

Scientific Museum.

Butter.

Milk is the most natural and common food of man. Out of milk two other common articles of food are obtained, viz., cheese and butter; butter exists in the form of very small globules, and out of 100 parts of cow's milk, 3.75 parts of butter are obtained. Human milk contains about one-sixth more butter than the above. Butter is indebted to a substance called "butyrine" for its fine flavor. Casein, the cheesy matter of milk, if not well removed from the butter, by working and washing, soon putrefies, and will give the butter a bad taste. Butter does not appear to have been known to the ancients, at least so far as history reveals knowledge, but we cannot believe that butter was not known to them for all this. We read of "a land flowing with milk and honey," but no butter, still this is not conclusive against the reasonable conclusion that the old Hebrews did know what it was. The oldest hint, historically, about butter, is given by Herodotus, who ascribes the use of it to the Scythians. Hippocrates also alludes to the Scythian butter, and recommends its use externally for medicine. In the time of Galen butter was known and used, but to a very limited extent, among the Greeks and Romans; in the second century Pliny ascribes the invention of butter to the Germans, but this only shows that the Romans became acquainted with it through the Germans. It was much used as a pomatum both by the Greek and Roman ladies. Pliny recommends it to be mixed with honey and rubbed over the gums of children to ease the pain of teething, and for ulcers in the mouth—a hint that may not be useless to us moderns. The Romans anointed the bodies of their children with butter to make them pliable, and it appears that they did not know butter as we do, in firm cakes, but only as a semi-fluid, like thick olive oil. This is not wonderful, owing to the general warmth of southern Italy. Neither the Spaniards nor Portuguese know much about butter, and the inhabitants of Mexico seldom eat it. In the city of Mexico it costs one dollar per pound; the most wealthy classes do not use so much of it as the poorest amongst us; in fact they do not consider it an essential article of food,—we do, and could not, to use a common phrase, "live without it." It is justly believed that more butter is consumed in the northern States of America than in any other country having the same amount of population in the world. The Hollanders are distinguished for making good butter, so also are the Northern Germans, Norwegians and Danes. The English, Irish, and Scotch make and consume a great deal of butter, especially the Scotch, who are, or at least were, almost half Jewish in their feelings towards the use of pork and lard.

The great secret of making good butter, is cleanliness and plenty of elbow grease. In some parts of Ireland, but especially in Devonshire, England, and Ayrshire, in Scotland, the butter made has had a world-wide fame. The butter pursued seems to be for the dairymaids to wash their understandings, and perform the same operations as the French and Portuguese who dance among the grapes at the wine press. By having large tubs with false bottoms, covered with clean coarse cloth, into which the butter is placed and danced upon, with water to wash it as much as is required, all the cheesy matter is pressed through the coarse cloth and runs off with the water of cleansing. This is a most efficient and effectual way of working butter for packing. As a general thing, the kind very common in our markets depends for its weight in having a good deal of the milk left in it, and none of the cheesy matter pressed out—it is a profitable way of producing it for sale. Butter for foreign countries should be well tramped or beat and washed some way, and it should be packed in a dish placed in the inside of a larger one, big enough to fill around it with salt.

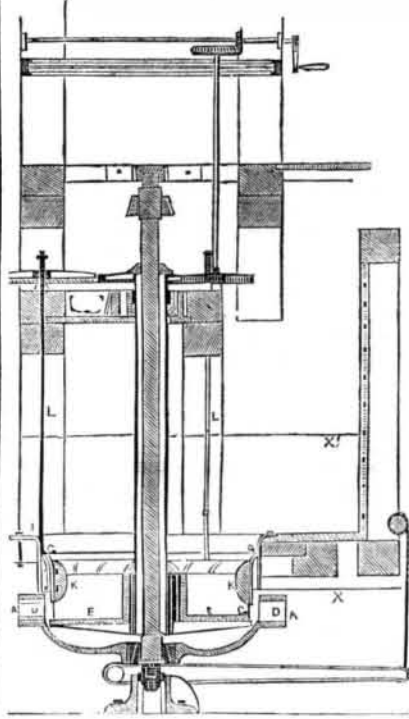
Rancid butter can be completely cured of its bad taste and smell, by melting it in a clean tin dish, adding some saleratus, and

straining it through a clean cloth. After this it appears of a different form; it crystallizes in soft round crystals, and has no taste like what it would have had, if made well at the first operation. All rancid butter for cooking should be treated this way; it changes the butter, takes away the bad smell, prevents it from spoiling again, however long kept, and it really has a beautiful appearance. The butter should be kept stirred after it is all dissolved for about ten minutes. One ounce of saleratus will purify four pounds of butter. A thick sediment falls to the bottom, and a very thick scum gathers on the top. Butter is one of the finest articles of human food. The farmer with his snowy white bread and beautiful golden butter for breakfast, dines richer than the monarch to whom those things are denied.

