THE DAIRY.

Butter.

The milk of a cow or other female mammal is seen under the microscope to consist of a clear fluid, containing a number of minute oil globules. If a drop of acetic acid (purified vinegar) be added, many of the globules will be seen to coalesce and form little granular masses of fat. The globules are enclosed in a delicate membrane which the acid seems to break down. This result is accelerated by agitation. The operation of churning consists in agitating the milk till the globules adhere together, or, as it is technically called, till "the butter comes." It was formerly thought that the cohesion of the butter-globules was brought about by the formation of an acid in the milk, as shown by the sourness of the buttermilk, even when the cream used is perfectly sweet. But it has been found that if this acid is neutralized by bi-carbonate of soda, the butter will come quite as readily. The best temperature for churning has been found by experience to be between 50° and 55°, Fahrenheit.

Butter, chemically, is a mixture of fats, being composed of glycerine, in combination with palmitic, stearic, oleic, and small quantities of capric, caprylic, caproic and butyric acids. It is to the glycerides of the last four acids that butter owes its peculiar odor and flavor. In practice, butter always contains more or less buttermilk which has not been separated from it. This buttermilk consists of water holding in solution a kind of sugar called milk sugar and *casein*, or the substance which forms curds, and from which cheese is made. This casein differs from the other constituents of milk by containing nitrogen, and like all nitrogenous organic bodies, is very liable to putrefaction. If the casein contained in the butter becomes putrid, it will communicate its decomposing condition to the other constituents of the butter, and hence the latter will become *rancid*. Rancidity consists in the separation of the fatty acids mentioned above from the glycerine with which they are united in the fresh state, which separation brings out the peculiarly unpleasant taste, smell and other properties of these acids. Intimately connected as this process is with the presence of readily putrescent casein in the buttermilk retained in the butter after churning, it becomes a most important object to get rid of this most injurious impurity—an impurity far worse in its influence on the preservation of the butter than many an adulteration, the detection of which would be fatal to the sale of this important product. Too much stress cannot be laid upon the care which should be taken to free the butter from the buttermilk by the ordinary methods of washing with water, kneading, etc. In addition to these methods, the admixture of a proper proportion of salt. One quarter of a pound of salt to six pounds of butter has been recommended for this purpose. Another method of preserving butter is as follows: The butter is melted in a vessel immersed in hot water, and the heat continued until all the curdy matter has subsided to the bottom and the butter is transparent. The clear melted butter is then poured off, or strained through a cloth, and cooled by cold spring water or ice. Butter cured in this way is said, if kept in a cool place, or in a close vessel, to keep for six months or more, as sweet and good as when first prepared. There has been much discussion recently in England on the subject of the adulteration of butter, the detection of some of the ingredients fraudulently added being very difficult. The usual adulterations comprise water, salt, and various kinds of fat, such as lard, suet and dripping. The water and salt are added by melting the butter and pouring them in while it is in the fluid state. By stirring round until all is cold, the salt and water are thoroughly incorporated with the butter. The presence of the water may be ascertained by placing the butter in a common four-ounce phial, and putting this into hot water until the butter melts. On standing, the water sinks to the bottom, while the butter floats at the top. To determine the presence of a fraudulent quantity of salt the butter is calcined, when the salt is left as an ash. Of course butter always contains a certain proportion of water and salt; but there should not be more than 1 per cent. of the former, and 5 per cent. of the latter.—*Canada Farmer.*

Bran and Corn Meal for Cows.

The *Practical Farmer* says: It is well settled in the opinion of all our best dairymen that bran greatly promotes the milk secretions in cows, and it is fed almost universally. About equally mixed with corn meal is the usual proportion. This mixture seems to promote both quantity and quality of milk. From several sources we hear that buckwheat bran is a great producer of milk, and it is being used considerably among our Chester county dairymen, in about the same proportion as the other. Thomas Gawthrop, near West Grove, Chester county, also by repeated trials with his own cows, has fully satisfied himself that they do as well with corn and cob meal and bran as with pure corn meal and bran. The amount of nutriment in corn cobs is so very small that this result will have to be explained on the supposition of the ground cob acting to promote digestion by distending the stomach. The presence of bulky material being necessary to promote distension and fill up the stomach of ruminating animals, before digestion can be accomplished, is frequently lost sight of. Hungarian grass is also found for milch cows to be rather superior to the ordinary run of hay. The last year or two Hungarian grass has loomed up wonderfully in the estimation of our dairy farmers: and a very large scope of land will be sowed with it the coming season. It matures for cutting in about sixty days, and produces two to four tons per acre—the latter of coarse on good soils. Three pecks to the acre is the usual allowance of seed.

