THE IVORY PLANT.

So different are the products of the animal from those of the vegetable kingdom, that even the most careless observer may be expected at once to distinguish them. Yet multitudes are in the daily use of ivory buttons, boxes, and small ornaments, who never doubt that they are made from the tusks of the elephant, while they are really the product of a plant.

The ivory plant is a native of the northern regions of South America, extending northwards just across the Isthmus of Panama, large groves of it having been recently discovered in the province of that name. It is found in extensive groves—in which it banishes all other vegetation from the soil it has taken possession of—or scattered among the large trees of the virgin forests.

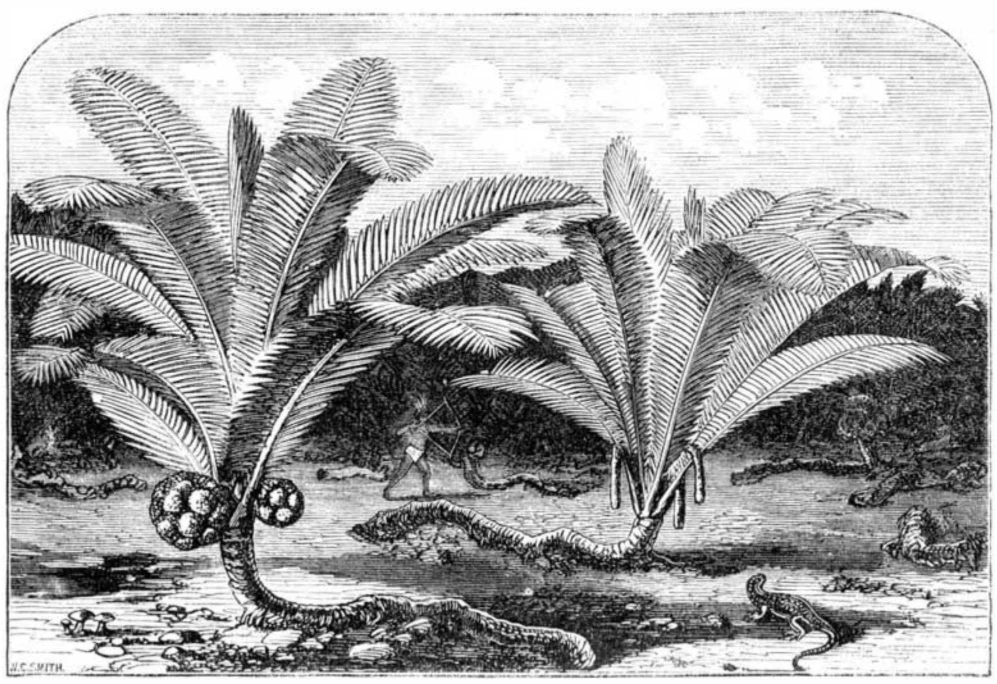
It has the appearance of a stemless palm, and consists of a graceful crown of leaves twenty feet long of a delicate pale green color, and divided like the plume of a feather into from thirty to fifty pairs of long narrow leaflets. It is not, however, really stemless, but the weight of the foliage and the fruit is too much for the comparatively slender trunk, and consequently pulls it down to the ground, where it is seen like a large exposed root, stretching for a length of nearly twenty feet in old plants. The long leaves are employed by the Indians to cover the roofs of their cottages.

Each flower of the ivory plant does not contain stamens and pistils, as in most of the British plants, but, like our willows, one tree produces only staminal flowers, while another has only pistillate ones. Such plants are said by botanists to be diœcious. Both kinds of the plants of the vegetable ivory have the same general appearance, and differ only in the form and arrangement of the flowers. In the one kind an innumerable quantity of staminal flowers is borne on a cylindrical fleshy axis, four feet long, while in the other a few pistillate flowers spring from the end of the flower-stalk. Each plant bears several heads of flowers. Purdie, who visited the plants in their native locality in 1846, says: "the fragrance of the flowers is most powerful, and delicious beyond that of any other plant; and so diffuse, that the air for many yards around was alive with myriads of annoying insects, which first attracted my notice. I had afterwards to carry the flowers in my hands for twelve miles, and though I killed a number of insects that followed me, the next day a great many still hovered about them, which had come along with us from the wood where the plants grew."

The group of pistillate flowers produces a large roundish fruit, from eight to twelve inches in diameter, and weighing when ripe about twenty-five pounds. It is covered by a hard woody coat, everywhere embossed with conical angular tubercles, and is composed of six or seven portions, each containing from six to nine seeds. These seeds, when ripe, are pure white, free from veins, dots, or vessels of any kind, presenting a perfect uniformity of texture surpassing the finest animal ivory; and its substance is throughout so hard, that the slightest streaks from the turning-lathe are observable. Indeed, it looks much more like an animal than a vegetable product; but a close comparison will enable one to distinguish it from the ivory of the elephant, by its brightness and its fatty appearance, but chiefly by its minute cellular structure.

