

Science and Art.

The Use of Salt in Food.

Dr. Chambers, of London, in his recently published work on Digestion and its Derangements, says of common salt in food:—

"The employment of salt in the average healthy state, is decidedly beneficial to the human species, and the use of it as an accessory aliment is wise in those who are well supplied with other food.

The physiological actions of salt indeed lead us to expect that it must be hurtful in some cases. Where waste is already excessive, or under circumstances where the diet is insufficient, the advantage of salt is a matter of serious doubt. Where food is deficient in quantity or quality, it is evidently improper that any excess of salt should be used beyond that which is just sufficient to act as a complementary aliment; all beyond this increases the waste. Encouragement should be given to employ instead, other spicy flavorings which have not this tendency, or which have even a contrary tendency.

It is to be remarked that the question of the use of salt as an accessory food is by no means the same as that of the employment of salted provisions. The manufacturing process so dries up and hardens the muscular fiber that without diligent cookery it is insoluble in the gastric juice, and in point of fact is an insufficient nutriment, a state of things where it has been said salt is improper. When salted provisions must be used, the desideratum is a mode of cookery which would render the albumen and fibrine again soluble."

Sewerage Manure

Mr. Mechi, the celebrated English cultivator, directs attention, through the columns of the *London Times*, to the importance of using the sewerage matters of the city of London for fertilizing land. He believes that if the sewerage of that great city was saved and applied to agriculture it would fertilize thousands of acres of land, which are now almost barren wastes in England. We believe he is right, and the same might also be truly said of the sewerage of New York. In this great city, having half a million of inhabitants, as much fertilizing materials flow through the sewers every year into the sea as would render the sand wastes of Long Island and New Jersey as fruitful as a well cultivated garden. It is high time that some attention was devoted to this question—the saving of sewerage for agricultural purposes.

Air Vessels on Pumps.

The accompanying engraving is a vertical section of the application of air chambers on the supply or suction pipes of pumps—such as fire engines and single and double forcing pumps, the patent for which was granted to Benj. T. Babbitt, S. C. Higbee, and P. W. Plantz, on the 7th of October, 1842, but which has never been thus made known to the public before. As their patent was extended for seven years from the 7th of October last, and as but few are aware of the existence of such a patent, it will be of interest to a great number of persons, as air chambers on force pumps have become quite common, and many manufacturers are no doubt innocently infringing this patent.

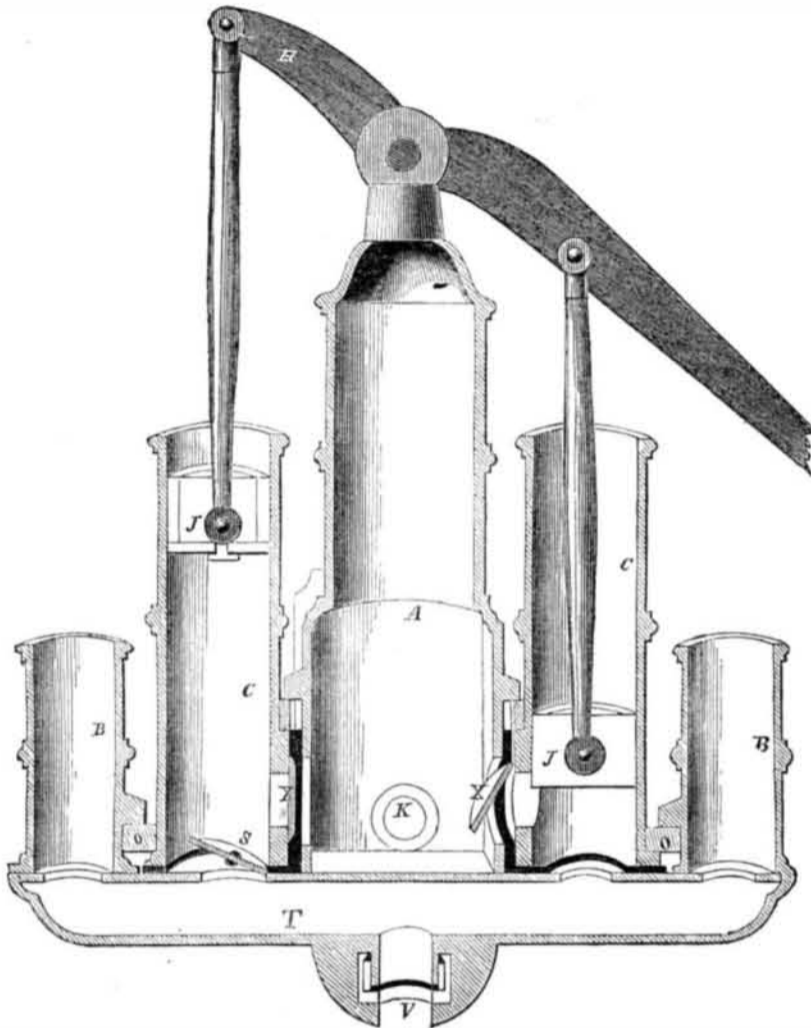
A is the discharging air chamber; K the discharge pipe; B B are two air chambers set on the suction or supply pipe, T. The hose is screwed or hooked to the pipe, V. C C are the working cylinders; J J are the plungers on them; S S are the valves opening inwards from the supply pipe, T, into the working cylinders; and X X are the valves opening from the cylinders into the discharge chamber, A. The pump chamber, A, and the bed plate having the inlet chamber pipe, T, are cast in one piece, and the cylinders and chambers are cast with wedge projections, leaving spaces between them, which, by keys or gibs, O O, connect them all together in a very simple manner; H is the working lever. One air vessel, B, is placed on the supply pipe, for one cylinder, C, or only one air vessel may be situated on the supply pipe, as the case may