Large, Medium, or Small Sized Cows.

The larger a cow may be, the better she is—provided she has the necessary organization to constitute her a first-class milker, but large sized cows are not very likely, as a general rule, to possess the requisite qualities which go to make up the best milch cow, but the reverse is generally the case, that in the organization of a large sized cow she is better adapted for beef, and therefore less profitable for cheese or butter. The difference between a large or small sized cow, in case neither are very good cows, would be in favor of the small cow, if kept for a series of years as milkers, on account of the less amount of food consumed by her; and observation will justify the positive conclusion in case a large sized cow is only a tolerable milker, that the cheese and butter made from her milk do not pay for her feed, and consequently instead of being a profit is worthless to her owner. There has been a desire for many years among dairymen, either in the raising of cows or in the purchasing of them, to obtain a small or undersized cow; it being the general opinion, all things considered, that she is the most profitable, and, consequently, dairymen, when they could do so, obtained the small sized cow, and in this way quite a contrast in the size of cows now kept as compared with those that were formerly kept, can easily be seen.

In this selection, for quite a number of years, of small cows, much loss has occurred to dairymen, and that too, without they, as a general thing, being aware of the fact; but nevertheless it is so, that a dairy of cows is much inferior in milking qualities to the dairies formerly kept, nor is this the least bad effect in making the small cow less profitable, for in this continued selection of stock, in size has not only dwindled down to an inferior kind in the formation of a cow, but she is so degenerated from various causes, that she does not last over two-thirds the time she ought to as a milker.

If medium sized cows were raised or purchased by farmers which possessed the right points for a good multiplier, these cows would not only last longer but there would be other advantages gained over the small sized cow, for in her superior constitution less care would be required in keeping her, and she would also possess less tendencies to disease.

There is a law in physical science of universal application in the whole animal creation, and it cannot be violated with impunity without serious results, and this law has an exact application where the effort is made to so breed stock that when all the natural elements are not developed the physical equilibrium is lost; and as an inevitable consequence degeneracy and premature decay are the natural result. Nature has no law save the one that governs it, and this law involves certain causes and consequences.—*Pomeroy's Democrat.*

Changing Seed.

If farmers were always careful to sow none but plump grains, of pure seed; that is, seed of one variety, unmixed, we see no reason why they should change their seed. Where seed of a good variety is mixed with seed of a variety inferior in quality, but of greater vigor, the more vigorous kind will gain upon the better kind, and the quality will deteriorate. Also, when inferior, shrunken grains are sown the wheat must deteriorate; but where pure, plump grains are always sown upon soil in good condition, we do not believe that there is anything in the seedbed that should affect the quality, or constitution of the wheat. We have known instances where farmers have carefully saved the most perfect ears of seed corn for a succession of years, and the quality of the variety has improved. We believe, that if equal care were excercised in saving seed wheat, the result would be similar. We do not doubt that benefits have resulted from changing seed, but we suspect that it was where a careless farmer bought his seed of a more careful one.

We would advise, where a change is made, procuring seed from a better and cleaner soil, and we should consider this of greater importance than a soil of different texture or composition.

We should prefer seed already adapted to the climate, and we should change just as often as our seed became poor.—*Rural Home.*

FULTZ WHEAT.—In Yates county, New York, a careful experiment was made by a correspondent of the department with Fultz and Treadwell wheats, with reference to testing their respective merits. During the summer of 1872, an eight acre field of gravelly loam, which had been cultivated the previous year in fodder-corn, was summer fallowed. The field was manured in 1871 and 1872, in the latter year the manure plowed under at first ploughing. Under a plot of one-eighth of an acre of this ground, five quarts of Fultz were sown broadcast, September 10, 1872. Treadwell was drilled upon the remaining part of the field September 18th, at the rate of two bushels per acre. The former was harvested July 7th, and yielded four and a quarter bushels, or thirty-fold upon its seed; the latter was harvested July 25th, and yielded twenty bushels per acre, or ten-fold upon its seed.

