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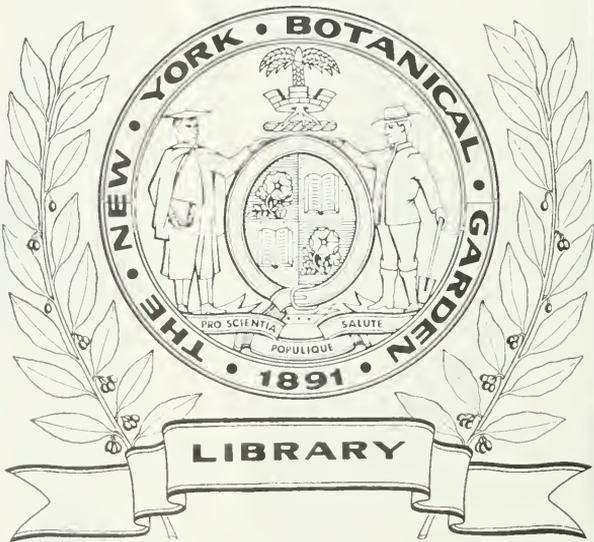
Britton, N L

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SMITHSONIAN MISCELLANEOUS COLLECTIONS
VOLUME 72, NUMBER 9

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WITH FOUR PLATES

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N. L. BRITTON AND J. N. ROSE



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NEOABBOTTIA, A NEW CACTUS GENUS FROM
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BY N. L. BRITTON AND J. N. ROSE

(WITH FOUR PLATES)

Among the earliest cacti described were those obtained by Plumier, more than two hundred years ago, mostly from the island of Hispaniola, better known as Santo Domingo. These were characterized briefly by him in 1704 and his illustrations of them were published in 1755 by Burmann; Lamarck gave most of them binary names in 1783 under the genus *Cactus*, and in 1828 De Candolle referred all the cereoid forms to the genus *Cereus*; the other species described by Plumier have been referred by various authors to *Mammillaria*, *Cephalocereus*, *Pilocereus*, *Rhipsalis*, *Melocactus*, *Pereskia*, *Opuntia* and *Nopalea*. We have experienced great difficulty in definitely identifying the plants from the illustrations of Plumier, since these are largely diagrammatic. As the type locality is generally given, however, the identification of all of them may eventually be made fairly definite.

In 1920 when Dr. W. L. Abbott and Mr. E. C. Leonard were starting for Haiti, we asked them to collect both living and herbarium specimens of all the cacti met with. As good fortune directed, they spent a considerable time on the Cul-de-sac, where Plumier collected, and so probably obtained several of the species which he described. About 20 species of cacti were observed by them there. One of these, which has proved to be an undescribed genus, is the subject of this article. The Cul-de-sac is the bottom of an old salt lagoon, which now has an altitude of 20 feet or more above the sea. It is a coral formation and an ideal habitat for many kinds of cacti. Here they appear in thickets or literally as forests, forming the dominant feature of the landscape. This region lies north and east of Port-au-Prince, extending from the bay of Port-au-Prince to Lake Saumatre.

After the return of Dr. Abbott and Mr. Leonard in September of the same year with these valuable specimens we wrote, at the suggestion of Mr. Leonard, to Mr. H. M. Pilkington, an American business man then stationed at Port-au-Prince, asking him to pro-

cure additional material. In the latter part of December, 1920, Mr. Pilkington returned to New York and brought with him two large boxes of plants, containing two sections of the trunk, several living plants, and fruits of the new genus, as well as specimens of four other species, with field notes and photographs.

NEOABBOTTIA Britt. and Rose, gen. nov.

A treelike cactus with a smooth upright terete trunk and a much branched top, the branches strongly winged or ribbed, normally from the distal end of the preceding branch, but sometimes from below the tip and usually in the same plane; ribs thin and high, very spiny:

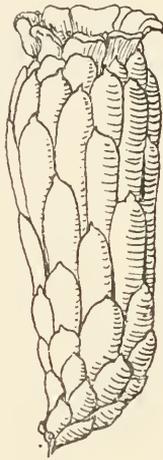


FIG. 1.

