

# PLANT LIFE



1946



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The American Plant Life Society

Box 2398, Stanford, California

# **PLANT LIFE**

**VOLUME 2**

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Edited by  
Hamilton P. Traub

**THE AMERICAN PLANT LIFE SOCIETY**  
Box 2398, Stanford, California

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## VERBENACEAE EDITION COVER DESIGN

The VERBENACEAE EDITION Cover Design, is adapted from the type illustration of *Clerodendrum Thomsonae* Balfour (Trans. Bot. Soc. Edinb. 7: 264-267; pl. 7; 580-581, pl. 16. 1860-1863) by permission of the Botanical Society of Edinburgh. The name "*Thomsonae*," according to the Rev. W. M. MacCartney, a Scottish Missionary to Africa, recalls "an idyll as lovely as that tropic blossom," *Clerodendrum Thomsonae*—"Over a hundred years ago a girl was born in Scotland. We do not know her name. We do not know her birthplace. We know only two things about her. The first, that she loved flowers and studied them and learned about them. The second, that she fell in love with a schoolmaster called William C. Thomson.

"The young couple did a very brave thing. They volunteered to go to Calabar as missionaries. They were accepted for service abroad. Mr. Thomson was ordained. They were married, said farewell to their friends and sailed for Africa.

"The ship staggered through the Bay of Biscay, lolled with flapping canvas on the oily waters of the Gulf of Guinea where the flying fish skim the waves, and anchored in the mouth of the Calabar River. From Calabar Mr. and Mrs. Thomson traveled by canoe up the Cross River to Ikonetu.

"Mrs. Thomson found that tropical West Africa is not a riot of colour. The trees and bushes are a very dark, glossy green. Only here and there the ivory white of a lily or the vivid red of hibiscus startle the eye by the vigor of their contrast.

"At Ikonetu Mrs. Thomson loved to wander, a lonely figure in a long white dress, along bush paths learning about Africa—and looking for flowers. She had to have flowers—on the table, on the veranda, in the garden of the bungalow.

"When Mrs. Thompson had been a bare three months at Ikonetu she found a plant with clusters of pink flowers. She dug it up by the roots and bore it home in triumph. She tended it carefully for three weeks and the plant—she was sure it was unknown in Europe—survived and began to twine its tendrils toward the bamboo fence of the garden.

"Mrs. Thomson took a queer, an unnatural interest in the plant. When she fell ill of a fever she often talked about it in delirium. When the fever lessened she asked her husband about it. Had it been watered? Was it still living? For days the young bride fought the fever. But the fever won. She died at Ikonetu.

"After her death, Mr. Thomson made a tub and put the plant in it. He sent the plant down river and over the seas to Edinburgh. He wrote a letter to Professor Balfour and asked, if the plant should prove to be new to science, it might be named after his wife.

"The plant was alive when it reached Edinburgh. No one had seen it before. They named it *Clerodendrum Thomsonae*.

"We do not know her name. We do not know her birthplace. Who shall declare her generation? She was twenty-two when she died, in 1858. An unknown Scots girl who loved God and all His creation.

“Her plant still blooms in the Botanical Gardens in Edinburgh. Although it is a thing of fragile beauty it has no perfume. But the fragrance of a dedicated life still lingers.” [Quoted by permission from “Life and Work” (Edinburgh), n. s., n. 12. Dec. 1946, p. 283. (subtitle: The Record of the Church of Scotland).]

EDITORIAL NOTE.—Readers will be interested to know that *Clerodendrum Thomsonae* is available in this country. According to a prominent dealer in seeds and plants, it is “A pot plant of much grace and beauty. Flowers are of richest crimson subtended by calyces of snowiest white. Blooms long and freely.” Anyone interested may obtain the address on request.

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When taking photographs of amaryllids, an effort should be made to include the whole plant—*stem*, if any, *leaves, scape and flowers*. Separate views of the *bulb and roots* are also valuable in some cases. These remarks do not apply to cut-flowers.

## CORRIGENDA

PLANT LIFE, VOL. 1, NOS. 2 & 3 (1945) 1947

Cover Design, the initials "M. B. F." in red, at the right base of plant, are indistinct.

Page iii, 3rd line from top, Table of Contents, after "Citations," for "iv" read "iii."

Page iii, line 22 from bottom, for "Cover Design" read "Cover Design, a generalized design representative of the *Bromeliaceae*, by Mulford B. Foster."

Page 84, line 31 from top, for "soon" read "some."

Page 103, about center of page, the book by Mulford and Racine Foster is indicated as published by "Harper & Bros., N. Y., 1945. \$3.00." This is an error for the book was originally published by Jacques Cattell Press, but in February, 1947, the book was purchased by the Ronald Press of New York City, and the price is \$3.50.

Dedicated to  
Harold N. Moldenke  
and  
Alma L. Moldenke



Plate 1

Dr. Harold N. Moldenke



HAROLD NORMAN AND ALMA LANCE MOLDENKE  
—AUTOBIOGRAPHICAL SKETCHES

## 1. HAROLD NORMAN MOLDENKE

Harold Norman Moldenke was born March 11, 1909, at Watchung, N. J., the son of Dr. Charles Edward and Sophia Meta [née, Heins] Moldenke. His father was a distinguished Egyptologist, linguist, world-traveler, and collector, author of numerous Egyptological and travel books. An uncle was an internationally known metallurgist, expert on malleable castings, and author of several standard texts on foundry practice. Another uncle was an Assyriologist. His paternal grandfather was a famous Lutheran minister, missionary, educator, and orator, founder of Northwestern College at Watertown, Wis.

He attended Wardlaw School, Plainfield, N. J. (1919—1920); Susquehanna Academy, Selinsgrove, Pa. (1921—1925); Susquehanna University (1925—1929), being graduated with first honors and the B.S. degree; and Columbia University (1930—1934), where he received the degrees of M.A. and Ph.D. While in college he was student assistant in biology (1926—1929), secretary-treasurer (1925—1926), vice-president (1926—1927), and president (1927—1928) of the Natural Science Club, and a member of the Student Council (1928—1929).

He was awarded a fellowship at the New York Botanical Garden to study algae under the late Dr. M. A. Howe in 1929, was taken on as part-time assistant (1929-1932), Assistant Curator (1932-1937), and finally Associate Curator (since 1937). He was a member of the graduate faculty of Columbia University, in the department of botany, from 1936 to 1942, and has been a member of the board of directors of the John Burroughs Memorial Association since 1938, serving on numerous committees for this organization. In 1935 and 1936 he held a National Research Council fellowship for study abroad and spent over a year studying the preserved and living material of *Verbenaceae* and related groups in most of the larger botanical institutions of Europe, making his headquarters at the Royal Botanic Gardens, Kew, and the British Museum (Natural History).

He has traveled and botanized in 47 states of the United States, the District of Columbia, southern Canada, northern Mexico, Cuba, England, Scotland, France, Belgium, Luxembourg, Germany, Netherlands, Austria, Switzerland, Poland, Czechoslovakia, Norway, Sweden, and Denmark. His botanical collections to date embrace over 19,000 numbers and over 75,000 specimens distributed to the leading herbaria of the world. He was elected to Pi Gamma Mu, national social science honor society, in 1928 and to Sigma Xi, natural science honor society, in 1934; made a Fellow of the American Association for the Advancement of Science in 1938, of the New York Academy of Sciences in 1939, and of the American Geographical Society in 1941. He served as treasurer and Council member of the Torrey Botanical Club from 1937

to 1941 and has served on numerous committees for that organization, including, at present, the Field Committee. He has been co-editor and publisher of the botanical journal "Phytologia" since its inception in 1933, was collaborator for the "Taxonomic Index" from its inception to 1942 and for "Biological Abstracts" since 1933, is a corresponding editor of "Chronica Botanica," has served on the editorial board of Lundell's "Flora of Texas" from 1940 to 1943, and as adviser to the research department of "Life" since 1939. He is a member of the Torrey Botanical Club, Botanical Society of America, American Society of Plant Taxonomists, American Association for the Advancement of Science, New York Academy of Sciences, New York Mycological Society, Yosian Fellowship, John Burroughs Memorial Association, American Geographical Society, Asociación Sudamericana de Fitotaxomistas (Tucumán), and Sociedad Amigos de Flora Brasílica (São Paulo), a sustaining member of the New England Botanical Club, charter member of the Society for the Study of Evolution, and corresponding member of the Sociedad Botánica de México and the Centro de Estudiantes del Doctorado en Ciencias Naturales (Buenos Aires); a past member of the Pennsylvania Alpine Club (1925—1929), National Association of Biology Teachers (1941—1943), and the Indian Association of America (1943).

His chief field of interest is the taxonomy and nomenclature of the *Verbenaceae* and related families, on which subject he has worked for the past 19 years and in the course of which research 102,000 specimens have been studied from 186 of the world's leading herbaria. Other interests include general taxonomy and nomenclature, the flora of Latin America, tautonyms, plants of the Bible, the flora of the Watchung Mountains (N. J.), White Mountains (N. H.), and southern Florida, the compilation of state floras with county records and maps for each species, the vernacular names of plants, general evolution, historical geology, anthropology, ornithology, and philately. His publications to date number 505, covering over 6700 printed pages.

## 2. ALMA LANCE MOLDENKE

Alma Lance Moldenke [née Ericson] was born on April 29, 1908, in New York City, eldest daughter of John William and Cornelia Frances [née Lance] Ericson.

She attended the New York City public school system, being graduated from Public School No. 68 in 1923, from Wadleigh High School in 1927, and from Hunter College, with the degree of Bachelor of Arts, in 1931. While in high school she was elected to membership in the scholastic honor society "Arista." In college she was active in the local Natural Science Club. After graduation from Hunter she was awarded a scholarship at the Woods Hole Marine Biological Station for the summer of 1931, and was elected to membership in Phi Sigma, natural science honor society. She attended graduate courses in botany and





Plate 2

Alma Lance Moldenke



protozoology at Columbia University and in psychology and education at Teachers College from 1931 to 1938.

During high school and college days she served at various posts in the social service and camping fields in and about New York City. For three seasons she was director of nature study and for two seasons the full director of the Alice Rich Northrop Memorial Camp for nature study, for underprivileged children, at Mount Washington in the southern Berkshire Mountains of Massachusetts. She has served as an instructor in first aid (1931 to 1942) and in nutrition (1940 to 1942) for the American Red Cross, and taught biology and general science in the Model School of Hunter College from 1931 through 1934 and biology and related subjects in Evander Childs High School, Bronx, New York City, since 1934. On September 2, 1942, she married Harold N. Moldenke, with whom she had studied botany in the graduate department of Columbia University.

An ardent travel enthusiast, she has toured and botanized throughout the New England states, through the southern coastal states, and cross-country to Oregon and Washington via several of the national parks.

She is or has been a member of the following scientific and educational societies: Torrey Botanical Club, American Association for the Advancement of Science, National Association of Audubon Societies, School Nature League, School Garden Association, John Burroughs Memorial Association, National Education Association, High School Teachers Association, Biology Teachers Association of New York, and National Association of Biology Teachers, and has served as Corresponding Secretary of the Associate Alumnae of Hunter College from 1934 to 1940 and as member of its Executive Council from 1932 to 1942.

Mrs. Moldenke's chief interests are camping, nature study, first aid work, biology teaching, plant collecting, assisting her husband in his scientific research, and caring for their three year old son, Andrew Ralph, who already is enthusiastic about "flowers." She has published occasional short papers and book reviews in the fields of education, camping, and first aid, and has been co-author of several papers on botanical subjects with her husband.

A BRIEF HISTORICAL SURVEY OF THE  
VERBENACEAE AND RELATED FAMILIES

HAROLD N. AND ALMA L. MOLDENKE

## FOREWORD

[The letter from Dr. Moldenke that accompanied the article on the *Verbenaceae* by the Moldenkes is of general interest, and the greater part of it is quoted below and will serve as a "foreword" to the contribution that follows. —H. P. T.]

In several of your letters to me you have indicated that you, too, are interested in the human aspects of botany. As the author of one of the passages which I quote in our paper points out, behind every scientific accomplishment stands a human personality. Too many scientists are so engrossed with the pure scientific aspects of their work that they forget the "human interest" elements; they forget the human personalities who have contributed of their life's blood in order to produce the scientific knowledge which we so glibly accept today as the basis upon which we build our own contributions. Dr. Rusby, in a quotation which we give in our paper, states that one of the chief aims of the study of any subject, including botany, is the improvement of human personality. I think we all too often forget this and think that the plants *per se* are the important features of our study. Actually they are not, but the improvement of human personality—our own, that of our colleagues, and that of future workers—is the prime aim. Thus, I feel that we should not neglect the human aspects of botany.

Pulteney, back in 1790, well said "In tracing the progress of human knowledge . . . it is scarcely possible . . . not to feel an ardent wish of information relating to those persons by whom those improvements have severally been given: and hence arises that interesting sympathy which almost inseparably connects biography with the history of each respective branch of knowledge." Because we feel that this is very true, my wife and I have gone to great pains to assemble in our paper brief thumbnail biographic sketches of the 674 men and women whose contributions have been such or whose influence on workers in the group have been such that they have had genera, species, or varieties named in their honor. Never before has such a compilation been made for a plant family, as far as I am aware—certainly never before for the *Verbenaceae*. You have no idea of how difficult it has been to assemble even these very meager data! We have written over 200 letters, air mail, to various parts of the United States, Philippines, China, England, France, Germany, Belgium, Martinique, Netherlands, Australia, Brazil, Uruguay, Argentina, Colombia, Costa Rica, and even such remote places as the Seychelle Islands and Mauritius in search of data for these biographies! Many of the biographies which we give in our paper have apparently never been recorded in print before; many others can be

found only by experts searching in out-of-the-way records. The Research Department of the Library of Congress and of the New York Public Library have been most cooperative and helpful and have dug up some of the facts for us from very obscure sources—in some cases they have not yet succeeded in finding anything and are still on the search. In the case of missionaries who have collected plants in out-of-the-way corners of Africa, China, or Oceanica, we have contacted foreign mission boards not only in this country, but in England and Scotland and have had people searching through old mission records for information for us! There are 5 or 6 such missionaries about whom we still lack the essential data that we want—we are hoping that some of the letters to mission boards, registrars of colleges and universities, etc., which are still outstanding will bring in at least some of this information before time to go to press.

We feel that these brief biographic notes will be of interest and value not only to all persons working on the *Verbenaceae* and related groups now or in the future, but also to workers on all other groups (because the vast majority of these men and women who are the basis of biographic sketches herein have also contributed to many other families and groups) and, of course, to biographers and bibliographers. It may encourage monographers of other families, now and in the future, to compile similar material for their groups and thus—eventually—there may be preserved in botanical literature much biographic material which might otherwise be lost forever. As an example, let me cite the case of *Citharexylum Emrickianum*. We could find no information at all about the man "Emrick" for whom this species was named other than the fact that he had collected the type specimen in Mexico. Corresponding with Standley at the Chicago Museum revealed the interesting fact that he, too, has been interested for many years in finding out more about this collector, whose Mexican collections are in the Chicago Museum and are of extremely great value. Standley had been totally unsuccessful, like us, until suddenly, by accident, the very day that my letter to him on this subject reached him, he happened to glance over the death notices in a Chicago newspaper. There he found listed the death of a "Dr. Emrick." He at once telephoned the widow and found that the man who had just died was the son of the Emrick who had collected the plants in Mexico for Dr. Millspaugh at Field Museum. Had we found out about this son a few days earlier, we might have been able to get a full biography of the botanical collector! As it is, we have gotten some information about him and I now have letters in the mail to every "Emrick" listed in the Chicago telephone directory, in the hope that from some of these people I may be able to obtain more of the essential information about the botanist! If this is not done now it will be forever too late.

In our paper we have given a very large bibliography in the form of 170 explanatory notes and literature citations. These explanatory notes, taken all in all, comprise the largest bibliography of the *Verbenaceae* ever assembled, especially as many of the references cited



themselves contain smaller bibliographies, so that the total number of references to which a future worker would have access through our bibliography is far, far larger than the number of our footnotes—probably closer to 500 or 600. Also, we have made a special effort to document all the most important statements in our text. The photographs of pages dealing with verbenaceous plants in some of the oldest botanical books known will, we feel, be of special interest to the general reader who probably never has even seen one of those old herbals.

I think that the type of information we have put in our biographic sketches makes it more interesting reading to the general reader than if we had nothing but a long series of dates, positions held, etc., in the telegraphic fashion of a "Who's Who" sketch. We have tried to put in our sketches things of general human interest, emphasizing the cases where botanists have been murdered by hostile natives, cast adrift on the sea, fallen over cliffs to their death, died in airplane crashes, in one case eaten by a crocodile, in one case according to rumor eaten by cannibals. We have told of botanists caught in wars, held prisoner, dismissed from their posts because of having stated their opinions too frankly; botanists whom bad luck and misfortune followed all through life, whose plant collections were lost in shipwreck or hidden away and not "discovered" until many years later. I think that this is not "dry" reading and we hope that you will agree with us. [Editorial note.—readers should note that the story behind *Clerodendrum Thomsonae*, on which the cover design is based, was unearthed by the Moldenkes.]

#### PART I.

"Whenever one does decide to publish, it is necessary to reckon with the great 'paper memory of mankind,' the conserved experience of other workers who have loved and investigated the same things. It then becomes a duty to study the 'literature of the subject' . . . Failure to do this may be justly interpreted as carelessness, sloth, ignorance, or conceit."—W. M. Wheeler.<sup>1\*</sup>

The concept of natural families in the plant kingdom is usually regarded as having originated with Bernard and Antoine Laurent de Jussieu. While it seems to be a fact that this concept actually did originate with them, it also seems to be true that they were not the first to formally publish their ideas so that their contemporaries and posterity might benefit thereby. Bernard de Jussieu, usually given the most credit for the origin of the "natural system," arranged the plantings of the Trianon gardens in natural groups or families and in 1759<sup>2</sup> prepared a list entitled "Order established by M. Bernard de Jussieu for the plants in the garden of Trianon." However, it seems that this list was never published and we know of it and of his ideas in general mostly from the preserved and published letters which he and his con-

\* Exponential numbers refer to "Explanatory Notes and Literature Citations" at the end of the article.

temporaries wrote. Neither did Antoine Laurent de Jussieu formally publish his system until the year 1789. Necker in 1770 described<sup>153</sup> and named numerous natural groups or families, but did not include any corresponding to our present *Verbenaceae*. Thus, it would seem that the actual recorded history of the *Verbenaceae* as a family may be regarded as having begun with the much-maligned and unjustly treated genius, Michel Adanson, (1727—1806). In 1763 Adanson, in his classic "Familles des Plantes," formally published a classification of the plant kingdom into families for the first time in scientific history, although in this work he frequently gives credit to the Jussieus as the source of many of his ideas. These 58 families of Adanson, embracing a total of 1615 genera,<sup>3</sup> were far more natural groupings than the purely artificial classes of Linné's "sexual system," and, while the idea of such natural families seems elementary to us today, we must not forget that it was most radical and even revolutionary in Adanson's time. What a stupendous task it must have been to rearrange all the known genera from the comparatively simple and easy artificial classes of Linné into more natural family groupings! And it was a courageous undertaking, for it entailed bucking the authority and prestige of the great Linné, because while Linné at least twice published lists of genera according to natural orders, like the crucifers and umbellifers,<sup>4</sup> he seems to have looked upon this grouping as a kind of supernatural manifestation. He never actually put his natural classification into use and never even attempted to define his natural groups.<sup>5</sup> That Adanson and the other early systematists made mistakes in their groupings is to be expected. The amazing thing is that they managed as well as they did under the circumstances!

Adanson proposed<sup>6</sup> a family which he called *Verbenae* or "les vervènes," and he went even further than that. He divided the family into two sections. The first of these sections was characterized by him as "A fruit qui se sépare en 2 ou 4 graines." In this section he placed the genera *Alquelagen* Feuill.,<sup>7</sup> *Verbena* Tourn., *Kempferia* Houst., *Blairia* Houst., *Sherardia* Vaill., and *Lippia* Houst. His second section was characterized by him as "A fruit en Baye ou en Capsule" and included *Camara* Marcg., *Oftia* Adans., *Gmelina* L., *Cumbulu* Rheede, *Bontia* Plum., *Cornulia* Plum., *Clerodendron* Burm., *Vitex* Tourn., *Mailelou* Rheede, *Douglassia* Houst., *Citharexylon* Pluk., *Duranta* L., *Gerardia* Plum., *Schwalbea* Gron., *Petrea* Houst., *Hebenstretia* L., *Tozzia* Mich., *Vadakodi* Rheede, *Upata* Rheede, *Leptostachia* Mitch., *Michelia* Houst., and *Priva* Adans. It is most significant that of these 28 genera as recognized by Adanson only 11 are not admitted today as verbenaceous, viz., *Alquelagen* (= *Sphacele*, *Lamiaceae*), *Oftia* (*Myoporaceae*), *Cumbulu* (= *Catalpa*, *Bignoniaceae*), *Bontia* (*Myoporaceae*), *Schwalbea* (*Scrophulariaceae*), *Hebenstretia* (*Selaginaceae*), *Tozzia* (*Scrophulariaceae*), *Vadakodi* (= *Justicia*, *Acanthaceae*), *Upata* (= *Avicennia*, *Avicenniaceae*), *Michelia* (= *Pontederia*, *Pontederiaceae*), and *Leptostachia* (= *Phryma*, *Phrymaceae*).



**Agnus castus** Schaffmulle **Cap. liij.**

**A**gnus castus vel salix marina vel arbor abrahæ latine grece  
 Aligos vel lygos. arabice Amarikest. Serapto in dem  
 buch aggregatoris in dem capitel amarikest id est agnus ca  
 stus spricht das diß sy ein baum abrahæ. Dieser baum wechset gern by  
 dem wasser vnd hat fange stengel die synt gar hart vnd laisset sich  
 vngern brechen. Dieser baum krenget samen der glicher den

Page from the 1485 edition of "Hortus Sanitatis Deutsch,"  
 by Johann von Cube [=Johann Wonnecke], printed by  
 Peter Schoffer in Mainz, showing a crude but recognizable  
 illustration of **Vitex Agnus-castus** L.  
 Plate 3

Carl von Linné (1707—1778), generally regarded as the founder of the binomial system of nomenclature, was acquainted with 50 species and varieties of plants which we today classify in the *Verbenaceae*. In his justly famous and epochal “sexual system” of classification,<sup>8</sup> he grouped these in three classes. In his class DIANDRA MONOGYNIA he placed *Verbena*, of which he listed 14 species (only 5 of which are now regarded as true members of that genus). With *Verbena* in this class, however, were 23 other more or less unrelated genera such as *Chionanthus*, *Jasminum*, *Ligustrum*, *Nyctanthes*, *Olea*, *Phillyrea*, and *Syringa* of the present-day *Oleaceae*, *Eranthemum*, *Justicia*, and *Dianthera* of what we now call the *Acanthaceae*, *Pinguicula* and *Utricularia* of the *Lentibulariaceae*, *Morina* of the *Dipsacaceae*, *Circaea* of the *Oenotheraceae*, *Gratiola* and *Veronica* of the *Scrophulariaceae*, and *Amethystea*, *Collinsonia*, *Lycopus*, *Monarda*, *Rosmarinus*, *Salvia*, and *Zizyphora* of the *Lamiaceae*. In his class TETRANDRIA MONOGYNIA he placed the genera *Callicarpa*, with 2 species, and *Aegiphila*, *Siphonanthus*, and *Tomex*, each with a single species. In the same class were 48 other genera belonging to such diverse families as *Avicenniaceae* (1 genus), *Berberidaceae* (1), *Chenopodiaceae* (1), *Cornaceae* (1), *Dipsacaceae* (3), *Elaeagnaceae* (1), *Ericaceae* (1), *Gentianaceae* (1), *Globulariaceae* (1), *Loganiaceae* (2), *Loranthaceae* (1), *Lythraceae* (1), *Moraceae* (1), *Oenotheraceae* (2), *Penaeaceae* (1), *Phytolaccaceae* (1), *Plantaginaceae* (1), *Primulaceae* (1), *Proteaceae* (3), *Rosaceae* (2), *Rubiaceae* (16), *Rutaceae* (1), *Salvadoraceae* (1), *Scrophulariaceae* (1), *Trapaceae* (1), and *Vitaceae* (1). In his class DIDYNAMIA ANGIOSPERMA Linné placed *Citharexylum*, *Clerodendrum*, *Cornutia*, *Duranta*, *Gmelina*, *Lantana*, *Lippia*, *Ovieda*, *Petrea*, *Premna*, *Vitex*, and *Volkameria*—all with one species each except *Duranta*, *Premna*, and *Volkameria* with 2 each, *Vitex* with 4 and 1 variety, and *Lantana* with 7 and 3 varieties. In this same class, however, he placed 45 other genera representing such diverse groups as *Acanthaceae* (3 genera), *Bignoniaceae* (2), *Caprifoliaceae* (1), *Gentianaceae* (1), *Gesneriaceae* (3), *Martyniaceae* (1), *Melianthaceae* (1), *Myoporaceae* (1), *Orobanchaceae* (3), *Pedaliaceae* (2), *Polemoniaceae* (1), *Scrophulariaceae* (23), *Selaginaceae* (2), and *Solanaceae* (1). In view of this amazing assemblage of genera the feat of Adanson in culling out the genera which he placed in his family *Verbenae* begins to take on its true proportions.