ALL who are perfectly acquainted with the subject must have seen that the best crops of wheat are produced by being preceded by crops of clover grown from seed. I have come to the conclusion that the very best preparation, the best manure, is a good crop of clover. A vast amount of mineral manure is brought within reach of the corn crop which, otherwise would remain in a locked up condition in all the soil. The clover plants take nitrogen from the atmosphere, and manufacture it into their own substance which on decomposition of the clover roots and leaves, produces abundance of ammonia. In reality, the growing of clover is equivalent, to a great extent, to manuring with Peruvian guano.—*Prof. Vockler.*

The Mining & Scientific Press

Started in 1860, is one of the oldest weekly journals now published in San Francisco. It has been conducted by its present proprietors for ten years, during which period it has been repeatedly enlarged and constantly improved. The active and steadfast efforts of its publishers have gained for its conduct an amount of practical experience greater than any other publishers have accumulated on this coast, of a weekly journal.

The sum paid by us for the best editorial talent obtainable for our special class journal; for engravings, for interesting news and correspondence, and for printing a large-sized, handsome sheet, is unequalled by that of any other American weekly west of the Mississippi.

As a PRACTICAL MINING JOURNAL it has no rival on this Continent.

It is the only MECHANICAL, and the only SCIENTIFIC journal of the Pacific States.

Every Miner, Assayer, Millman, and Metallurgist in the United States should take it.

Every Pacific Coast Mechanic, Engineer, Inventor, Manufacturer, Professional Man, and Progressive and Industrial Student should patronize its columns of fresh and valuable information.

Every Mining Engineer, Superintendent, Metallurgist, Mine Owner and Mine Worker in the world should profit by its illustrations and descriptions of New Machinery, Processes, Discoveries and Record of Mining Events.

Every intelligent thinker in the land, in high or humble situation, who would avoid literary trash for genuine information, should SUBSCRIBE AT ONCE.

DEWEY & CO.,
No. 338 Montgomery street, S. F.

DEWEY & CO.

American & Foreign Patent Agents,

OFFICE, 338 MONTGOMERY STREET, S. F.

PATENTS obtained promptly; Caveats filed expeditiously; Patent reissues taken out; Assignments made and recorded in legal form; Copies of Patents and Assignments procured; Examinations of Patents made here and at Washington; Examinations made of Assignments recorded in Washington; Examinations ordered and reported by Telegraph; Rejected cases taken up and Patents obtained; Interferences Prosecuted; Opinions rendered regarding the validity of Patents and Assignments; every legitimate branch of Patent Agency Business promptly and thoroughly conducted.

Our intimate knowledge of the various inventions of this coast, and long practice in patent business, enable us to abundantly satisfy our patrons; and our success and business are constantly increasing.

The shrewdest and most experienced Inventors are found among our most steadfast friends and patrons, who fully appreciate our advantages in bringing valuable inventions to the notice of the public through the columns of our widely circulated, first-class journals—thereby facilitating their introduction, sale and popularity.

Foreign Patents.

In addition to American Patents, we secure, with the assistance of co-operative agents, claims in all foreign countries which grant Patents, including Great Britain, France, Belgium, Prussia, Austria, Victoria, Peru, Russia, Spain, British India, Saxony, British Columbia, Canada, Norway, Sweden, Mexico, Victoria, Brazil, Bavaria, Holland, Denmark, Italy, Portugal, Cuba, Roman States, Wurtemberg, New Zealand, New South Wales, Queensland, Tasmania, Brazil, New Grenada, Chile, Argentine Republic, AND EVERY COUNTRY IN THE WORLD where Patents are obtainable.

No models are required in European countries, but the drawings and specifications should be prepared with thoroughness, by able persons who are familiar with the requirements and changes of foreign patent laws—agents who are reliable and permanently established.

Our schedule prices for obtaining foreign patents, in all cases, will always be as low, and in some instances lower, than those of any other responsible agency.

We *can and do* get foreign patents for inventors in the Pacific States from two to six months (according to the location of the country SOONER than any other agents.

Home Counsel.

Our long experience in obtaining patents for Inventors on this Coast has familiarized us with the character of most of the inventions already patented; hence we are frequently able to save our patrons the cost of a fruitless application by pointing them to the same thing already covered by a patent. We are always free to advise applicants of any knowledge we have of previous applications which will interfere with their obtaining a patent.

We invite the acquaintance of all parties connected with inventions and patent right business, believing that the mutual conference of legitimate business and professional men is mutual gain. Parties in doubt in regard to their rights as assignees of patents, or purchasers of patented articles, can often receive advice of importance to them from a short call at our office.

Remittances of money, made by individual inventors to the Government, sometimes miscarry, and it has repeatedly happened that applicants have not only lost their money, but their inventions also, from this cause and consequent delay. We hold ourselves responsible for all fees entrusted to our agency.