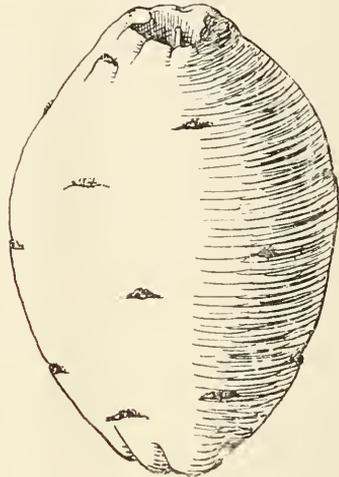


FIG. 2.

FIGS. 1 and 2.—Flower and fruit of *Neoabbottia*. Natural size.

flowers nocturnal, small, tubular with a narrow limb, borne several together at the distal end of a terminal branch from a small felted cephalium; perianth persisting on the ovary; perianth-tube and ovary bearing small scales with short wool and an occasional bristle in their axils; perianth-segments very small; throat of flower a little broadened at the top, bearing many stamens; style slender; fruit oblong, turgid, nearly naked, deeply umbilicate; seeds minute, black, muricate.

A monotypic genus of Hispaniola, dedicated to Dr. W. L. Abbott, a patron of natural history.

Type species, *Cactus paniculatus* Lam.

NEOABBOTTIA PANICULATA (Lam.) Britt. and Rose

Cactus paniculatus Lam. Encyl. 1: 540. 1783.*Cereus paniculatus* DC. Prodr. 3: 466. 1828.

Six to ten meters high or even higher; trunk woody, 30 cm. in diameter, the wood close-grained, yellowish white; bark of the trunk 1.5 cm. thick, brown, not spiny in age, smooth; branches 4 to 6 cm. broad, strongly 4-ribbed, rarely 5-ribbed, occasionally 6-ribbed or winged; ribs thin, 1.5 to 2.5 cm. high, their margins somewhat crenate, the areoles borne at the base of the sinuses, 1.5 to 2 cm. apart; spines 12 to 20, acicular, brownish to gray, 2 cm. long or less; cephalium 1 to 1.5 cm. in diameter, becoming elongated and angled; flowers straight, 5 cm. long, with a limb about 3 cm. broad; tube 6 to 7 mm. long, about 18 mm. in diameter, with walls 5 to 6 mm. thick; inner perianth segments greenish white, short-oblong, about 1 cm. long, obtuse; throat 18 mm. long, covered with numerous filaments, these with a knee near the base and pressing against the style; stamens and style included; ovary and flower tube tubercled, the former with short tubercles, the latter with oblong ones (sometimes 1.5 cm. long), each ending in a depressed areole subtended by a minute scale; areoles bearing a tuft of brown felt and an occasional brown bristle; fruit oblong in outline, 6 to 7 cm. long, 4 to 5.5 cm. in diameter, turgid, nearly naked; rind green, thick, hard; seeds rounded above, cuneate at base, with a large lateral depressed hilum.

Collected near Port-au-Prince, Haiti, on the Cul-de-sac by Dr. W. L. Abbott and Mr. E. C. Leonard, April, 1920 (no. 3500); also at the same locality by Mr. H. M. Pilkington, December, 1920: also a single branch by Dr. Paul Bartsch at Thomazeau in 1917 (no. 221). Here doubtless belongs W. Buch's specimen, described in a note under *Cereus paniculatus* by Dr. I. Urban in his *Flora Dominicensis*.¹

This plant was described by Plumier² as follows: *Melocactus arborescens, tetragonus, flore ex albido*. This description was repeated by Tournefort,³ with the addition of a single word, in 1719. Plumier's drawing of this plant was published long after his death by Burmann as plate 192 of the *Plantarum Americanum* and upon this plate Lamarck based his *Cactus paniculatus*, which De Candolle

¹ *Symbolæ Antillanæ seu Fundamenta Floræ Indiæ Occidentalis*, 8: 462. 1920.