For the Scientific American.
Hydraulics.

(Continued from page 176.)

FIG. 28.



FOURNEYRON'S TURBINE.—The accompanying figure (28) represents a vertical inside view of Fourneyron's Wheel and connected machinery. The essential parts are the ring with curved buckets and the sluice. The wheel, A A, is made of an upper ring and a ring below, cast in one piece, with a concave bottom, C. These two rings are joined together by the curved buckets, D D, made of strong sheet metal. The sluices consist of a bottom plate, E E, connected with a hollow cast iron pipe, which encloses the main shaft of the wheel, and is sustained on the upper part; on this plate the curved guides, seen in fig. 28, (and those in fig. 27, last number), stand vertically, to give the water its proper direction for entering the buckets of the wheel; G G is a hollow cylindrical casting, interposed between the wheel and directing curves, and forms the sluice gate. This cylinder moves concentric to another fixed one, I I. When the movable cylinder, G G, is raised, the water runs out between its lower edge and the plate, E E, and can then enter within the wheel. The curved guides allow the water to enter the wheel without any sensible shock, and the water is directed on the side contrary to the motion of the wheel. To get the full value of power, the water must enter the wheel with almost no sensible shock, and escape from the sluices of discharge with almost no velocity; K K are wooden cushions fixed to the sluice gate, and slipping between the curved guides, and being of a rounded form at their lower parts, diminish the effects of contraction on the sides. The sluice gate is moved by rods, L L, cut into screws on their upper parts, and around which there turn three pinions of equal diameter, which answer the purpose of screw nuts, and which are put in motion by a wheel concentric with a vertical pipe, which surrounds the main shaft. This always raises and lowers the cylinder sluice gate plumb. The main shaft passes through the hollow tube, and has on its upper part a cog-wheel to

transmit motion to other machinery. The main shaft works in a socket of a step, and can be raised or lowered, as may be required. X' is the upper water level, X is the lower.

Hair Dyes.

The coloring of hair, while growing, is an object of some consequence to those who have not the natural good fortune of enjoying sable locks. The use of chemicals for coloring the hair is very common among the civilized nations of Europe and America. Red heads are foolishly abominated in no country more than our own. The prejudice is no doubt inherited from our English and Irish ancestors, who had such a hearty hatred of the Danes—the red-haired race. They had felt the iron hand of Denmark, and it was held to be a most unlucky event to meet a red-haired man first in the morning, but above all, a year's misfortune to meet a red-haired man first on New Year's Day. Deep auburn locks with a reddish hue, were held to be the most beautiful of any, and among the nations of the East—in some parts of Turkey—red hair is fashionable, and ladies with fine sable ringlets often make them red with pigments. In Persia, too, blue beards are common—old men of seventy may be seen with fine blue beards, so there is no accounting for fashion, "tis all a matter of whimsical flourish," as Dibden would say.

It has been asserted that the use of the tincture of sulphur and sugar of lead had changed old Gov. Twiggs from a gray-haired veteran to a brown-haired Adonis, consequently this lotion has become not a little fashionable, but better far to wear the gray than indulge in such vile practices.

The general hair dyes are made of lead and silver compositions. A lead comb, with the use of oil, makes the hair sleek and jet, but then it is a fine way to keep the hair in the negative condition of cleanliness.

Liquids made of the nitrate of silver are the common hair dyes. In powder the nitrate of silver, if made into a paste, and rubbed into a flax set of whiskers, then bound up with a cloth for five or six hours, will change them to a black. This is merely causticizing them, and the silver sticks like lime. It can be got off, however, without a great deal of trouble. The nitrate of silver, in liquid, is the common hair dye. It is most effectual, but it is best to apply it repeatedly and to have it very weak, or otherwise it will prove very injurious to the system. In alcoholic lotions for the hair, a very small quantity of the bichromate of potash, which is of a yellow color, will affect the hair and make it darker. It takes a long time before its effects are observed but they are no less sure on that account. This is a very safe substance to use, but care must be exercised in using only a very small quantity, or the color will be of too deep a yellow in the liquid.

It has been said that the Chinese have a method of treating with food, so as to change the system and give a permanent black head of hair. This is altogether an assertion, without a single fact for proof. Different nations are distinguished for their general complexion,—the Fins are red, the Scotch, brown, the Spaniards, black, and great numbers of the Irish have peculiarly fine blue-black hair; the Americans are of every hue, because made up of all nations. Those who are fond of coloring their hair to change it from a light to a dark color, can easily do so by applying to the perfumer. We have never seen a change made from a black to light hair, but we have met not a few red-headed mulattoes, they seemed to pride themselves on their sanguine appearance, but of all men we ever saw they appeared to require the nitrate of silver most.