Next in the history of the family must be mentioned Antoine Laurent de Jussieu (1748—1836), who, in 1789,<sup>9</sup> proposed a series of “natural orders,” a term which was to persist long after his time and was even used up to and including the sixth edition of Asa Gray’s “Manual.”<sup>10</sup> Among Jussieu’s “natural orders” was one which he called *Vitices* or “les gattiliers” and which he subdivided into 3 sections: “I. Flores oppositi corymbosi,” including *Clerodendrum* L., *Volkameria* L., *Aegiphila* L., *Vitex* Tourn., *Callicarpa* L., *Manabea* Aubl., *Premna* L., *Petitia* Jacq., *Cornutia* Plum., *Gmelina* L., *Theka* Rheede, and *Avicennia* L.; “II. Flores spicati, in spicis alterni,” including *Petraea* L., *Citharexylum* L., *Duranta* L., *Lippia* L., *Lantana* L., *Spielmannia* Medic., *Taligalea* Aubl., *Tamonea* Aubl., *Verbena* Tourn., and *Perama* Aubl.; and “III. Genera Viticibus affinis,” consisting of *Eranthemum* L., *Selago* L., and *Hebenstretia* L. All Jussieu’s genera are verbenaceous except six: *Spielmannia*



in imperij cōditoribusq; immēsum quiddā dedit. Non aliunde sagmina in remedijis publicis, & in facris legationibus uerbenax, q; ex hac genti illi fuere: qua coronati ad hostes fociales mitteretur. ideoq; sacra herba uulgo dicta & cognita. Romani uerbenacā, q; sola & per se uerbenas faceret, dixerit: gētium uera & publica utilitatis causam fecit. Græci quibus nulli fociales erāt, nec idem in legatis ritus, naturā contemplati, peristeriona nominauerūt, à colibus, ut hic ait, factō nomine: q; hęc auis libenter inter eam ueretur. Verag gens duo eius cognout genera, diuersis tamen notis ea distreuerunt. Latini à sexu marem & formam: Græci à plantæ habitu, rectam & supinam dicentes. Addiderunt per tēpora & ex alijs causis aliasq; gentes appellationes. Romani etiā criftam gallinaceam dicere poterunt, q; folia illi serrata sint, qualis mea uox criftatus apex ille est. Sic etiā herbam sagminalē: q; inter sagmina primū hęc honorem haberet. Relinquitur quibus quiddā sagmina sint docere, quia uerbenax etiā quoniā in Latina re iam pridē omnibus hęc nota fuit. Habuit & alias in posterioribus Latinis appellationes uerbenaca, quæ numerauit aliquas Apuleius in commentariolo illo de herbis: numerauerit & alijs q; quoniā à Barbaro repetit lōgus in Corollario suo fuit, à nobis relinquuntur. Multæ laudis & magni nominum ambitus herba hęc semper fuit: multisq; locis religione consecrata: quod raro factum hystoria & experientia ostendit in his, quæ natura omnibus cōmuna fecit: qualis uerbenaca hæc recta est, nullis non ferē locis nascēs, & rustica plebi ubiq; nota.

πρωτερον  
υπηλος. δι. ζ.  
εραμ βοτα  
ιου.

**I**πρι ἰσοβοτάκις. κεφ. χυμό. \* Ερα βοτάκι. δι. ζ., πρωςρεβνα. Λει ζ., ηερχλίου. δι. δε, χαμάλικου. δι. ζ., σιδηρίμ. δι. δε, κουρίμ. δι. δε, φροσεφ-ιου. δι. δε, διοςκλακάτηρ. δι. δε, δ'ιζωμορ. δι. δε, κάλκισμ. δι. ζ., ἰπάρισμ. δι. ζ., θημηκρίδα. αγγήσιο πεμφδεμφάμ. πυδαγόρα ερεσι κηπύμ. φρααίο κηκηάλις. Ιεκάλισμ. εάθδους δ'ινοσι πηχυνάσ, η Ομείζουα ρανωφίεζ, π'ι άζ τά φύλλα εκ διασεμάτωρ εοικότα δ'ιυ. πλώ σρωτέξα Ο ηήσια, ερητμυβία δ'ι. τά κύκλω ύπόπλακια, εζέαν δε ύπερλίηκ. λεπήν, ζιθκπροτυα. λεπήα. ταύτης τά φύλλα Ο η εζέα π'ιόμυα μετ' ούη Ο κιασπλασώμυα, ηφ' ηρόε ερεπέε. ηρόε δε η'ιζου τά φύλλα όσορ < δ'ι κλώ μετ' λιθωνω ύ βρεβόλου, εν μόνη παλαιά κοτύλη μετ' υσφ' ημέζας μ. π'ιόμυα. οδ'ιματ'ε χεζύνα και φλεγομοιάς καταπαθεείνα π'ραυή. Ο ερηπ'ια ελκη καθαίρετ' ε'ηθ'ισα δε ελκ' σύμ'οιω, εχάεζας τ'οδ' εν π'ιόμοιοις π'ηρητή, ηθ'ιωμας τυεσρ'ομάα β'ιναγορ γ'ιζομύλη εθ'ισασι. εραμομένωρ τε ζή συμρησιοζ τ' επόβερεμα, ειδ'ιναωγ'ιτρουε ισσηη π'ιέρ, δ'ιδ'οη δε η'ι ταιλοσι π'ιέρ τ'ο τρίτω γ'όνυ άπ' η'εζ γ'ιζ' σύμ' η'εζ π'ηρημεείοις φύλλοις. πετ' η'α' ζουσι δε τ'ό τ'ατατορ. καλοσι δε άντ'ι ιζ'αμ βοτάκιω δια τ' εύχεσορ εν τ'ίε καδ'ιμοίς αναιείς π'ιζάμματα.

De Verbenaca supina. Cap. LX.

**P**eristereona supinum. Sunt qui & hanc ferā herbā nomen, L qui erigenion, qui chamæleucen, qui fideritum, qui Curtium, qui Persephonion, qui Louis colum, qui dichromon, qui callefin, qui ciparissom, qui Demetriada appellēt. Aegypti pemphiphtham, Pythagoras erythæceptum. Romani cincinnalē herbam dicunt. Cubitales uerbenaca hæc præfert uirgas, aliquando etiam maiores & angulosæ. Circa quas folia sunt per interualla quænis similia: angustiora tamen minoraq; sed per ambitum festā: colore quando etiam maiores & angulosæ. Circa quas folia sunt per interualla quænis similia: angustiora tamen minoraq; sed per ambitum festā: colore quando etiam maiores & angulosæ. Radicem habet oblongam gracilemq; Flores purpureos tenesq;. Aduersarum ferpentibus folia huius uerbenacæ: in quem usum bibenda dantur, aut emplastrum imponuntur. Bibuntur cōtra fellis suffusiones eadem folia utiliter drachma: pondere cum thuris obolis tribus, & uini ueteris hemina una uicinis quadraginta diebus. Quinetiam ueteres tumores & inflammationes leniunt emplastrum modo imposta: & sordida purgant ulcera. Ispatiam tota herba cum uino tonsillarum crustas etipis, & oris depascētia ulcera gargarisara compellit. Ferrur trichinjs inpersum uerbenacæ dilutum, letiores conuiuas facere. Datur contra tertianas bibendus cum adacentibus folijs tertius à terra genniculus eius: cōtra quartanas uero, quartus. Sacra herba uerbenacā ideo uocant, quoniā felicē habebat usum in lustrationibus suspēsa alligata ue.

INTERPRESE.

**S**uperiorem uerbenacam Græci, q; recto caule riget, rectāni: hanc, q; deiectis in terrā ramulis quāni acci, supinā uocauerit. Nec solū inter eas hoc dūlcitern obseruati ab illis est, sed ut ex utroq; hitoria licet cognoscere, plura alia sunt, quibus inter se disconuenit. præsertim q; numerus & lōgus uirgarum lorū. Quod idem ambrosia est, & quod cognominis eas fecit, foliorū figurā, & in folijs patet inuestigare. Vidimus nos quā nunc rectā uerbenacā dicunt, multo maiore altitudine q; dodranali. Contra q; supinā longe breuioribus q; cubitalibus uirgis: & in utraq; quod in scriptore hoc nō legitur, quadrangulis ramulis rectam itidem singulari caule, sed non singulari radice: nisi hinc unam eius radicem forte dixerit, quæ crassius alijs est: cæteras uero fibras & capillamenta magis q; radices esse uoluerit. In utraq; autem, quod Paulus dixerit, eadem serrata & quænis similia folia sunt. Vise q; nobis plantæ hæc sunt magis ad Plinij q; ad Dioscoridis huius picturam accedere. Fuerunt quondam, ut Plinius idem testatur, & ut licet ex tam multis nominibus quæ in scriptore hoc legū cōjicere, magis in magno honore uerbenacæ qui omnia ad suspēsa dolo

Page from the 1529 edition of "De Medica Materia Libri V" by Dioskorides Pedanios on which a description appears of what is now called **Verbenia supina** L. Plate 4

(*Myoporaceae*), *Perama* (*Rubiaceae*), *Eranthemum* (*Acanthaceae*), *Avicennia* (*Avicenniaceae*), *Selago* (*Selaginaceae*), and *Hebenstretia* (*Selaginaceae*).

In 1790 Necker (1730—1793) proposed<sup>11</sup> a unique classification of the plant kingdom into a few artificially-characterized groups reminiscent of the sexual classes of Linné. In his CORYTOPHYTUM he included *Verbena*, *Abena*, *Patya*, and *Denisaea*, along with 46 other genera, of which 44 are now regarded as belonging in the *Lamiaceae*, 1 belongs in the *Convolvulaceae*, and the 46th was *Phryma* of the *Phrymaceae*. In his CHASMOPHYTUM he included *Geunsia*, *Aubletia*, *Cornutia*, *Vitex*, *Tamonea*, and *Gmelina*, as well as *Avicennia* of the *Avicenniaceae*, *Bontia* of the *Myoporaceae*, "*Hebenstretia*" of the *Selaginaceae*, and 40 other genera of which 28 are now placed in the *Scrophulariaceae*, 5 in the *Acanthaceae*, 2 each in the *Utriculariaceae*, *Orobanchaceae*, and *Gesneriaceae*, and 1 in the *Rutaceae*. In his PLASYRGOPHYTUM he placed *Citharexylum*, *Duranta*, *Ovieda*, *Amasonia*, *Lippia*, *Diphystema*, *Lantana*, *Volkameria*, "*Clerodendron*," "*Petraea*," and *Premna*, as well as "*Spielmannia*" of the *Myoporaceae*, *Selago* of the *Selaginaceae*, and 35 other genera, of which 12 are now placed in the *Scrophulariaceae*, 5 in the *Acanthaceae*, 3 each in the *Pedaliaceae*, *Solanaceae*, and *Bignoniaceae*, 2 each in the *Gentianaceae* and *Gesneriaceae*, and 1 each in the *Caprifoliaceae*, *Martyniaceae*, *Loganiaceae*, *Orobanchaceae*, and *Polemoniaceae*.

Four years later, in 1794, E. P. Ventenat (1757—1808) first proposed<sup>12</sup> for the group a name which had the *-aceae* termination now taken as indicative of plant family names. Ventenat's name for the group was *Pyrenaceae*. This name, however, was a descriptive one, referring to the fruits or "pyrenes" produced by most of the genera. Because it was not derived from a typical generic name, with the suffix *-aceae* appended to the stem of the generic name, it is not maintained today even though it is the oldest. Ventenat divided the family into 4 sections, characterized as follows: 1, "Fleurs disposées en corymbe. Péricarpe charnu," including *Clerodendrum*, *Ovieda*, *Volkameria*, *Aegiphila*, *Callicarpa*, *Vitex*, *Cornutia*, and *Gmelina*; 2, "Fleurs disposées en épi Péricarpe charnu," including *Citharexylum*, *Duranta*, *Lantana*, and *Spielmannia*; 3, "Fleurs en épi. Semences nues," including *Verbena* and *Zapania*; and 4, "Genres qui ont de l'affinité avec des Pyrénacées," comprising *Selago* and *Hebenstretia*. Ventenat, thus, out of the 16 genera listed included only 3 not now regarded as verbenaceous: *Spielmannia*, *Selago*, and *Hebenstretia*.

It was J. H. Jaume Saint-Hilaire (1772—1845) who, in 1805, first proposed<sup>13</sup> the name which is now used for the family, *Verbenaceae*, founded on the large and typical genus *Verbena*. Jaume Saint-Hilaire divided the family into 3 sections: 1, "Fleurs opposées sur un corymbe rameux," including *Clerodendrum*, *Volkameria*, *Ovieda*, *Aegiphila*, *Vitex*, *Callicarpa*, *Manabea*, *Premna*, *Petitia*, *Cornutia*, *Gmelina*, *Theka*, and *Avicennia*; 2, "Fleurs disposées en épis alternes," including "*Petraea*," *Citharexylum*, *Duranta*, *Lippia*, *Lantana*, *Spielmannia*, *Zapania*, *Verbena*, *Taligalea*, *Tamonea*, and *Perama*; and 3, "Genres qui ont de l'affinité avec les Verbénacées," comprising *Eranthemum*, *Selago*, and *Hebenstretia*. Out of the 27 genera Jaume Saint-Hilaire included, thus, only

6 which are not truly verbenaceous—the same 6 of Jussieu: *Spielmannia*, *Perama*, *Avicennia*, *Eranthemum*, *Selago*, and *Hebenstreitia*.

From this time on, the family has been almost universally known as the *Verbenaceae*, although Jussieu is usually credited with being the author, and the reference quoted in book after book, by writers<sup>14, 15, 16, 17, 18</sup> who apparently never took the trouble to look it up, is "Ann. Mus. Paris 7: 63—77. 1806." Actually in this 1806 work Jussieu never used the name accredited to him, but referred to the group (of 28 genera, including *Spielmannia* and *Perama*) only as "les Verbénacées."

The name *Verbaceae* is sometimes listed<sup>19</sup> and accredited to H. F. Link (1767—1851) in his enumeration of the plants of the Berlin botanical garden,<sup>20</sup> but this was merely a typographic error for "*Verbenaceae*" as can be seen from the use of the latter spelling in a later part of the same volume. The same is true of "*Berbenaceae*" sometimes found in Spanish language works<sup>21</sup> and the "*Vervenaceae*" of De Wildeman.<sup>22</sup> It is worthy of note that Link still included *Selago* and "*Hebenstreitia*" in the *Verbenaceae*.

Robert Sweet (1783—1835) in 1826 accredits<sup>23</sup> the name *Verbena-ceae* to Brown. He includes 30 genera in the family: *Clerodendrum*, *Volkameria*, *Aegiphila*, *Callicarpa*, *Vitex*, *Wallrothia*, *Chloanthes*, *Premna*, *Holmskioldia*, "*Petraea*," *Hosta*, *Cornutia*, *Gmelina*, *Citharexylum*, *Duranta*, *Amasonia*, *Lantana*, *Tectona*, "*Colebrookia*," *Streptium*, *Priva*, *Tamonea*, *Stachytarpheta*, *Zapania*, *Aloysia*, *Verbena*, *Lippia*, and the non-verbenaceous *Spielmannia*, "*Hebenstreitia*," and *Selago*.

From the very first we see that attempts were made to subdivide the family. Adanson divided it into two sections based on the character of the fruit. Jussieu, Ventenat, and Jaume Saint-Hilaire had certain genera which they regarded as true members of the family and other genera which were appended as merely related to it with their exact position in doubt. Jussieu and Jaume Saint-Hilaire recognized two sections among the true members of the family, characterized by either determinate or indeterminate inflorescences. It is most significant that this same character is still used today as forming the main division in the family. Ventenat recognized three sections, characterized by the same inflorescence characters plus fruit and seed characters. None of these workers bothered to give formal scientific names to their sections.

In 1829 B. C. J. Dumortier (1797—1878) made the first definite segregation<sup>15</sup> within the family into formally named tribes:

Tribe 1. *Verbeneae* Dumort. "Bractéoles alternes."

Tribe 2. *Viticeae* Dumort. "Bractéoles opposées."

In the first of these tribes he placed the genera *Verbena*, *Zapania*, *Aloysia*, *Stachytarpheta*, *Chloanthes*, "*Petraea*," *Citharexylum*, *Duranta*, *Priva*, *Lippia*, *Lantana*, and "*Spielmania*." In the second tribe he included "*Clerodendron*," *Volkameria*, *Siphonanthus*, *Vitex*, "*Holmskiidia*," *Aegiphila*, *Callicarpa*, "*Permna*," *Hosta*, "*Cornutea*," *Gmelina*, and *Tectona*. He classified *Avicennia* in his family "*Myoporineae* R. Br." along with the genera *Myoporum*, *Stenochilus*, and *Bontia*.

F. G. Bartling (1798—1875) in 1830<sup>16</sup> and J. Lindley (1799—1865) in 1836<sup>18</sup> followed Dumortier in the characterization of two divisions in the family, although Bartling called them Section 1, *Viticea* Bartl., and Section 2, *Verbenae* Bartl., while Lindley called them, “*Viticeae* Bartl.” and “*Verbeneae* Bartl.”

Beginning with S. Endlicher (1804—1849), the classification of the *Verbenaceae* becomes continually more complicated, detailed, and accurate, conditions concomitant with the continued discovery and description of new genera and species throughout the world. Endlicher in 1838 recognized<sup>24</sup> three tribes definitely within the family—Tribe 1, *Lippieae* Endl.; Tribe 2, *Lantaneae* Endl.; and Tribe 3, *Aegiphileae* Endl.—and, in addition, appended *Avicennia* as an unnumbered tribe, *Avicennieae* Endl., merely related to the *Verbenaceae*. Here, then, is the second recognition that *Avicennia* does not belong in the true *Verbenaceae*.

C. F. Meissner (1800—1874) in 1839 increased<sup>25</sup> the number of tribes to five:

- Tribe 1. *Lippieae* Endl.
- Tribe 2. *Lantaneae* Endl.
- Tribe 3. *Symphoremeae* Meissn.
- Tribe 4. *Aegiphileae* Endl.
- Tribe 5. *Avicennieae* Endl.

The first treatment of the family that can be called truly monographic in the modern sense of that word, wherein an attempt is made not only to list and describe all the genera, but also all the known species and varieties throughout the world and account for all names published in the group, was that of W. G. Walpers (1816—1853) in 1844—1847. Walpers' treatment<sup>26</sup> is, therefore, of considerable interest. He divided the family into five tribes and recognized 52 genera, 715 species, and 38 varieties. He also excluded 3 genera and 30 binomials and appended 4 genera as probably but not certainly verbenaceous. His classification may be presented as follows:

- Tribe 1. *Lippieae* Endl.—including *Caryopteris* (1 species), *Mastacanthus* (1), *Peronema* (1), *Stachytarpheta* (41 spp. & 1 var.), “*Bouchéa*” (3), *Shuttleworthia* (7), *Verbena* (111 spp. & 13 vars.), *Priva* (10), *Phryma* (1), *Monochilus* (1), *Quoya* (1), *Dipyrena* (1), *Chascanum* (7), *Casselia* (4), *Aloysia* (9), *Lippia* (67 spp. & 4 vars.), *Cryptocalyx* (1), *Buchia* (1), and *Chloanthes* (6).
- Tribe 2. *Lantaneae* Endl.—including *Spielmannia* (2), *Lantana* (63 spp. & 4 vars.), “*Petraea*” (11 spp. & 2 vars.), *Petitia* (2), *Mallophora* (2), “*Citharexylon*” (38 spp. & 1 var.), *Duranta* (13), *Hosta* (5), *Pyrostoma* (1), *Wallrothia* (2), *Vitex* (55 spp. & 3 vars.), *Viticastrum* (1), *Calochlamys* (1), *Casarettoa* (2), *Premna* (30), *Holochiloma* (1), *Pityrodia* (1), *Gmelina* (7), “*Tectonia*” (2), *Hemigymnia* (1), *Volkameria* (7), *Cyclonema* (4), “*Clerodendron*” (84 spp. & 2 vars.), *Tamonea* (3 spp. & 1 var.), and *Geunisia* (1).
- Tribe 3. *Symphoremeae* Meissn.—including *Symphorema* (2) and *Congea* (8).



Tribe 4. *Aegiphileae* Endl.—including *Scleroon* (1), *Aegiphila* (39), *Amasonia* (5), *Cornutia* (1), and *Callicarpa* (37).

Tribe 5. *Avicennieae* “Meissn.”—including *Avicennia* (2 spp. & 7 vars.). “Genera incertae sedis et non satis nota”—including *Hymenopyramis* (1), *Glossocarya* (1), *Analectris* (1), and *Cochranea* (1).

The genus *Spartothamnus* was placed by Walpers in his “order” *Myoporineae*. On the other hand, it is worthy of note that he still included in the *Verbenaceae* the genera *Phryma*, *Spielmannia*, *Hemigymnia*, *Cochranea*, *Avicennia*, *Symphorema*, and *Congea*, now regarded as not verbenaceous.

The second treatment of the *Verbenaceae* which can be described as truly monographic was that of J. C. Schauer (1813—1848) in 1847.<sup>27</sup> In fact, this work and Walpers’ have been the only monographic treatments of the entire family ever published. Schauer’s treatment is, therefore, also of extreme importance. Somewhat more conservative than Walpers, he recognized only 42 genera, 670 species, and 42 varieties, and excluded from the family 24 binomials previously included. A. de Candolle, writing in the same volume, recognized the *Myoporaceae* as a distinct family, but placed in it the verbenaceous genera *Nesogenes*, *Dasy-malla*, and *Spartothamnus*. Schauer’s treatment may be summarized as follows:

Tribe 1. *Verbeneae* Dumort.

Subtribe 1. *Spielmannieae* Schau.—including only *Spielmannia*.

Subtribe 2. *Monochileae* Schau.—including only *Monochilus*.

Subtribe 3. *Casselieae* Schau.—including *Casselia* and *Tamonea*.

Subtribe 4. *Verbeneae* (Bartl.) Schau.—including *Mallophora*, *Chlo-anthes*, *Priva*, *Dipyrena*, *Verbena*, *Bouchea*, “*Stachytarpha*,” and *Lippia*.

Subtribe 5. *Lantaneae* (Endl.) Schau.—including only *Lantana*.

Subtribe 6. *Duranteae* Schau.—including *Citharexylum* and *Dur-anta*.

Subtribe 7. *Petreae* Schau.<sup>28</sup>—including only *Petrea*.

Tribe 2. *Viteae* Schau.

Subtribe 8. *Symphoremeae* (Meissn.) Schau.—including *Sympho-rema*, “*Sphaenodesma*,” and *Congea*.

Subtribe 9. *Caryopterideae* Schau.—including *Caryopteris*, *Glossocarya*, *Hymenopyramis*, and *Peronema*.

Subtribe 10. *Viticeae* (Bartl.) Schau.—including *Pityrodia*, *Tec-tona*, *Premna*, *Petitia*, *Callicarpa*, *Aegiphila*, *Volkameria*, *Clerodendrum*, *Cyclonema*, *Oxera*, *Amasonia*, *Gmelina*, *Cornutia*, *Vitez*, *Holmskioldia*, *Quoya*, *Hemigymnia*, and *Scleroon*.

Tribe 3. *Avicennieae* Endl.—including only *Avicennia*.

Of great interest because of the fact that it is still adopted in certain quarters, is the classification of G. Bentham (1800—1884), proposed in 1876.<sup>29</sup> Among other things, Bentham harks back to Adanson and Wal-

pers in the inclusion of *Phryma* in the *Verbenaceae*. Bentham's system was essentially as follows:

- Tribe 1. *Phrymeae* Benth.—including only *Phryma*.  
 Tribe 2. *Stilbeae* Benth.—including *Campylostachys*, *Stilbe*, *Euthystachys*, and *Eurylobium*.  
 Tribe 3. *Chloantheae* Benth.—including *Lachnostachys*, *Newcastlia*, *Physopsis*, *Mallophora*, “*Dicrastyles*,” *Chloanthes*, *Pityrodia*, *Cyanostegia*, *Denisonia*, *Spartothamnus*, and *Nesogenes*.  
 Tribe 4. *Verbeneae* Dumort.—including *Acharitea*, *Lantana*, *Lippia*, *Baillonia*, *Neosparton*, *Bouchea*, *Stachytarpheta*, *Priva*, *Dipyrena*, *Verbena*, *Tamonea*, *Monochilus*, *Amasonia*, *Espadaea*, *Casselia*, “*Petraea*,” *Citharexylum*, *Rhaphithamnus*, and *Duranta*.  
 Tribe 5. *Viticeae* (Bartl.) Benth.—including *Geunisia*, *Callicarpa*, *Aegiphila*, *Petitia*, *Tectona*, *Rapinia*, *Premna*, *Adelosa*, *Cornutia*, *Gmelina*, *Vitex*, *Faradaya*, *Oxera*, “*Clerodendron*,” *Holmskioldia*, and *Teucriidium*.  
 Tribe 6. *Caryopterideae* (Schau.) Benth.—including *Caryopteris*, *Glossocarya*, *Hymenopyramis*, and *Peronema*.  
 Tribe 7. *Symphoremeae* Meissn.—including *Symphorema*, “*Sphenodesma*,” and *Congea*.  
 Tribe 8. *Avicenniae* Endl.—including only *Avicennia*.