This curious hard material is the store of food laid up by the plant for the nourishment of the embryo, or young plant contained in the seed. It corresponds to the white in the egg of the hen, and has been consequently called the albumen of the seed. In its early condition this ivory exists as a clear insipid fluid, with which travellers allay their thirst; afterwards the liquor becomes sweet and milky, and in this state it is greedily devoured by bears, hogs, and turkeys; it then gradually becomes hard. It is very curious that this hard mass again returns to its former soft state in the process of germination. The young plant for some time is dependent upon it for its food, and if the seed be taken out of the ground after the plant has appeared, it will be found to be filled with a substance half pulp and half milk, on which the plant lives until it is old enough to obtain its food on its own account.

From the small size of the seed, the largest not being more than two inches across its greatest diameter, the vegetable ivory can be employed in the manufacture of only small articles, such as beads, buttons, toys, etc. What is wanting in size is, however, often made up by the skill and ingenuity of the workman, who joins together several pieces so as to make a long object (especially when such articles are made by the turning-lathe, when it is easy to hide the joints from view), or makes a lid from one seed, and the box from another. In some years as many as 150 tuns of seeds have been imported into England, and they have been sold in the market at the rate of a thousand nuts for seven shillings and six pence.



THE IVORY PLANT.

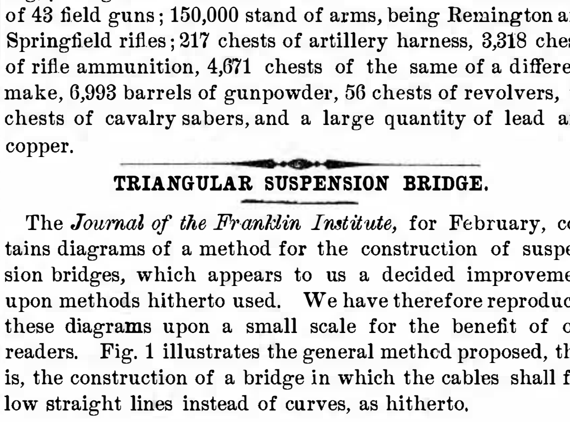
American Supply of Arms to France.

Since the commencement of the Franco-German war, France has been the principal purchaser of arms in the markets of the United States. Since the capitulation of Marshal MacMahon, at Sedan on September 3, and the proclamation of the French Republic on September 5, 1870, the shipments of small arms have been very large, amounting in value, between September 3, 1870, and January 4, 1871, to $9,717,606. The *Pereire*, in three trips to Havre, tooks guns worth $1,432,904; the *Lafayette*, in three trips, took guns worth $2,171,395; and the *Ville de Paris*, in two trips, took guns worth $1,927,263. The steamers *Erie*, *Ontario*, and *Avon*, sailing to Cowes for orders, each carried a cargo of arms valued in the aggregate at $4,216,008. A manufacturing firm in New York, it is stated, has been turning out daily 1,000 muskets of an improved pattern for the French Government. Of the guns shipped, 75,000 were Enfield rifles, originally imported from England, and disposed of last autumn by the United States Government at the public sales by proposals. A large surplus of arms sold on that occasion are not yet delivered, the purchasers being agents of the German Government, and having forfeited the deposit of $10,000 for non-compliance with the conditions of sale.

The shipments of artillery to France were small, the value amounting in the aggregate to $150,000. Harness in considerable quantities appears on the manifests of vessels sailing for Havre, and over 50,000 knapsacks have also been shipped to that port. In September, the *Lafayette* took out a shipment of arms. Early in the second week of January, a cargo reached Bordeaux in the *Lafayette*, from New York, consisting, among other warlike items for the French Government, of 43 field guns; 150,000 stand of arms, being Remington and Springfield rifles; 217 chests of artillery harness, 3,318 chests of rifle ammunition, 4,671 chests of the same of a different make, 6,993 barrels of gunpowder, 56 chests of revolvers, 76 chests of cavalry sabers, and a large quantity of lead and copper.

TRIANGULAR SUSPENSION BRIDGE.

The *Journal of the Franklin Institute*, for February, contains diagrams of a method for the construction of suspension bridges, which appears to us a decided improvement upon methods hitherto used. We have therefore reproduced these diagrams upon a small scale for the benefit of our readers. Fig. 1 illustrates the general method proposed, that is, the construction of a bridge in which the cables shall follow straight lines instead of curves, as hitherto.



