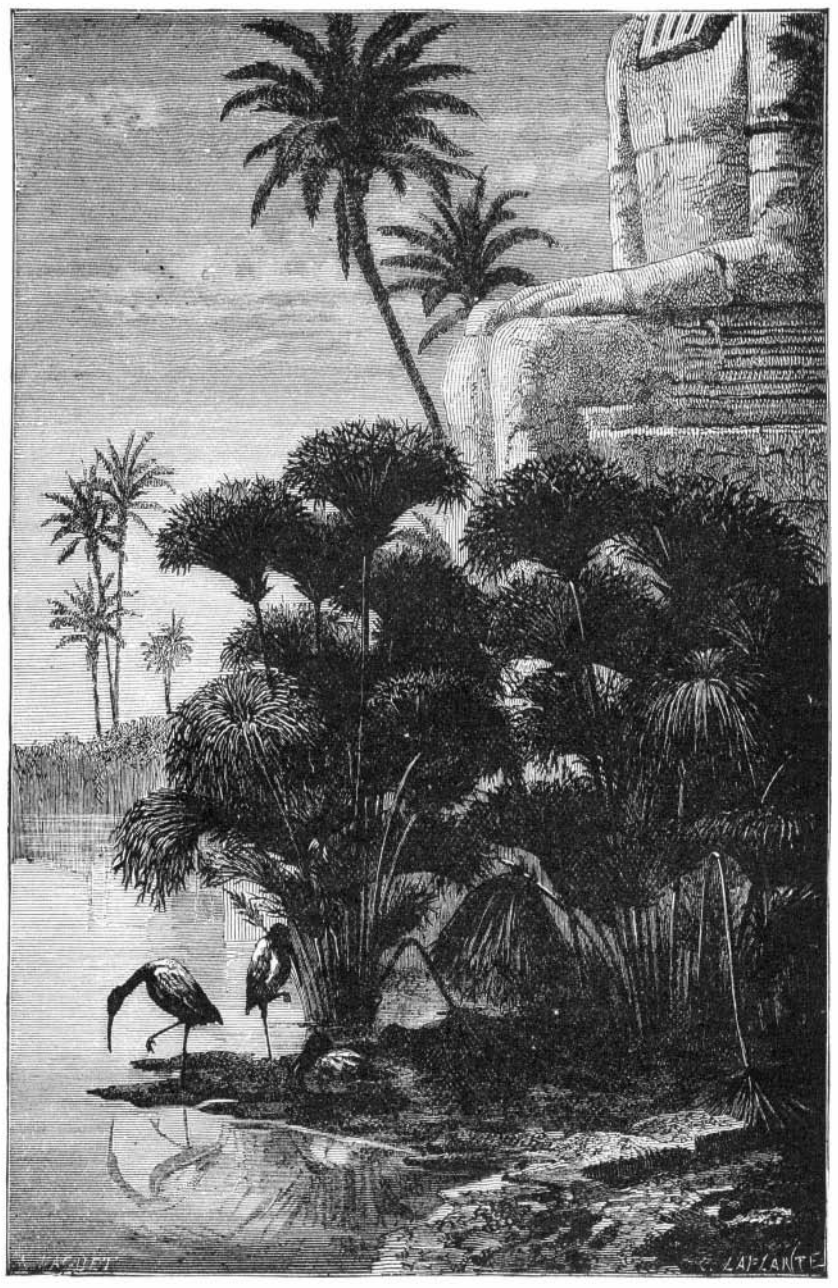
THE PAPYRUS OR PAPER REED.

The papyrus plant or paper reed, an engraving of which (taken from Knight's *New Mechanical Dictionary**) is herewith presented, belongs to the family of *cyperaceæ* or sedges, nearly related to the grasses, and as remarkable for the small number of its useful plants as the grasses are for their many valuable species. It was called *papu* by the Egyptians, whence the Greek *papuros*, the Latin *papyrus*, and our word *paper*. It grows on the marshy banks of rivers in Abyssinia, Syria, and Sicily, and formerly abounded on the banks of the Nile; but at present it has nearly disappeared from Egypt. The plant has large and abundant root stocks, which spread in the mud and throw up numerous stems from five to ten feet in height, the lower portion being submerged; the stem is triangular and smooth. The leaves all spring from near the base, the upper part of the stem being quite naked and bearing its inflorescence at the apex in the form of a large compound umbel. This consists of numerous slender branching peduncles, bearing at their extremities the flowers in small heads or spikes, and forming a graceful, drooping tuft, which has at its base numerous long narrow leaves.

