Botanical Drawings by John Singer Sargent. Through the kindness of his sisters, Miss Emily Sargent and Mrs. Francis Ormond, the Arnold Arboretum has received six original drawings by John Singer Sargent. The collection is interesting from a botanical point of view because it shows how accurately Sargent interpreted plant structures that attracted his attention, and it is important from an artistic point of view because it contains examples of his early efforts as well as some of his later sketches from the series made in Florida within comparatively recent years. With the exception of two drawings which may be referred to an early period, and one carefully elaborated drawing of the later period, the collection consists of rough sketches that represent attempts to catch, on the spur of the moment, some pleasing or interesting peculiarity of a vine or fruit. Even the hasty sketches are of exceptional importance as they demonstrate precise observation and exhibit a more faithful interpretation of vegetative characters than is usually attempted by artists who lack biological training. It has seemed worth while to devote a number of the Bulletin to these drawings as they constitute an important addition to the Arboretum Library, and include one subject that deserves to be reproduced and explained. This subject, which is the most interesting of the Sargent drawings in the Arboretum collection, is a carefully worked up study of the roots of *Ficus aurea*, a strangling fig, that had become entangled with a discarded wagon wheel. The extraordinary association of fig roots and wheel must have made a strong appeal to Sargent, because the sketch was executed with meticulous fidelity to the original and constitutes a record that would not be out of place in a textbook of botany. The subject is botanically unusual and hardly one that we should expect to find attracting the attention of a great portrait painter.

A brief account of the life history of a strangling fig may help toward an understanding and a better appreciation of the drawing. *Ficus aurea* usually begins life as an epiphyte, that is, it springs from a seed.
that has been dropped, by a bird or some other agency, on the limb of a tree or in the leaf axil of a palm. In the beginning the plant is a true epiphyte, having no connection with the ground. After the seed germinates, the roots, being geotropic, begin to grow downward. At first they are slender, but as they develop there takes place an increase in diameter. After the roots enter the ground in their downward passage, the fig ceases to be an epiphyte in a strict sense and becomes a true terrestrial plant, the support for the leafy crown being largely composed of an interlacing and anastomosing system of tough roots. In time, if the fig prospers, the roots completely enclose the trunk of the host tree or palm and a so-called strangling action begins. In the later stages of this strange association, the tree on which the fig began its development appears to emerge from a rigid gray sheath. Finally the host tree dies leaving the fig perfectly independent. During the formation of the root system, rocks or other objects that are in the way, are often enmeshed and securely held. Sargent's drawing shows a wheel that had become firmly held by encircling roots.

In a tropical forest the independent fig tree appears to have grown from a seed that had lodged in the ground. Unless its peculiar nature were understood, one would find difficulty in explaining its structure. As is true of the Banyan (Ficus bengalensis) the roots of F. aurea descend from the lengthening branches and form a series of prop-like supports. By this means the growth of the tree results in a widespread crown. When this peculiarity of growth is allowed to continue a large area of ground may be covered by a single plant.

In "The Silva of North America", vol. VII, an interesting note regarding Ficus aurea is given by Charles Sprague Sargent, and is in part as follows: "What is probably the largest specimen of Ficus aurea in the United States grows on a wooded hummock, locally known as 'The Hunting-ground', about ten miles west of the mouth of the Miami River and close to the shores of Bay Biscayne. This remarkable tree covers about a quarter of an acre of ground with its numerous distinct stems formed from roots developed from the branches of the original trunk, and its dense wide crown of foliage". When a large specimen of this species is encountered, it is difficult to believe that the source was a small epiphytic plant that began its development, perhaps many feet above the ground, on the branch of another tree.

The strange behavior of Ficus aurea is in the closest relation to the requirements for light. Experiments have conclusively proved that light is essential for successful development. If seeds fall on the forest floor and lie in dense shade they remain dormant. This explains the epiphytic habit of the species in tropical jungles where only those seeds which fall in well lighted situations on the branches of trees are able to germinate. Occasionally, however, in clearings and open places it has been found that F. aurea is quite capable of growing independently, and along rocky bluffs and on canal banks young plants may be found that are not epiphytic.

Although Ficus is a large genus comprising more than six hundred species with representatives in both hemispheres, only two species are
natives of the United States. Some of the best known species of the genus are: *F. carica*, the edible fig, probably a native of the Mediterranean region, cultivated from prehistoric times; *F. religiosa*, the Buddhist's sacred Peepul tree, found near temples and shrines in India and Siam and now a much planted shade tree in tropical countries; and *F. bengalensis*, the famous Banyan tree of India. Both *F. bengalensis* and *F. religiosa* sometimes become troublesome when they germinate from seeds that have lodged in the crevices of the walls of buildings. *F. religiosa* has been known to break down the strongest type of masonry in countries where the tree is so sacred that nobody will destroy it.

During the preparation of the fourth number of the Bulletin, a search was being made in the Library of the Arboretum for colored plates of the Yoshino cherry of Japan. The search led to the “National Geographic Magazine” where on page 191 of the forty-second volume, attention was drawn to the reproduction of a photograph showing the roots of a strangling fig holding an old wagon wheel. It was not only a photograph of the same wheel which had engaged Sargent's attention, but a view of it taken from almost the same location from which Sargent had made his drawing. Through the kindness of the “National Geographic Magazine”, the Bulletin is permitted to reproduce the photograph and thus make possible a comparison between it and our reproduction of Sargent's drawing. Fortunately the photograph which was made at Cutler, Florida, localizes Sargent's work and indicates those details which the artist suppressed in his interpretation of the scene.

OAKES AMES.

EXPLANATION OF THE PLATE

**Ficus Aurea.** Photograph from John C. Gifford. Reproduced by special permission from the “National Geographic Magazine”, vol. 42, p. 191. (1922).

SUPPLEMENT PLATE

**Ficus Aurea.** Reproduced from an original drawing by John Singer Sargent. (Original drawing 9\(\frac{1}{4}\) × 7 inches.)