The principal portion of the patent business of this coast has been done, and is still being done, through our agency. We are familiar with, and have full records, of all former cases, and can more directly judge of the value and patentability of inventions discovered here than any other agents.

Situated so remote from the seat of government, delays are even more dangerous to the inventors of the Pacific Coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor.

Confidential.

We take great pains to preserve secrecy in all confidential matters, and applicants for patents can rest assured that their communications and business transactions will be held strictly confidential by us. Circulars free.

Engravings.

We have superior artists in our own office, and all facilities for producing fine and satisfactory illustrations of inventions and machinery, for newspaper, book, circular and other printed illustrations, and are always ready to assist patrons in bringing their valuable discoveries into practical and profitable use.

DEWEY & CO.,
United States and Foreign Patent Agents, publishers Mining and Scientific Press and the Pacific Rural Press, 338 Montgomery St., S E. corner of California St., San Francisco.

NOTICE TO WOOL GROWERS.

On the 28th day of January next we will sell at public auction, at our ranch, near Watsonville, Santa Cruz County, California, a choice lot of pure bred Angora Bucks; also a few pure bred Angora Ewes and high grade Angora Bucks if desired by the bidders. We will sell at least thirty head of pure breeds without reserve. We have the stock. The breeders of this Coast are in need of it, and we wish them to come together and make their own prices. English breeders have followed this practice for centuries, and we will try it in California. It affords breeders an opportunity of getting stock to suit them both in quality and price.

de13-1m LANDRUM & RODGERS.

HUMBOLDT WASHER.

This Machine has been thoroughly tested by competent judges, and has proved itself to be the most reliable and speedy, doing its work more perfectly and with less injury to clothes than any other Washer ever offered to the public.

It will wash from a pocket handkerchief to a bedquilt or blanket in a perfect manner, and is never out of order, but always ready for use, and if properly taken care of will last many years.

It is so simple in construction, having but little or no ornament, that the only way to properly appreciate its value is to give it a trial.

There are now over one thousand of these Machines in use in this State, and they have as yet only been introduced into a few counties. They were first offered in Sonoma, at the District Agricultural Fair, held at Petaluma, September, 1872, where were also several other machines on exhibition, and some of them held in high estimation, but after a trial the premium was awarded to the "HUMBOLDT WASHER." It was also exhibited at the State Fair, at Sacramento, the same year, where its merits were thoroughly tested and the First Premium awarded to it.

We challenge competition, firmly believing the "HUMBOLDT WASHER" to be the best machine ever offered to the public.

List of Agents.

For further particulars address
J. M. ROSE, General Agent,
Stony Point, Sonoma County.

Or the following agents:
HOLLY & DRUMMOND, Agents for Marin and Sonoma Counties, Stony Point.
MARCUS HAWLEY & CO., San Francisco.
J. M. LOGSDON, San Bernardino.
J. BIGGS, Napa City.
L. D. WISNER, Farmersville, Tulare County.
19v6-1am3m

ATTENTION, DAIRYMEN!

RALPH'S PATENT

ONEIDA CHEESE VATS,

TO HOLD FROM

One Hundred to Five Thousand Gallons.

CHEESE HOOPS,

FROM SMALLEST TO LARGEST SIZE.

PRESSED MILK-PANS,
PIECE MILK-PANS,
STRAINER PAILS,
CREAM PAILS,
MILK PAILS,
ETC., ETC., ETC.

The above are made of the best materials and in the best manner. We are making a specialty of DAIRYMENS GOODS, and sell the same at prices that are very low, as compared with the Eastern States. Dairymen will find it to their advantage to call upon us.

GEORGE H. TAY & CO.,
614, 616 and 618 Battery St.,
21v6-3m SAN FRANCISCO.

IMPORTANT TO FARMERS!

X Line to Liverpool.

DIRECT.

The A 1 Iron Ship

Is intended to sail with dispatch. To be followed by other vessels.

Freight taken in lots to suit shippers.

Apply to E. E. MORGAN'S SONS,
320 California Street,
San Francisco.

HEALD'S BUSINESS COLLEGE

BRYANT & STRATTON
24 POST ST.
SAN FRANCISCO

It educates practically. Its graduates are qualified for business and enabled to fill lucrative situations at once. Its course of instruction is adapted to all classes and all professions—to the farmer, mechanic, lawyer and physician, as well as to the man of business. It is just the school for young men or ladies, who wish to learn how to earn their own living and succeed in life. Pupils can enter at any time, as each receives separate instruction. Sessions day and evening throughout the year. For full particulars call at the College, 24 Post street, or address for circulars

E. P. HEALD,
3v6-tf President Business College, San Francisco.

WHITE LEGHORN CHICKENS

—AND—

EGGS.