Widely accepted today is the detailed and scholarly classification of J. Briquet (1870—1931), proposed in 1895<sup>30</sup> and followed almost without question until only a few years ago. Although his treatment is not strictly monographic because it does not attempt to list, describe, and differentiate all the species in each genus, Briquet's work represents the culmination of almost 150 years of research and investigation in the group and is a vast storehouse of tremendously important and systematically arranged information. It and the monographs of Walpers and Schauer are the three most important works on the group extant. While Briquet did not list all the species, he did give careful estimates of the number of valid species in each genus and on the basis of these estimates it appears that in 1895 he regarded the family as containing 67 genera and 762 species. Comparing this figure with the 17 genera and 50 species and varieties known to Linné we may arrive at a fair approximation of the rate of increase in our knowledge of the group during the first 150 years of its history. Briquet's classification is as follows:

- Subfamily 1. *Stilboideae* Briq.  
 Subfamily 2. *Verbenoideae* Briq.  
     Tribe 1. *Euverbeneae* Briq.  
     Tribe 2. *Lantaneae* Endl.  
     Tribe 3. *Priveae* Briq.  
     Tribe 4. *Monochileae* (Schau.) Briq.  
     Tribe 5. *Petraeeae* Briq.  
     Tribe 6. *Citharexyleae* Briq.  
 Subfamily 3. *Chloanthoideae* Briq.  
     Tribe 7. *Achariteae* Briq.  
     Tribe 8. *Chloantheae* Benth.

## LIBER VII. SECTIO IV. 523

Habet Lugdunensis pag. 1271. lib. 11. cap. 32. rammum Consolidæ Sarracenticæ maioris, non tamen puto diuersam ab hac nostra.

IV.

Virga aurea angustifolia serrata.

Solidago Saracenicæ Trago pag. 487. lib. 1. cap. 164. & Lob. obs pag. 159. & icon pag. 299.

Huius adhuc species longioribus folijs.

## SECTIO QVARTA.

VERBENA: SCABIOSA: IACEA: STOE-  
be: Succisa: Cyanus: Tragopogon: Scorzonera: Cal-  
tha: Helenium: Flos Solis.

## VERBENA.



ΕΡΙΣΤΕΡΕΩΝ, id est colūbaris, quòd circa hanc columbæ, perquam libenter versari soleant. Dioscoride autore lib. 4. cap. 60. At Dioscorides fortè Marrubium palustre ut supra monuimus intellexit: Plinio lib. 25. cap. 9. Hierobotane (id est Sacra herba, quia in sacris vtebantur) aliqui *ερίστερωνα* nostram Verbenacam vocant.

Genera duo Plinio, foliosa quam fœminam putant; mas rarioribus folijs.

I.

Verbena communis.

Verbena mascula Brûfel. fol. pag. 119. Tom. 1. Rhaps. 18. Et Hierobotane mas Eidem 4. pag. 105.

Verbenaca Matth. fol. lat. pag. 667. lib. 4. cap. 55. & ic. 4 pag. 713.

Verbena Dioscoridis Lob. obs pag. 289. & communis Verbena, & Sacra recta Eidem icon pag. 534.

Flores cærulei aut albidi.

VV 3 II. Ver.



- Tribe 9. *Physopsidae* Briq.
- Subfamily 4. *Viticoideae* Briq.
- Tribe 10. *Callicarpeae* Briq.
- Tribe 11. *Tectoneae* Briq.
- Tribe 12. *Viticeae* (Bartl.) Benth.
- Tribe 13. *Clerodendreae* Briq.
- Subfamily 5. *Caryopteridoideae* Briq.
- Subfamily 6. *Symphoremoideae* Briq.
- Subfamily 7. *Avicennioideae* Briq.

Recently there has been published a very provocative treatment by Sven Junell in which (1934)<sup>31</sup> revolutionary changes in the systematics of the *Verbenaceae* and related families are proposed. In brief, it may be stated that Junell's investigations of the gynoeceum morphology of the *Lamiales* have convinced him that only Briquet's Subfamily 2 is truly verbenaceous. Junell would segregate Briquet's Subfamily 1 as the *Stilbaceae* and would shift his Subfamilies 3, 4, 5, 6, and 7 into the *Lamiaceae*. The genera *Acharitea*, *Nesogenes*, and *Cyclocheilon* he would exclude completely from the *Lamiales*, but he does not suggest where they actually should be classified. Our own studies of the group do not permit us to go quite as far as Junell, although we agree with him on the segregation of the *Stilbaceae* and would also segregate certain other families.

Thus, reviewing the checkered history of the *Verbenaceae* over the past 200 years, we find that a great many diverse groups of plants have been included in this family by various authors from time to time. Gradually, as our knowledge of these groups increased, they were, one by one, eliminated; some to be segregated as separate and coordinate families. If the type genus of a given family was at one time regarded as a member of the *Verbenaceae*, it can with justification be claimed that that family has been segregated from the *Verbenaceae*. Schrader in 1820<sup>32</sup> proposed the family *Ehretiaceae*, and Dumortier in 1829<sup>33</sup> proposed the family *Cordiaceae*, for the genera *Cordia*, *Ehretia*, *Hemigymnia*, and *Patagonula*, included in the *Verbenaceae* by various authors—*Cordia* and *Ehretia* by De Wildeman<sup>34</sup>, *Hemigymnia* by Walpers<sup>35</sup> and Schauer<sup>27</sup>, and *Patagonula* by De Candolle<sup>36</sup>.

Next to be segregated were the *Selaginaceae*<sup>37</sup> and *Stilbaceae*<sup>38</sup> by Lindley in 1836. In the *Selaginaceae* are placed the genera *Hebenstretia* and *Selago*, included in the *Verbenaceae* by Jussieu, Ventenat, Sweet, Link, and Jaume Saint-Hilaire, and the first also by Adanson. In the *Stilbaceae* we have the genera *Campylostachys*, *Eurylobium*, *Stilbe*, *Euthystachys*, and *Xeroplana*, some or all of which were placed in the *Verbenaceae* by Bentham and Briquet. The name *Stilbinaceae* was proposed for this same family by Möbius in 1902<sup>39</sup> and is accepted by Junell.

In 1843 Horaninov segregated the *Bontiaceae*<sup>40</sup>, typified by the genus *Bontia* which was originally included in what is now the *Verbenaceae* by Adanson. An older name for this family, however, is *Myopor-*



*aceae*, proposed by Lindley in 1836<sup>37</sup>. In this family also belongs the genus *Spielmannia*, included in the *Verbenaceae* by Jussieu, Ventenat, Reichenbach, and Jaume Saint-Hilaire, and the genus *Oftia* included by Adanson.

Schauer in 1847<sup>41</sup> delimited a new family, which he called *Phrymaceae*, to contain the peculiar genus *Phryma* (including *Leptostachia* of Adanson) of eastern North America and eastern Asia, included in the *Verbenaceae* by Adanson, Walpers, Bentham, Franchet<sup>42</sup>, and Barnhart<sup>19</sup>.

The genus *Avicennia* (including *Upata* of Adanson) has always presented a problem to systematists. Endlicher in 1838<sup>24</sup> erected for it a special "order" (i.e., family) which he called the *Avicenniaceae* and which he described as "Verbenaceis affines." The *Stilbinae* were also kept separate by him as a distinct "order." In 1843 he formally proposed<sup>43</sup> the name *Avicenniaceae* for the black-mangrove family, in which he has been followed by Small in 1913 and 1933<sup>44</sup>, by Record in 1934<sup>45</sup>, and by Erdtman in 1945<sup>46</sup>. In 1898 Van Tieghem published<sup>47</sup> extensive and detailed studies of *Avicennia* and proposed family status as "les Avicenniaceés," and, in fact, went so far as to erect a separate order (in the modern sense of this word), the *Avicenniales*, including "les Hermandiacées," "les Avicenniaceés," and "les Symphoremaceés." In 1902 Möbius maintained<sup>39</sup> that the *Myoporaceae* is to be united with the *Verbenaceae* OR (!) with the *Scrophulariaceae*, and says that "*Avicennia* schlieszt sich hier an." In Potter's 1920 translation<sup>48</sup> the "family" *Nuculiferae* includes the "orders" *Cordiaceae*, *Boraginaceae*, *Verbenaceae*, *Labiatae*, *Selaginaceae*, *Globulariaceae*, and *Stilbaceae*, and after the discussion of *Verbenaceae* it is stated "*Avicennia* is allied to this order." In 1912 Warming proposed<sup>49</sup> the order *Verbenales* for the *Labiatae* and *Verbenaceae* and in a note says that *Avicennia* "is related" to this order. Meissner, Schauer, and Bentham maintained the species of *Avicennia* as constituting a separate and final tribe of the *Verbenaceae*, while Briquet made of them a subfamily.

Finally, Van Tieghem, in 1898, after a detailed discussion<sup>50</sup>, proposed the segregation of the family "les Symphoremaceés." This has recently been formally published as the *Symphoremaceae*<sup>51</sup> and contains the genera *Congea*, *Sphenodesme*, and *Symphorema*.

In addition to these 21 genera which have been made into separate families, it is interesting to review the 53 other genera which have from time to time been placed in the *Verbenaceae*, but actually are now regarded as belonging to entirely different families, although they do not happen to be the type genera of any of these families. Among these are *Aeolanthus* Mart. (*Lamiaceae*), *Alguelagen* Feuill. (*Lamiaceae*), *Amethystea* L. (*Lamiaceae*), *Asaphes* Spreng. (*Dipsacaceae*), *Basistemon* Turcz. (*Scrophulariaceae*), *Bravaisia* P. DC. (*Acanthaceae*), *Bruschia* Bertol. (*Oleaceae*), *Buchia* H. B. K. (*Rubiaceae*), *Buddleja* Houst. (*Loganiaceae*), *Chilianthus* Burch. (*Loganiaceae*), *Clerodendranthus* Kudo (*Lamiaceae*), *Cobamba* Blanco (*Gentianaceae*), *Coch-*

*ranea* Miers (*Heliotropiaceae*), *Colebrookea* J. Sm. (*Lamiaceae*), *Conocarpus* L. (*Combretaceae*), *Contarenia* Vand. (*Scrophulariaceae*), *Cumbulu* Rheedee (*Bignoniaceae*), *Dissolaena* Lour. (*Apocynaceae*), *Eranthemum* L. (*Acanthaceae*), *Erythrostaphyle* Hance (*Oleaceae*), *Espadaea* A. Rich. (*Goetzeiaceae*), *Gonzalea* Pers. (*Rubiaceae*), *Guapira* Aubl. (*Pisoniaceae*), *Gynastrum* Neck. (*Pisoniaceae*), *Hilsenbergia* Tausch (*Solanaceae*), *Lycopus* Tourn. (*Lamiaceae*), *Mattuschkia* Schreb. (*Rubiaceae*), *Melananthus* Walp. (*Solanaceae*), *Mendoncia* Vell. (*Acanthaceae*), *Mendozia* Ruiz & Pav. (*Acanthaceae*), *Michelia* Houst. (*Pontederiaceae*), *Morina* Don (*Dipsacaceae*), *Nuzia* Lam. (*Scrophulariaceae*), *Pentaptelion* Turcz. (*Epacridaceae*), *Perama* Aubl. (*Rubiaceae*), *Phylarodoxa* S. L. Moore (*Oleaceae*), *Plotia* Neck. (*Myrsinaceae*), *Premnophyllum* Velenovský (*Vitaceae*), *Rapunea* Aubl. (*Myrsinaceae*), *Raputia* Aubl. (*Rutaceae*), *Rosenbeckia* Reg. (*Lamiaceae*), *Saccanthus* Herzog (*Scrophulariaceae*), *Schnabelia* Hand.-Mazz. (*Lamiaceae*), *Schwalbea* Gron. (*Scrophulariaceae*), *Sciuris* Schreb. (*Rutaceae*), *Tetrelima* Turcz. (*Frankeniaceae*), *Tozzia* Mich. (*Scrophulariaceae*), *Vadakodi* Rheedee (*Acanthaceae*), *Wallenia* Sw. (*Myrsinaceae*), and four genera whose family position has not yet been definitely determined—*Aganon* Raf., *Camax* Schreb., *Idesia* Scop., and *Ropourea* Aubl.

On the other hand, some genera now considered to be verbenaceous have been placed in other families by various authors. A. de Candolle in 1847 placed<sup>52</sup> *Nesogenes* A. DC., *Dasymalla* Endl. [= *Pityrodia*], and *Spartothamnus* A. Cunn. [= *Spartothamnella*] in the *Myoporaceae*. Bentham<sup>29</sup> and Briquet<sup>30</sup> placed *Tetralea* A. Gray in the *Lamiaceae*. Agardh in 1858 proposed the segregation<sup>53</sup> of two additional families, the *Petreaceae* for the genus *Petrea* and the *Durantaceae* for the genus *Duranta*. Wittstein<sup>54</sup> classified *Agricolaea* Schrank [= *Clerodendrum*], *Denisaea* Neck. [= *Bouchea*], and *Hastingsia* Sm. [= *Holmskioldia*] in the *Lamiaceae*, *Eurylobium* Hochst. in the *Plumbaginaceae*, *Racka* Bruce [= *Avicennia*] in the *Myoporaceae*, and *Quoya* Gaudich. [= *Pityrodia*] in the *Bignoniaceae*. Muller<sup>55</sup> and Jackson<sup>56</sup> considered *Depremesnilia* F. Muell. [= *Pityrodia*] to belong in the *Lamiaceae*. *Tatea* F. Muell. [= *Pygmaepremna*] was reduced to synonymy under *Avicennia* by Ewart & Davies according to Green<sup>57</sup>, but not in the reference which she cites! Such a reduction is ridiculous! *Aegiphila* and *Callicarpa* were placed in the *Lamiaceae* by Reichenbach, and the former also in that family by Steudel<sup>168</sup>. "The entire *Verbenaceae*, in its broadest sense, was included in the *Lamiaceae* by H. G. L. Reichenbach in Mössler, Handb. Gewachsk., ed. 1, 1: xxvi (1827) and ed. 3, 1: lxxv (1833) and his own Conspect. Reg. Veg. 1: 117 (1828),<sup>169</sup> as tribe "*Verbeneae*" coordinate with tribes "*Salviae*" and "*Nepeteae*." Beetle, apparently unintentionally, places *Verbena* in the "*Cruciferae*" [= *Brassicaceae*] in Bot. Review 9: 674 (1943).

The following is a schematic classification of the *Lamiales* as this order is regarded by us at the present time. Much work still remains to be done, and it is to be plainly understood that this outline is still

very tentative. In the following table all the genera as accepted by us are listed; but only 190 of the most important generic synonyms are given; 152 additional generic synonyms, mostly variations in spelling or accreditation, will be found recorded in a previous publication<sup>58</sup>.

Family 1. *Globulariaceae* Dumort.

Genus 1. *Lytanthus* Wettst.—2 species.

Genus 2. *Globularia* L. (*Abolaria* Neck., *Alypum* Fisch.)—26 species.

Genus 3. *Cockburnia* I. B. Balf.—2 species.

Family 2. *Myoporaceae* Lindl.

Genus 1. *Myoporum* Banks & Soland. (*Polycœlium* A. DC.)—45 species.

Genus 2. *Pholidia* R. Br.—39 species.

Genus 3. *Eremophila* R. Br. (*Eremodendron* A. DC., *Stenochilus* R. Br.)—101 species.

Genus 4. *Oftia* Adans. (*Spielmania* Dumort., *Spielmannia* Medic.)—3 species and varieties.

Genus 5. *Bontia* L.—1 species.

Genus 6. *Zombiana* Baill.—1 species.

Family 3. *Selaginaceae* Lindl.

Genus 1. *Hebenstreitia* L. (*Hebenstreitia* L.)—42 species.

Genus 2. *Dischisma* Choisy—13 species.

Genus 3. *Walafrida* E. Mey.—31 species.

Genus 4. *Selago* L.—146 species.

Genus 5. *Microdon* Choisy—7 species.

Genus 6. *Gosela* Choisy—1 species.

Genus 7. *Agathelpis* Choisy—6 species.

Family 4. *Stilbaceae* Lindl. (*Stilbinaceae* Möbius).

Genus 1. *Campylostachys* Kunth—1 species.

Genus 2. *Stilbe* Berg.—6 species.

Genus 3. *Euthystachys* A. DC.—1 species.

Genus 4. *Xeroplana* Briq.—1 species.

Genus 5. *Eurylobium* Hochst.—1 species.

Family 5. *Symphoremaceae* Moldenke.

Genus 1. *Symphorema* Roxb. (*Analectis* Juss.)—4 species.

Genus 2. *Sphenodesme* Jack (*Sphaenodesma* Jack, *Viticastrum* Presl)—21 species and varieties.

Genus 3. *Congea* Roxb. (*Calochlamys* Presl, *Roscoea* Roxb.)—10 species and varieties.

Family 6. *Avicenniaceae* Endl.

Genus 1. *Avicennia* L. (*Anacardium* Bauhin, *Avicennia* Sessé & Moc., *Bontia* L.<sup>59</sup>, *Donatia* Loeffl., *Halodendron* Roem. & Schult., *Halodendrum* Thou., *Hilairanthus* Van Tiegh., *Oepata* Rheede, *Racka* Bruce, *Racka* J. F. Gmel., *Sceura* Forsk., *Upata* Adans.)—19 species and varieties.

Family 7. *Verbenaceae* J. St.-Hil. (*Durantaceae* Agardh, *Petreaceae* Agardh, *Pyrenaceae* Vent., *Verbaceae* Link, *Verbenae* Adans., *Verveneaceae* De Wild., *Vitices* A. L. Juss.)

Subfamily 1. *Verbenoideae* Briq.

Tribe 1. *Euverbeneae* Briq.

Genus 1. *Verbena* L. (*Aubletia* Jacq., *Billardiera* Moench, *Glandularia* J. F. Gmel., *Helleranthus* Small, *Obletia* Rozier, *Patya* Neek., *Shuttleworthia* Meissn., *Uerbena* Sessé & Moc., *Uwarowia* Bunge)—287 species and varieties.

Genus 2. *Stylodon* Raf. (*Styleurodon* Raf.)—1 species.

Genus 3. *Verbenophyllum* Ettingsh.—1 species.

Genus 4. *Urbania* R. A. Phil.—2 species.

Genus 5. *Junellia* Moldenke (*Monopyrena* Speg.?)—60 species and varieties.

Genus 6. *Hierobotana* Briq.—1 species.

Genus 7. *Ghinia* Schreb. (*Ischina* Walp., *Ischnia* P. DC., *Kaempfera* Houst., *Kempfera* Houst., *Leptocarpus* Willd., *Maceria* P. DC., *Tamonea* Aubl.)—8 species and varieties.

Tribe 2. *Lantaneae* Endl.

Genus 8. *Burroughsia* Moldenke—2 species.

Genus 9. *Nashia* Millsp.—7 species.

Genus 10. *Lantana* L. (*Camara* Plum., *Charachera* Forsk., *Myrobatindum* Vaill., *Riedelia* Cham., *Tamonopsis* Griseb.)—177 species and varieties.

Genus 11. *Acantholippia* Griseb.—4 species.

Genus 12. *Aloysia* Ortega (*Aloisia* Cárdenas, *Aloysium* Correa)—42 species and varieties.

Genus 13. *Phyla* Lour. (*Bertolonia* Raf., *Blairia* Gaertn., *Cryptocalyx* Benth., *Libbia* Creek, *Lipia* Sessé & Moc., *Panope* Raf., *Piarimula* Raf., *Platonia* Raf., *Zampania* Bedevian, *Zapama* Scop.)—16 species and varieties.

Genus 14. *Lippa* Houst. (*Dipterocalyx* Cham., *Goniostachyum* (Schau.) Small, *Zappania* Scop.)—230 species and varieties.

Genus 15. *Thryothamus* R. A. Phil. (*Tryothamnus* Phil.)—1 species.

Genus 16. *Neosparton* Griseb.—3 species.

Genus 17. *Ubochea* Baill.—1 species.

Genus 18. *Bouchea* Cham. (*Bruechea* Shafer, *Denisaea* Neck., *Lomake* Raf.)—18 species and varieties.

Genus 19. *Chascanum* E. Mey. (*Deniseia* Neck., *Denisia* Post & Kuntze, *Gisania* Ehrenb., *Pleurostigma* Hochst., *Plexipus* Raf., *Ragasia* Schrad.)—30 species and varieties.

Genus 20. *Svensonia* Moldenke—2 species.



Genus 21. *Diostea* Miers—3 species.

Genus 22. *Stachytarpheta* Vahl (*Abena* Neck., *Cymburus* Salisb., *Melananthus* Pohl, *Sherardia* Adans., *Stachytarpha* Link, *Stachytapenta* Parham, *Tarpheta* Raf., *Valerianodes* Medic., *Valerianoides* Boerh.)—124 species and varieties.

Tribe 3. *Priveae* Briq.

Genus 23. *Dipyrena* Hook. (*Wilsonia* Gill. & Hook.)—1 species.

Genus 24. *Castelia* Cav. (*Phelloderma* Miers, *Pitraea* Turcz.)—1 species.

Genus 25. *Priva* Adans. (*Blairia* Houst., *Burseria* Loeffl., *Phryma* Forsk., *Streptium* Roxb., *Tortula* Roxb., *Zappania* Lam., *Zappania* Zuccagni)—20 species and varieties.

Tribe 4. *Monochileae* (Schau.) Briq.

Genus 26. *Monochilus* Fisch. & Mey.—1 species.

Genus 27. *Amasonia* L. f. (*Diphystema* Neck., *Diplostemma* Neck., *Hassleria* Briq., *Taligalea* Aubl.)—9 species and varieties.

Tribe 5. *Petraeae* Briq.

Genus 28. *Petrea* Houst. (*Pehoia* L., *Petraea* Jacq.)—37 species and varieties.

Genus 29. *Lampaya* R. A. Phil.—3 species.

Genus 30. *Timotocia* Moldenke (*Casselia* Nees & Mart.)—13 species and varieties.

Genus 31. *Recordia* Moldenke—1 species.

Tribe 6. *Citharexyleae* Briq.

Genus 32. *Coelocarpum* Balf. f.—2 species.

Genus 33. *Duranta* L. (*Castorea* Plum., *Ellisia* P. Br., *Hoffmannia* Loeffl.)—43 species and varieties.

Genus 34. *Baillonia* Bocq.—2 species and varieties.

Genus 35. *Parodianthus* Troncoso—1 species.

Genus 36. *Rehdera* Moldenke—3 species.

Genus 37. *Citharexylum* B. Juss. (*Atharexylum* Mill., *Cacocalyx* S. Wats., *Citharexylon* L., *Cutarexylon* Sessé & Moc., *Maroxylon* Zucc., *Rauwolfia* Ruíz & Pav., *Scleroon* Benth.)—127 species and varieties.

Genus 38. *Rhaphithamnus* Miers (*Guayunia* C. Gay, *Poepigia* Bert.)—2 species.

Subfamily 2. *Chloranthoideae* Briq.

Tribe 7. *Achariteae* Briq.

Genus 39. *Acharitea* Benth.—1 species.

Genus 40. *Nesogenes* A. DC.—6 species.

Genus 41. *Cyclocheilon* Oliv.—3 species and varieties.

Genus 42. *Pityrodia* R. Br. (*Dasymalla* Endl., *Depremesnilia* F. Muell., *Quoya* Gaudich.)—26 species and varieties.

Tribe 8. *Chloantheae* Benth.Genus 43. *Denisonia* F. Muell.—1 species.Genus 44. *Chloanthes* R. Br.—11 species and varieties.Genus 45. *Hemiphora* F. Muell.—1 species.Genus 46. *Cyanostegia* Turcz. (*Bunnya* F. Muell.)—4 species.Tribe 9. *Physopsidae* Briq.Genus 47. *Mallophora* Endl. (*Lachnocephalus* Turcz.)—2 species.Genus 48. *Physopsis* Turcz.—2 species.Genus 49. *Dicrastylis* J. Drummond (*Dicrostyles* J. Drummond)—15 species.Genus 50. *Newcastlia* F. Muell.—10 species and varieties.Genus 51. *Lachnostachys* Hook. (*Pycnolachne* Turcz., *Walcottia* F. Muell.)—10 species.Subfamily 3. *Viticoideae* Briq.Tribe 10. *Callicarpeae* Briq.Genus 52. *Aegiphila* Jacq. (*Amerina* P. DC., *Brückea* Klotzsch & Karst., *Manabea* Aubl., *Omphalococca* Willd., *Pseudaegiphila* Rusby, *Stigmatococca* Mart.)—163 species and varieties.Genus 53. *Callicarpa* L. (*Amictonis* Raf., *Burcardia* Mill., *Burchardia* Heist., *Illa* Adans., *Johnsonia* Catesb., *Porphyra* Lour., *Spondylococca* L., *Spondylococcus* Mitch., *Tomex* L.)—165 species and varieties.Genus 54. *Geunsia* Blume—14 species.Genus 55. *Schizopremna* Baill.—1 species.Tribe 11. *Tectoneae* Briq.Genus 56. *Petitia* Jacq.—4 species and varieties.Genus 57. *Tectona* L. f. (*Cajatana* Thunb., *Nautea* Noronha, *Tectonia* Spreng., *Theka* Rheede)—4 species.Tribe 12. *Viticeae* (Bartl.) Benth.Genus 58. *Pygmaeopremna* Merr. (*Tatea* F. Muell.)—5 species.Genus 59. *Rapinia* Montr.—1 species.Genus 60. *Cornutia* Plum. (*Agnanthus* Vaill., *Cornuta* L., *Hosta* Jacq., *Hostana* Pers.)—25 species and varieties.Genus 61. *Adelosa* Blume—1 species.Genus 62. *Tsoongia* Merr.—1 species.Genus 63. *Premna* L. (*Baldingera* Dennst., *Cornutia* Burm., *Gumira* Rumph., *Holochiloma* Hochst., *Pernna* Dumort., *Phoenicanthus* Thwaites, *Scrophularioides* Forst.)—205 species and varieties.Genus 64. *Viticipremna* H. J. Lam—2 species.Genus 65. *Vitex* Tourn. (*Agnus castus* Blackw., *Agnus-castus* Tourn., *Calymega* Poit., *Casarettoa* Walp.,

## DIANDRIA · MONOGYNIA.

9

*Verbena* foliis ovatis acuminatis, spica foliofa. *Hort. cliff.* 10. \*

*Verbena* orubica, tenerii folio, primulae veris flore, siliquis & feminibus longissimis. *Pluk. aln.* 383. t. 223. f. 4. ♂ t. 327. f. 7.

