

Science and Art.

MILK.

Extract from Liebig and Kopp's Annual Report upon the Progress of Chemistry, etc. Translated for the SCIENTIFIC AMERICAN:—

From the investigations of Struckmann under the direction of Bodeker upon the normal changes in cow's milk, it is found that the quantity of fat contained in milk increases (according to the hour it is drawn) from morning till evening, whilst the whole amount of protein substances remains constantly about the same; the quantity of sugar appears to reach a maximum at midday. The specific gravity was always nearly the same, and from that no conclusion can be drawn about the constitution of the milk.

Herpin has made a favorable report upon Mabru's method of preserving milk. This method consists in putting milk into a metallic vessel, which terminates at the top in a tunnel-shaped leaden tube; above the milk, (in the tunnel-shaped expansion,) is poured a thin layer of oil, to prevent contact with the air; the milk in the vessel is then heated from 167° to 176° Fah., during about an hour, to expel the air, and after cooling, the leaden tube is pressed together air-tight, then cut off above the point of compression, and soldered together.

NOTE.—The chemical facts above mentioned the SCIENTIFIC AMERICAN considers very important, and also in regard to the best hours for milking. If more butter can be made from a cow by milking her at one hour instead of another, dairymen should know the fact. Milkmen should also ascertain by experiment what are the best times for feeding the cow, for it will doubtless be found that more and richer milk will be obtained at a particular stage of the process of digestion of the cow's food than at any other time.

The Ventilation of Ships.

Dr. Reid of Edinburgh, who has devoted so much attention to ventilation, and who has written and lectured upon it, and who was employed to ventilate the New Houses of Parliament, in London, has been residing for some months in this city, neglecting no opportunity of bringing his favorite subject before the people. On the 18th inst. he appeared before the Commissioners of Health, at their room in the City Hall, and explained his apparatus for the purification and cleansing of vessels, with suggestions as to the general improvement of health in the city of New York. He recommends the use of a special ventilating power on ship board, and the destruction of all noxious effluvia by the action of heat and chemicals.

In all ships, hospitals, and public buildings, the means of perfect ventilation are cheap and simple. It requires no elaborate nor complicated machinery, the chief source is steam as a positive power, and hot air as a disinfecting agent. A small steam engine on board of any ship could be made to work a ventilating trunk, to draw in fresh air and expel all the foul air, and thus keep the air in every part of the vessel perfectly pure. The expense would not be much,—a steam engine of a few horse power could do all this; and it could be used for hoisting and lowering cargo while in port. We believe that every large ship would find it profitable to employ a small steam engine on board. There is no excuse for imperfect ventilation on any steamship. Hospitals can be ventilated on the same principle,—any room therein containing contagious effluvia, can be completely purified by hot air driven through it. If air is driven through a series of air tubes in a furnace and heated up to about 300°, and forced into infected rooms, or among infected clothes, it completely destroys all contagious malarial matters, and is an effectual deodorizer. A small steam engine and a hot-air blowing apparatus should be employed in every hospital in the world. These are our views on the subject of ventilation for passenger ships and for hospitals.

A Great Shot and a Great Pistol.

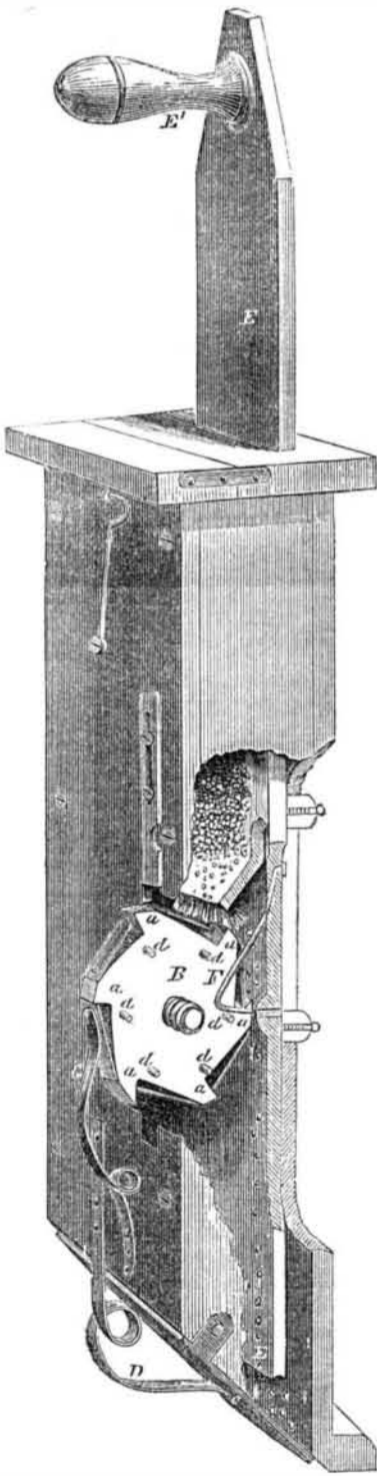
The following extract is taken from the New York Tribune, and has been published in

several other papers. We are well aware that some wonderful American pistols have been invented, but we do not believe that such shooting was ever executed:—

"Col. Hay, of the British army, recently tried his hand with the 'Volcanic Repeating Pistol,' a Yankee invention. The pistol used on the occasion was an eight-inch barrel, which discharges nine balls in rapid succession. The Colonel fired the arm 27 times, making a number of shots which would do credit to a rifleman. He first fired at an eight-inch diameter target at 100 yards, putting nine balls inside the ring. He then moved back to a distance of 200 yards, and fired nine balls more, hitting the target seven times. He then moved back 100 yards further, a distance of 300 yards from the mark, and placed five of the nine balls inside the ring, and hitting the 'bull's eye' twice. The man who beats that may brag."