require. The object of the air chambers so situated is for the purpose of giving elasticity to the re-action of the water in the supply pipe, so as not to check, too suddenly, the velocity of the water while the pump is operating, and on the dead centers; they cause less violent re-action in the supply pipes, and tend to produce a more steady stream from the pump and through the cylinders.

It is well known that pumps and fire en-

gines, without suction air chambers, do not throw so steady a stream when worked quick, because the cylinders do not fill so rapidly. The air in the chambers, B, being elastic—capable of compression—while the water being incompressible, these chambers act the part of equalizers or regulators to the water. On page 144, Vol. 8, *SCIENTIFIC AMERICAN*, there is an illustrated article on the subject of *air vessels on the supply pipes of pumps*, de-

AIR VESSELS ON THE SUCTION OF PUMPS.



tailoring experiments which had been made with and without such vessels. A very large increase of duty was obtained by the use of these air chambers. The usefulness of air chambers connected with the supply pipes of pumps is now generally admitted, but as we stated before, few are aware of the existence of this extended patent relating to them.

The following is the claim of the patentees:

Atmosphere for Consumptive Persons.

A writer in the *British and Foreign Medical-Chirurgical Review*, who has made upwards of three thousand observations upon respiration in consumption, says that the sitting and studying position in that disease call for more expenditure of power, and tend to produce more subsequent exhaustion than in health, and that the lying posture saves the strength. The effect upon respiration is much less than the standing posture. Hence the latter practice tends further to exhaust the system by increasing the blood motion. High temperature, with the accompaniment of dry air, also tends to rapid exhaustion by greatly increasing the blood motion, and greatly lessening the introduction of air; and, on the contrary, low temperature and moisture increase verification of the blood and lessen the rapidity of the blood current. Hence, in consumption, a moderately cool and moist air is the most conducive, he says, to health, and the hot summer season induces exhaustion.

Many persons, and among the number eminent physicians, have inculcated the idea that a moderately cool and moist atmosphere was injurious to consumptive persons, and that a dry, warm or cool atmosphere was the most favorable for them. Upon this very theory it has been customary to send consumptive persons from cold and moist climates to warm or cold dry climates. "How doctors do differ!"

From cases which have come under our own observation we are of opinion that damp climates are generally injurious to persons pre-

disposed to consumption, while dry climates are beneficial. Many consumptive persons have gone from the sea-board of the Atlantic States to the dry, cold regions of the northwest, and have entirely recovered, and such has also been the case with others who have gone to Florida. These results we attribute to the dry atmosphere of those regions.

More information may be obtained from Benj. T. Babbitt, agent, now residing at Nos. 68 and 70 Washington street, this city, but who was a resident of Little Falls, N. Y., when the patent was originally granted.

Something New About Ozone.