² *Catalogus Plantarum Americanum*, 19. 1703.

³ *Histoire des Plantes*, 1: 653. 1719.

a little later took up as *Cereus paniculatus*. Ever since, the plant has usually passed under the latter name, with an occasional reversal to the earlier one.

Until recently, the species has been known only from this old illustration and these brief descriptions. The Abbott and Leonard material consists of wood sections and herbarium specimens of branches, flowers, fruit, and seeds, supplemented by living specimens and by fruit and flowers in formalin, together with several habit photographs. These convince us that the plant belongs to neither *Cactus* nor *Cereus*, but to an undescribed genus. In habit it resembles *Dendrocereus*, its branches resemble *Acanthocereus*, and the small limb of the flower resembles *Leptocereus*; but the plant differs from all of these in bearing several flowers at the ends of terminal branches and in developing a kind of cephalium. In the last respect it approaches *Neoraimondia*, near which we would place it in our present classification.

Although at first *Neoabbottia* is weak and only 4-angled, suggesting *Acanthocereus*, it forms ultimately a thick woody trunk. The full-grown plant in habit and branches much resembles *Dendrocereus nudiflorus* of eastern Cuba, but it has much smaller and different flowers and seeds.

The following remarks are from the careful field notes of Mr. Pilkington, made in December, 1920.

"Grows to a height of 50 feet, in light sandy arid soil of recent ocean bottom. Known to natives as 'Gadasse.' No use is made of the plant except burning the dead branches for torches. The wood so used is called 'Bois Chandelle' or 'Bois Flamboyant'—'Candle-Wood' and 'Flaming-Wood,' from the bright smokeless light. Fruit falls when ripe; rind soon decays, leaving seed in a mass retained in shape by a mucilaginous pulp. The young plant develops a bulbous root with a simple upright stem made up of several joints and later giving off lateral branches which come off from the upper end of other branches; the main stem is 4 to 6-winged, but as it grows older becomes square, pentagonal, or hexagonal, according to the original number of ribs on each joint, and in age terete or nearly so with the ribs showing as mere lines, bearing the scars of the old spines; the branches are more numerous on one side of the main branch and these always lie in the same plane, the ribs when of the same number being opposite those of the main joint. This disposition of the joints causes the main stem to bend or curve and the whole has a striking resemblance to the flat antlers of moose and

elk. This arrangement is shown in the mature tree, although the intermingling of the several branches gives the general effect of an ordinary tree-top.

“The natural pruning of the tree comes about through the death of branches caused by epiphytic plants, the breaking off of branches by the weight of a clambering cactus, and the attack of insects which live in the fleshy joints. These insects are much sought after by a red-headed woodpecker.

“Flowers are borne at the extreme tip of the terminal joints and never from the sides, the fruit appearing therefore always at the tips. A single fruit always grows directly in line with a rib, but when several fruits grow from the same terminal bud they are compelled to radiate at right angles to the axis of the joint. Four fruits from one joint is the highest number observed, two only usually appearing to be normal. As the ovary develops the flower shrinks, dries, and appears finally as a brown protuberance attached to the apex of the mature fruit. The old flowers at length fall off the mature fruit, leaving a well-defined umbilicus. The fruit measures $6\frac{3}{4}$ to 7 inches in circumference. When ripe it is waxy, smooth, yellow with faint streaks of pink radiating from the base; flesh same color as rind, glutinous, firm, slightly acid to taste, hardly edible.