*Sherardia* urticae folio subtus incano, floribus violaceis. *Ehret. pict.* t. 5. f. 1.

*Habitat in Oruba insula americes septentrionalis.*

2. *VERBENA* diandra, spicis longissimis carnosis subnatis. *Jamaicensis.*

*Verbena* foliis obtuse ovalibus, spica carnosae nuda. *Hort. cliff.* 10. *Roy. lugdb.* 327.

*Verbena* folio subrotundo serrato, flore caeruleo. *Sloan. bist.* 171. t. 107. f. 1.

*Habitat in Jamaica & Caribaeis.* ♀ ⊙

3. *VERBENA* diandra, spicis ovatis, foliis lanceolatis stoechadifol. serrato-plicatis, caule fruticoso. *Roy. lugdb.* 327.

*Sherardia* nodiflora, stoechadis terratofolii folio. *Vaill. sex.* 49.

*Lavandula*, foliis crenatis latioribus, americana frutescens. *Plum. spec.* 6.

*Habitat in America Galliae aequinoctialis.*

4. *VERBENA* diandra, spicis laxis, calycibus alternis prismatica. prismaticis truncatis aristatis, foliis ovatis obtusis.

*Verbena* minima, chamædryos folio, *Sloan! jam.* 64.

*Habitat in Jamaica.*

5. *Verbena* diandra, spicis laxis, calycibus fructus reflexo- pendulis subglobosis hispidis. *mexicana.*

*Verbena* mexicana, trachelii folio, fructu sparines: *Dill. elth.* 407. t. 302. f. 389.

*Habitat in Mexico.*

6. *VERBENA* diandra, calycibus subrotundis erectiusculis, feminibus echinatis. *lappulacea.*

*Scorodinia* floribus spicatis purpurascensibus pentapetaloidibus. *Sloan. jam.* 66.

*Bairia* *Houff.* *Ann. herb.* 277.

*Habitat in Jamaica.*

7. *VERBENA* diandra, spicis longis, calycibus aristatis, *curassavica.* foliis ovatis argute ferratis

*Veronica* similis fruticosa curassavica. *Herm. parad.* 240. *Kemptera. Houff. m. ff.*

*Habitat in Curassavo Americes.*

B'2

\* Te-

Page from the first edition of "Species Plantarum" by Carl von Linné, 1753, on which appear his descriptions of what are now called *Stachytarpheta orubica* (L.) Vahl, *S. jamaicensis* (L.) Vahl, *Phyla stoechadifolia* (L.) Small, *Bouchea prismatica* (L.) Kuntze, *Priva mexicana* (L.) Pers., *P. lappulacea* (L.) Pers., and *Glinia curassavica* (L.) Millsp., all placed in the genus *Verbena* by Linné.  
Plate 6

*Chrysomallum* Thou., *Ephialis* Banks & Soland.,  
*Limia* Vand., *Macrostegia* Nees, *Nephrandra* Willd.,  
*Psilogyne* A. DC., *Pyrostoma* G. F. W. Mey., *Wall-*  
*rothia* Roth)—346 species and varieties.

Genus 66. *Paravitex* Fletcher—1 species.

Genus 67. *Pseudocarpidium* Millsp.—8 species.

Genus 68. *Kalaharia* Baill.—1 species.

Genus 69. *Gmelina* L. (*Michelia* Amman)—37 species and varieties.

Tribe 13. *Clerodendreae* Briq.

Genus 70. *Faradaya* F. Muell. (*Tetrathyranthus* A. Gray)  
 —18 species and varieties.

Genus 71. *Huxleya* Ewart—1 species.

Genus 72. *Archboldia* Beer & Lam—1 species.

Genus 73. *Oxera* Labill.—31 species and varieties.

Genus 74. *Hosea* Ridl. (*Hoseanthus* Merr.)—1 species.

Genus 75. *Clerodendrum* Burm. (*Agricolaea* Schrank,  
*Clerodendron* R. Br., *Cornacchinia* Savi, *Cyclonema*  
 Hochst., *Cyrtastemma* Kunze, *Douglassia* Houst.,  
*Egena* Raf., *Megalosiphon* Ekman, *Montalbania* Neck.,  
*Ovieda* L., *Rothea* Raf., *Siphonanthemum* Amm.,  
*Siphonanthus* L., *Spironema* Hochst., *Torreya* Spreng.,  
*Valdia* Plumb.)—454 species and varieties.

Genus 76. *Holmskioldia* Retz. (*Hastingsia* Sm., *Holmski-*  
*dia* Dumort., *Platumium* Juss.)—5 species.

Genus 77. *Karomia* Dop—1 species.

Genus 78. *Teucriidium* Hook. f.—1 species.

Genus 79. *Oncinocalyx* F. Muell.—1 species.

Genus 80. *Spartothamnella* Briq. (*Spartothamnus* A.  
 Cunn.)—3 species.

Genus 81. *Tetraclea* A. Gray—3 species and varieties.

Subfamily 4. *Caryopteridoideae* Briq.

Tribe 14. *Teijsmanniodendreae* Koord.

Genus 82. *Teijsmanniodendron* Koord. (*Teysmannioden-*  
*dron* Koord.)—6 species.

Genus 83. *Xerocarpa* H. J. Lam—1 species.

Tribe 15. *Caryopterideae* Moldenke.

Genus 84. *Caryopteris* Bunge (*Barbula* Lour., *Callipeltis*  
 Bunge, *Mastacanthus* Endl.)—16 species and varieties.

Genus 85. *Garrettia* Fletcher—2 species.

Genus 86. *Glossocarya* Wall.—8 species.

Genus 87. *Varengevillea* Baill.—1 species.

Genus 88. *Peronema* Jack—1 species.

Genus 89. *Petraeovitex* Oliv.—11 species and varieties.

Genus 90. *Hymenopyramis* Wall.—5 species.

Family 8. *Lamiaceae* Lindl. (*Labiaceae* Neck., *Labiataceae* De Wild.,  
*Labiatae* B. Juss., *Menthaceae* Clements, *Nepetaceae*



Horan., *Salviaceae* Drude, *Verticillatae* L.)—about 160 genera and 3200 species.

It is thus quite evident that in spite of the several family segregations which it has suffered and the many genera and species which have been excluded, the *Verbenaceae* has been steadily increasing in size from the time of Linné, who recognized 16 genera and 50 species, to the present day when we accept 90 genera and 3036 specific and subspecific entities, with over 6100 names reduced to synonymy<sup>58</sup>. In order for our knowledge of the group to have been built up to this extent the labor of at least 7000 men and women has been required in publication, critical study of preserved material, collection of specimens, and other contributions. An alphabetic list of these contributors is now in preparation. It would be difficult to select from this large list a group which might be described as having contributed the most essential information, for that of necessity disparages the contributions of the others. Actually, the value of the contribution made by even the most casual amateur collector who collects only a single specimen may be as great as that of an author who has published 100 pages on the group. It is through the steady accretion of little bits of information, from hundreds of men and women in every part of the globe, of all races and creeds and colors and ages and nationalities, that we have derived our present scientific edifice. However, it might prove of interest and value to mention very briefly the work of just a few who seem to have made among the most outstanding contributions, remembering that "Back of every accomplishment there is a human being. The mere narration of results achieved makes history, but the most interesting phase of history is that which has to do with the men who have accomplished that which makes history."<sup>60</sup> The same thought has been expressed equally well in another tongue: "Das Leben und Wirken eines Tuchtigen Menschen bleibt für alle Ewigkeit ein Schrift auf dem Wege des Bildungsganges der Menschheit."<sup>61</sup>

In the broad field of systematics the authors mentioned so far—the Frenchmen, Adanson, Necker, Jussieu, Ventenat, Jaume Saint-Hilaire, and Dumortier; the Swedes, Linné and Junell; the Germans, Bartling, Endlicher, Walpers, and Schauer; the Englishmen, Lindley, Sweet, and Bentham; and the Swiss, Meissner and Briquet<sup>62</sup>—have, of course, made the most outstanding contributions, but others of considerable importance were the Frenchman, Bocquillon<sup>63</sup>; the Russian, Turczaninow<sup>64</sup>; the Englishmen, Miers<sup>65</sup> and Hemsley<sup>66</sup>; the Belgian, De Wildeman<sup>67</sup>; the Argentinian, Troncoso<sup>68</sup>; the Austrians, Fenzl<sup>69</sup> and Hayek<sup>70</sup>; the Chilean, Sanzin<sup>71</sup>; the Hollander, Meeuse<sup>72</sup>; the Indian, Biswas<sup>73</sup>; and the Americans, Greenman<sup>74</sup>, Grenzebach<sup>75</sup>, and Kobuski<sup>76</sup>.

In the field of floristics one cannot forget the tremendous contributions made by Robert Brown and Friedrich von Mueller in their work on the Australian members of the group; of E. Meyer, Thunberg, Bolus, and H. H. W. Pearson<sup>77</sup> in South Africa; of J. G. Baker and O. Stapf<sup>78</sup>, Gürke, Oliver, Mildbraed, Hutchinson, Schinz, and Berthold Thomas<sup>79</sup>

in tropical Africa; of Hochstetter, Chiovenda, and Schweinfurth in northern Africa; of C. B. Clarke<sup>80</sup>, Wallieh, Roxburgh, and Craib in India, Ceylon, and Burma; of Fletcher<sup>81</sup>, Dop<sup>82</sup>, Ridley, H. J. Lam<sup>83</sup>, King, and Gamble in Siam, Indo-china, and the Malayan Archipelago; of Blume, Hallier<sup>84</sup>, Bakhuizen van den Brink<sup>85</sup>, Koorders and Valetton, Beccari, Teijsmann and Binnet, and Miquel in the Dutch East Indies; of Merrill, Quisumbing, Elmer, and Blanco in the Philippines; of Handel-Mazzetti, Rehder<sup>86</sup>, Léveillé, and P'ei<sup>87</sup> in China; of Koidzuma, Hayata, Matsuda, Nakai, Makino, and Siebold and Zuccarini in Japan; of Asa Gray, Greene, Perry<sup>88</sup>, Small, Rydberg, Torrey, and Michaux in the United States; of Britton, Percy Wilson, Urban, A. Richard, Millspaugh, Grisebach, Swartz, and Jacquin in the West Indies; of P. C. Standley in Central America and Mexico; of Pittier, Karsten, and Humboldt and Bonpland in Venezuela; of Ruíz and Pavon in Peru; of Sandwith in the Guianas; of Velloso, Huber<sup>89</sup>, Dücke, Chamisso, and Schauer in Brazil; of Chodat in Paraguay; of Rusby in Bolivia; of Spegazzini, Philippi, Gillies, and Hooker in Chile and Argentina. A bibliography of Argentine *Verbenaceae* is given by Castellanos and Perez-Moreau in *Lilloa* 7: 273—278 (1941).

In the realm of morphology the outstanding contributors have been Wydler<sup>90</sup>, Payer<sup>91</sup>, Lang<sup>92</sup>, Bocquillon<sup>93</sup>, Chatin<sup>93</sup>, Rosanoff<sup>94</sup>, Eichler<sup>95</sup>, K. Schumann<sup>96</sup>, Briquet<sup>30</sup>, Junell<sup>31</sup>, and Erdtman<sup>46</sup>. In anatomy one cannot overlook the contributions of Möller<sup>97</sup>, Solereder<sup>98</sup>, Born<sup>99</sup>, Vesque<sup>100</sup>, Schenck<sup>101</sup>, Briquet<sup>30</sup>, and Record<sup>45</sup>. In recent years there has been considerable activity among workers on the genetics of the group. Notable in this field have been Schaffner<sup>102</sup>, Beale<sup>103</sup>, Schnack and Covas<sup>104</sup>, Kanda<sup>105</sup>, Lecocq<sup>106</sup>, Noack<sup>107</sup>, Dermen<sup>108</sup>, and Winge<sup>109</sup>. Chromosome numbers have been determined for 38 species and varieties of *Verbena*. Thirty different interspecific hybrids have been described in the same genus and several in *Vitex* and *Callicarpa*.

Considerable has been published on the cytology and embryology of the *Verbenaceae* and *Avicenniaceae*, notably by Treub<sup>110</sup>, Hofmeister<sup>111</sup>, Dahlgren<sup>112</sup>, Schnarf<sup>113</sup>, Schwencke<sup>114</sup>, Paternmann<sup>115</sup>, Misra<sup>116</sup>, Karsten<sup>117</sup>, Maheshwari<sup>118</sup>, Pammel and King<sup>119</sup>, Heit<sup>120</sup>, Tatachar<sup>121</sup>, Blanford<sup>122</sup>, Denoga<sup>123</sup>, Eidmann<sup>124</sup>, Hill<sup>125</sup>, Japing<sup>126</sup>, and Laurie<sup>127</sup>. Work has recently been done on the viability of seeds of *Verbena* by Crocker<sup>128</sup>, Goss<sup>129</sup>, Barton<sup>130</sup>, and Shull<sup>131</sup>. Seeds of *Verbena urticifolia* showed 90 percent germination after burial for 20 years for a depth of 22 inches and 78 percent germination when buried 42 inches!

Since the *Verbenaceae* and its related families comprise groups of plants that are practically world-wide in distribution, it follows that there is almost no botanical collector of any significance who has not collected material of these families. There is hardly a single region on the face of the earth with the exception of the far north, Antarctica, and the driest parts of the larger deserts, where one cannot expect to find at least some of the 3565 species and varieties of *Verbenaceae*,

*Avicenniaceae, Stilbaceae, Symphoremaceae, Selaginaceae, Myoporaceae, or Globulariaceae.* In Europe and the eastern Atlantic islands there are 8 native or naturalized genera and 43 species and varieties; in Asia Minor, 13 genera and 28 species; in continental Asia and the islands of the Indian Ocean, 37 genera and 456 species and varieties; in the Asiatic and Pacific islands, including Japan, the Philippines, Dutch East Indies, and Hawaii, 36 genera and 535 species and varieties; in Australia, New Zealand, and Tasmania, 29 genera and 302 species and varieties; in Africa, Madagascar and the coastal islands, 39 genera and 809 species and varieties; in North America, 18 genera and 149 species and varieties; in Mexico and Central America, 22 genera and 335 species and varieties; in the West Indies and the islands of the western Atlantic and of the Caribbean Sea, 26 genera and 237 species and varieties; and in South America, 36 genera and 976 species and varieties. We see, thus, that the groups reach their greatest development in the tropical and subtropical regions of the world—South America, Africa, the Asiatic and Pacific islands, and continental Asia ranking highest in number of species. However, the group is also highly developed in temperate regions, with the exception of Europe. The following table indicates the abundance of the groups in the largest countries on the various continents and on the largest islands according to our present knowledge:<sup>132</sup>

	species & varieties		species & varieties
Brazil -----	436	Costa Rica -----	67
Union of South Africa ----	337	Jamaica -----	67
Australia -----	297	Straits Settlements -----	66
Mexico -----	256	Panama -----	62
Argentina -----	200	Celebes -----	59
Peru -----	158	Uruguay -----	57
China -----	155	Lesser Sunda Islands -----	57
U. S. A. -----	148	Madagascar -----	56
India -----	147	Puerto Rico -----	53
Colombia -----	141	Molucca Islands -----	50
Philippine Islands -----	140	Portuguese East Africa ----	50
French Indo-China -----	135	New Caledonia -----	49
Paraguay -----	130	Hainan Island -----	48
Tanganyika Territory ----	125	Kenya -----	46
Cuba -----	123	Trinidad -----	42
Thailand -----	115	Formosa -----	37
Bolivia -----	112	Ceylon -----	32
Borneo (island) -----	111	Abyssinia -----	32
Venezuela -----	106	Japan -----	31
Java -----	102	Anglo-Egyptian Sudan ----	26
Belgian Congo -----	93	Hawaiian Islands -----	20
Sumatra -----	89	Spain -----	18
New Guinea -----	89	Egypt -----	12
Guatemala -----	85	Italy -----	12
Chile -----	84	Greece -----	10

	species & varieties		species & varieties
Burma -----	84	France -----	9
Cameroons -----	83	Switzerland -----	7
Federated Malay States -----	81	Canada -----	7
Angola -----	80	Germany -----	5
Ecuador -----	77	U. S. S. R. -----	4
Hispaniola -----	76	Manchukuo -----	2

Of course, it must be borne in mind that not all parts of the earth have yet been botanized with equal intensity. Some countries and islands have been worked over by botanical collectors with great thoroughness and probably few, if any, new species or varieties remain to be discovered there. Other countries and islands, some of considerable extent, have been barely touched botanically. Also, it must be borne in mind that while the authors of this paper have examined over 102,000 herbarium specimens from 186 of the world's leading institutional and private herbaria, they have as yet not covered nearly all of the herbarium material that is available, and the above statistics are based almost entirely on only the material they have thus far actually examined and verified. It is, for example, very certain that the figures for Burma and the Belgian Congo will be very much larger when more exploration and botanizing are done there and when more material has been examined by us. On the other hand, the census for Canada, the U. S. S. R., Egypt, and Europe will probably not change much, except as exotic material becomes naturalized in those areas.

Not only are members of these groups found in the larger and better known countries and islands listed above, but they have been found on such out-of-the-way islands, for instance, as Cozumel, Cedros, and Socorro islands off the coasts of Mexico; the Swan islands off the coast of Central America; Crab Island, Culebra, Water Island, Virgin Gorda, St. John, Tortola, Anegada, Anguilla, Saba, St. Eustache, St. Kitts, Nevis, Barbuda, Desirade, Marie Galante, Los Saintes, Bequia, Mustique, Union, and Grenada in the West Indies; Cedros, Monos, Gasparee, Patos, Aruba, Bonaire, Margarita, San Andres, and Cocos islands off the northern coasts of South America; the lonely Galapagos and Juan Fernandez islands off the western coast of South America; Bermuda, Fernando Noronha, Tristan da Cunha, Madeira, the Azores, and the Canary islands in the Atlantic; Schech Said, Adjuna, Saad-ed-din, Cape Verde, Turtle, Fernando Po, St. Thomas, Principe, and Annobon islands off the north and west African coasts; Zanzibar, Lamu, Salisbury, Europa, Comoro, Seychelles, and Mascarene islands off the east African coasts; Genobi, Socotra, and Réunion islands south of Arabia; Aru, White Dog, Lantau, and Lappa islands off the Chinese coasts; the Liukiu, Bonin, Marianna, Caroline, Madura, Bawean, Karimun Djawa, Mantawi, Kambangan, Banguay, Sangir, Talaut, Kaloe, Kaloekoang, Kabaena, Tukang-besi, Adi, Mainsinama, Midway, Radack, Admiralty, Hermit, Solomon, Loyalty, Tonga, Fiji, Samoan, Bismark, and Niue islands in the far reaches of the Pacific; Norfolk, Thursday, Houtman



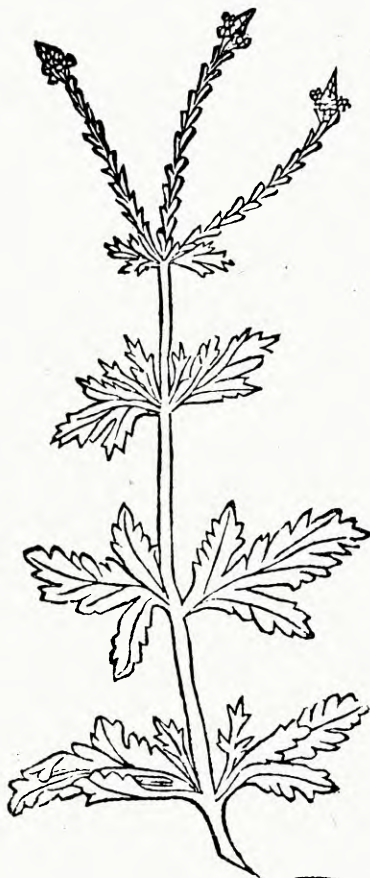
Rocks, Prince of Wales, Northumberland, Bribie, and Lord Howe islands off the Australian coasts; and even those tiny specks in the South Pacific ocean, the Society, Cook, Austral, Marquesa, Tuamoto, Pitcairn, and Easter islands. *Premna cyclophylla* grows on the precipitous slopes of Krakatoa, and *Verbena officinalis* has been collected on the island of Tristan da Cunha at the northern limit of Antarctic icebergs.

No discussion of the *Verbenaceae* and related groups would be complete without some acknowledgment, at least, of the wonderful work done by botanical collectors all over the world, often under the most trying and hazardous conditions of terrain, climate, and hostile natives. Some of these collectors have endured the most unspeakable privations and hardships in the course of their work—several suffered shipwreck; several caught in the midst of wars, had all their collections confiscated and destroyed by hostile armies or navies; at least one was held captive in a foreign land for many years; some were caught in revolutions and mutinies; one was cast adrift in a small boat in the South Pacific. Many have exposed themselves to and contracted all manner of diseases which have wracked their bodies with pain. One, known to the authors of this paper, went on a collecting trip a healthy vigorous young man and returned in 2 years shattered in body and spirit; another, accidentally caught in no-man's-land in an unexpected Chinese border incident, was fired upon by 3 armies while collecting; another was lost for days without food in a bamboo jungle and later was captured by head-hunters; another, in a fever delirium, was placed in an open grave in the Bolivian jungle by his guides who sat about waiting for him to die so that they could fill in the grave and return to their respective homes. Several, at least, have given their lives. One was captured and eaten by a crocodile while crossing the White Nile; several were murdered by natives; some just set out into the jungles and never returned. And all of these sacrifices were made by men who were collecting plants for the advancement of scientific knowledge and for the benefit of those of us who stay at home in our comfortable offices and study herbarium specimens from distant lands that we have never seen.

Never can we forget the collections of A. D. E. Elmer in British North Borneo and the Philippines, as well as on the western coasts of North America, or those of Kotschy in Nubia and Bequaert in the Congo, or those of Faurie in Korea and of Tanaka and Shimada in Formosa. Never to be forgotten are the collections of Glaziou, Hoehne, Ule, Gardner, Clausen, Warming, Blanchet, Martius, Ducke, Dusén, and Sellow in Brazil, the collections of Krukoff in Bolivia, Brazil, and Sumatra, or those of that intrepid lady, Ynes Mexia, in Brazil, Ecuador, and Mexico. Of inestimable value have been the thousands of specimens painstakingly gathered and brought back by Rusby, Bang, Steinbach, and Mandon from Bolivia, and by Killip and Smith from Colombia and Peru. How little we would know of the flora of Paraguay had it not been for the labors of Balansa, Hassler, Morong, and Jorgensen, or of Uruguay had it not been for Arechavaleta, Herter, Rosengurtt,

and Sellow. Indissolubly connected with the flora of Venezuela are the names of Moritz, Funck, Schlim, and Pittier, of New Britain and New Guinea is that of Herre, of the Cameroons is that of Zenker, of Colombia Linden, Mutis, Lehmann, Pennell, and Cuatrecasas, of the Galapagos Darwin, Skottsberg, Snodgrass, and Heller, of Hawaii Degener and St. John. No one but the systematists who pore for days and weeks and years over the often pathetically inadequate material available in herbaria and try to arrive at basic concepts of taxonomy therefrom, can realize the importance of the work of Smith and Gillespie in the Fiji Islands, of Yuncker on Niue, of Pritzel, White, and Robert Brown in Australia, of Lundell, Barkley, Clover, Runyon, Warneck, Lindheimer, and Tharp in Texas, of Deam in Indiana, of Gates and Hitchcock in Kansas, of Brenes, Oersted, and Pittier in Costa Rica, of Calderón in El Salvador, of Türkheim and Steyermark in Guatemala, of Ekman, Fuertes, and the Leonards in Hispaniola, of Shafer, León, Ekman, Clément, Wright, Acuña, Roig, and Carabia in Cuba, of William Harris, Alexander Prior, and Purdie in Jamaica, of Williams, Mathews, and Klug in Peru, of T. Meyer, Descole, Bruch, Cabrera, Castellanos, Job, Venturi, Scala, Vignati, Rodrigo, Boffa, Chicchi, Rodriguez, Maldonado, Carette, A. G. Schulz, Alboff, Schreiter, Lorentz, Dawson, Roth, Hieronymus, Kurz, and Lillo in Argentine and Patagonia, of Gay, Bertero, Philippi, and Skottsberg in Chile, of Sintenis, Eggers, and N. L. Britton and his collaborators in the West Indies, of Curtiss, Chapman, Small, Mohr, Harper, Garber, and O'Neill in the southeastern United States.

Some collectors have traveled far and wide and one can cite their specimens from many parts of the world. Standley, for instance, has brought back thousands of fine specimens from almost every Central American country. The United States South Pacific Exploring Expedition under Captain Wilkes brought back specimens of scores of species from almost every port at which it called in its world-wide itinerary, including Madeira, the Cape Verde islands, Brazil, Patagonia, Chile, Tahiti, Samoa, Wallis Island, Australia, Fiji, Hawaii, the Philippines, Borneo, Singapore, Cape of Good Hope, St. Helena, and western North America. That indefatigable and much-maligned proponent of strict priority in nomenclature, Otto Kuntze (1843—1907), collected wherever he went, and he seems to have covered most of the world in his travels—specimens of *Verbenaceae* were collected by him in the West Indies, Venezuela, Colombia, Panama, Costa Rica, the U. S. A., Japan, China, Cochin-china, Java, Siam, Burma, India, Aden, Egypt, the Canary Islands, Brazil, Uruguay, Argentina, Chile, Bolivia, Paraguay, Cape of Good Hope, Transvaal, Orange Free State, Natal, Mozambique, Tanganyika Territory, and Zanzibar. Other collectors have remained in one general area and botanized it thoroughly over many years, in all seasons, such as Deam in Indiana, E. J. Palmer and Demaree in the south-central states of the U. S. A., Mosier, Simpson, and Chapman in Florida, Duss in Martinique and Guadeloupe, Broadway in Trinidad, Conzatti in Mexico, A. G. Schulz in the Chaco.