Andrews has communicated the results of a very elaborate and extended investigation on this subject, which forms an important contribution to our knowledge. The author in the first place repeated the experiments of Baumert, who arrived at the conclusion that ozone is the peroxyd of hydrogen, having the formula HO^2 . Andrews found that no two experiments led to the same constitution for this peroxyd, and finally discovered that the discrepancy was owing to a small quantity of carbonic acid which, without great care, is always mixed with electrolytic ozone. In Baumert's experiments the increase of weight of the apparatus was always greater than the weight of the ozone as deduced from its chemical action. Andrews found, however, that when the carbonic acid was completely removed these two qualities exactly agreed, so that it is proved that water is not a product of the decomposition of the ozone, and therefore that this contains no hydrogen. In like manner it was shown that no water is produced when ozone is decomposed by heat. The ozone obtained by electrolysis by the action of the electric spark and by the oxyda-

tion of phosphorus was found to be identical. Finally, it was found that ozone contained no nitrogen. The author concludes from his investigation that ozone is oxygen in an allotropic modification, and not a compound body as supposed by Schonbein, Williamson, and Baumert.—*Silliman's Journal*.

A South Sea Dredger.

The people of the port of Honolulu, have obtained a dredging machine, to deepen the channel, but it seems to be a baulky sort of an animal. It has been tried again and again, but has always broken down. Our exchange, the *Honolulu Advertiser*, says:—

It was announced last Saturday with considerable flourish that this machine which is now getting to be quite renowned, was going to work on Monday to deepen the channel. So on Monday all eyes were turned toward the entrance of the harbor to see how the work progressed. Up to yesterday three entire bucketsfull had been scooped up, but from some cause the dredge has returned to the harbor, and now lies 'in ordinary,' alongside the wharf where she was built. We remember an old saw which runs thus, and is quite appropriate:

"Jack and Gill went up the hill," &c.

Those having charge are specially requested to report progress, and give public information when the channel is deepened."

An American Knighted.

Late news from Europe bring the intelligence that Prof. Morse has been knighted by the King of Denmark—the order of Danneborg being conferred upon him as a token of admiration for his invention of the Electro-Magnet Telegraph.



Inventors, and Manufacturers

TWELFTH YEAR

PROSPECTUS OF THE

SCIENTIFIC AMERICAN.

This work differs materially from other publications being an ILLUSTRATED PERIODICAL, devoted chiefly to the promulgation of information relating to the various Mechanic and Chemic Arts, Industrial Manufactures, Agriculture, Patents, Inventions, Engineering, Millwork, and all interests which the light of PRACTICAL SCIENCE is calculated to advance.

The *SCIENTIFIC AMERICAN* is printed once a week, in convenient quarto form for binding, and presents an elegant typographical appearance. Every number contains *Eight Large Pages*, of reading, abundantly illustrated with ORIGINAL ENGRAVINGS—all of them engraved expressly for this publication.

All the most valuable patented discoveries are delineated and described in its issues, so that, as respects inventions, it may be justly regarded as an ILLUSTRATED REPERTORY, where the inventor may learn what has been done before him, and where he may bring to the world a KNOWLEDGE of his own achievements.

REPORTS OF U. S. PATENTS granted are also published every week, including *Official Copies* of all the PATENT CLAIMS. These Claims are published in the *SCIENTIFIC AMERICAN* in advance of all other papers.

Mechanics, Inventors, Engineers, Chemists, Manufacturers, Agriculturists, and People of every Profession in Life, will find the *SCIENTIFIC AMERICAN* to be of great value in their respective callings.

Its counsels and suggestions will save them *Hundreds of Dollars* annually, besides affording them continual source of knowledge, the experience of which is beyond pecuniary estimate.

Much might be added in this Prospectus, to prove that the *SCIENTIFIC AMERICAN* is a publication which every Inventor, Mechanic, Artisan, and Engineer in the United States should patronize; but the publication is so thoroughly known throughout the country, that we refrain from occupying further space.

TERMS OF SUBSCRIPTION—\$2 a year, or \$1 for six months.

CLUB RATES.

Five Copies for Six Months,	\$4
Five Copies for Twelve Months,	\$8
Ten Copies for Six Months,	\$8
Ten Copies for Twelve Months,	\$15
Fifteen Copies for Twelve Months,	\$22
Twenty Copies for Twelve Months,	\$28

For all Clubs of 20 and over, the yearly subscription only \$140.

Post-pay all letters, and direct to

MUNN & CO.,
128 Fulton street, New York.
For list of Prizes, see another page.