

THE SACRED EAR-FLOWER OF THE AZTECS:
XOCHINACAZTLI.

[With 1 plate.]

By WILLIAM EDWIN SAFFORD.

Among the marvels of the New World which excited the admiration of the Spanish conquistadores were the parks and gardens of the Aztec Emperor and his nobles. Cortez, in his official reports to Charles V, described them at length.

At Iztapalapan, on a peninsula between Lake Chalco and Lake Tezcuco, there was a park which covered a very large area, laid out in squares, with the intersecting paths bordered by vine-covered trellises and aromatic shrubs which filled the air with perfume. Many of the trees and shrubs had been brought from great distances, and the gardens were arranged in regular plots, irrigated by ditches. There were aviaries filled with birds, remarkable for their brilliant plumage and their songs. There was a great basin, or reservoir of stone, stocked with fishes of many kinds. This is described as having a circumference of 1,600 paces, and around it there was a stone pavement wide enough for four persons to walk abreast. Its sides were sculptured with curious designs, and a flight of steps led down to the water, which fed the irrigating ditches and was the source of beautiful fountains. So elaborate and magnificent were the gardens described by the conquistadores that we might well doubt the truth of their assertions, were the evidence not attested by many witnesses.

In the capital city itself the Emperor had established the botanical garden of Tetzcotzinco, of which there still remain a few vestiges. After having gathered together all the plants and animals which could endure the climate, the Emperor caused the pictures of others to be painted upon the walls of his residence, so that the whole of the fauna and flora of Anahuac might be represented.

A few leagues south of the City of Mexico, in the direction of the modern city of Cuernavaca, was the wonderful garden of Huaxtepec, which survived the conquest, and to which Hernandez frequently re-

fers in his great work. Here were collected trees, shrubs, and herbaceous plants, native and exotic, some selected for their beauty, some for their fragrance, and others for their medicinal virtues. They were systematically arranged in a manner which displayed both artistic taste and horticultural knowledge; and it is safe to say that it would

not have been easy to find their equal in that day in any country of Europe or Asia.

There has come down to us an account of the methods by which this remarkable garden was stocked with some of its most precious plants.

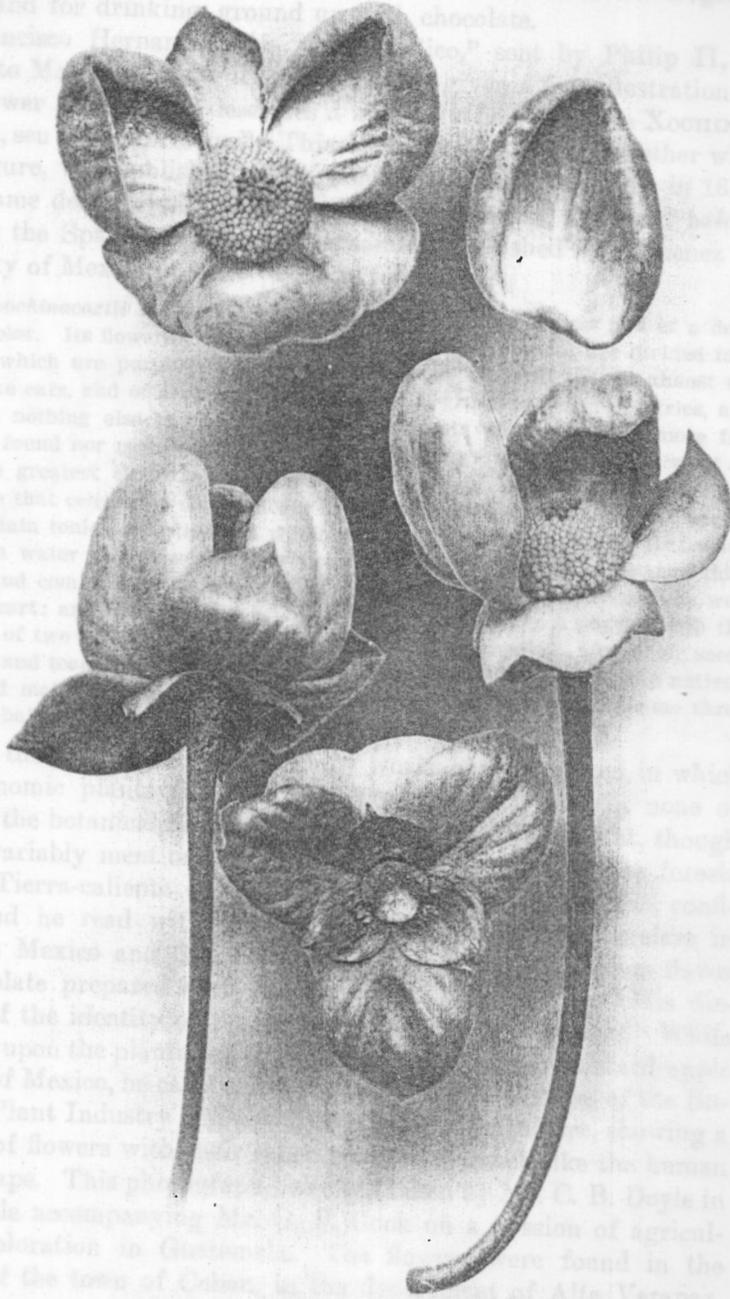
Tlacaélel, the brother of Motecuhzoma Ilhuicamina, the chronicle states, conceived the idea of collecting the waters of Huaxtepec, in the mountains south of the valley, into a great reservoir from which they could be distributed and governed. This work was undertaken and, at his suggestion, a garden was laid out. Messengers were then sent to various parts of tropical America for plants to stock it. From Pinotl, viceroy of Cuetlaxtlan, the Emperor requested, among other rare and beautiful plants, the *yolo-*



