

Artificial Atropine.

Up to the present time the artificial preparation of an alkaloid has not been successfully carried out. Vanilline and other organic products formed in plants have been made, and a substance isomeric with coniine was also made some years since. Ladenburg has recently taken an important step in the matter of making artificial atropine. He has, in fact, prepared the alkaloid, but the materials employed in its preparation, namely, tropine and tropic acid, have not yet been obtained from any other source than from atropine. When atropine is acted upon by baryta or hydrochloric acid, it breaks up into tropic acid and tropine. To be able to unite these two bodies again, so as to form the true atropine, may seem a small affair, and yet it is often very difficult. Every one knows how grape sugar splits up into alcohol and carbonic acid, if yeast is present, yet no one has ever been able to convert alcohol into sugar by acting upon it with carbonic acid. The conversion of cane sugar into glucose is easy enough, and yet the opposite is impossible. The destruction of complex organic compounds is always easier than their production, and whenever we succeed in rebuilding a body from simpler ones we have made an important step in the direction of its synthesis. To decompose the tropic acid into simpler bodies, perhaps into substances that have already been prepared, and then to reverse the operation, will be the next duty of Dr. Ladenburg.

Atropine is the active constituent of belladonna, and possesses, with other properties, the remarkable power of dilating the pupil of the eye, whether introduced into the eye, taken into the stomach, or injected beneath the skin.

The artificial atropine prepared by Ladenburg has the same effect upon the eye. Both the natural and the artificial alkaloids possess the power of neutralizing the action of muscarine upon the heart. Physically they have the same melting points, and both crystallize in brilliant needles. The precipitates formed by tannin, mercurio-potassic iodide, picric acid, chloride of gold, etc., have the same properties whether the natural or artificial atropine is employed. When heated with sulphuric acid and bichromate of potassium they each evolve an odor of benzoin. These remarkable physical and chemical coincidences leave no reasonable doubt of their identity.

The Effect of Coffee Again.

Dr. Richardson, the eminent English scientist, in respect to the popular notion that coffee is an unhealthy beverage, that it keeps up a constant irritation of the stomach, and brings on depression of spirits, etc. There was a great deal of truth in that statement, says the doctor, as coffee cannot be taken in excess without producing dyspepsia and irritation, *but moderately used it is an invigorating, healthful, and wholesome drink, bringing a man's best energies into play.* The quantity taken, however, must not be large, and should be good.

Dr. Bock, of Leipsic, another celebrated scientist, says: "The nervousness and peevishness of our times are chiefly attributable to tea and coffee: the digestive organs of confirmed coffee drinkers are in a state of chronic derangement, which reacts on the brain, producing fretful and lachrymose moods. Fine ladies addicted to strong coffee have a characteristic temper, which I might describe as a mania for acting the persecuted saint. Cocoa and chocolate is neutral in its psychic effects, and is really the most harmless of our fashionable drinks."

Nerve Stretching in Obstinate Sciatica.

At a recent meeting of the Harveian Society, London, Mr. Pye read a paper on nerve stretching. A patient had suffered for many years with severe sciatica, for the treatment of which huge doses of morphia had been used. The patient was in severe pain when not under the influence of morphia. The nerve having been laid bare, it was pulled backward and forward, forcibly, with from eight to ten pounds pressure. The wound healed well, the pain was lost, and some paresis followed. The paresis wore off, and some pain was felt in the lower leg, but there was no return of the sciatica. The patient was able to resume work. The sciatica was probably rheumatic. The list of cases of nerve stretching yet performed is not large enough to settle the question of the justifiableness of the operation. Mr. Pye then reviewed very carefully the history of the operation. It has been less successful in the treatment of tetanus than neuralgia. When the nerve was compressed by an inflammatory area the operation promised well. In cases where the skin had become altered a change toward the normal condition followed, as well as the relief of pain.

Petroleum in Russia.

From an official report addressed by Colonel Romanowsky to the Russian Minister of Finance, it appears that the principal petroleum depots in the Russian Empire are to be found in the southeastern and northeastern districts of the Caucasus, that is to say, in the province of Bakou, on the shores of the Caspian Sea, and in the province of Kouban, in the vicinity of the Black Sea. According to the statements of some Russian engineers, there are no less than 250 localities within these provinces where enormous quantities of petroleum can be found. It is said that 100 of these depots, if properly worked, could be made to yield 660,000,000 gallons per annum. The Bakou oil is thick and heavy, suitable for heating and for rough purposes in general; the Kouban oil is of better quality for refining and for burning in lamps.