New Hand Seed Planter.

In most of the hand corn planters the grain is taken from the seed box by means of a float slide, which has slots or pockets in its surface. In the machine here illustrated, A is the seed box, and B a many-sided wheel, which is employed instead of a slide.



The periphery of wheel B is notched at intervals, so as to form pockets, *a*, which receive the seed. By the revolution of wheel B, the seed contained in said pockets is discharged, and falls to the lower part of the machine, below slide E, upon the plate C; this plate is hinged at *c*, but is kept closed, except at the moment of planting, by the spring D.

In planting, the operator places the lower extremity of the instrument upon the ground, and pushes down the slide, E, by means of its handle, E'. In its downward movement slide

E opens plate C, and forces the seed which had previously fallen into the space below the extremity of the slide, into the ground. By lifting on the handle, E', the slide E is withdrawn, and plate C again closes.

Wheel B is rotated by the descent of slide E, through the medium of a spring dog, F, the lower end of which strikes the pins, *d*, and drives wheel B around, something after the manner of a ratchet wheel. G is a spring which serves as a ratchet and prevents wheel B from turning backwards. Wheel B projects through one side of the case, the spring being made tight by the plate, whose lower end rests on the periphery of wheel B, and rises and falls by its own gravity, in accordance with the formation of B. There are yielding face plates on the surface of the pockets, *a*. These face plates spring slightly, and throw off the grain, so that none can adhere. They also serve as regulators of the quantity of grain received in the pockets, *a*; for, by means of a set screw, they are readily adjusted so as to fill more or less space in the pocket.

This planter is extremely simple in all its parts, durable, and not liable to get out of order. It is adapted to the planting of corn, cotton seed, pumpkin seed either mixed or not, with corn, and to all other kinds of seeds that require to be deposited in hills. The construction of the machine is such that it cannot clog up, no matter what kind of seed is to be planted. It works equally well whether the ground be dry or moist. We regard it as an excellent improvement. For further information address the inventor, Heman B. Hammon, Bristolville, Trumbull Co., Ohio. Patented Sept. 9, 1856.

The Mammoth Steamship.

The monster steamer, *Great Eastern*, the greatest marine enterprise ever attempted, is progressing towards completion. It was feared at one time that the failure of her builders, Scott Russell & Co., would arrest its construction, but this has not been the case. We learn by the *London Artisan*, that there are now 1500 men employed on the hull, and the engines at Milwall; and that the work proceeds with alacrity. It is now ascertained that the weight of this ship, when ready for launching, will be about 12000 tons. In England, they often put in the engines, and finish steamships entire while on the stocks, then launch them ready for sea. The custom with us is to launch the hull when completed, and put in the engines and all the other adjuncts—rigging, &c., in the vessels while afloat—the best plan.

As it is intended that this great ship will make her first voyage to our shores, it is a matter of general interest to know how it is progressing. It will be a long time yet before it is completed. Although such a crowd of mechanics are employed on it, the quantity of work to be executed is so great that we must not estimate its progress comparatively with such pigmy steamers as those of four and five thousand tons burden.

Curious Effect of a Powder Explosion.

A correspondent of the Philadelphia *North American Gazette* states, that by the late powder mill explosion which took place at the Acton Powder Mills, many houses, at a considerable distance, had their windows blown out, also their clap-boards thrown off outwardly. This effect would go to prove that the explosion caused a great vacuum in the atmosphere, and thus a pressure of the atmosphere, at perhaps ten pounds on the square inch, was exerted from the inside of the houses in the neighborhood, thus smashing their windows and ripping off their clap-boards.

The Illinois Central Railroad.

The Chicago, Ill., *Tribune* says:—"Of the 2,700,000 acres of land granted by the State to aid the construction of the Illinois Central Railroad, over 2,000,000 acres yet remain unsold. Taking the sales made since the land office of the company opened in this city as a test, the fund realized from the lands alone will not fall short of \$45,000,000! It is thought that the road, completed and fully equipped, will be clear profit to the company, to say nothing of the \$20,000,000 that will in due time be piled up in their treasury. This

great work promises to be the most successful speculation of the age."

Luxurious Railroad Cars.

The Detroit *Advertiser* says the cars on the Illinois Central Railroad for comfort and convenience, excel those on any other road in the west. One of them contains six state rooms, each room having two seats, with cushioned backs, long enough to lie upon. The backs of the seats are hung with hinges at the upper edge, so that they may be turned up at pleasure, thus forming two single berths, one over the other, where persons may sleep with all the comfort imaginable. In one end of the car is a small washroom, with marble wash-bowls, looking glasses, etc. On the opposite side of the car from the state-room is a row of seats with revolving backs, similar to barbers' chairs, so arranged that the occupant may sit straight or recline in any easy attitude at pleasure. Other five cars have each two or three similar state-rooms.

The Newfoundland Fishery.

The banks of Newfoundland may be regarded as one of the wonders of the world, in fact, they are vast alluvial tracts on the breast of the ocean, which allow men to reap without the trouble of sowing, great fenny harvests. The fish caught on these banks find their way to the most distant parts of the earth. The annual value of the Newfoundland fish trade amounts to \$10,000,000

It is estimated that on the good roads of England, bullocks lose 20 lbs. weight when driven 100 miles, sheep 8 lbs., and hogs 10 lbs. each. It has therefore been found that the transporting of them by railway is by far the most economical method—saving meat, time, and trouble to the owners.



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TWELFTH YEAR

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