

**ORIENTAL HORTICULTURE.**

Our illustration introduces to us a curious phase of East Indian garden scenery. In the foreground is a noble talipot palm (*corypha umbraculifera*), the leaves of which are used by the Buddhist monks, prepared in small narrow strips, as books in which to record their sacred writings. The leaves of this palm are used also as umbrellas and sunshades, and everywhere the custom is universal to use them for covering huts and making temporary tents. It is one of the noblest of the palm family, growing to the height of one hundred feet frequently. It only flowers once, and then dies.

A correspondent of the London *Gardener*, in writing of it, says: "I saw a noble grove about three years ago all flowering at one time; they had a truly grand appearance, and would produce some thousands of seeds."

At the left hand, is the sacred *bo* tree (*ficus religiosa*). Every temple has one of these in its vicinity, usually a cutting from the ancient tree at Andro Japoora, which was originally planted there by Buddha and his followers, and is said to be one of the oldest trees in the world. The temples are also always located near abundant water, and the vegetation is rich beyond description. With regard to the interest of the Buddhist religion in horticulture, Tennant's "History of Ceylon" says:

"One peculiarity in the Buddhist ceremonial served at all times to give a singular impulse to the progress of horticulture. Flowers and garlands are introduced in its religious rites to the utmost excess. The atmosphere of the wehara and temple is rendered oppressive with the perfume of champac and jessamine; and the shrine of the deity, the pedestals of his image, and the steps leading to the temple are strewn thickly with blossoms of the *najaha* and the lotus. At an earlier period the profusion in which these beautiful emblems were employed in sacred decoration appears almost incredible; the Mohawason relates that the *ruanwelli dagoba*, which was two hundred and seventy feet in height, was on one occasion festooned with garlands from pedestal to pinnacle, till it resembled one uniform bouquet; and at another time, it and the lofty dagoba at Mehintala were buried under heaps of jessamine, from the ground to the summit.

"The various kings in succession formed innumerable gardens for the floral requirements of the temple. The capital was surrounded on all sides by flower gardens, and these were multiplied so extensively that, according to the rajaratnari, one was to be found within a distance of four leagues in any part of Ceylon. Among the regulations of the temple built at Dambenia, in the thirteenth century, was: "Every day an offering of 100,000 flowers, and each day a different flower."

Another advantage conferred by Buddhism on the country was the planting of fruit trees and esculent vegetables, for the gratuitous use of travelers in all the frequented parts of the island.

On the rocks and monuments of India are edicts from the

kings to their successors to continue the good work. One of their edicts, by the king of Magadha in the third century, B. C., commanded that "everywhere, wholesome vegetable roots and fruit trees shall be cultivated, and that on the road wells shall be dug and trees planted for the enjoyment of men and animals."

**On the Action of Bromide of Camphor and Borate, Silicate, and Arseniate of Sodium Upon the Germination of Seeds.**

M. E. Heckel says: "M. Vogel recently called the attention of physiologists to the curious results of the experiments undertaken in 1798 by Benjamin Smith and Barton, concerning the singular and unexplained property which camphor exercises upon vegetables, and he confirmed those results in their entirety. This observer, in treating the seeds of *lepidium sativum*, of *raphanus sativus major*, of *pisum sativum*, and of some other plants, placed between two sheets of blotting paper moistened with a solution of camphor, noticed that these seeds germinated long before those which had been maintained in ordinary conditions. Filled with these new ideas, and resting upon the fact, well known since the labors of Göppert, of the action of bromine, as an agent capable of hastening the germination of seeds, I asked myself, in the course of some researches touching the action of certain chemical compounds upon the germinative faculty, if the bromide of camphor, which is sometimes considered as a definite combination of bromine and camphor (the bromine replacing one equivalent of hydrogen in the camphor) and sometimes as a simple association of the same components, would present, from the biological point of view which occupied me, the sum of the properties with which the bodies composing it were gifted, or if the new chemical entity would manifest a proper attitude, decided enough to permit of a differentiation, either by the intensity or by the modality of the action, between the body and its components simply associated. With that end in view, I instituted the following experiments at the beginning of April, which have been carried on until now, with the seeds of *raphanus sativus* alone, but which I propose to extend to other seeds. Between several layers of double wadding wetted with water, I enclosed for each experiment twenty radish seeds, and I had care to have all the substances act upon the seeds under like conditions of heat and humidity.

In the first double of wadding I placed 7.7 grains of finely pulverized ordinary camphor; in the second, 7.7 grains of bromide of camphor equally reduced to powder; in the third one, sprinkled with bromine water, 7.7 grains of camphor; in the fourth one, the seeds were sprinkled with bromine water only; in the fifth one, the seeds were surrounded with 7.7 grains of crushed bromide of potassium; in the sixth and in the seventh ones, the seeds were sprinkled with chlorine water and iodine water. Incidentally, I should here say that I confirmed, by repeating the experiments, the experience of Göppert in regard to the activating action of

chlorine, of bromine, and of iodine. These three bodies indisputably hasten germination, and with an intensity decreasing from chlorine to iodine. Thus, iodine water produced germination in five days on an average, bromine water in three days, and chlorine water in two days, and under normal conditions it required at least seven or eight days to obtain the same results. The action of bromide of camphor was still more rapid; in thirty-six hours the rootlets were striking.