**Verbena yfern krut**

**Cap. ccccij.**

**V**erbena uel bērbena uel sacra herba latine. grece gerebotani  
 uel peristerion. arabice alka. ¶ Der meister Diascoudes in  
 dem capitel gerebotanium id est verbena beschribet ons vnd  
 spricht daz der sy zweyerhand. Lyns wechset kromp. das ander flecht  
 Das erste nennet pitagoias zu latin Centrum galli vnd die wechset  
 kromp. Die ander nēnet man zu latin gallianacia oder verbena. disse

Page from the 1485 edition of "Hortus Sanitatis Deutsch,"  
 by Johann von Cube [=Johann Wonneckel], printed by Peter  
 Schoffer in Mainz, showing an easily recognizable illustration  
 of *Verbena officinalis* L.  
 Plate 7

The fact that our census for Mexico is so high is certainly due in large part to the fine collecting of a large group of famous collectors over many years, including Edward Palmer, Pringle, Bourgeau, Gaumer, M. E. Jones, Gentry, Schaffner, Galeotti, Brandegees, Schiede, Hinton, Sessé, Mocino, Shreve, Orecutt, Wiggins, Stanford, Retherford, Northcraft, Arsène, Deppe, Purpus, M. T. Edwards, Gonzalez Ortega, Mueller, and Langlassé. Similarly, our knowledge of the Chinese flora is based in large part on the famous collections of Henry and Wilson and, in more recent years, on those of F. N. Meyer, Chang, Chun, Pi. Wu, Ying, Tak, and Tso.

As we shall see in subsequent papers, the *Verbenaceae* and related groups are quite important economically. Four hundred and twenty-two species and varieties are cultivated, either for food, lumber, hedges, medicines, or for other commercial purposes. We are most deeply indebted to C. F. Baker, L. H. Bailey, and Alfred Rehder for their collecting of cultivated material and for their exhaustive treatments of the cultivated members of the group.

The *Verbenaceae* and *Avicenniaceae* extend far back in geologic history. For our knowledge of the paleobotanic aspects of these groups we are indebted chiefly to Berry<sup>133</sup>, Englehardt<sup>134</sup>, Ettingshausen<sup>135</sup>, Klotzsch<sup>136</sup>, Friedrich<sup>137</sup>, A. Braun<sup>138</sup>, Potbury<sup>139</sup>, Massalongo<sup>140</sup>, Gardner<sup>141</sup>, Menzel<sup>136</sup>, C. and E. M. Reid<sup>142</sup>, O. M. Ball<sup>143</sup>, Velenovský<sup>144</sup>, Hollick<sup>145</sup>, Gaubin<sup>146</sup>, and Tornabene<sup>147</sup>. The oldest known fossil member of these groups is *Vitex pentadactyla* from the Cretaceous of Bohemia, about 5,500,000 years old. Early Tertiary species are *Clerodendrum europaeum* from England and *Vitex pentamera* from Germany. Eocene species (3,000,000 years old) are *Avicennia eocenica* from Tennessee, *A. nitidaformis* of Mississippi, *Citharexylum coligniticum* of Mississippi, *C. brazosense* of Texas, and *Premna Drummondii* of Tasmania. *Petrea rotunda* is a species from the Eocene or lower Oligocene of California. From the Oligocene (2,000,000 years old) we have *Citharexylum forsithiaefolium* of Italy, *Clerodendrum latifolium* of Germany, and *C. serratifolium* of Germany. From the Miocene (1,000,000 years old) we know *Duranta veringensis* of Switzerland, *Petrea borealis* of Czechoslovakia, *Verbenophyllum aculeatum* of Germany, and *Vitex Lobkowitzii* of Bohemia. In the Pliocene of Belgium has been found our present-day European species, *Verbena officinalis*, which is thus about 700,000 years old and is the earliest record of a living species in the group. Of similar age in France is a fossil which may possibly represent the present-day *Clerodendrum serratum*. From the Pleistocene, however, we know the living species *Clerodendrum Thomasii* and *Vitex Doniana*, both from Cameroons formations and both now still inhabiting Africa, and *Avicennia nitida* from Trinidad, as well as the extinct species *Clerodendrum robustum*, also from Cameroons. *Citharexylum retiforme* is a fossil species from the Tertiary of Colombia. *Vitex Agnus-castus* has also been unearthed in geological formations of recent age in Italy.



In their general aspect or habit the members of these groups exhibit almost every imaginable variation. In size they vary from prostrate herbs like *Verbena supina* of the desert regions of the Mediterranean area and Asia Minor and *V. Hayekii* and *V. Weberbaueri* of the high Andes and certain members of the genus *Phyla*, like *P. subterranea* of the Peruvian desert of Arequipa, to tall trees like Asiatic *Tectona grandis*, which grows to 165 feet tall, and Brazilian *Vitex excelsa*, which attains a height of 200 feet. The leaves are mostly opposite, decussate, and simple, but in some few genera like *Amasonia* and *Dipyrena* they are alternate, while in *Vitex* they are mostly palmately compound, in *Peronema* pinnately compound, and in *Petitia* (and some species and varieties of *Vitex*) unifoliolate. The leaves in some of the xerophytic desert groups like *Acantholippia* are almost microscopic and scale-like, while in *Tectona* they may attain a length of 3 feet and a width of a foot and a half. Sometimes they are entire, sometimes dentate, serrate, sinuate, or variously lobed, occasionally revolute or bullate. In *Aegiphila membranacea* they are so thin and fragile that one seldom can find a fully preserved leaf on a herbarium specimen, while in *Aegiphila racemosa*, *Citharexylum argutedentatum*, *C. Schulzii*, and *C. crassifolium* they are leathery-coriaceous. In some species of *Callicarpa* and *Clerodendrum* the lower surface is covered with shimmering golden scales, sometimes glandular-punctate. Occasionally the pubescence is stellate, sometimes furfuraceous or farinose. *Neosparton* has *Ephedra*-like practically leafless branches, while in *Diostea* the small leaves are quickly shed by the *Juncus*-like plants when moisture becomes scarce.

The genus *Avicennia* is characteristic of the salt-water mangrove swamps and lagoons and produces typical mangrove pneumatophores. Some members of the genus *Clerodendrum* (e. g., *C. inerme* and *C. aculeatum*) and *Vitex* (e. g., *V. trifolia* var. *simplicifolia*) are characteristic sand-dune and strand plants, occasionally also found in salt-water swamps. Some races of *Phyla nodiflora* are partially alkali-resistant. Most of the members of the *Stilbaceae* and *Selaginaceae* are decidedly heath-like shrubs or subshrubs. The genera *Acantholippia*, *Junellia*, *Kalaharia*, *Lampaya*, *Diostea*, *Neosparton*, *Dipyrena*, *Parodianthus*, *Urbania*, and *Thryothamnus* are typically xerophytic plants, inhabiting dry and desert regions or high alpine areas. Some of the alpine groups ascend to very high altitudes in the South American Andes. For instance, *Junellia aspera* ascends to 10,170 feet in Peru and to 14,107 feet in Chile<sup>148</sup>, *J. seriphioides* to 11,482 feet in Argentina and to 13,132 feet in Peru, *J. bryoides* to 12,000 feet in Chile, *J. bisulcata* to 12,139 feet in Bolivia, *J. minima* to 12,500 feet in Peru and 12,631 feet in Bolivia, *J. uniflora* to 14,763 feet in Chile, *J. caespitosa* to 14,115 feet in Chile, *J. Hayekii* to 14,435 feet in Peru and 14,763 feet in Argentina, and *J. digitata* to 16,076 feet in Argentina. Certain other not typically xerophytic genera, however, also sometimes ascend to amazing altitudes. *Verbena Gooddingii*, for instance, ascends to 6650 feet in Arizona and grows at altitudes of 5000 to 6000 feet in Nevada and *V. bracteata* ascends to 6500 feet in Utah, 6900 in Colorado, and 7400 in New Mexico. In

Mexico *Lantana hispida* and *Vitex mollis* ascend to at least 5000 feet, *Stachytarpheta acuminata* to 5500, *Lantana achyranthifolia* to 6000, *L. hirta* to 6200, *Verbena gracilis* and *V. menthaefolia* to 7300, *V. canescens* to 7381, *V. bipinnatifida*, *V. litoralis*, *V. carolina*, and *V. neomexicana* var. *xylopoda* to 7500, *V. elegans* to 9500, *V. pinetorum* to 9842, *V. recta* to 10,000, and *V. teucrifolia* to 12,000 feet. In Guatemala *Lantana hirta* ascends to at least 8858 and in Costa Rica to 7874 feet. In Colombia *Duranta Mutisii* and *Aegiphila Killipii* have been collected at 9842 feet and *A. bogotensis* at 12,007 feet. In Bolivia *Lantana fucata* is found at 6000 feet, *Citharexylum andinum* at 8858, *Aloysia scorodonioides* at 10,000, *Verbena microphylla* at 13,132, and *V. hispida* at 15,748 feet. In Ecuador *Duranta triacantha* grows at 9842 feet, *Aegiphila ferruginea* at 10,498, *Citharexylum ilicifolium* at 11,000, and *Duranta Mandoni* at 11,811 feet. In Peru *Citharexylum flexuosum* has been found at 8500 feet, *Verbena clavata* at 9514, *Citharexylum argutedentatum* at 9842, *C. flexuosum* var. *subglabrum* and *Duranta Mandoni* at 11,482, *D. armata* at 11,811, *Verbena Weberbaueri* at 12,139, *V. Hayekii* at 13,000, *Citharexylum Herreræ* at 13,123 feet, and *Lantana Haughtii* at 17,000 feet. In Chile *Verbena origenes* ascends to 11,482 feet. On the other hand, *Phyla incisa* grows 185 feet below sea level in the Salton Basin of southern California and *Verbena officinalis* and *Vitex Agnus-castus* grow 1300 feet below sea level along the shores of the Dead Sea in Palestine.

Xerophytic species of *Junellia* on the deserts and on the high Andes of South America are often beautifully cespitose or rosulate and matted, with thick gnarled woody stems (attesting to considerable age) procumbent on the ground or practically so, with woody roots extending deep into the soil (in *J. bryoides* reported as penetrating to at least 9 feet underground), and showy verbena-like flowers. Some species are armed with sharply spinose leaves, twigs, and branches. Members of the genus *Acantholippia* are also armed with spinose twigs and branches. In *Lantana horrida*, *L. scorta*, and certain other species of that genus the stems and twigs are abundantly armed (at least in some forms) with strongly recurved and very sharp prickles, which in *L. Camara* var. *aculeata* and some other species serve as a means of support for the elongate, but weak and scrambling or semi-climbing stems. In *Clerodendrum aculeatum* the lower part of the petioles becomes modified into sharp spreading or recurved thorns. In *Baillonia* the leaf-scars are borne on conspicuous spreading or ascending sterigmata which bear a long beak-like projection on their abaxial side and which becomes hardened into a sharp spine after the leaves have fallen. Numerous species of *Duranta* are more or less spinose, the spines sometimes branched.

Plate 8. Myrmecophily in the *Verbenaceae*: 1. Flowering branch of *Clerodendrum formicarum*, showing ant homes in the swollen petioles; 2. Branch of *Clerodendrum fistulosum*, showing ant homes in the swollen internodes, the lower internode slit open to show the hollow interior; 3. Flowering branch of *Clerodendrum fistulosum*, showing the small circular openings to the ant homes just below the nodes. All figures reduced to 0.45 natural size. Drawn by Lucille E. Kopp.



Plate 8 Myrmecophily in the **Verbenaceae** (See opposite page for details.)

Epiphytes are rare, but do occur in the group, for example, *Clerodendrum epiphyticum* of Costa Rica and Panama, *Geunsia flavida* of the Philippines, and *Premna parasitica* of Burma, the Andaman Islands, Perak, Java, and Celebes. Myrmecophily is exhibited by at least three members of the genus *Clerodendrum* and one species of *Vitex*. In *Clerodendrum formicarum* of the Anglo-Egyptian Sudan, Gold Coast, Southern Nigeria, Cameroons, Spanish Guinea, Belgian Congo, Angola, and Southern Rhodesia ants of the widespread plant-inhabiting genus *Creमतogaster* live in swellings in the short verticillate petioles<sup>149</sup>. In *C. myrmecophila* and *C. fistulosum*—the former native to the Federated Malay States, Java and Borneo and the latter to Sarawak and Borneo—the elongated internodes are swollen and provide shelter for the ants<sup>150</sup>. In *C. myrmecophila* the ants are of the genus *Pheidole*, in *C. fistulosum* they are the specific *Colobopsis clerodendri*. In *Vitex thyrsoiflora* of French Guinea, Ivory Coast, Togoland, Nigeria, Cameroons, and Portuguese East Africa the ants live in the branches<sup>151</sup>.

Numerous species which will be described in more detail later bear fragrant leaves or flowers, but a few are ill-scented or even fetid (e. g., *Aegiphila graveolens*, *A. mollis*, *Premna foetida*, *P. nauseosa*, *Clerodendrum Bungei*). In pubescence members of the group vary from completely glabrous to variously pubescent, strigose, velutinous (e. g., *Aegiphila velutinosa*), hirsute, hispid and villose, or even setose. Sometimes they are so very densely villous as to resemble plants like *Verbascum thapsus* (e. g., *Aegiphila villosissima*, *A. lanata*, *Lachnostachys*, *Newcastlia*, *Mallophora*).

## PART II.

“In tracing the progress of human knowledge through its several gradations of improvement, it is scarcely possible . . . not to feel an ardent wish of information relating to those persons by whom those improvements have severally been given: and hence arises that interesting sympathy which almost inseparably connects biography with the history of each respective branch of knowledge.”<sup>152</sup> Although these words were written one hundred and fifty years ago, when the sum total of human knowledge was but a fraction of what it is today, they still ring true. It will, therefore, perhaps be of some general interest to present herewith a list of the men and women whose contributions have been so great,

Plate 9. Armature in the *Verbenaceae*: 1. Branch of *Lantana scorta*, 0.45 natural size; 2. Section of stem of same, 0.90 natural size; 3. Branch of *Duranta orida* var. *domingensis*, 0.45 natural size; 4. Section of same, 0.90 natural size, showing branched thorns; 5. Fruiting branch of *Juncelia bryoides*, 0.45 natural size; 6. A single fruiting-calyx, x1.8, showing spinose teeth; 7. A single leaf and bud, x1.8, showing the spine-like lobes; 8. Leafy twig of *Baillonia amabilis*, 0.45 natural size; 9. Section of same, x1.8, showing spine-tipped sterigmata; 10. Leafy branch of *Clerodendrum aculeatum*, 0.45 natural size; 11. Section of same, x1.8, showing spinose persistent petiole-base. Drawn by Lucille E. Kopp.



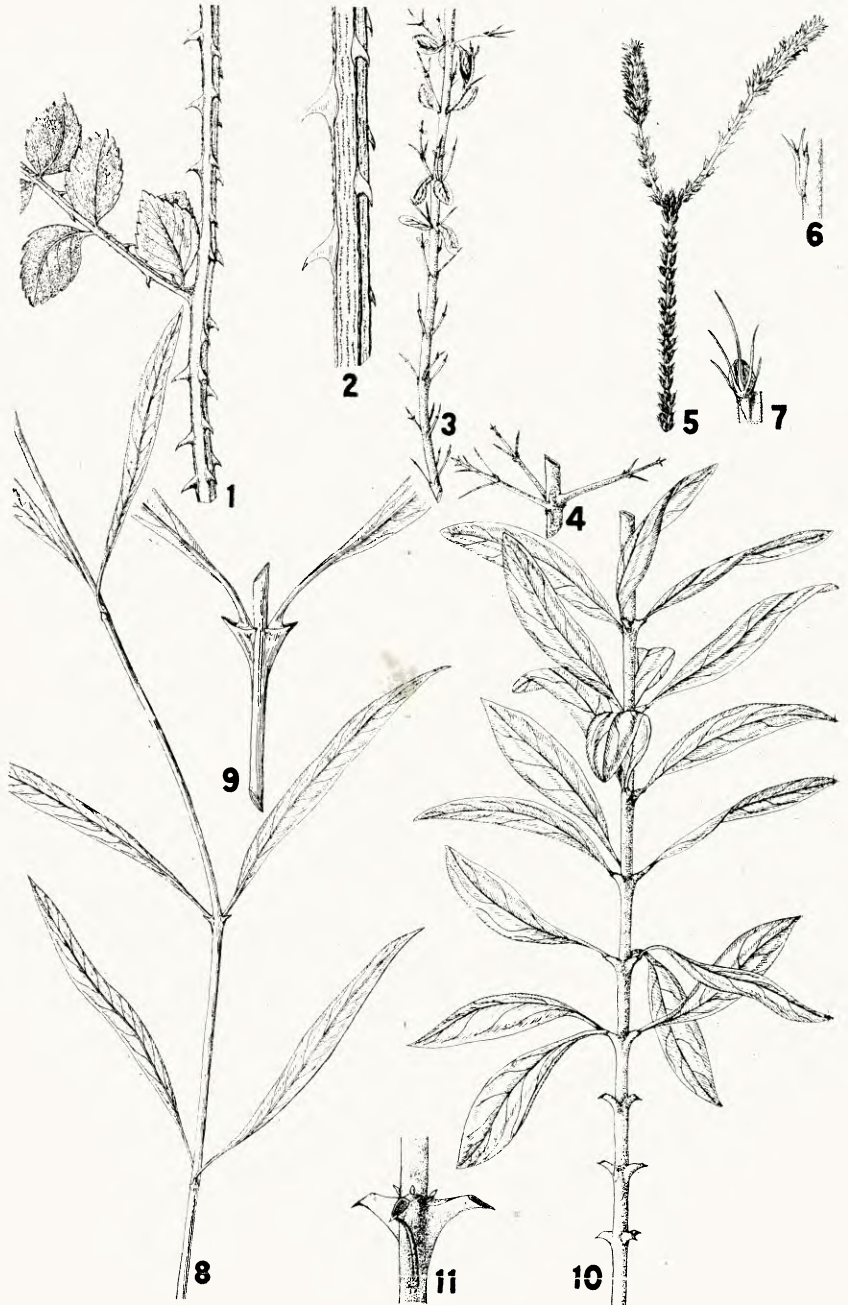


Plate 9 Armature in the **Verbenaceae** (See opposite page for details.)

or whose influence, in one way or another, has been so pronounced on those who have worked in these groups, that genera, species, and varieties have been named in their honor within these families. In this day when our world needs so desperately to learn the lesson of universal human brotherhood and not only the desirability, but the absolute necessity of complete international cooperation if the race is to survive, it is significant to point out the many nationalities, races, colors, and creeds that are represented in this list of those whose memory has been considered worthy of commemoration in the scientific names that we use. To date 674 men and women have had plants dedicated to them in the *Verbenaceae* and *Avicenniaceae*. These men and women represent 48 nationalities in the following proportions (nationality here being based on place of birth): Germany—156, England—104, United States of America—91, France—79, Belgium—24, Italy—24, Argentina—15, Australia—14, Switzerland—14, Scotland—14, Netherlands—12, Spain—12, Sweden—11, Russia—9, Portugal—7, Czechoslovakia—7, China—7, Denmark—7, Brazil—6, South Africa—6, Austria—7, Mexico—5, Eire—5, Chile—3, Costa Rica—3, Luxembourg—3, Canada—3, Japan—3, two each from Greece and Hungary, and one each from Armenia, Bolivia, British Honduras, Celebes, Colombia, Cuba, El Salvador, Finland, Latvia, New Zealand, Paraguay, Persia, Philippines, Poland, Réunion, Siam, Uruguay, and Wales.

Le Roy Abrams (1874— ), contemporary American plant taxonomist, noted for his excellent work on the flora of western North America [*Verbena Abramsi*].

Giuseppe Acerbi (1773—1846), Italian consul-general in Egypt [*Clerodendrum Acerbium*, *Volkamezia Acerbiana*].

George Patrick Ahern (1859—), American forester, lieutenant colonel in the United States army, noted for his work on tropical, especially Philippine, forestry [*Teijsmanniodendron Ahernianum*, *Vitex Ahernianum*].

Enrico A. d'Albertis (1846—1933), Italian explorer in the Pacific region [*Faradaya Albertisii*].

Fernando Altamirano (1850—1908), Mexican scientist and director of the National Medical Institute in Mexico City [*Citharexylum Altamiranum*].

Cárlos Ameghino (1865—1936), Argentinian geologist and paleontologist, director of the natural history museum at Buenos Aires, collected in Patagonia [*Junellia Ameghinoi*, *Verbena Ameghinoi*].

Édouard François André (1840—1911), noted French explorer and collector in Colombia and Ecuador [*Petrea Andrei*].

G. Andrieux, early plant collector in Mexico, about whom very little is known [*Verbena Andriaei*, *V. Andrieuxii*].

George Anson (1697—1762), English traveler and explorer, referred to as "Thomas Amason" in error by some authors [*Amasonia*].

Carl Ferdinand Appun (1820—1872), German explorer and collector in Venezuela and on Mount Roraima of "The Lost World" fame [*Vitex Appuni*].

Richard Archbold (1907— ), contemporary American explorer in Madagascar and leader of several expeditions to New Guinea [*Archoldia*].

José Arechavaleta (1838—1912), famous Spanish botanist noted for his work on the plants of Uruguay [*Lippia Arechavaletae*].

Aubert Aubert du Petit-Thouars (1758—1831), famous French taxonomist and botanical writer of distinction [*Halodendron Thouarsi*].<sup>154</sup>

Jean Baptiste Christophe Fusée Aublet (1720—1778), famous French botanical collector and author of the flora of French Guiana [*Aubletia*, *Glandularia Aubletia*, *Obletia*, *Verbena Aubletia*].

Liberty Hyde Bailey (1858— ), contemporary American botanist of great distinction, famous for his work on *Carex*, *Rubus*, palms, and cultivated plants [*Verbena Baileyana*].

Henri Ernst Baillon (1827—1895), distinguished French scientist and botanical author, editor of "Adansonia" [*Baillonia*].

Charles Fuller Baker (1872—1927), American botanist and plant collector in Cuba, Nicaragua, Brazil, Ceylon, and various parts of the United States [*Vitex polygama* var. *Bakeri*].

John Gilbert Baker (1834—1920), famous English worker on the flora of tropical Africa [*Clerodendrum Bakeri*, *C. Schweinfurthii* var. *Bakeri*, *Vitex Bakeri*].

Benedict Balansa (1825—1891), distinguished French collector in Paraguay, New Caledonia, Tonkin, and the Orient [*Gmelina Balansae*, *Lantana Balansae*, *Lippia Balansae*, *Oxera Balansae*, *Premna Balansae*, *Verbena Balansae*].

Giovanni Battista Balbis (1765—1831), Italian professor of botany at Turin, author of numerous scientific works [*Vitex Balbisii*].

Ernst Gottfried Baldinger (1738—1804), early German botanist [*Baldingera*].

Sir Isaac Bayley Balfour (1853—1922), noted Scottish horticulturist [*Clerodendrum Balfouri*, *C. Thomsoni* var. *Balfouri*].

Edward K. Balls, contemporary English collector in Argentina, Mexico, the Balkans, and other parts of Europe [*Verbena Ballsii*].

Miguel Bang, contemporary Bolivian collector who collected in Bolivia for Rusby and about whom not much is known [*Aegiphila Bangii*, *Lantana Bangii*].

Richard Baron (1847—1907), English missionary, botanist, and geologist in Madagascar, died there of malaria and blackwater fever [*Clerodendrum Baronianum*].

Charles Barter (?—1859), English horticulturist, gardner at Kew, explorer in Nigeria, of whom Hooker said<sup>155</sup> "an intrepid and indefatigable discoverer, whose collections far exceed in magnitude, condition, and value those of any other explorer in those regions," died in west Africa [*Clerodendrum Barteri*].

Friedrich Gottlieb Bartling (1798-1875), German professor of botany at Göttingen [*Chloanthes Bartlingii*, *Pityrodia Bartlingii*].

H. Baum, German explorer in Angola about whom little is known [*Clerodendrum Baumii*, *Lippia Baumii*, *Vitex madiensis* var. *Baumii*].

Godfrey Herbert Beale, contemporary English geneticist and cytologist [*Verbena Bealei*].

Odoardo Beccari (1843—1920), distinguished Italian collector in Malaya and the East Indies, author, and expert on palms [*Geunsia Beccariana*].

George Bentham (1800—1884), famous English taxonomist and botanical author [*Duranta Benthami*, *Premna Benthamiana*, *Vitex Benthamiana*].

Joseph Charles Corneille Bequaert (1886— ), Belgian collector in the Congo and elsewhere [*Clerodendrum Bequaerti*, *Vitex Bequaerti*].

Jean Louis Berlandier (?—1851), noted Belgian collector in Texas and northern Mexico, especially along the United States-Mexican boundary [*Citharexylum Berlandieri*, *Lippia Berlandieri*].