Potatoes Rot.

A short time ago we published the following article, with the exception of the corrections. The errors were made very naturally by the copy—it being difficult to tell some words from those nearly similar, owing to the hand writing. The subject is so important that there should be no room left for doubt; this is positive.

"I saved a fine crop of potatoes in mid New York, the last Season, by using the plaster of Paris, while my neighbors lost theirs

almost entirely by the rot. My best planting was an upland second crop from the sod, (I think a first crop would have been better); it was planted about the first of June, hoed once, and a handful of plaster cast over the vines immediately after hoeing. I should have cast it upon the seed, also, before cover, if I had provided it to hand. When dug from the hill, they were separated (5 per cent. only being affected, and those with the dry rot only) and spread on the floor of my wagon-house, until thoroughly dry and the weather compelled me to remove them to my cellar: when they were spread out about a foot thick, over a large bin, where the air can circulate beneath; and they have kept perfectly well. Plant so late that your vines will not mature and dry up in the drought of harvest, on lands not subject to frost, and secure the fall growth of large and fine tubers, use the plaster freely, and you need not fear the rot." GREEN.

Spectacle Lenses.

Dr. Wollaston introduced a new kind of spectacles, called periscopic, from their property of giving a wider field of distinct vision than the common ones. The lenses used for this purpose are meniscuses, in which the convexity predominates for long sighted persons; and concavo-convex lenses, in which the concavity predominates for short-sighted persons. Periscopic spectacles decidedly give more imperfect vision than common spectacles, because they increase both the aberration of figure and of color; but they may be of use in a crowded city, in warning us of the oblique approach of objects.

LITERARY NOTICES.

BRATHWAITE'S RETROSPECT OF PRACTICAL MEDICINE AND SURGERY. Part 22, American Edition. We are indebted to Daniel Adee, 107 Fulton street, for the January Number of this copious and valuable Journal. It embraces 377 pages and 163 articles, from the pens of the most celebrated European physicians. Every medical practitioner in our country should possess himself of each number of the Retrospect. The whole series, from No. 1 to 22, inclusive, can be had for \$13.50. Two numbers per year \$1.50.

DICTIONARY OF MECHANICS AND ENGINE WORK.—No. 24 of this work, published by D. Appleton & Co., is issued, and contains treatises on iron, with many engravings, likewise articles on Japanning and Joining of Timbers, Kilns, Knives, &c. It is a very good number. The name of Oliver Byrne, as Editor, has disappeared, we see from the cover.

MECHANICS

INVENTORS
AND
MANUFACTURERS.

The Best Mechanical Paper
IN THE WORLD!
SIXTH VOLUME OF THE
SCIENTIFIC AMERICAN.

The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the SIXTH VOLUME of this valuable journal, commenced on the 1st of September last. The character of the SCIENTIFIC AMERICAN is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

It enjoys a more extensive and influential circulation than any other journal of its class in America.

It is published weekly, as heretofore, in *Quarterly Form*, on fine paper, affording, at the end of the year, an *ILLUSTRATED ENCYCLOPEDIA*, of over FOUR HUNDRED PAGES, with an Index, and from FIVE to SIX HUNDRED ORIGINAL ENGRAVINGS, described by letters of reference; besides a vast amount of practical information concerning the progress of SCIENTIFIC and MECHANICAL IMPROVEMENTS, CHEMISTRY, CIVIL ENGINEERING, MANUFACTURING in its various branches, ARCHITECTURE, MASONRY, BOTANY,—in short, it embraces the entire range of the Arts and Sciences.

It also possesses an original feature not found in any other weekly journal in the country, viz., an *Official List of PATENT CLAIMS*, prepared expressly for its columns at the Patent Office,—thus constituting it the "A *ERICAN REPERTORY OF INVENTIONS*."

TERMS—\$3 a-year; \$1 for six months.

All Letters must be Post Paid and directed to
MUNN & CO.,
Publishers of the Scientific American,
128 Fulton street, New York.

INDUCEMENTS FOR CLUBBING.

Any person who will send us four subscribers for six months, at our regular rates, shall be entitled to one copy for the same length of time; or we will furnish—
10 copies for 6 mos., \$3 | 15 copies for 12 mos., \$22
10 " 12 " \$15 | 30 " 12 " \$30
Southern and Western Money taken at par for subscriptions; or Post Office Stamps taken at their full value.

PREMIUM.

Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—having first appeared in a series of articles published in the fifth Volume of the Scientific American. It is one of the most complete works upon the subject ever issued, and contains about ninety engravings—price 75 cents.