IMPROVED HAND AND POWER PRESSES.

We give on this page engravings of several varieties of presses made by the Boomer & Boschert Press Company of Syracuse, N. Y. These presses are adapted to a great range of work, such as baling cloth, pressing paper, expressing lard or tallow, making cider, wine, etc., and are built in different sizes to be operated by hand or power.

An almost endless number of devices have been used for obtaining pressure, the most prominent being the screw, the lever, and the hydraulic press, but these without exception give the same power at the beginning and end of the work.

In expressing lard and tallow or the different oils, as well as most other substances, but little power is required in the early part of the operation, and the constantly increasing resistance requires a corresponding increase of power. The construction of the Boomer & Boschert press is such as to insure a regular increase of power with every turn of the screw which tends to straighten the toggles, while the movement of the follower is proportionately less. The development of pressure and increase of resistance are so nearly equal that the same power that is applied at the beginning of the pressing operation is competent to finish. For example: one man with a hand power press can easily perform the task from beginning to end. This "progressive power," as the manufacturers term it, is perfectly adapted to the work, and by very simple means accomplishes wonderful results.

Fig. 1 shows a cloth baling press embodying this principle. The platen is guided by the rods which bind the upper cross beams to the bed and take the strain of the press. The frame and platen of this press are wood, and may be varied in size within certain limits without materially affecting the cost. The paper press shown in Fig. 2 is made of iron in different sizes. The length of the rods controls the distance between the base and follower and the capacity of the regular sizes of this press may be varied by using longer or shorter rods.

The power press shown in Fig. 3 has a double platform, which is mounted on a truck, movable on a track on the floor. The shifting gear is worked by a crank, and is arranged to move the platform across the bed of the press easily and quickly. By means of this arrangement one cheese may be pressed while another is being made ready. In this connection we give an engraving of Messrs. Boomer & Boschert's apple grater, which is very efficient and well adapted to the work it is required to perform.

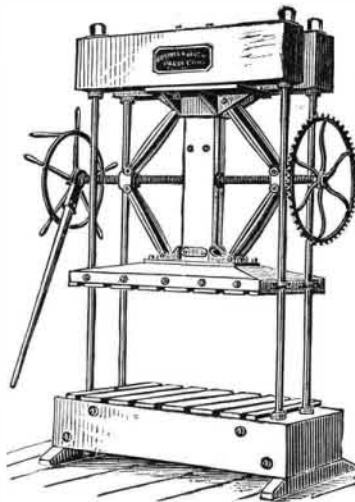


Fig. 1.—CLOTH BALING PRESS.



Fig. 2.—PAPER PRESS.

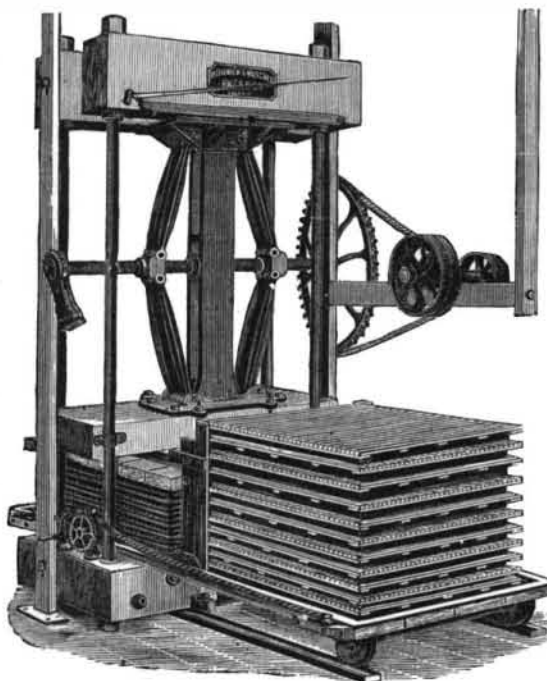


Fig. 3. POWER CIDER PRESS

The power cider press represented in Fig. 3 has a double platform, which is mounted on a truck, movable on a track on the floor. The shifting gear is worked by a crank, and is arranged to move the platform across the bed of the press easily and quickly. By means of this arrangement one cheese may be pressed while another is being made ready.

In this connection we give an engraving of Messrs. Boomer & Boschert's apple grater, which is very efficient and well adapted to the work it is required to perform.