FIG. 1.—*Xochinacatzli*, seu *Flos auricular*, illustration of Hernandez (1570).

xochitl, or "heart-flower" (*Talauma mexicana*), a single blossom of which was sufficient to fill a whole house with fragrance; the *cacaloxochitl*, or "crow-flower" (*Plumeria rubra*), used by maidens for decorating their hair; the *izquioxochitl* (*Bourreria huanita*), with clusters of fragrant salver-shaped flowers; and the *xochinacatzli*, or "ear-flower," the botanical identity of which has long remained a mystery.

The first account of this flower was written about 1569 by Padre Bernardino de Sahagun, who refers to it as *teunacatzli*, "the sacred



XOCHINACAZTLI (CYMBOPETALUM PENDULIFLORUM.) NATURAL SIZE.

The last of these is the one which was first described by C. B. Doyle in 1894 while accompanying the expedition of agricultural exploration to Guatemala. It was first found in the midst of the town of Coban, in the State of Alta Verapaz, a photograph of which is here given.

ear," and states that it was much used for the sake of its fragrant odor and for drinking, ground up with chocolate.

Francisco Hernandez, the "protomedico," sent by Philip II, in 1570, to Mexico to study its resources, has given a fair illustration of the flower (fig. 1), and describes it under the heading "De Xochinacaztli, seu Flore auriculæ." This description, in Latin, together with the figure, was published in the Roman edition of his work in 1651. The same description, but without the illustration, appeared before this in the Spanish edition of Hernandez, published by Ximenez in the City of Mexico in 1615. It is as follows:

The *xochinacaztli* is a rare tree, with leaves long and narrow and of a deep green color. Its flowers, borne on a pendent velvety peduncle, are divided into leaves, which are purplish within and herbaceous without, shaped almost exactly like ears, and of a very agreeable odor. It grows in warm countries, and there is nothing else in the *tiangues* and markets of the Indians more frequently found nor more highly prized than this flower. The which is wont to give the greatest charm and taste, together with a very fragrant odor and flavor to that celebrated drink cacao, which they call *chocolate*, and it imparts to it certain tonic properties and wholesomeness as well. It is said that when drunk in water this flower dispels flatulency, causes phlegm to become thin, warms and comforts the stomach which has been chilled or weakened, as well as the heart; and that it is efficacious in asthma, ground to a powder with the addition of two pods of the large red peppers called *texochilli*, with their seeds removed and toasted on a comal which is a kind of griddle on which the natives toast and make their bread, called by us *tortillas*, adding to the same three drops of balsam and taking it in some suitable liquor.