CHOICE FOWLS AND FRESH EGGS AT REASONABLE RATES.

ALSO A FEW GOOD

DARK BRAHMAS AND BLACK SPANISH.

F. N. WOODS & CO.,
de27-4t 67 California Market.

CO-OPERATIVE MARBLE WORKS.

JOHN DANIEL & CO.,
Manufacturers of and Dealers in

Monuments, Headstones, Tombs,

MANTEL PIECES, ETC.,

421 Pine street, between Montgomery and Kearny, SAN FRANCISCO.
21v2-1y

Pure Blooded French Merino Rams and Ewes,

For sale by ROBERT BLACOW, of Centreville, Alameda County, Cal., near Niles Station, on the Western and Southern Pacific Railroad.

These Sheep are guaranteed of pure descent, from the French Imperial Flock at Rambouillet.

Also a few well-bred young Bulls of the Durham blood. 12v5-3m

SULTAN SECOND.

See description in Pacific Rural Press January 4, 1873.

Address N. GILMORE,
cow El Dorado, El Dorado County, Cal.

THOMAS & SHIRLAND,

Importers and Breeders of

Cashmere or Angora Goats,

—OF—

PURE BLOOD AND ALL GRADES,

For Sale in Lots to Suit Purchasers.

Including a Choice Lot imported by A. RUTTCHIDES, a native of Angora. For particulars apply to

S. P. THOMAS, Sacramento, Cal.

—OR—

E. D. SHIRLAND, Auburn, Cal.

3v6-3m

Pure Bred Spanish Merino Sheep.

ONE HUNDRED BUCKS AND A FEW EWES,

Bred from Vermont Stock.

A portion were bred by JEWETT BRO., of Kern Co.

Can be seen at Sumner Yards, corner Howard and Tenth streets, San Francisco.

JEWETT & MUNSON,
3v6-tf Cosmopolitan Hotel.

THOS. BUTTERFIELD & SON,

Breeders and Importers of the
Cotswold, Lincoln, Leicester, Tunel and South Down

SHEEP.

—ALSO—

THE ANGORA GOAT.

Now offer for sale the Pure Bred and High Grades. We have a good lot of Bucks of crosses between the Cotswold and South Down, between the Lincoln and Leicester, and the Lincoln and Merino.

THOS. BUTTERFIELD & SON,
12v6-tf Hollister, Monterey County, Cal.

THE BEST SEWING MACHINE!

THE NEW IMPROVED

FLORENCE.

BACK FEED AND SIDE FEED.

The lightest running, most simple, and most easily operated Sewing Machine in the market.

Always in order and ready for work.

In the past ten years ELEVEN THOUSAND Florence Machines have been sold by me on this Coast, and no purchaser has paid me anything for repairs. If there is a Florence Machine within one thousand miles of San Francisco not working well I will fix it without any expense to the owner.

SAMUEL MILL, Agent,
NO. 19 NEW MONTGOMERY STREET,
23v6-4m Grand Hotel Building, S. F.

HIGHEST HONORS

AWARDED TO THE

Weed Sewing Machine!

AT THE

Vienna Exposition, 1873.

Grand Medal of Progress!

Grand Medal of Merit!

—AND—

TO CAP THE CLIMAX,

Grand Medal of Honor

Mr. GEO. A. FAIRFIELD, the Inventor and Superintendent of the Company's works, as co-operator for VALUABLE IMPROVEMENTS.

A. MEAD & CO.,
General Agents for the Pacific Coast.
OFFICE, 153 NEW MONTGOMERY STREET.

CALIFORNIA LAND AGENCY.

Will attend to the Location, Purchase and Sale of Lands and Farms, the Examination of Titles, and the Payment of Taxes.

1,000,000 Acres of well selected Lands in California, Oregon, and Washington Territory for sale. Also, buy and sell property in the city and vicinity.

W. M. BRANDON,
20v6-1y-16p 525 California street, San Francisco.

$5 to $20 per day! Agents wanted! All classes of working people, of either sex, young or old, make more money at work for us in their spare moments or all the time than at anything else. Particulars free. Address G. Stinson & Co., Portland, Maine.