The frame of the grater is made of iron, giving a security, strength, and stability which no wood frame, however well made, possesses. The cylinder is of iron, turned and carefully balanced. It has planed grooves to receive the knives—eight in number—which are adjustable by set screws, above and below at each end, and held firmly in their places by a heavy wrought iron band shrunk on each end of the cylinder.

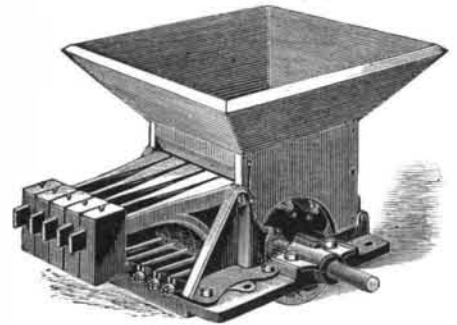


Fig. 4.—APPLE GRATER.

The concaves consist of five iron levers with movable weights, allowing stones or any other hard substances to pass through without injury to the knives.

Fig. 5 shows a press made on the same principle as the others and especially designed for kettle rendered scrap. It is provided with an improved hoop consisting of a cast iron section or post, which forms about one sixth of the hoop, is firmly bolted to the bed of the press, and arranged with hinges upon which swing two doors that complete the circle when fastened together. These doors are constructed of wrought iron hoops and staves, with steel fastenings.

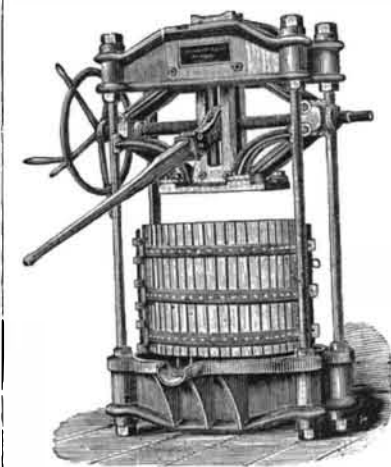


Fig. 5.—LARD PRESS.

When the pressing is completed, the doors are unfastened and swung open, the cake is removed, the doors are swung together and again fastened, thus avoiding much of the heavy lifting attending the use of other kinds of hoops.

These presses have been extensively introduced in the principal cities of this country—as well as Europe, South America, Mexico, and to some extent in Asia, and are deserving of the success they have attained.

Floating Island.

Among the many natural curiosities of Tuolumne county it is not generally known that there is a "floating island." Up in the "Siskiyou," lying like a pearl in the great mountain chain, is Squaw lake, a beautiful sheet of water, now utilized by a mining company as a reservoir. For many years the lake has been a favorite and delightful resort for fishing parties, and contained nearly in its center an island, comprising about an acre of ground, covered with luxuriant grass and a growth of willow and alder. It was never dreamed that the pretty little island was not terra firma, but when the bulkhead across the outlet of the lake dammed up its waters, the island rose slowly until it had been elevated fully 16 feet above its original level. It would be a question for the naturalist rather than the geologist to determine the age of this floating island, as it is evidently made up entirely of decayed vegetation. Perhaps at some remote period the roots of a tree, uprooted by the mountain storm, drifting out in the lake, formed the nucleus from which the island has grown, but it seems singular that it should have remained anchored and unchangeable in its position. The locality is much frequented by pleasure seekers who will hereafter notice the increased elevation.—*Jacksonville Sentinel.*

Home Made Soda Water.

The artificial seltzer water, made with a carbonic acid generator, is already an imitation, far from perfect, of the natural water. A receipt to make it on the small scale for family use, as it were, can only give a product differing still more from that of the spring. Yet the following would fairly imitate the taste and properties of the natural water:

Fused chloride of calcium.....	4 grains.
Chloride of magnesium.....	12 "
Chloride of sodium.....	15 "
Citrate of iron.....	1/2 "
Tartaric acid.....	2 drachms.
Bicarbonate of soda.....	2 1/2 "
Water sufficient.	

Dissolve all the salts, excepting the tartaric acid and the bicarbonate, in about one pint of water, and introduce the solution into a champagne bottle. Then, having completed the requisite quantity of liquid so as to leave an empty space of about two fluid ounces, add the tartaric acid, and, immediately after, the bicarbonate of soda. Cork the bottle tightly, secure the cork with stout cord, and set the bottle aside for about six hours before it is opened. It is then ready for use.