Since the time of Hernandez many works have appeared in which the economic plants of the Aztecs are discussed,¹ but in none of them is the botanical identity of the *xochinacaztli* hinted at, though it is invariably mentioned. That it was to be found in the forests of the Tierra-caliente the author of the present paper felt confident, and he read with interest the accounts of all travelers in southern Mexico and Guatemala who spoke of the delicious flavor of chocolate prepared with the flowers of the *Orejuela*. His discovery of the identity of the flower was almost an accident. While working upon the plants belonging to the Anonaceæ, or Custard-apple family, of Mexico, he came across a photograph in the files of the Bureau of Plant Industry of the Department of Agriculture, showing a number of flowers with their inner petals very much like the human ear in shape. This photograph had been taken by Mr. C. B. Doyle in 1904 while accompanying Mr. O. F. Cook on a mission of agricultural exploration in Guatemala. The flowers were found in the market of the town of Coban, in the department of Alta Verapaz. The photograph is here presented (pl. 1). It was not accom-

¹The last of these is the work of the Rev. A. Gerste, S. J., published in the Vatican, at Rome, in 1910, entitled "Notes sur la médecine et la botanique des anciens Mexicains."

panied by notes as to the uses to which the flowers were applied, but Mr. Cook, in his journal, states that the flowers of an Anona were offered for sale both fresh and in the form of dried black petals curled up on the edges and heavily veined inside. They had a pleasant, spicy odor. He describes the fresh flowers as having the sepals and outer petals light green and the inner thicker petals of a pale dull salmon color and breaking with a bright orange-colored fracture. No specimens of the plant were collected at this time, but on May 30, 1906, two years afterward, Mr. Cook secured specimens of an Anonaceous plant at Jacaltenango, Guatemala, which he did not associate with the flowers he had seen in the Coban market. On examining these specimens in the United States National Herbarium (sheet No. 574411) the identity of the plant was revealed. The *xochinacatzli* of the Aztecs was no other than the plant described by Dunal from the drawings of Mociño and Sessé as *Cymbopetalum penduliflorum*.

The discovery was announced in a paper read before the Botanical Society of Washington, February 7, 1911.¹ The accompanying illustration, drawn by Mr. Theodore Bolton from the specimens collected by Mr. Cook and from the photograph of Mr. Doyle, will serve for comparison with that of Hernandez, which is also reproduced. The inaccuracy of Hernandez's figure consists chiefly in the fact that the upper flowers shown by him have none of the petals revolute, or incurved along the margin, while the lower flower has all six petals incurved, suggesting the fruit of the aromatic star-anise of Japan. It was a simple matter to test the qualities of the petals by eating one of them. The taste was pungently aromatic and suggested that of a nutmeg, or perhaps a cubeb.

The Xochinacatzli (*Cymbopetalum penduliflorum*) is endemic in the forests of northwestern Guatemala and across the border in the Mexican State of Chiapas. The use of its flowers as a spice gradually died out throughout the greater part of Mexico with the introduction of cinnamon from the East Indies, which is now, together with vanilla, almost universally used for flavoring chocolate. The small tree grows in regions where there is a marked dry and a rainy season, usually associated with coffee, and it could in all probability be cultivated wherever coffee will thrive. Both on account of the fragrance of its flowers and for their application in cooking as a delightful condiment it is suggested that this plant be cultivated.

¹ See Safford, W. E. "The Rediscovery of the Xochinacatzli of the Aztecs, with notes on Mexican Anonaceae." *Science*, N. S., vol. 33, p. 470. March 24, 1911.



FIG. 2.—*Cymbopetalum penduliflorum*. Natural size.