Figs. 2 and 3 will illustrate the principle more fully. In Fig. 2, P *o o* P' represents the cable of the usual suspension bridge, and B B' the roadway. When any extra weight is brought upon the bridge at any point, as *n*, the roadway at that point is depressed, say to *n'*, the point *p* descending to *p'*; from the points *c* and *d* to each end, the roadway is elevated; between the points it is depressed. The cables tend to the lines P *p'* and P' *p'*, while the roadway tends to assume the form B *e d n' c* B'. This variation, in the forms of the cable and roadway lines, moves from point to point along with the extra weight. To obviate this, a heavy truss is generally used. Now, in Fig. 3, if the weight be transmitted in a vertical line to *p*, thence in straight lines to P and P', there can be no depression. The roadway will remain firm. This principle, of transmitting the weight directly, and in straight lines to the points of support, is the main feature of the bridge.

It will be seen on examination of Fig. 1, that the weight at any point of the bridge will be transmitted by the vertical cables or rods directly to their points of junction with the obliquely descending rectilinear cables or rods, and from the points of junction in right lines to the towers. Whatever deflection occurs, must therefore arise only from the stretching the cables, all the undulatory effect of heavy strains being entirely eliminated.

Railroading in the Olden Times.

William Hambright, an old conductor on the Pennsylvania Central road, who, we are told, is familiarly known throughout the State as "Cap," "Cappie," "Pap," or "Conductor Hambright," has given to the Columbia (Pa.) *Courant* some account of his experience.

Mr. Hambright commenced his career as conductor by taking the first train (horse cars) out of Lancaster, in 1833, after which time he ran regularly, and has been employed nearly all the time since as passenger conductor on the Pennsylvania Central Railroad. He then acted as conductor, brakeman, and greaser; his compensation was eighteen dollars per month —which was considered good wages at that time. His train of horse cars would leave Lancaster at five o'clock, P. M., and arrive at Philadelphia at five o'clock the next morning, making twelve hours for the journey; and the fare charged was $3·50. Stoppages were frequent, fresh horses being employed every fifteen or twenty miles. At times they would be greatly detained by the severity of the weather, the winters in those times being much colder than at the present day.

There was no fire in the cars, and when a stop was made to change horses, the conductor would make for the nearest haystack or barn for the purpose of procuring straw or hay to strew upon the floors of the cars in order to make his passengers more comfortable; he riding outside, the cars generally being packed so full that he could scarcely gain admission. Down grade the horses were always kept at a full run. Horseflesh was very cheap then—sometimes five good animals could be purchased for $100. In the year 1835 a locomotive, built by Norris, was brought from Philadelphia to Lancaster, in wagons (why it was not brought by rail we did not learn); however, the wonderful machine was put upon the track and fired up in presence of an immense assemblage of spectators. It appears the enterprise was not very successful, as it would run a short distance and then halt; then a number of muscular men would lend their assistance by pushing. Every device was resorted to, to make the "critter" go, but to no purpose. Some time after this, three small engines were purchased in England and sent over, which answered all the purposes for which they were intended, one of which is in use at the present time in York, Pa., sawing wood.

The Harrisburg and Portsmouth Railroad, as it was then called, being laid upon strong pieces of wood, using flat bar iron fastened down with spikes—it was necessary to carry hammer and spikes on the engine. Very often spikes would come out from the end of the bar, causing the end of the same to stick up, which were termed "snake heads," and the engineer would be obliged to stop and spike down before attempting to pass over. Information had to be given the engineer, before starting, where stops were to be made.

Here we may state that to Mr. Hambright belongs the credit of inventing the bell and rope system for signalling engineers. He got permission from his "boss" to put his idea of the thing into practicable shape. Procuring a rope and common door bell, he attached the latter near the engineer—no house being over the locomotive at that time—and then stretched the rope over the top of the cars. Ever after that, and up to the present time, bell ropes have been in vogue, though in a more approved style than the one just described.

Conductors were not required to make reports at the end of each trip, as is now practiced; they would hand over the gold and silver—perhaps two or three hundred dollars or more—to the clerk, who would enter it in a book provided for the purpose, somewhat in this wise: "Conductor Hambright, so many dollars," and that was all the formality about it. Checks for the baggage were not used, but when the cars arrived in Columbia or Philadelphia, the conductor would open the car door for the delivery of baggage, etc., to the passengers, who crowded around and secured their parcels by answering, "mine," to the conductor's interrogatory, "whose trunk is this?" which was kept up until all disappeared. If a trunk was marked "B" it was to go by boat; if "S," it was to go by stage line. Strange to say, there was not as much baggage lost then as now.

Very often the conductors would help the proprietors of the lines during harvest, and assist at other labor when off duty.

SHILLINGS were first coined, in England, in the year 1507