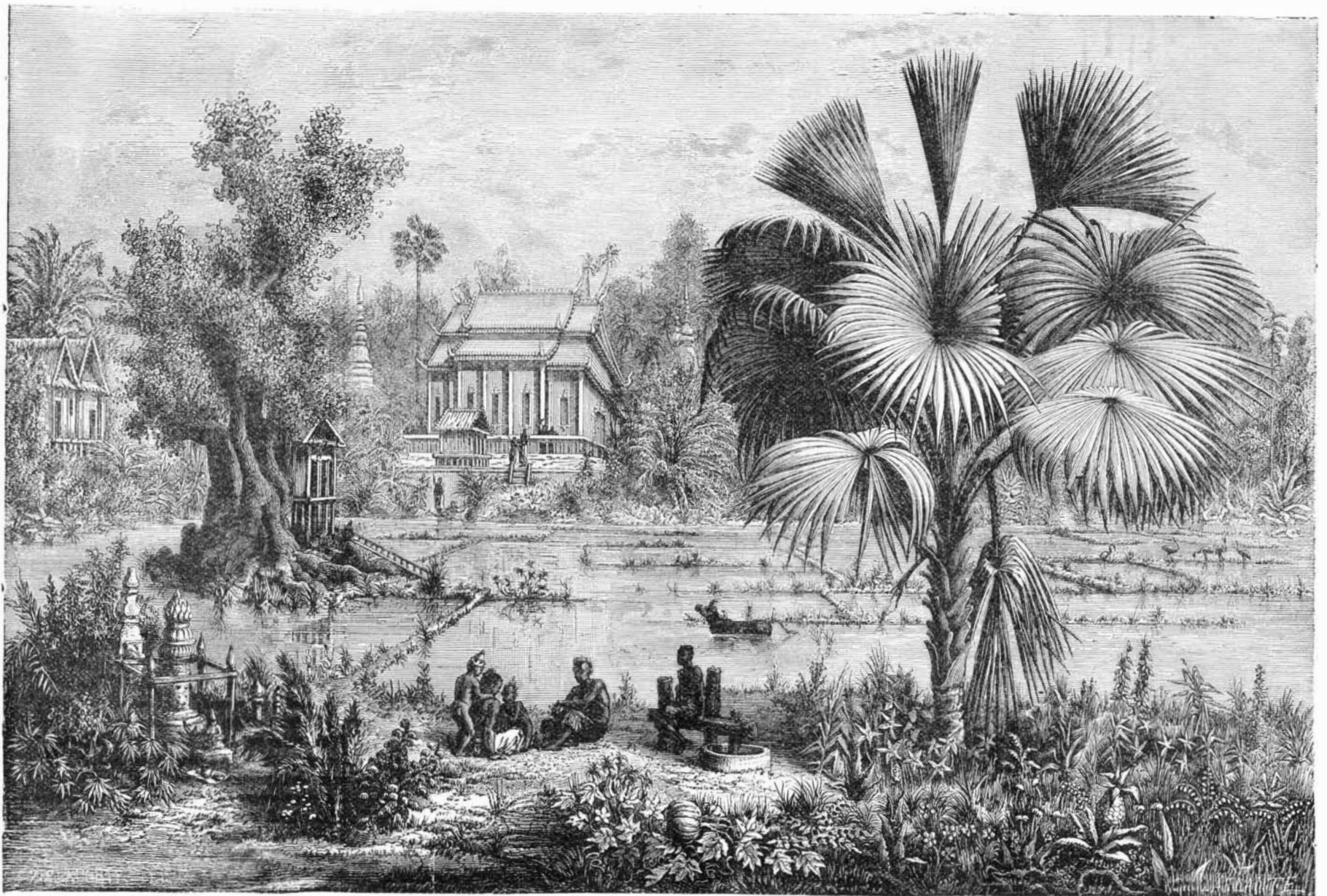
In the double of wadding containing camphor alone, the phenomenon required between four and five days. In the third package (containing camphor and bromine water) the seeds germinated the first time thirty hours later than in the case of bromide of camphor, the second time twenty-six hours later, the third time thirty-six hours later. As for the bromide of potassium, it remained without effect, though dissolved in water; the germination was produced in the same length of time as with ordinary water. These experiments, several times repeated, having always yielded identical results, I concluded that the bromide of camphor enjoyed a more considerable action than the sum of the two bodies of which it was composed, taken separately or acting in consort. I should add that the bromide of camphor acts without being dissolved. M. Vogel employed camphor in solution; the same solvent might have been employed to dissolve the bromide of camphor, which is insoluble in water, but without utility, since I obtained the two bodies simply pulverized. It must be admitted that they act by vaporization. I extended my researches to the boron and silicon series; I found the alkaline borates and silicates, employed in small quantities (3.9 grains for 309 grains of water), retarded germination from one to three days, and that with larger quantities (9.02 grains for 309 grains of water) the phenomenon was suspended entirely.

Arsenious acid and the soluble arseniates arrest germination and destroy the embryo, when relatively small quantities are employed (39 grains for 1,380 grains of water.)—*Comptes Rendus de l'Académie des Sciences*, 1875.

**An Electrical Fish Bait.**

In the Paris International Maritime Exhibition there is a small object deserving of notice. It is a platinum wire placed in a bottle and ignited by electricity from a bichromate battery. It is intended to be immersed in the sea, and the light emanating from it is said to attract an immense number of fishes. Experiments have been tried lately on the coast of the Côtes du Nord department with a fishing boat, and have proved very satisfactory, on a bank of sardines. The glass must be green or black, otherwise the fish are frightened by the glare and do not follow the submarine light.

To tin small castings, clean and boil them with scraps of block tin in a solution of cream of tartar.



A BUDDHIST GARDEN IN THE EAST INDIES.