“Seeds are embedded in a secretion which in water produces a remarkable bulk of mucilaginous jelly, which is mildly acid and not unpleasant to taste. Fruit does not seem to be attacked by birds and is never eaten by natives. Successive crops of fruit appear from this same bud cluster at the top of the terminal joint, each crop absorbing some of the substance of the joint; the joint shrinks and solidifies, the ribs become furrows, the center enlarges, and finally all becomes a woody mass of varying dimensions, as long as 3 inches, thus forming what you have called a ‘cushion,’ but which is really an atrophied joint after several years of fruit-bearing.”

The nature of the cephalium is not well understood, but it seems to be an abortive joint. It first appears like a large felted areole from which several flowers are produced; it slowly elongates and finally becomes 7 cm. long or more, still producing the flowers at the tip. When very old most of the felt wears off, leaving a stubby 4 or 5-angled joint; the areoles, however, are not borne on the angles as in normal branches, but in the depressions or furrows between the ridges. In these furrows the areoles form a continuous band of felt from the base to the top of the joint. One of these flower-bearing joints which Mr. Pilkington has sent is 5 cm. long and we have esti-

mated that it has borne 20 sets of flowers and fruits and may possibly be 20 years old. While all the flowers we have seen are terminal, it is possible that they may sometimes occur from other places on the terminal joint. In one specimen examined we have found an enlarged areole near the base and one on the side of the terminal joint, which suggests that they had been flower-bearing. Plumier's illustration, which is not accurate, shows numerous lateral flowers. The stubby flowering joints, while usually solitary, appear sometimes in pairs.

EXPLANATION OF PLATES

PLATE 1

Plumier's original illustration of *Neoabbottia paniculata*, reduced; reproduced from plate 92 of Burmann's *Plantarum Americanum*.

PLATE 2

Neoabbottia paniculata (Lam.) Britt. & Rose. A. B. Two types of growth.

PLATE 3

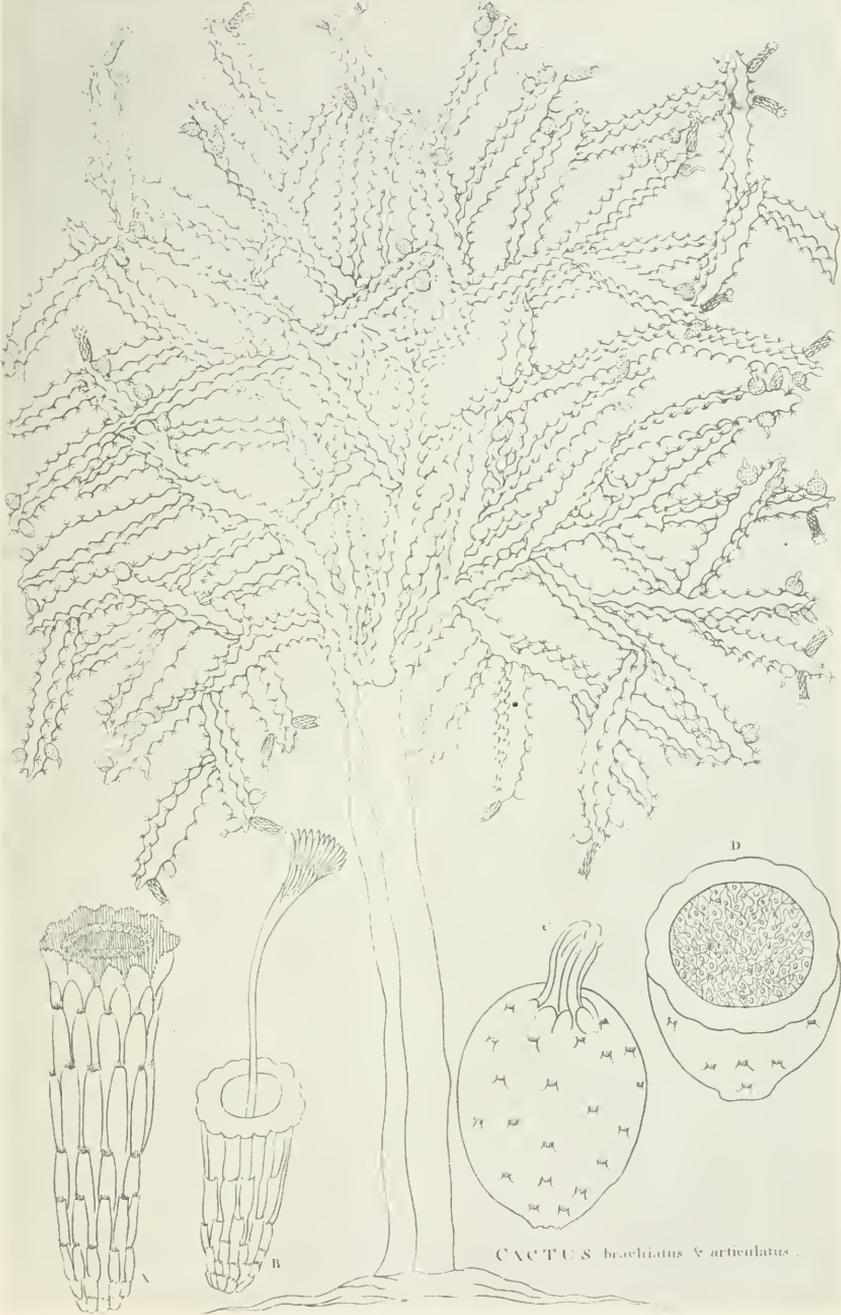
Neoabbottia paniculata (Lam.) Britt. & Rose. A, a plant growing in the open; B, a plant growing in a thicket.