In making paper, the inner cuticle of the stalk was separated into thin *laminæ* by a sharp point. The finest were those next the pith; and the layers, of which there were about twenty, decreased in quality as they approached the outer integument, which was coarse and fit only for making cordage, mats, etc. The slips were laid side by side on a smooth flat surface, and covered with a second layer placed at right angles to them, after which they were pressed so as to cause the different *laminæ* to adhere to each other and form a single sheet, which was then dried in the sun. It is said that the layers were made adhesive by wetting them with Nile water, to which Pliny ascribes a glutinous quality. The sheets were finally beaten smooth with a mallet and polished with a piece of ivory. When finished, the papyrus was rolled upon a wooden cylinder, the ends of which, projecting beyond the edges of the sheet, were neatly finished and ornamented.

The papyrus plant was used for a great variety of purposes besides paper. Its graceful plumes crowned the statues of the gods, and decorated their temples: its pith was eaten as food: wickerwork boats, boxes, and baskets were woven of its stalk; and of its bark were made sails, cordage, cloth, mats, and sandals for the priests. It was applied as medicine to the cure of fistulas and ulcers; it furnished material for torches and candles, and its roots were used for fuel and manufactured into furniture and household utensils.



THE PAPYRUS.

Fireproof Walls.

The report of a committee of the National Board of Underwriters, giving the palm to the fireproof quality of brick as a material for buildings, is strikingly confirmed by our own experience. The walls of the *Journal of Commerce* building, though exposed in the upper parts to an extremely intense heat for nearly two hours, prove to be but slightly injured. A few trifling cracks, readily repaired, near the roof, are the only signs in the walls of the ordeal through which they have passed. The walls were strongly constructed, intended to last, and they have served their purpose. Had the structure been made of granite or marble or iron we can guess what would be its present condition from the fate that has overtaken so many buildings composed of those materials. The report of the Fire Underwriters' Committee makes no new points; but it presents again in a very convincing manner some of the evidences, which ought to be heeded, as to the superiority of brick over stone or iron for building purposes. One of the most impressive proofs given is that offered by the great fire in Boston in 1872, when the rear brick wall of the new Post Office Building in that city was exposed to a terrible direct heat for hours without sustaining a crack or blemish of any kind; whereas the granite side of the structure, not facing the fire, was seriously damaged, and it was necessary to take down portions of it The report strongly condemns the use of iron in architecture, declaring it "undesirable for such purposes, and unsafe in a fire point of view." The recent destruction of large iron edifices in New York and St. Louis is cited as testimony on this head. The wreck of the iron building burned in Bond street of this city last winter was a quick piece of work; but St. Louis beat it at a fire last month, when one of the largest iron structures in that city lay flat on the ground within twenty minutes after the fire was discovered in it. The committee say that wooden columns, pillars, or supports of proper dimensions will stand fire better than iron. They recommend, for fireproof doors or shutters, wood clad with sheet iron or tin. These are all practical suggestions worthy to be heeded by architects and owners of buildings. And they will have almost the force of law in the community if they are made the basis of discrimination in insurance rates adopted by the companies.—*New York Journal of Commerce.*

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The American Inventor.

The British *Trade Journal* says: "The ingenuity of the American inventor is a curiosity in itself. Having exhausted the credulity of the customers for wooden nutmegs, and the ligneous ham having proved a failure, the New Englander has lately been devoting his sharp intellect to inventions nearly as profitable and rather more reputable. A few years ago soft felt hats were extensively worn in the United States. They were very pleasant, but had the one fault of getting limp and slouchingly unsightly in the brim. It struck a keen New Yorker that a bit of galvanized wire run around the brim would not only obviate this, but give the beaver the desired cock at will. No sooner thought of than done, and no sooner done than patented. Luckily a patent does not cost quite so much in the United States as here, and the lucky inventor is said to have netted a fortune. Now we hear that the genius who first brought out wooden toothpicks has made $50,000 by his little manufacture. At first, if the universal traveler's tale be true, a fork, or the all-useful bowie knife, served this purpose. But, as the country advanced in luxury, the demand for a weapon more civilized and a little lighter became universal. Found the demand, the man who was to satisfy it soon appeared. At first the toothpicks were made of hard, fibrous wood. But this, we are told by New York journals, did not serve. The hickory toothpicks lasted too long. Latterly he has been making them of soft pine wood, and with a great increase to his gains, for it now takes four sound picks to get the broken end of one out from between the teeth. This almost equals the genius who, finding no sale for his cargo of shoe pegs in Philadelphia, 'whittled the other end, and sold them for oats in New Orleans.' At least, so we read in an American newspaper, and all the world knows how jealously they cling to the truth."