Bernier, French plant collector in Madagascar about whom little is known [*Clerodendrum Bernieri*].

Carlo Giuseppe Bertero (1789—1831), noted Italian collector in the Antilles, Colombia, Chile, and the Juan Fernandez Islands, died in a shipwreck in the south Pacific [*Aegiphila Berteriana*, *Citharexylum Berterii*, *Lippia Berterii*, *Verbena Berterii*].

Antonio Bertoloni (1775—1869), Italian professor of botany at Bologna [*Bertolonia*].

Paul Besson, Italian horticulturist of whom little is known [*Citharexylum Bessonianum*].

Ernst Betche (1851—1913), famous German collector in Samoa and New South Wales [*Oncinocalyx Betchei*].

Captain Bethune, English collector in Borneo about whom little is known [*Clerodendrum Bethuneanum*].

Peter Beveridge, noted Australian collector [*Dicrastylis Beveridgei*].

Patrick Blair (1677—1728), English physician in London and later in Boston, author of botanic essays [*Blairia*].

William Henry Blanchard (1850—1922), American botanist and educator, well-known for his work on *Rubus* and on New England plants [*Verbena Blanchardi*].

Jacques Samuel Blanchet (1807—1875), famous Swiss collector in Brazil for 30 years [*Petrea Blanchetiana*, *Vitex Blancheti*].

Francisco Manuel Blanco (1778—1845), famous Spanish collector and author of Philippine plants [*Callicarpa Blancoi*, *Clerodendrum Blancoi*].

Carl Ludwig von Blume (1796—1862), famous German director of the botanic garden at Batavia and author on the flora of Java [*Callicarpa Blumei*, *Clerodendrum Blumeianum*].

Émile Marie Bodinier (1842—1901), French missionary and botanical collector in China [*Callicarpa Bodinieri*, *Premna Bodinieri*].

Wenzel Bojer (1797—1856), noted Czechoslovakian collector in Mauritius, where he died [*Vitex Bojeri*].



Isaac Boldingh (1879—1938), well-known Dutch collector in the Netherlands West Indies [*Stachytarpheta Boldinghii*].

Aimé Jacques Alexandre Bonpland [né Goujaud] (1773—1858), famous French companion of Humboldt who later botanized by himself in Brazil, Paraguay, and Argentina; was once held captive in the interior of Paraguay for 9 years; died in Argentina [*Callicarpa Bonplandiana*].

Jacobus Bontius (1592—1631), early Dutch collector in Java, where he died [*Bontia*].

Peter Carl Bouché (1782—1856) and Carl David Bouché (1809—1881), two of a famous family of German scientists [*Bouchea*].

Harold Edmund Box (1898— ), contemporary English collector in Antigua and elsewhere [*Ghinia Boxiana*].

Maria Louisa of Parma, of the House of Bourbon, Italian wife of King Charles IV of Spain (1751—1819) [*Aloysia*].

Eugène Bourgeau (1813—1877), noted French collector in Mexico, the Canary Islands, and the Balearic Islands [*Citharexylum Bourgeauianum*].

Leonard John Brass (1900— ), well-known contemporary Australian collector in New Guinea, the Solomon Islands, and Africa [*Clerodendrum Brassii*].

Brenes (1890— ), contemporary Costa Rican botanist of Swiss ancestry, has collected in Switzerland and is noted for his important collections of Costa Rican plants [*Lippia Brenesii*].

John Isaac Briquet (1870—1931), famous Swiss taxonomist, linguist, author, and expert on the *Verbenaceae* and *Lamiaceae* [*Lippia Briquetii*, *L. Briquetiana*, *Verbena Briquetii*].

Nathaniel Lord Britton (1859—1934), American systematist, founder of the New York Botanical Garden, famous for his work on the *Caesalpiniaceae*, *Mimosaceae*, *Cactaceae*, *Cyperaceae*, and the flora of eastern North America and the West Indies, a prolific collector in the West Indies [*Citharexylum Brittonii*, *C. fruticosum* var. *Brittonii*, *Lantana Brittonii*].

Walter Elias Broadway (1863—1935), famous English collector in Tobago and Trinidad, where he died [*Citharexylum Broadwayi*, *Petrea arborea* var. *Broadwayi*].

Sir Charles Anthony Johnson Brooke [né Johnson] (1829—1917), second English rajah of Sarawak [*Clerodendrum Brookeanum*, *C. Brooksii*].

Ernst Wilhelm von Brücke (1819—1892), German professor of physiology at Königsberg [*Brückea*].

Paul Johannes Brühl (1855— ), German plant collector in Angola [*Bouchea pumila* var. *Brühliana*].

Wilhelm Buch (1862— ), German plant collector in Haiti [*Lantana Buchii*].

John Buchanan (1855—1896), distinguished English collector in central Africa [*Vitex Buchanani*].

George Conrad Bucher (1893—), American plant collector in Cuba [*Callicarpa Bucheri*].

Reinhold Buchholz (?—1876), German botanist and collector in the Cameroons [*Clerodendrum Buchholzii*].

Max Buchner (1846—1921), German explorer and collector in Africa [*Clerodendrum Buchneri*, *Vitex Buchneri*].

Otto Buchtien, German physician and distinguished collector in Bolivia [*Aegiphila Buchtienii*].

Heinrich Wilhelm Buek (1796—1879), German botanist, one of 3 famous Hamburg botanists of this surname [*Citharexylum Buekii*].

Alexander Andrejewitsch von Bunge (1803—1890), Russian collector in Altai, China, and Mongolia, and director of the botanic garden at Dorpat [*Clerodendrum Bungei*].

Joseph Bunny (1798—1885), English writer on the plants of Great Britain [*Bunnya*, *Cyanostegia Bunnyana*].

Ernst Friedrich Burchard, German writer on floral anatomy in 1741 [*Burcardia*, *Burchardia*].

John Burroughs (1837—1928), famous American naturalist, philosopher, poet, and literary author [*Burroughsia*].

Joachim Burser (1583—1639), German professor at Sarøe, Denmark, and friend of Bauhin [*Burseria*].

Sir Richard Francis Burton (1821—1890), English explorer and collector in Africa [*Lippia Burtonii*].

Walter Carl Otto Busse (1865—1933), German plant collector in Tanganyika [*Clerodendrum pleiosciadium* var. *Bussei*].

Butayer (1858—1929), Belgian Jesuit missionary in the Congo where he collaborated with Gillet and died [*Clerodendrum capitatum* var. *Butayeri*].

Oscar Alexander Richard Büttner (1858— ), German traveler and collector in the Cameroons, Togo, Turkestan, Bucharra, Transcaucasia, Turkey, and the United States [*Clerodendrum Büttneri*].

Alphonse François Édouard Cabra (1862—1932), Belgian lieutenant general on the expedition of 1896 to the Congo, where he collected plants [*Clerodendrum Cabrae*].

Ángel Lulio Cabrera, prolific contemporary Argentinian botanist, famous for his valuable work on the flora of Argentina and Uruguay [*Lantana aristata* var. *Cabrerae*, *L. Cabrerae*, *Verbena Cabrerae*].

Salvador Calderón (1884—1940), distinguished Salvadorian collector and author on the flora of El Salvador [*Citharexylum Calderonii*, *Stachytarpheta Calderonii*].

Thomas Campbell, English horticulturist concerning whom not much is known [*Clerodendrum Campbellii*].

Augustin Pyramus de Candolle (1778—1841), one of 5 famous Swiss naturalists of this family [*Petrea Candolleana*].

Martin Cárdenas (1899— ), Bolivian professor of botany at La Paz and noted collector in that country [*Ghinia Cardenasi*].

David Wynford Carnegie (1871—1900), English collector in Australia and Nigeria, where he died [*Dicrasytilis Carnegiei*].

Rodriguez de Carvalho, Portuguese collector in Mozambique [*Vitex Carvalhi*].

Giovanni Casaretto (1812—1879), Italian writer on the plants of that land [*Casarettoa*].

Franz Peter Cassel (1784—1821), German professor of botany at Ghent [*Casselia*].

Juan de Dios Castel, Spanish companion of Loeffling on his trip of exploration up the Orinoco, concerning whom not much is known [*Castelia*].

Alberto Castellanos, contemporary Argentinian botanist and collector in that country [*Aloysia Castellanosii*, *Lampaya Castellani*].

Pierre Julien Cavaleria (1869— ), French missionary and collector in China [*Callicarpa Cavaleriei*, *Clerodendrum Cavaleriei*, *Premna Cavaleriei*].

Jean Chaffanjon (1854—1913), French missionary and plant collector in China and tropical America, died in Indochina [*Callicarpa Chaffanjonii*].

Ludolf Adalbert von Chamisso (1781—1838), born in France, driven to Germany by the French Revolution, became page to the Queen of Prussia, later teacher and botanist at Berlin, famous taxonomist, botanical writer, and author of German literary classics [*Citharexylum Chamissonis*, *Lantana Chamissionis*, *Lippia Chamissonis*, *Stachytarpheta Chamissonis*, *Verbena Chamissonis*].

Emile Chateau, French collector in Texas about whom little is known [*Lycium Chateaui*].

Léon Chenault (1853—1930), French horticulturist of note [*Callicarpa Chenaultii*].

Auguste J. B. Chevalier (1873—), French collector in Africa and Indochina [*Premna Chevalieri*].

Minton Asbury Chrysler (1871—), contemporary American educator, botanical author, and editor, collected in the Antilles, Central America, and elsewhere [*Vitex Chrysleriana*].

Kuan Kuang Chung [Kwang Kwong Ts'oong], Chinese professor of botany at Peiping [*Tsoongia*].

Leo de Cienkowski (1822—1887), Russian biologist, expert on bacteria, algae, and protozoa, collected plants in Nubia and Kordofan [*Vitex Cienkowskii*].

Jean Claessens (1873— ), contemporary Belgian agronomist, director general of the ministry of colonies and of the Institut National pour l'Etude Agronomique de Congo Belge, collected plants in Belgian Congo in 1909 and 1910 [*Premna Claessensii*].

George Claraz (1832—1930), Swiss plant collector in Patagonia [*Lantana Clarazii*].

Charles Baron Clarke (1832—1906), distinguished English plant taxonomist, known for his work on sedges and the plants of India [*Vitex Clarkeana*].

Peter Clausen (?—1855), Danish plant collector, noted for his collections in Brazil, where he assumed the name "Pedro Claudio Dinamarquez"; died in an insane asylum in London [*Lippia Clauseni*].

W. Clifton, Australian collector noted for his work in New South Wales, but about whom little is known personally [*Lachnostachys Cliftoni*].

Elzaba Urseba Clover (1897—), American collector who did noteworthy botanizing in Texas [*Verbena Cloveri*].

Henry Thomas Colebrooke (1765—1837), noted English Sanskrit scholar, lived in India for 32 years, collected chiefly in Silhet [*Clerodendrum Colebrookianum*].

Marjorie Isabel Collins, Australian plant collector in New South Wales [*Premna Collinsae*].

Harold Frederick Comber (1897— ), contemporary English horticulturist, collected plants and seeds in Tasmania, Argentina, and Chile, in the two latter countries mostly at altitudes of over 3,000 feet in the Andes [*Junellia Comberi*, *Verbena Comberi*].

Philibert Commerson (1727—1773), noted French botanical collector and explorer in South America, Asia, and Africa [*Clerodendrum Commersonii*, *Volkameria Commersonii*].

Robert Harold Compton (1886— ), English plant collector in New Caledonia [*Oxera Comptonii*].

Conrad, German collector of plant material in Tanganyika in 1904, about whom very little is known [*Clerodendrum Schweinfurthii* var. *Conradii*].

George Proctor Cooper, III (1896— ), contemporary Canadian forester, collected plants in Panama, Colombia, Costa Rica, Mexico, Liberia, Sierra Leone, the West Indies, and parts of the United States [*Citharexylum Cooperi*, *Vitex Cooperi*].

Anatole Corbisier-Balanot (1881— ), Belgian botanist, collected plants in Belgian Congo, director of the botanical garden at Eala [*Clerodendrum Corbisieri*].

Marc Cornacchin, Italian professor of medicine at Pisa in the first half of the 17th century [*Cornacchinia*].

Jacques Philippe Cornuti (1600—1651), French physician and writer on Canadian plants [*Cornutia*].

Francisco Joaquim da Costa e Silva (1827—1899), Portuguese consul who facilitated the botanical exploration of the island of S. Thomé by Moller [*Clerodendrum Preussii* var. *Silvaeanum*, *C. Silvaeanum*].

M. Costello, Australian plant collector in Queensland [*Dicrasyllis Costelloi*].

Thomas Coulter (1793—1843), Irish plant collector in California and Mexico [*Tetraclea Coulteri*].

Guillermo Covas (1915— ), contemporary Argentinian botanist and educator, specialist on the systematics and improvement of forage plants and genetics of *Verbena* [*Verbena Covasii*].

Robert Craig (1847—1927); American horticulturist of Philadelphia [*Lantana Craigii*].

José Cuatrecasas Arumi (1903— ), contemporary Spanish botanist of distinction, noted for his important collections of Colombian plants from unexplored parts of that country [*Aegiphila Cuatrecasasi*].



Hugh Cuming (1791-1865), distinguished English collector in South America, the Philippines, and other islands of the Pacific [*Callicarpa Cumingiana*, *C. pentandra* var. *Cumingiana*, *Clerodendrum Cumingianum*, *Geunsia Cumingiana*, *Lantana Cumingiana*, *Premna Cumingiana*, *Symphorema Cumingianum*, *Verbena Cumingii*].

Allan Cunningham (1791—1839), noted English collector in Brazil and Australia, where he died [*Clerodendrum Cunninghamii*].

Hugh McCollum Curran (1875— ), American forester and collector in Venezuela and the Philippines [*Clerodendrum Curranii*, *Premna Curranii*, *Vitex Curranii*].

Anita G. Curtis, American collector in Angola and Congo [*Priva Curtisiae*].

Carlton Clarence Curtis (1862—1945), beloved American botanical educator and author, professor of botany at Columbia University [*Lippia Curtisiana*].

Charles Curtis (1853—1926), noted English collector in Madagascar, Malaya, Borneo, and Java [*Clerodendrum Curtisii*].

Moses Ashley Curtis (1808—1872), famous American collector in North Carolina [*Verbena Curtisii*].

John Dallachy (1820—1871), Scottish plant collector in Australia [*Premna Dallachyana*].

Kenneth Waring Dalrymple (1875— ), contemporary New Zealand botanist [*Gmelina Dalrympleana*].

Charles Darwin (1809—1882), famous English naturalist on the voyage of the "Beagle" around the world in 1831—1836; establisher of the doctrine of organic evolution; crossed South America from Valparaiso to Buenos Aires and collected numerous plants [*Lippia Darwinii*, *Nocsparton Darwinii*].

Morley Thomas Dawe (1880— ), English botanical collector in Colombia [*Citharexylum Dawei*].

Charles Clemon Deam (1865— ), contemporary American botanist and forester, collected in Guatemala and Florida, famous for his work on the flora of Indiana [*Verbena Deamii*].

Debeerst, collector in Belgian Congo about whom little is known [*Clerodendrum Bequaerti* var. *Debeerstii*, *C. Wildemannianum* var. *Debeerstii*].

Otto Degener (1899— ), contemporary American botanist and author, collected in various parts of the United States, the Bahamas, Fiji Islands, and especially Hawaii [*Verbena plicata* var. *Degeneri*, *Vitex Degeneriana*].

Dekindt, German plant collector in Angola [*Clerodendrum Dekindtii*, *Vitex Dekindtiana*].

Pierre Jean Marie Delavay (1834—1895), French missionary and botanical collector in China, where he died [*Gmelina Delavayana*].

Delzie Demaree (1889— ), contemporary American botanist and ecologist, noted for his extensive collecting in the southern and southwestern states [*Verbena Demareei*].

Dempster, Australian plant collector about whom little is known [*Lachnostachys Dempsteri*].

Sir William Thomas Denison (1804—1871), English engineer, collector in Canada from 1827 to 1831, governor of Tasmania from 1847 to 1855 and of New South Wales from 1855 to 1861, a zealous patron of music, the arts, and science [*Denisonia*].

Ferdinand Deppe (?—1861), noted German plant collector in Mexico [*Aegiphila Deppeana*].

Haig Dermen (1895— ), contemporary Armenian cytologist and geneticist, born in Turkey, now research associate at the Arnold Arboretum [*Verbena Dermeni*].

Robert Derry, English botanist and forester, collected extensively in Malacca, Perak, Penang, and Singapore [*Premna Derryana*].

Alfred Dewèvre (1866—1897), Belgian plant collector in Congo, where he died [*Vitex Dewevrei*].

Friedrich Ludwig Emil Diels (1874—1945), distinguished German plant taxonomist, director of the botanical garden at Berlin, collected plants in Ecuador [*Callicarpa Dielsii*].

Max Julius Dinklage (1864—1935), noteworthy German plant collector in the Cameroons and Liberia [*Clerodendrum Dinklagei*, *Vitex Dinklagei*].

Kurt Dinter (1868— ), German plant collector, noted for his collections in Southwest Africa [*Clerodendrum Dekindtii* var. *Dinteri*].

Will A. Dixon, Australian plant collector in New South Wales [*Newcastlia Dixoni*].

Denis Dodart (1634—1707), French physician to King Louis XIV, known for his study of plants by chemical analyses [*Denisaea*, *Denisia*, *Deniseia*].

Joseph Dombey (1742—1796), early French explorer and collector in Chile and Peru [*Duranta Dombeyana*].

David Don (1799—1841), famous English horticulturist and author [*Vitex Doniana*].

Vitaliano Donati (1713—1763), Italian naturalist, botanized in southeastern Europe, Asia Minor, and Egypt, murdered after a shipwreck on his return from Egypt [*Donatia*].

Paul Louis Dop (1876— ), distinguished French botanist, famous for his work on the *Verbenaceae* of Indochina [*Premna Dopii*].

Philipp Doran, Australian botanist, director of the botanic garden at Castlemaine, Victoria [*Dicrostylis Doranii*].

James Douglas (1675—1742), Scottish lithographer and author [*Douglassia*].

James Drummond (1784—1863), Scottish plant collector in Ireland and western Australia [*Pityrodia Drummondii*, *Premna Drummondii*].

Thomas Drummond (1780—1835), Scottish plant collector of considerable fame, brother of the preceding; collected in Canada and the United States, died in Cuba [*Glandularia Drummondii*, *Verbena Aubletia* var. *Drummondii*, *V. canadensis* var. *Drummondii*, *V. Drummondii*].

Editha Ida Dryander, née Chateau (1874— ), contemporary Austrian botanical collector, born in Germany (father a Canadian Huguenot), collected in the Balkans and more recently in Colombia, where she now resides [*Citharexylum Dryanderæ*].

Adolfo Ducke, distinguished contemporary Swiss botanist, noted for his extensive collections in Brazil, Guiana, and Colombia, especially the region of the Amazon, and his important botanical writings on that region [*Aegiphila Duckei*, *Clerodendrum Duckei*, *Petrea Duckei*, *Vitex Duckei*].

François Ducloux (1864— ), French missionary and collector in China [*Vitex Duclouxi*].

Richard Arnold Dummer [né Dümmer] (1887—1922), South African plant collector in Uganda and Kenya [*Clerodendrum discolor* var. *Dummeri*].

Edward John Dunn (1844—1937), noted English plant collector in northern Australia [*Callicarpa Dunniana*].

P. R. Dupont, French curator of the botanical station on the Seychelles Islands [*Nesogenes Dupontii*].

Castore Durante (1529—1590), Italian physician in Rome and author [*Castorea*, *Duranta*].

Per Karl Hjalmar Dusen (1855—1926), excellent Swedish plant collector in Cameroons, Patagonia, Greenland, Brazil, and Chile [*Aloysia Dusenii*, *Clerodendrum Dusenii*, *Vitex polygama* var. *Dusenii*].

Jacques Louis Raoul Duval, Comte d'Eprenesnil (1827—1891), French scientist, chevalier of the Legion d'Honneur, one of the founders of the Société d'Acclimation [*Chloanthes Depremesnilii*, *Depremesnilia*, *Pityrodia Depremesnilii*].

Philippe Albert Eberhardt (1874—1942), French botanist, professor of botany at the university of Besançon, collected plants in Indochina from 1905 to 1908 [*Vitex Eberhardtii*].

Saile Echegaray, noted Argentinian collector, famed for his work on the plants of San Juan and Córdoba [*Junellia Echegarayi*, *Verbena Echegarayi*].

Heinrich Karl Daniel Eggert (1841—1904), famous German collector in various parts of central United States [*Verbena simplex* var. *Eggerti*].

Carl August Ehrenberg (1801—1849), noted German plant collector in Mexico and the West Indies [*Bouchea Ehrenbergii*, *Verbena canadensis* var. *Ehrenbergii*, *V. Ehrenbergiana*].

Erik Leonard Ekman (1883—1931), famous Swedish plant collector in Argentina, Cuba, and Hispaniola, died in the Dominican Republic [*Citharexylum Ekmani*, *Clerodendrum Ekmani*, *Petitia dominicensis* var. *Ekmani*].

Hetta Elbert, German wife of the following, who faithfully accompanied and assisted him in his collecting on the Lesser Sunda Islands [*Clerodendrum Hettae*].

Johannes Eugen Wilhelm Elbert (1878—1915), German plant collector in the Sunda Islands [*Clerodendrum Elberti*].

Elder, Australian plant collector about whom little is known [*Chloanthes Elderi*, *Hemiphora Elderi*].

John Ellis (1710—1776), English merchant and zoologist, importer of American seeds, and correspondent of Linné [*Duranta Ellisia*, *Ellisia*].

Adolph Daniel Edward Elmer (1870—1942), American, extensive collector in the western United States and the Philippines [*Clerodendrum Elmeri*, *Petraeovitea Elmeri*].

Octave Adrien Jean Elskens (1879—1935), Belgian diplomat in the colonial service and agricultural agent, collected plants in Belgian Congo [*Premna Elskensi*].

George Monroe Emrick (?—1906), American physician and plant collector who made 3 or 4 trips to Mexico from 1901 to 1906 and collected several hundred plants there, friend of Millsbaugh [*Citharexylum Emrickianum*].

Rudolf Endlich (?—1915), noted German collector, botanized in Paraguay, Brazil, Mexico, Asia Minor, and tropical Africa [*Citharexylum Endlichii*, *C. Rugendasii* var. *Endlichii*].

George Engelmann (1809—1884), German physician, traveled and collected widely in the United States [*Verbena Engelmannii*].

Christian Friedrich Ludwig Cachand Ervendberg (1809—1863), ill-starred heroic German Lutheran clergyman, educator, and agriculturist, whose life story forms one of the most fascinatingly pathetic chapters in the history of the American frontier, collected plants in Texas and Mexico, where he was murdered by bandits [*Bouchea Ervendbergii*].

Joseph Henri Esquirol (1870— ), French missionary and botanical collector in China [*Callicarpa Esquirolii*, *Clerodendrum Esquirolii*, *Pavetta Esquirolii*].

George Eyles (1815—1887), English horticulturist, collected plants in Africa [*Vitex Eylesii*].

Michael Faraday (1791—1867), world famous English chemist and physicist [*Faradaya*].

Paul Guillaume Fargas (1844—1912), French missionary and botanical collector in China, where he died [*Clerodendrum Fargesii*, *C. trichotomum* var. *Fargesii*].

Friedrich Karl Georg Fedde (1873—1942), well known German botanist and editor [*Callicarpa Feddei*].

August Fendler (1813—1883), famous German plant collector, made important collections in various parts of the United States, Trinidad, Panama, and Venezuela, died in Trinidad [*Aegiphila Fendleri*].

Karl Fiebrig-Gertz (1869— ). German botanist who made noteworthy plant collections in Paraguay [*Aloysia Fiebrigii*, *Lantana Fiebrigii*, *Lippia Fiebrigii*].



Achille Eugène Finet (1863—1913), French botanical collector in Indochina and other parts of eastern Asia [*Clerodendrum Finetii*].

George Finlayson (1790—1823), Scottish plant collector in Ceylon, Bengal, and Siam, died at Calcutta [*Gmelina Finlaysoniana*, *Vitex Finlaysoniana*].

Gustav Adolf Fischer (?—1886), German physician in Zanzibar, collected extensively in eastern Africa [*Clerodendrum Fischeri*, *Vitex Fischeri*].

Leopold Heinrich Fisher (1817—1886), German horticulturist [*Duranta Fischeri*, *Timotocia integrifolia* var. *Fischeri*].

H. R. Fletcher, contemporary English botanist, noted for his work on the plants of Siam [*Duranta Fletcheriana*].

Francis Fleury (1882—1919), Belgian forester of distinction, noted for his work on the forest flora of Ivory Coast, French Guinea, Senegal, Soudan, Dahomey, Gabun, Cameroons, and Indo-china, in all of which lands he collected extensively; died at sea at the entrance of the Red Sea [*Clerodendrum Fleuryi*].

Amelius Macer Floridus (?—16 B.C.), Roman naturalist who wrote about birds, snakes, and medicinal plants and was quoted by Ovid [*Maceria*].

Franz Fonck (1830—1912), German physician and explorer in western Patagonia, author of numerous important works on medicine, geography, and history, made extensive botanical collections studied by Philippi; his name is often inaccurately given as "Francisco Fonk" [*Aloysia Fonckii*, *Lippia Fonckii*].

Francis Blackwell Forbes (1839—1908), American naturalist, collected extensively in China [*Clerodendrum Colebrookianum* var. *Forbesii*, *Congea Forbesii*].

Charles Ford (1844—1927), noted English botanical collector in Hongkong and China [*Premna Fordii*].