PLATE 4

A. *Neoabbottia paniculata* (Lam.) Britt. & Rose. Upper part of a plant.

B. *Neoabbottia* and *Cephalocereus*. a, An elongated branch of *Neoabbottia*; e, a terminal branch of *Neoabbottia*, fruiting for the first time; c and f, stubby branches of the same, which have produced fruit for many years; b and d, small plants of *Cephalocereus polygonus*, growing epiphytically on *Neoabbottia*.

FAB. CACTI



CACTUS *brachiatu*s & *articulatu*s.

NEOBOTTIA PANICULATA (LAM.) BRITT. AND ROSE

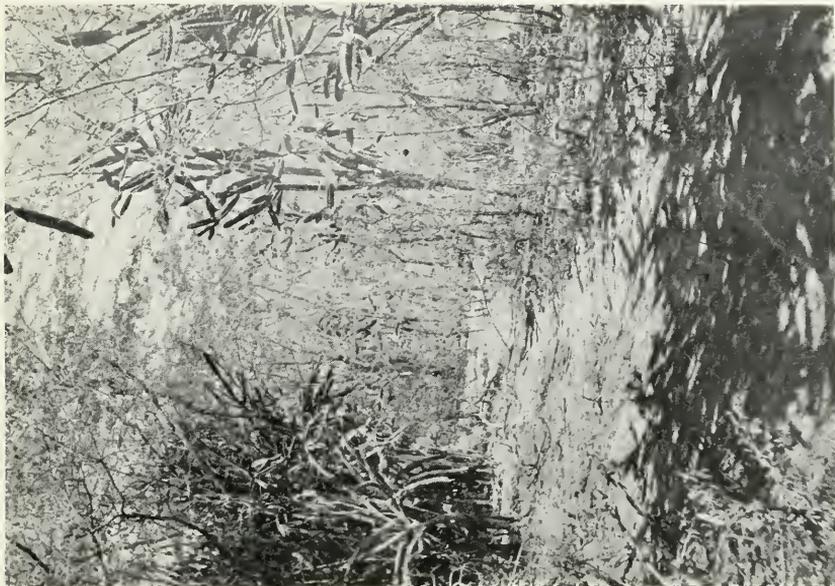


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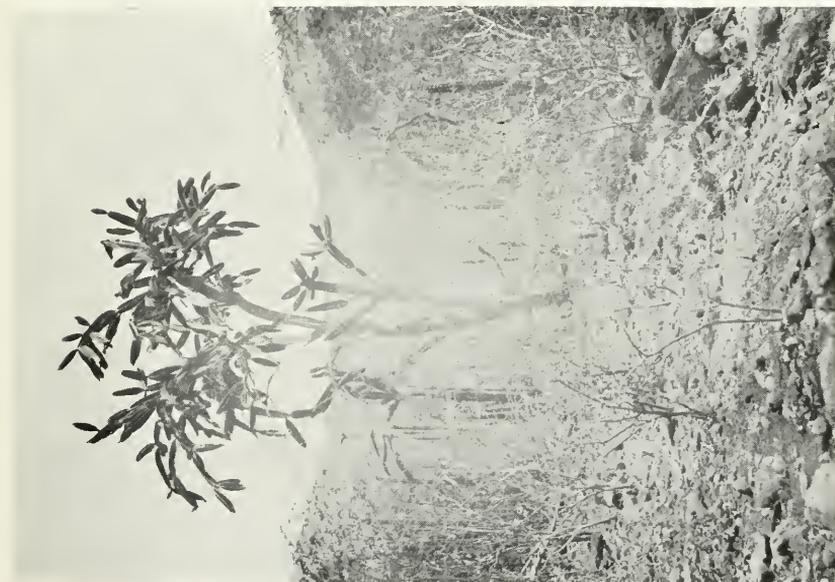


A

NECABOTTIA PANICULATA (LAW.) BRITT. AND ROSE



B

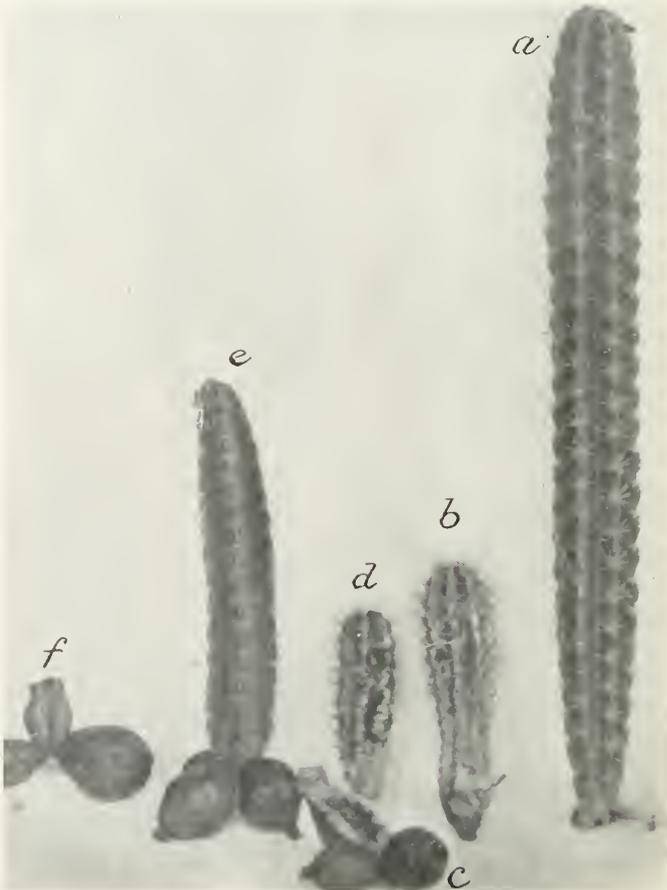


A

NEABBOTTIA PANICULATA (LAM.) BRITT. AND ROSE



A. NEOABBOTTIA PANICULATA (LAM.) BRITT. AND ROSE



B. NEOABBOTTIA AND CEPHALOCEREUS



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