Action of Sea Water on Lead.

The *Journal of the Chemical Society* says that, after keeping strips of new cut lead in a bottle of sea water, frequently shaken, for four days, no trace of lead could be detected in the water, but the bright surface of the strips was coated with an insoluble lead compound. Hence, lead pipes may be used in marine aquaria without any fear of injury to their inhabitants.

Gardening all the Year Round.

Under this heading, D. H. Jacques, Esq., contributes to the *Semi-Tropical Magazine* some timely hints to agriculturists, from which we make the following extracts:

Watering so as to merely wet the surface of the ground often does more harm than good. The roots of the plants are thereby attracted to the surface, thus temporarily moistened; but as it soon becomes as dry as before, and harder than ever, the young roots perish in the intervals of watering, and the plant is weakened rather than strengthened, and not infrequently killed outright. The ground should be well soaked and the watering not frequent. In the case of trees, shrubs, and large herbaceous plants, it is well to draw away the surface earth from them to the depth of two or three inches, doing it carefully, so as not to injure the roots, apply the water, and then return the dry soil. This prevents immediate evaporation and gives the roots the full benefit of the water, without exposing them to be burned up by the hot sun. Where this is not practicable, as among small plants, holes may be made near them with a dibble or sharpened stick, and water poured into them from the nozzle of a watering pot. The plants may afterward be slightly sprinkled from the nose of the pot and the ground stirred with the prongoe.

Saltpeter, a tablespoonful or more to a bucket of water, is an excellent occasional application to most kinds of garden plants, being at the same time a fertilizer and an insect destroyer. Many grubs and bugs may be destroyed by copious waterings with this solution.

To keep plants bearing: The production of seed is an exhaustive process, and, as a rule, its completion is signalized either by the death of the plant, if an annual, or by a temporary suspension of the process of growth, if a biennial or a perennial. The immediate end for which Nature has sustained it has been attained. If we are cultivating it for seed, our object is the same, and we should not interfere with Nature's processes; but if, as in the case of the okra, the cucumber, and the summer squash, we make use of the immature fruit and desire to increase and prolong its production, we must carefully cut off, before maturity, all that is produced, whether we can make use of them or not, so as to encourage an abnormal production. Also, where a root or a bulb is the object of cultivation, as in the Irish potato or the onion, we should remove the flower stems. If seeds are desired, certain plants should be set apart for their production and the earliest and best fruit be allowed to ripen. The same rule applies to the flower garden. If we desire continued bloom, the plants must not be allowed to mature seeds.

Moss for potted plants: It is beneficial, at this season, to cover the earth around plants in pots and baskets with a layer of fresh moss, to be changed as it becomes dry and dead. It keeps the moisture from evaporating, secures a greater uniformity of temperature, and improves the looks of the plant.

Transplanting: Tomatoes, peppers, and egg plants should be transplanted, as required to keep up a succession of fruit, choosing showery weather for the operation, or watering and shading as heretofore directed. In light, porous soils, transplanting becomes a work of some delicacy and difficulty, as the summer advances, especially when the rains are light and infrequent, as is often the case at this season. See previous hints on this subject.

Flower garden work: In the flower garden the operations of the month are mainly the same as in the vegetable garden. Stir the soil, kill all weeds, transplant, shade, and water. Liquid manure is here fully as effective as in the kitchen garden, giving wonderful size and brilliancy to the flowers. Rose and other bushes will be much benefited by a top dressing of pulverized charcoal and ashes composted with rotten muck or surface soil from the woods.

The Great Eastern to be a Meat Ship.

The owners of the Great Eastern are, it is said, considering the propriety of converting that magnificent vessel into a huge refrigerating chamber for the conveyance of American meat. A recent examination has disclosed the fact that, like the Great Britain—another of Brunel's ships—the hull is practically in as good condition as when first built, and the directors consider it would be wise to raise sufficient money to put new and improved engines and boilers into the vessel. They have been empowered to prepare a rough estimate of the cost of the new machinery; and in view of the fact that the vessel can even now steam as fast as any of the Atlantic liners, the trade in meat, which is being developed not only with the United States, but also with Brazil, promises to open a wide field of usefulness—a trade in which the great vessel need never carry only half a load.