George Forrest (1873—1932), Scottish plant collector, well-known for his explorations in China and Tibet [*Caryopteris Forresti*].

Pehr Forskål (1732—1763), ill-starred Finnish botanist, noted for his explorations in Egypt and Arabia, where, after repeated encounters with bandits who robbed him of everything except the clothes he wore and his "worthless" plants and treacherous desertion on the desert by his Arab guides, he died of starvation and exposure; after death even his coffin and the shrouds in which he was wrapped were stolen by bandits [*Priva adhaerens* var. *Forskalii*, *P. Forskalii*, *Verbena Forskalii*].

Jean Joseph Fortunat (1875— ), contemporary French missionary and botanical collector in China since 1899 [*Premna Fortunati*].

Robert Fortune (1812—1880), English botanical explorer, collected in China and Java [*Clerodendrum Fortunei*].

E. W. Foster, English plant collector in Southern Nigeria about whom little is known [*Vitex Fosteri*].

Alexander von Frantzius (?—1877), Bavarian physician, authority on the climate and ornithology of Costa Rica [*Stachytarpheta Frantzi*].

Emanuel von Friedrichsthal (1809—1842), German plant collector, botanized in central Europe, Central America, and the island of St. Thomas [*Stachytarpheta Friedrichsthalii*].

Theodor Magnus Fries (1832—1913), famous Swedish botanist, one of 13 scientists of the same surname and mostly related [*Clerodendrum Friesii*].

Ricardo de Lemos Froes (188?— ), contemporary Brazilian plant collector [*Vitex Froesii*].

Ernest Edward Galpin (1858— ), noted South African plant collector, made important collections in the Cape of Good Hope area [*Lantana Galpiniana*].

George Gardner (1812—1849), famous Scottish plant collector in Brazil, where he discovered hundreds of new species; died in Ceylon [*Lippia Gardneriana*, *Stachytarpheta Gardneriana*, *Vitex Gardneriana*].

H. B. G. Garrett, English plant collector in Siam concerning whom little is known [*Clerodendrum Garretianum*, *Garrettia*, *Premna Garretti*].

Charles Gaudichaud-Beaupré (1789—1854), famous French naturalist, made two collecting trips around the world, including one on the famous "Bounty" [*Clerodendrum Gaudichaudii*, *Premna Gaudichaudii*, *Verbena officinalis* var. *Gaudichaudii*].

George Franklin Gaumer (1850—1929), distinguished American collector in Yucatán and Honduras, from which areas he brought valuable collections [*Vitex Gaumeri*].

Augusto Gehrt, contemporary Brazilian collector [*Lippia Gehrtii*].

Wilhelm ["Guillermo"] Geisse (1846—1925), German pharmaceuticalist who collected plants in various parts of Chile [*Lippia Geisseana*].

Howard Scott Gentry, American naturalist and anthropologist, made very noteworthy plant collections in Mexico [*Lippia Gentryi*, *Verbena Gentryi*].

Geoffray, French customs official and botanical collector in Indochina from 1904 to 1907 about whom little else is known [*Clerodendrum Geoffrayi*].

Philibert Germain (1827—?), French entomologist, collected insects and plants in Chile [*Citharexylum Germaini*].

Frederick von Gerolt (1797—1879), German baron, diplomat, and mineralogist, consul-general in Mexico, minister to Washington, made two expeditions up Mt. Popocatepetl in 1833 and 1834, wrote on the mineralogy, geology, and physical geography of Mexico [*Lantana Geroldiana*].

Steven Jan van Geuns (1767—1795), Dutch writer on Belgian plants [*Geunsia*].

Auguste Boniface Ghiesbreght (1810—1893), Belgian plant collector in Mexico, where he died [*Citharexylum Ghiesbreghtii*].

Luca Ghini (1500—1556), Italian botanist, founder of the botanical gardens at Padua and Pisa [*Ghinia*].

William Ernest Powell Giles (1847—1894), English plant collector in Australia [*Dicrastylis Gilesii*].

Justin Gillet (1866—1943), Belgian Jesuit missionary, founder of the botanical garden at Kisantu, collected extensively in the Belgian Congo, where he died [*Clerodendrum Giletii*, *Vitex congolensis* var. *Gilletii*, *V. Gilletii*].

Jan Bevington Gillett (1911— ), contemporary English botanist, collected plants in South Africa, Rhodesia, British Somaliland, and eastern Abyssinia [*Chascanum Gillettii*].

Stephane de Giorgi (1879— ), Italian agriculturist, chief of the Belgian agricultural department to 1924 [*Vitex Giorgi*].

Giuseppe Giraldi (?—1900), Italian missionary and plant collector in China, where he died [*Callicarpa Bodinieri* var. *Giraldis*, *C. Giraldis*].

Auguste François Marie Glaziou (1828—1906), famous French botanical collector in Brazil, where he collected thousands of valuable specimens, including many new species [*Aegiphila Glazioviana*, *Citharexylum Glaziovii*, *Lantana Glaziovii*, *Lippia Glazioviana*, *Petrea Glaziovii*, *Stachytarpheta Glazioviana*, *Timotocia Glaziovii*, *Vitex polygama* var. *Glaziovii*].

Henry Allan Gleason (1882— ), distinguished American taxonomist and ecologist, collected in British Guiana and various parts of the United States, traveled in Europe, Java, etc. [*Aegiphila Gleasonii*, *Citharexylum Gleasonianum*].

Johann Georg Gmelin (1709—1755), German professor of botany at Leningrad, famed for his work on Siberian plants; there were 15 well-known botanists named Gmelin [*Gmelina*].

Alexandre Godefroy-Lebeuf (1852—1903), French botanical collector in Indochina [*Clerodendrum Godefroyi*].

Emil August Goeldi (1859—1917), Swiss botanist and plant collector in Amazonian Brazil [*Aegiphila Goeldiana*].

Walter Goetze (?—1899), German plant collector in Africa, died in Tanganyika [*Vitex Goetzei*].

Leslie Newton Goodding (1880— ), American botanist, collector in and author of works on the flora of the southwestern United States and Rocky Mountains [*Verbena bipinnatifida* var. *Gooddingii*, *V. Gooddingii*].

Goossens (1896— ), contemporary Orange Free State botanist who has collected extensively in South Africa, author of several textbooks of botany and a dictionary of botanic terms in Afrikaans [*Clerodendrum Goossensii*].

Arthur John Lewis Gordon (1847—1918), English private secretary to Sir A. C. Hamilton-Gordon when the latter was governor of Fiji from 1868 to 1880 [*Clerodendrum Gordonii*].

Göring, German plant collector in Japan about whom little is known [*Premna Göringii*].

John Gossweiler, Swiss botanist, recognized authority on the flora of Angola and Portuguese Congo [*Clerodendrum Gossweileri*, *Lippia Gossweileri*, *Vitex Guerkeana* var. *Gossweileri*, *V. madiensis* var. *Gossweileri*].

Justin Goudot, famed Belgian plant collector in Venezuela and Colombia from 1822 to 1842 [*Aegiphila Goudotiana*].

Alfred Grandidier (1836—1921), French geographer, anthropologist, linguist, and explorer, traveled all over the world, collected plants in Bolivia, India, Ceylon, Zanzibar, and Madagascar [*Vitex Grandidiana*].

Josiah Gregg (1806—1850), American plant collector on the great prairies of the western United States, in New Mexico, and Mexico; died in the wilderness of northern California [*Lippia Greggii*].

Sir George Grey (1812—1898), English plant collector, born in Portugal, botanized in Africa, Australia, and New Zealand [*Clerodendrum Greyi*].

William Griffith (1810—1845), famous English botanical collector in Assam, Bhutan, India, Afghanistan, and Burma, died in Malacca [*Callicarpa macrophylla* var. *Griffithii*, *Clerodendrum Griffithianum*, *Sphenodesme Griffithianum*].

August Heinrich Rudolf Grisebach (1814—1879), distinguished German plant taxonomist, noted especially for his work on the plants of Argentina and the British West Indies [*Callicarpa Grisebachii*, *Lippia Grisebachiana*, *L. Grisebachii*].

Robert Louis August Max Gürke (1854—1911), distinguished German botanist, authority on many groups of European, American, and African plants [*Clerodendrum Guerkei*, *Vitex Guerkeana*].

Hahl, German, about whom nothing is known but to whom Rechin-ger dedicated a number of species [*Faradaya Hahlü*].

Philippe Hahn (1859—ca.1915), French physician and botanical collector in Indochina from 1878 to 1896 [*Clerodendrum Hahnianum*].

Josiah Hale (?—1856), American physician in Louisiana, where he collected extensively before 1841 [*Verbena Halei*].

Francis Hamilton [né Buchanan] (1762—1829), noted English botanical author and collector in India and Nepal [*Clerodendrum Buchananii*, *C. Hamiltonii*, *Tectona Hamiltoniana*, *Volkameria Buchananii*].

Sir Arthur Charles Hamilton-Gordon, Baron Stanmore (1829—1912), English governor of Fiji, then of New Zealand, then of Ceylon; companion of John Horne on many collecting trips on the Fiji and Seychelles islands [*Clerodendrum Arthur-Gordoni*].

James Hannington (1847—1885), English missionary, bishop of East Equatorial Africa, where he collected plants; murdered in Uganda [*Bouchea Hanningtonii*, *Chascanum Hanningtonii*].



George Hansen (1863—1908), German horticulturist, early plant collector in California [*Verbena Hanseni*].

Charles Francis Harbison (1904— ), contemporary American entomologist and natural history collector in southern California and northern Baja California [*Verbena Harbisonii*].

François Jules Harmand (1845—1921), French physician, ambassador, and botanical collector in Indochina [*Clerodendrum Harmandianum*].

W. von Harnier, German naturalist, collected along the White Nile in 1860 and 1861 [*Clerodendrum Harnierianum*].

William Henry Harvey (1811—1866), famous Irish phycologist, collected in Africa, Australasia, and the United States, assembled a huge herbarium [*Vitex Harveyana*].

Emil Hassler (1861—1937), distinguished Swiss plant collector, famous for his extensive collections in Paraguay, where he made the largest collections ever to be brought out of that country and where he died [*Aegiphila Hassleri*, *Casselia Hassleri*, *Hassleria*, *Lantana Hassleri*, *Lippia Hassleriana*, *L. polycephala* var. *Aemillii*, *Stachyterpheta Hassleri*, *Timotocia Hassleri*, *Verbena Hassleri*, *V. Hasslerana*].

George Tracy Hastings (1875— ), beloved contemporary American botanical educator, author, and editor, collected in Chile and in various parts of the United States [*Aegiphila Hastingsiana*].

Warren Hastings (1732—1818), English governor-general of British East India [*Hastingsia*].

Oscar Lee Haught (1893— ), contemporary American field geologist, collected in West Virginia, Texas, Peru, and Colombia [*Aegiphila Haughtii*, *Lantana Haughtii*].

Heinrich Carl Haussknecht (1838—1903), German botanist, collected in Europe, Syria, Mesopotamia, Kurdistan, and the Caucasus [*Vitex Hausknechtii*].

George Darby Haviland (1857—1901), English plant collector in Borneo, curator of the Sarawak Museum [*Callicarpa Havilandii*, *Geunisia Havilandii*, *Vitex Havilandii*].

August von Hayek (1871—1928), distinguished Austrian botanist, collected in Austria, Italy, and Egypt; author of many botanical works [*Junellia Hayekii*, *Verbena Hayekii*].

Johann Ernst Hebenstreit (1703—1757), German physician to King August I of Poland, professor of medicine at Leipzig [*Hebenstreitia*].

Lorentz Heister (1683—1758), German professor of botany at Helmstedt, author of numerous botanical works, sponsored many botanical dissertations by his students [*Burcardia Heisteri*].

Amos Arthur Heller (1867—1944), American naturalist, made extensive plant collections in various parts of the United States and in Puerto Rico [*Hellaranthus*, *Lippia Helleri*, *L. micromera* var. *Helleri*].

William Botting Hemsley (1843—1924), distinguished English plant taxonomist, known for his important work on the plants of Africa, China, and Central America [*Callicarpa rubella* var. *Hemsleyana*, *Vitex Hemsleyi*].

Augustine Henry (1857—1930), Irish plant collector, noted for his extensive and important collections in China [*Clerodendrum Henryi*].

Fortunato Luciano Herrera y Garmendia (1875—1945), distinguished Peruvian naturalist; professor of medicine, botany, and zoology at Cuzco; noted for his valuable collections of plants from the Peruvian Andes [*Aloysia Herrerae*, *Citharexylum Herrerae*].

Wilhelm Gustav Herter (1884— ), contemporary German botanist, noted for his work on and collection of the flora of Uruguay [*Verbena Herteri*].

Theodor K. J. Herzog (1880— ), contemporary German professor of botany at Jena, collected plants in Sardinia, Ceylon, Tunis, Corsica, Paraguay, Bolivia, Chile, and Argentina [*Aegiphila Herzogii*].

Benjamin Heyne (?—1819), Moravian missionary and botanical collector in India, where he died [*Callicarpa Heynei*].

Georg Hans Emmo Wolfgang Hieronymus (1846—1921), noted German botanical collector in Argentina [*Lampaya Hieronymi*].

Johann Maria Hildebrandt (1847—1881), famous German explorer and collector in Africa; combated fevers, scorbutic ulcers, and hostile natives; finally went to Madagascar, his health completely shattered, for further exploration, and there died [*Clerodendrum Hildebrandtii*, *Stachytarpheta Hildebrandtii*, *Vitex Hildebrandtii*].

George B. Hinton (?—1945), noted English plant collector in Mexico, where he made very valuable collections and discovered scores of new species and where he died [*Citharexylum Hintoni*, *Stachytarpheta Hintoni*, *Verbena Hintoni*].

Albert Spear Hitchcock [né Jennings] (1865—1935), beloved American agrostologist, collected extensively in many parts of the world, died at sea after returning from an expedition to eastern Africa where, at 70 years of age, he climbed Mt. Kilimandjaro in search of rare grasses [*Callicarpa Hitchcockii*, *Duranta Hitchcockii*].

Adrien Hock, Belgian plant collector in the Belgian Congo about whom little is known [*Clerodendrum Hockii*, *Vitex Hockii*].

Frederico Carlos Hoehne (1882— ), contemporary Brazilian botanist of great distinction, expert on orchids, botanist on the Roosevelt-Rondon expedition in 1912-1913, indefatigable worker on the flora of Brazil [*Aegiphila Hoehnei*, *Lippia Hoehnei*].

Georg Franz Hoffmann (1760—1826), German physician, professor of medicine, and botanist; wrote extensively on lichens, fungi, willows, and umbellifers [*Hoffmannia*].

Johann Centurius von Hoffmannsegg (1766—1849), German taxonomist, famous for his work on the flora of Portugal [*Clerodendrum Hoffmannseggianum*].

Max H. Hollrung (1858—1937), German plant collector in New Guinea [*Vitex Hollrungii*].

Theodor Holmskjöld [né Holm] (1732—1794), Danish nobleman, wrote on the plants of Denmark [*Holmskiöldia*].

Carl Hugo Ehrenfried Wilhelm Holst (1865—1894), German plant collector in east Africa, where he died [*Clerodendrum Holstii*, *Premna Holstii*].

Maurice William Holtze (1840—1923), German botanist, successor of Schomburgk as director of the botanical garden at Adelaide [*Clerodendrum Holtzei*].

Henri Antoine Homblé (1883—1921), Belgian agronomist, collected plants and died in the Belgian Congo [*Vitex Homblei*].

Sir Joseph Dalton Hooker (1817—1911), famous English plant taxonomist, collected in India, Syria, Morocco, the Rocky Mountains, and Antarctic regions [*Callicarpa Hookeri*, *Geunsia Hookeri*, *Glandularia Hookeriana*, *Verbena Hookeriana*].

John Horne (1835—1905), Scottish plant collector in Mauritius and the Fiji islands [*Vitex Hornei*].

Thomas Horsfield (1773—1859), American botanist, collected extensively in India and Java [*Callicarpa Horsfieldii*, *Clerodendrum Horsfieldii*].

George Frederick Hose (1838—1922), English missionary who collected extensively in Malaya and the Straits Settlements [*Hosea*, *Hoseanthus*].

Nicolaus Thomas Host (1761—1834), Austrian naturalist, imperial physician at Vienna, author of many works on the flora of Austria [*Hosta*, *Hostana*].

Fr. W. R. Hostmann (1794—1864), German physician at Paramaribo where he became a wealthy man and spent much of his money collecting plants in Surinam and where he died [*Citharexylum Hostmannii*].

Carl Alexander Anselm von Hügel (1794—1870), celebrated German explorer in Australia. [*Clerodendrum Hügelii*].

Friedrich Heinrich Alexander von Humboldt (1769—1859), world-famous German nobleman, naturalist, and explorer, expert in all the sciences [*Aegiphila Humboldtii*].

John Hutchinson (1884— ), contemporary English plant taxonomist, noted for his extensive work on African plants and on plant classification [*Premna Hutchinsonii*].

Thomas Henry Huxley (1825—1895), famous English naturalist and author, friend and champion of Darwin [*Huxleya*].

Arsene Isabelle (1795—1879), French naturalist, traveled and collected insects, mollusks, mammals, and plants in Argentina, Uruguay, and southern Brazil, later Uruguayan consul in France [*Verbena Isabellei*].

William Jack (1795—1822), Scottish plant collector in Bengal, India, and Malaya, died at sea in the Indian Ocean [*Clerodendrum Jackianum*, *Congea Jackiana*, *Sphenodesme Jackiana*, *Symphorema Jackianum*].

Thomas Johnson (?—1644), English apothecary and plant collector, editor of Gerard's "Herball" [*Johnsonia*].

Sir Harry Hamilton Johnston (1858—1927), English artist and naturalist, collected in Uganda, Angola, Congo, Liberia, and Kenya [*Clerodendrum Johnstoni*].

Ivan Murray Johnston (1898— ), contemporary American taxonomist, expert on the *Boraginaceae* and on the flora of temperate South America [*Verbena perennis* var. *Johnstoni*].

Pedro Jorgensen (1865—1937), distinguished Paraguayan plant collector, noted for his extensive plant collections in Paraguay and adjacent Argentina [*Citharexylum Jørgensenii*, *Lantana Jorgenseni*, *Lippia Jorgenseni*].

Sven Albert Brynolf Junell (1901— ), contemporary Swedish morphologist, noted for his important work on the gynoeceum morphology and taxonomy of the *Verbenaceae* and related families [*Junellia*, *Lantana Junelliana*].

Jurgensen, plant collector in Mexico from 1840 to 1845 about whom little is known [*Citharexylum Jurgenseni*, *Lippia Jurgenseni*].

Engelbert Kaempfer (1651—1716), German physician and botanist, collected in Persia, China, Japan, and the Sunda Islands [*Clerodendrum Kaempferi*, *Kaempfera*, *Volkameria Kaempferi*, *V. Kaempferiana*].

Wilhelm Kalbreyer (1847—1912), German plant collector in Africa and Colombia [*Clerodendrum Kalbreyeri*].

Masayasu Kanda, contemporary Japanese botanist and author [*Verbena Kondai*].

Gustav Karl Wilhelm Hermann Karsten (1817—1908), distinguished German botanist and author, collected plants in Colombia and Venezuela [*Citharexylum Karsteni*].

Conrad Keller (1848—1930), Swiss zoologist, traveler, and writer on eastern Africa [*Cyclocheilon somalense* var. *Kelleri*].

William Ashbrook Kellerman (1850—1908), American naturalist, an indefatigable collector in Guatemala, where he made very extensive and important collections and where he died; in spite of serious illness, he refused to quit his botanizing and exploration; "I think it was utter exhaustion and lack of sleep as much as malaria that caused his death. He would get up some mornings at 3 o'clock and start work"<sup>156</sup> [*Lippia Kellermani*].

José Steinbach Kemmerich (1876—1930), German naturalist, collected plants and animals in Algeria, northern Argentina, and especially Bolivia, where he died; his Bolivian plant collections are of the utmost importance [*Aegiphila Steinbachii*].

Edmund Kerber, collected plants in Mexico from 1879 to 1883, probably English [*Citharexylum Kerberi*, *Lantana Kerberi*].

Ellsworth Paine Killip (1890— ), contemporary American taxonomist of the Smithsonian Institution, made extensive botanical collections in various parts of the United States, Cuba, Peru, and Colombia, expert on *Caesalpinaceae*, *Mimosaceae*, *Passifloraceae*, and *Urticaceae* [*Aegiphila Killipi*].

Sir John Kirk (1832—1922), Welsh naturalist and explorer; on the Livingston expedition; his Upper Zambesi plants were sent to England in 1861 on the H. M. S. "Sidon" and were not heard of again until accidentally discovered in the Portsmouth dockyards in 1883 [*Clerodendrum Kirkii*, *Vitex Kirkii*].

Wilhelm Klemme (1869— ), contemporary German forester, graduate of Cornell University forest school, collected in the Philippines from 1902 to 1918 [*Clerodendrum Klemmei*].



Guillermo Klug, (—1946), natural history collector in Peru, of German-Chilean parentage, noted for his fine collections of plants and butterflies [*Aegiphila sufflava* var. *Klugii*, *Petrea pubescens* var. *Klugii*, *Vitex Klugii*].

Clarence Emmeren Kobuski (1900— ), contemporary American taxonomist and morphologist, specialist on the *Theaceae*, *Oleaceae*, and *Acanthaceae*, monographed the genus *Priva* [*Citharexylum Kobuski-anum*].

Karl Heinrich Emil Koch (1809—1879), German botanist, expert on woody plants, professor at Jena, collected in the Caucasus, Armenia, and Asia Minor [*Callicarpa Kochiana*].

Franz Kohaut (?—1822), Bohemian horticulturist, collected in Crete, Egypt, Palestine, Martinique, and Senegal, where he died [*Petrea Kohautiana*].

Sijfert Hendrik Koorders (1863—1919), distinguished Dutch forester, collected extensively in the Netherlands East Indies [*Vitex Koordersii*].

Karl Alexander von Kraatz-Koschlau (1868—1900), German geologist and mineralogist who worked in Bosnia, Spain, Portugal, and especially Brazil, where he was head of the geology and mineralogy department of the Museo Paraense and where he died of yellow fever [*Vitex triflora* var. *Kraatzii*].

P. Krook, South African plant collector about whom little is known [*Bouchea Krookii*, *Chascanum Krookii*].

Arthur Krücke, German plant collector in the Cameroons [*Vitex lokundjensis* var. *Kruekei*].

Boris Alexander Krukoff (1898— ), contemporary Russian plant collector, noted for his important collections in Brazil, the Philippines, Sumatra, and Central America, expert on economic and poisonous plants, arrow-poisons, and drug plants [*Citharexylum Krukovii*, *Vitex Krukovii*].

João Geraldo Kuhlmann, contemporary Brazilian botanist of distinction [*Petrea Kuhlmannii*].

Hermann Kunstler, German plant collector in Singapore and Perak, died in Australia [*Premna Kunstleri*, *Vitex gamosepala* var. *Kunstleri*].

Carl Sigismund Kunth (1788—1850), famous German taxonomist and author to whom collectors from all over the world sent their specimens for determination [*Citharexylum Kunthianum*].

Henry Ewing Kuylen (1891— ), contemporary British Honduran plant collector and forester who has done noteworthy plant collecting in Guatemala, Honduras, and Colombia [*Vitex Kuylenii*].

Jacques Julien Houtton de Labillardière (1755—1834), noted French collector in southern Europe, Syria, Lebanon, Cape of Good Hope, Australia, and Java [*Billardiera*].

Herman Johannes Lam (1892— ), contemporary Dutch botanist of distinction, noted for his fine work on the *Verbenaceae* of the Malay

Archipelago [*Callicarpa Lamii*, *Lantana Lamiana*, *Premna Lamii*, *Vitex Lamiana*].

Jean Baptiste Antoine Pierre Monnet de Lamarek (1744—1829), world famous French naturalist and author of scientific subjects [*Avicennia Lamarekiana*].

Aylmer Bourke Lambert (1761—1842), distinguished English horticulturist, botanist, and author [*Glandularia Lambertii*, *Verbena Aubletia* var. *Lamberti*, *Verbena canadensis* var. *Lamberti*, *V. Lambertii*].

Christian Ludwig Landbeck (1807—1890), Alsatian ornithologist, collected plants and animals in Chile, where he died [*Verbena Landbeckii*].

Jean Marie Antoine de Lanessan (1843—1919), French physician, professor of natural history, and author, governor-general of Indochina, collected plants in Indochina and Tunis [*Clerodendrum Lanessanii*].

Eugène Langlassé (?—1900), noted French botanical collector in Singapore, the Philippines, Indochina, Borneo, Mexico, and Colombia, died in Colombia [*Lantana Langlassei*].

Charles Herbert Lankester (1879— ), contemporary English naturalist and coffee planter in Costa Rica who has collected butterflies, birds, and plants in Africa, Tenerife, Brazil, and Costa Rica, specializing in orchids [*Citharexylum Lankesteri*].

D. A. Larrañaga, Uruguayan naturalist about whom little is known; [*Lantana Larranagae*].

Marcel Désiré Joseph Laurent (1879—1924), Belgian horticulturist, director of the botanical garden at Eala [*Vitex Laurentii*, *V. Welwitschii* var. *Laurentii*].

Henri Lecocq (1802—1871), French naturalist, professor of natural history and director of the botanical garden of Clermont-Ferrand, author of a work on the phytogeography of Europe [*Verbena Lecocqi*].

