a Journal, or Commerce, and so this appropriate name takes the place of the Mercantlle Director. In its new form it is the size of our daily quartos and contains 4s columns of matter interesting and important to commercial readers. Published monthly by Murray, Dewey & Co., 414 Clay Street, San Francisco: \$1.30 per year.—Checago Journal of Commerce.

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