Paul Henri Lecomte (1856—1934), distinguished French author on plant anatomy, economic botany, and taxonomy, director of the natural history museum at Paris, expert on the plants of Indochina, collected in Angola, Rhodesia, Madagascar, and South Africa [*Clerodendrum Lecomtei*, *Gmelina Lecomtei*].

Carl Ludwig Ledermann (1875— ), contemporary Swiss horticulturist, collected plants in the Cameroons, Congo, New Guinea, and Pelew Islands [*Gmelina Ledermanni*, *Premna Ledermanni*].

Friedrich Carl Lehmann (1850—1903), German consul at Popayan, made important botanical collections in Jamaica, Central America, and Colombia [*Aegiphila Lehmannii*, *Lantana Lehmannii*].

Hermann Lehmbach, German plant collector in Cameroons in 1897 and 1898 [*Vitex Lehmbachii*].

Sir George Ruthven Le Hunt (1852—1925), Irish, government commissioner for a portion of the interior of Viti Levu, gave much assistance to Horne on the latter's collecting expeditions in Fiji, later governor of South Australia, then of Trinidad and Tobago [*Clerodendrum Lehuntii*].

Friedrich Wilhelm Ludwig Leichhardt (1813—1848), noted German explorer and collector in Australia, disappeared into the interior of that continent and was never found [*Gmelina Leichhardtii*, *Vitex Leichhardtii*].

Hugh Vandervaes Lely, English forestry officer and plant collector in Northern Nigeria [*Clerodendrum Lelyi*].

Emery Clarence Leonard (1892— ) and his wife, Genevieve Mannakee Leonard [née Mannakee] (1902— ), contemporary Americans, collected in northwestern Haiti in 1928 and 1929, the former a well-known expert on the *Acanthaceae* [*Lantana Leonardorum*].

Jean Baptiste Louis Théodore Leschenault de la Tour (1773—1826), famous French naturalist who collected plants in Australia, Timor, Java, India, Ceylon, Brazil, Guiana, and South Africa [*Trichorhiza Lechenaultii*].

Augustin Abel Hector Léveillé (1863—1918), voluminous French author on *Oenotheraceae*, *Rosa*, *Rubus*, and the plants of China [*Calli-carpa Leveilleana*].

Lewellin, Australian plant collector about whom little is known [*Chloanthes Lewellini*, *Dicrastylis Lewellini*].

John Franklin Lewis (1903— ), American naturalist and educator, specialist in lichens, ferns, and mosses, collected in Maine, New York, and Pennsylvania [*Aegiphila Lewisiana*].

Johann Lhotsky (1800—?), noted Austrian plant collector in Brazil, Tasmania, and New South Wales [*Aegiphila Lhotzkiana*].

Gustav Lindau (1866—1923), famous German taxonomist and lichenologist, author of numerous important works [*Clerodendrum Lindavianum*].

Hugo Lindemuth (1846—1908), German horticulturist [*Clerodendrum Lindemuthianum*].

Jean Jules Linden (1817—1898), famous Luxembourg botanist who collected very extensively in Cuba, Jamaica, Mexico, Guatemala, Colombia, and Brazil, discovering hundreds of new species of plants [*Citharexylum Lindenii*, *Clerodendrum Lindenianum*, *Vitex Lindenii*].

John Lindley (1799—1865), famous English horticulturist and botanical author [*Clerodendrum Lindleyi*, *Vitex Lindleyana*].

Carl Axel Magnus Lindman (1856—1928), Swedish plant collector in Brazil [*Lantana Lindmannii*, *Lippia Lindmanii*, *Verbena Lindmanii*].

K. Ling, Chinese plant collector about whom little is known [*Callicarpa Lingii*].

Carl von Linné (1741—1783), Swedish naturalist and author, son of the famous founder of modern binomial nomenclature [*Clerodendrum Linnaei*, *Glossocarya Linnaei*].

Auguste Lippi (1678—1704), Italian explorer and naturalist in Abyssinia, where he was murdered by natives [*Lippia*].

Francis Ernest Lloyd (1868— ), contemporary English professor of botany at McGill University, noted for his work on insectivorous

plants, collected in Mexico, Alaska, Dominica, Java, Sumatra, Malaya, and at Puget Sound [*Clerodendrum Lloydianum*].

Thomas Lobb (1820—1894), noted English plant collector in India and Malaya [*Clerodendrum Lobbii*, *Hosea Lobbii*, *Hoseanthus Lobbii*].

Lobkowitz, presumably a German paleobotanic collector about whom nothing is known [*Vitex Lobkowitzii*].

David Lockhart (?—1846), English horticulturist, collected in the Congo, Trinidad, and Brazil [*Lantana Lockhartii*].

Gualterio Looser (1898— ), contemporary Chilean botanist and collector, of Swiss parentage, author of numerous works on Chilean natural history [*Aloysia Looseri*].

Paul Günther Lorentz (1835—1881), German botanist noted for his collections in the Alps, in Argentina, and in Uruguay; professor of botany at Córdoba where he collected thousands of botanical and zoological specimens; after 5 years “dissatisfied with the state of things prevailing at the university, he began his lectures in 1874 with some short comments on the authorities, resulting in his dismissal from his post. Whilst planning another journey he was seized with smallpox; after his tedious recovery, being offered the professorship of natural science at Concepcion, in Uruguay, he thankfully accepted it. He spent six years in this town, describing it as a life-in-death sort of existence, varied by an occasional excursion for plants”; he died in Uruguay [*Duranta Lorentziana*, *Junella Lorentzii*, *Verbena Lorentzii*].

João de Loureiro (1710—1791), renowned Portuguese writer on the flora of Indochina [*Callicarpa Loureiri*, *Vitex Loureiri*].

August Friedrich Theodor Lucae (1800—1848), German botanist who assembled a magnificent herbarium of 40,000 specimens from 150 collectors [*Verbena Lucaeana*].

Edouard Pierre Lujá (1875— ), contemporary Luxembourg naturalist, in charge of the expedition for collecting plants for the Paris Exposition of 1900, collected in Mozambique and the Belgian Congo, specialist in entomological collecting [*Clerodendrum Lujae*].

Peter Wilhelm Lund (1801—1880), Danish zoologist, paleontologist, and botanist, noted for his collections in Brazil [*Lantana Lundiana*, *Vitex Sellowiana* var. *Lundiana*].

Cyrus Longworth Lundell (1907— ) and his wife, Amelia A. Lundell (1908— ), Americans, made very extensive and important collections in British Honduras, Mexico, and Texas, the former author of numerous important papers on the flora of those regions [*Stachytarpheta guatemalensis* var. *Lundelliana*, *S. Lundellae*, *Verbena Lundelliorum*].

Bernhard Luschnath, Russian horticulturist, noted for his plant collections in Brazil from 1831 to 1837; he sent over 2000 living plants to Leningrad [*Aegiphila Luschnathi*].

Ly, Chinese plant collector about whom little is known [*Callicarpa Lyi*].

Calixto Mabesa (1892— ), contemporary Filipino forester and wood technologist at the University of the Philippines, has done noteworthy work on the Philippine flora [*Clerodendrum Mabesae*].



Daniel Trembly MacDougal (1865— ), famous contemporary American plant physiologist, collected plants in Arizona, Idaho, and elsewhere [*Verbena MacDougalii*].

Alexander Carroll Maingay (1836—1869), English surgeon, collected plants in China, Burma, Malacca, and Malaya, murdered in a mutiny at Rangoon; "many plants he obtained at Malacca have not been re-discovered and are perhaps extinct, owing to the extension of cultivation"<sup>157</sup> [*Callicarpa Maingayi*].

Edouard Ernest Maire (1848— ), French missionary and botanical collector in China since 1872 [*Callicarpa Mairei*].

R. Maldonado B., contemporary plant collector in Argentina and Uruguay [*Lippia Maldonadoi*].

Gilbert Mandon (1799—1866), important French botanical collector in Bolivia and Madeira, brought out important specimens from the Andes [*Duranta Mandonii*].

Saverio Manetti (1723—1785), Italian botanist, director of the botanical garden at Florence, did much to bring about acceptance of Linné's system in Italy [*Clerodendrum Manetti*].

Gustav Mann (1836—1916), German plant collector in Africa and in India [*Clerodendrum Mannii*].

Hermann Wilhelm Rudolf Marloth (1855—1931), noted German plant collector in South Africa [*Volkameria Marlothii*].

Marques, Portuguese plant collector in Angola about whom little is known [*Vitex Marquesii*].

Leon François Martin (1866—1919), French missionary and botanical collector in China [*Premna Martini*].

Carl Friedrich Philipp von Martius (1794—1868), famous German botanist and explorer, author of the classic flora of Brazil [*Lippia Martiana*, *Petrea Martiana*, *Stachytarpheta Martiana*, *Vitex Martii*].

Charles Field Mason (1864—1922), brigadier-general in the United States army, chief health officer at the Panama Canal Zone [*Vitex Masoniana*].

Andrew Mathews (?—1841), English horticulturist, made important collections in Peru and Chile, author of an unpublished flora of Peru, where he died [*Aloysia scorodonioides* var. *Mathewsii*, *Lippia scorodonioides* var. *Mathewsii*, *Verbena Mathewsii*].

Benno Matthes (1825—1911), German plant collector in Texas and central United States [*Verbena Matthesii*].

D. M. Matthews, English conservator of forests in British North Borneo [*Faradaya Matthewsii*].

Eizi Matuda (1894— ), contemporary Japanese plant collector in southern Japan, southern China, Formosa, Singapore, Java, and southern Mexico, noted for his exhaustive work on the flora of Chiapas [*Clerodendrum Matudae*].

William Ralph Maxon (1877—1948), noted American fern specialist, collected in Panama [*Stachytarpheta mutabilis* var. *Maxoni*].

Floyd Alonzo McClure (1897— ), contemporary American plant collector and educator in China and Indochina [*Premna McClurei*].

Edgar Alexander Mearns (1856—1916), American naturalist, member of the Roosevelt East African Expedition, a founder of the American Ornithologists' Union, an indefatigable collector of natural history specimens in various parts of the world, and author on botanical and zoological subjects [*Lantana Mearnsii*].

Mechow, collector in Angola in 1894 about whom nothing is known [*Vitex Mechowii*].

Charles James Meller (1836—1869), English naturalist on the Livingston Expedition in Africa, collected on Madagascar and the Zambesi, died in New South Wales [*Vitex Melleri*].

Elmer Drew Merrill (1876— ), distinguished contemporary American plant taxonomist and administrator, famous for his work on the plants of the Philippines and eastern Asia [*Callicarpa Merrillii*, *Vitex Merrillii*].

Carl Heinrich Mertens (1796—1830), famous German world traveler, collected plants at Sitka, died of typhus on the return of an expedition to Iceland [*Citharexylum Mertensianum*].

Ernst Heinrich Friedrich Meyer (1791—1858), famous German botanical monographer, plant geographer, and historian, professor of botany and director of the botanical garden at Königsberg [*Priva Meyeri*].

Georg Friedrich Wilhelm Meyer (1782—1856), German botanist, professor at Göttingen, author of a flora of the Essequibo region in Guiana [*Avicennia Meyeri*].

Johannes August Theodor Meyer (1885— ), contemporary German plant collector in Tanganyika, usually referred to and cited as "Hans Meyer" [*Clerodendrum Meyeri-Johannis*].

Teodoro Meyer (1910— ), contemporary Argentinian botanist, specialist on the *Asclepiadaceae*, made the biggest collection of plants ever brought out of Chaco, also an important collector in Salta, Jujuy, Formosa, Tucumán, Río Negro, Chubut, and Santa Cruz [*Aloysia Meyeri*].

Pier' Antonio Micheli (1679—1737), famous Italian writer on the plants of Italy [*Michelia*].

Gottfried Wilhelm Johannes Mildbraed (1879— ), contemporary German collector in the Cameroons and author of numerous works on plant taxonomy and nomenclature [*Clerodendrum Mildbraedii*].

G. R. Mills, English planter at Batu Gajah, Pahang, where he collected plants around 1925 [*Vitex Millsii*].

William Grant Milne (?—1866), English botanist who accompanied Capt. Denham's voyage on the H.M.S. Herald to Fiji, later explored the region around Old Calabar and the Cameroon Mountains in west Africa, died in Nigeria [*Premna Milnei*, *Vitex Milnei*].

Elisha Mitchell (1793—1857), American naturalist, educator, and author, renowned for his pioneer exploration in North Carolina, where he died by falling from a precipice on Black Mountain; it took 200 mountaineers 11 days to recover his body; "such were the characteristics, and principal events in the life of Dr. Mitchell, one of the pioneers in scientific research in these Southern States [that] at the news of his death, men of Science marked the loss of a learned associate, while members of

our National Cabinet and Ministers to foreign countries, Senators and Representatives in Congress, Governors of our States, with the Judges and their Legislators—Ambassadors from the Court of Heaven, and men of renown in all the liberal professions, distinguished Professors, with famous school-masters and hundreds of other pupils in the more retired walks of life rose up, in all parts of our country, to do honor to their revered preceptor”<sup>158</sup> [*Priva Mitchelii*].

José Mariano Mociño [Suarez Losada] (1757—1820), Mexican plant collector, noted for his work on the plants of Cuba and Mexico [*Citharexylum Mocinni*].

Charles Edward Moldenke (1860—1935) and his wife, Sophia Meta Moldenke [née Heins] (1876— ), Americans, the former a distinguished Egyptologist, philologist, world traveler, and collector, botanized in Palestine, Europe, Egypt, Venezuela, the West Indies and various parts of the United States [*Timotocia*].

Harold Norman Moldenke (1909— ), American, co-author of the present paper [*Citharexylum Moldenkeanum*, *Clerodendrum Moldenkeanum*].

Francisco Josué Pascosio Moreno (1852—1919), Argentinian anthropologist, collected plants in Patagonia [*Verbena Morenensis*].

Pierre Gilles Morière (1817—1888), French botanist, known for his work on the flora of Normandy [*Oxera Morieri*].

Johann Wilhelm Karl Moritz (1797—1866), famous German collector in the West Indies and Venezuela [*Lantana Moritziana*, *Lippia Moritzii*].

Thomas Morong (1827—1894), American collector in Argentina, Paraguay, Chile, and the Falkland Islands [*Lippia Morongii*, *Verbena Morongii*].

Marie Georges Mortechean (1883— ), Belgian agronomist and collector in the Congo [*Premna Mortecheani*].

Conrad Vernon Morton (1905— ), contemporary American plant taxonomist specializing on the flowering plants and ferns of North America and the West Indies [*Aegiphila Mortoni*].

Münzner, German collector in Tanganyika in 1909 [*Clerodendrum Muenzneri*].

José Celestino Mutis (1732—1808), famous early Spanish plant collector in Colombia, who sent his specimens to Linné, father and son, the bulk of his herbarium ignored for 150 years, only re-discovered and studied a few years ago [*Aegiphila Mutisii*, *Duranta Mutisii*, *D. repens* var. *Mutisii*].

George Valentine Nash (1864—1921), American plant collector in the West Indies and various parts of the United States [*Nashia*].

Andrés Naves (1839—1910), Spanish Augustinian friar who did considerable work on the plants of the Philippine Islands [*Clerodendrum Navesianum*].

Louis Née (17 —18 ), French botanist who explored parts of Argentina, Chile, Uruguay, Mexico, the coast of North America to Vancouver Island, and the Philippines, collecting about 10,000 specimens [*Verbena Neei*].

Ernest Nelmes (1895— ), contemporary English librarian at the Royal Botanic Gardens, Kew, specialist on *Cyperaceae* [*Clerodendrum Nelmesianum*].

Edward William Nelson (1855—1934), American naturalist, noted for his botanical and zoological exploration of Alaska, the Arctic, and Mexico [*Bouchea Nelsonii*, *Stachytarpheta Nelsonii*].

Georg Balthasar von Neumayer (1826—1929), German author of a manual for travelers containing several botanical contributions, although not himself a botanist [*Clerodendrum Neumayeri*].

William Nicholas, assiduous English collector of plant fossils in Australia [*Dicrastyliis Nicholasii*].

Toki Nishimura, Japanese botanist and plant collector of note [*Callicarpa Nishimurae*].

Konrad Ludwig Noack (1891— ), contemporary German botanist and author [*Verbena Noackii*].

Noirot, Frenchman about whom nothing is known [*Clerodendrum Noirotii*].

Frank Oates (1840—1875), English ornithologist, collected plants and animals in South Africa, Central America, and California, died of African fever on an expedition in Southern Rhodesia [*Lippia Oatesii*].

Augustus Frederick Oldfield (1820—1887), noted English plant collector in Tasmania, New South Wales, and Western Australia [*Chloanthes Oldfieldii*, *Pityrodia Oldfieldii*, *Quoya Oldfieldii*].

Alcide Charles Victor Dessalines d'Orbigny (1802—1857), famous French scientist and explorer, traveled and collected in Argentina, Brazil, Chile, Bolivia, Peru, and Uruguay [*Aegiphila Orbignyana*].

Heman Chandler Orcutt (1825—1892), American naturalist, collected chiefly in Baja California, "always an active man, thinking of others, even those who had no claim upon him, he was esteemed in whatever community he resided. His love of nature and liberality secured to him many friends, and the work he did for the natural sciences and the encouragement he gave to the study still lives, and gives an impetus which quietly but surely will aid in its progress during uncounted years to come"<sup>159</sup> [*Verbena Orcuttiana*].

Gonzalo Fernandez de Oviedo y Valdés (1478—1557), early Spanish naturalist, collected plants in Italy, Hispaniola, and Colombia, governor of Cartagena and Santo Domingo, said to have been the first writer on American plants [*Ovieda*].

Edward Palmer (1831—1911), famous English plant collector in Florida, California, Arizona, and Mexico, brought out one of the most important collections of plants ever made in Mexico and the southwestern United States [*Bouchea Palmeri*, *Lippia Palmeri*].

Jean Armand Isidore Pancher (1814—1877), noted French botanist who collected in Tahiti, New Caledonia, and New Zealand, died in New Caledonia [*Oxera Pancheri*].

Alexis John Panshin (1901— ), contemporary Russian forester, expert on wood anatomy and technology [*Vitex Panshiniana*].



Lorenzo Raimundo Parodi (1895— ), contemporary Argentinian botanist of distinction and extensive collector [*Glandularia Parodii*, *Parodianthus*, *Verbena Parodii*].

Georg Paürle (1490—1555), German naturalist who wrote under the pseudonym "Joannes Agricola" [*Agricolaea*].

José Antonio Pavon (?—1844), famous Spanish botanist and explorer in Peru and Chile; plants accredited to him from Cuba, the West Indies, and Mexico were in reality collected by other Spanish botanists [*Aegiphila Pavoniana*, *Lantana Pavonii*, *Lippia Pavoniana*].

Richard William Pearce (?—1868), noted English plant collector for Veitch, botanized in Bolivia, Chile, and Peru, died of fever in Panama [*Duranta Pearcei*].

Henry Harold Welch Pearson (1870—1916), distinguished English botanist, famed for his work on South African plants; his untimely death was a severe blow to botanical science [*Clerodendrum Pearsoni*, *Vitex Pearsonii*].

Peekel, Dutch plant collector in the Bismark Archipelago from 1911 to 1925 [*Clerodendrum Peekelii*, *Premna Peekelii*].

Chien P'ei (1903— ), contemporary Chinese plant taxonomist, noted for his monograph of the *Verbenaceae* of China [*Clerodendrum Peii*].

Sir Henry Pelham Fiennes Pelham-Clinton, Earl of Lincoln, 5th Duke of Newcastle-under-Lyme (1811—1864), sympathetic English patron of the natural sciences, influential in the revival of Kew under Hooker [*Newcastlia*].

Charles William Theodore Penland (1899— ), contemporary American biologist, collected plants in Ecuador [*Duranta Penlandi*].

Francis Whittier Pennell (1886— ), distinguished contemporary American plant taxonomist and specialist on the *Scrophulariaceae* and other groups, collected in Pennsylvania, Mexico, and Colombia [*Aegiphila Pennellii*].

Juan Tomás Perak (1916—1943), ill-starred Argentinian geneticist, who did noteworthy experimentation on the effect of colchicine on diploid species of cultivated plants, the duplication of chromosomes, obtained tetraploid maize, experimented on mutations induced by short-wave radiations, x-rays, and ultra-violet rays, died of radiation poisoning at the University of Missouri [*Glandularia Perakii*, *Verbena Perakii*].

Baron Pierre Eugène Perrier de la Bâthie (1825—1916), French botanist who worked on the plants of the Alps, Savoy, and Madagascar [*Vitex Perrieri*].

Perrin (17 —18 ), French botanical collector in the West Indies about 1808 concerning whom little is known [*Baeobotrys Perriniana*].

Lily Mae Perry (1895— ), contemporary Canadian botanist now working at the Arnold Arboretum, author of a monograph of the North American species of *Verbena* [*Verbena Perriana*, *Vitex Perriana*].

Auguste Pervillé, French horticulturist at the Paris museum, collected in Madagascar and the Seychelles from about 1837 to 1840 [*Vitex Pervillei*].

Pételot (1885—), French botanist, professor of botany at the university of Hanoi since 1924, collected extensively in Indochina [*Callicarpa Petelotii*].

Wilhelm Carl Hartwig Peters (1815—1883), German plant collector in Mozambique [*Vitex Petersiana*].

Antoine Petit (?—1843), French zoologist, collected plants and animals in Abyssinia, devoured by a crocodile while crossing the Blue Nile [*Lantana Petitiona*].

François Pourfour du Petit (1664—1741), early French medicinal writer [*Petitia*].

Baron Robert James Petre (1713—1743), famous English horticulturist, built up a magnificent collection of exotic plants and was called "the Phoenix of this age" by Collinson; Linné spoke of his death as one of the greatest losses ever suffered by English botany or horticulture<sup>160</sup> [*Petrea*].

Rudolf Amandus Philippi (1808—1904), famous German botanist and collector in Chile, author of many valuable papers on the plants of that country [*Verbena Philippiana*].

Louis Picarda (1848—1901), French naturalist, professor of natural history at Port-au-Prince, made a fine collection of Haitian plants [*Clerodendrum Picardae*].

Dom Bento José Pickel (1890— ), contemporary German botanist and forester, professor in the agricultural college at Tapera and taxonomist at São Paulo, has collected considerably in the Brazilian states of Pernambuco, Parahyba, and São Paulo [*Lippia Pickelii*].

Jean Baptiste Louis Pierre (1833—1905), French botanist, born on the island of Réunion, famous for his work on the flora of CochinChina [*Clerodendrum Pierreanum*, *Premna tomentosa* var. *Pierriana*, *Sphenodesme Pierrei*, *Vitex Pierreana*, *V. Pierrei*].

Adolf Samoilovic Pitra (1830—1889), Russian professor of botany at the University of Kharkov, noted for his work in plant physiology [*Pitraea*].

Henri François Pittier de Fabrega (1857— ), distinguished Swiss botanist famed for his extensive work on the flora of Costa Rica and Venezuela [*Clerodendrum Pittieri*].

Plato (427—348 B. C.), famous Greek philosopher [*Platonina*].

Charles Plumier (1646—1704), famous French naturalist, royal botanist to King Louis XIV, made three trips to the West Indies and published on the plants and animals of that region [*Citharexylum Plumieri*, *Duranta Plumieri*].

Eduard Friedrich Poeppig (1798—1868), famous German naturalist, professor and director of the zoological garden at Leipzig, collected in Cuba, Peru, Chile, Brazil, and the United States [*Citharexylum Poeppigii*, *Petitia Poeppigii*, *Poeppigia*].

Karl Pogge, German collector in Southwest Africa from 1882 to 1907 [*Clerodendrum Poggei*, *Vitex Poggei*].

Johann Emanuel Pohl (1782—1834), Czechoslovakian botanical collector of distinction, gathered material of 4000 species in Brazil [*Lantana Pohliana*, *Lippia Pohliana*, *Stachytarpheta Pohliana*].

Eugène Poilane (1887— ), contemporary French plant collector who has collected over 32,000 numbers of plant specimens in French Indochina [*Callicarpa Poilanei*].

Thomas Powell (1817—1887), English missionary and naturalist, worked in the New Hebrides, Gilbert and Ellice Islands, Australia, and other parts of Oceania, noted for his valuable work on the plants and animals, mythology, and anthropology of Samoa; "wherever duty called to danger, he was ready and heroic, landing freely and unarmed on heathen shores, and moving about among the natives. On one occasion, and at the risk of his life, he grappled with a savage to rescue a young widow from being strangled on the death of her husband, but he was overpowered by the excited crowd, knocked to one side, and driven away from the horrid scene. This, however, was one of the deathblows to that cruel form of Sutteism on Aneiteum";<sup>170</sup> he prepared a manuscript manual on the zoology of Samoa in the native dialect, but it was lost on a guano ship which left Samoa for England and was never heard of again [*Clerodendrum Powellii*, *Faradaya Powellii*].

Karel Boriwog Presl (1794—1852), Czechoslovakian taxonomist and botanical author of note, professor of botany at Prague [*Clerodendrum Preslii*].

Paul Rudolf Preuss (1861— ), Polish plant collector in Sierra Leone, Ceylon, Java, New Guinea, and tropical America, founder of the botanical garden at Victoria, Cameroons [*Clerodendrum Preussii*].

Cyrus Guernsey Pringle (1838—1911), American botanist, famous for his wonderful collecting in the southwestern United States and Mexico, brought out one of the most extensive and valuable collections ever made in Mexico [*Callicarpa Pringlei*, *Citharexylum Pringlei*, *Lippia Pringlei*].

Hesketh Prichard, English plant collector in Patagonia [*Verbena Pritchardi*].

Von Prittwitz, German plant collector in Tanganyika from 1874 to 1904 [*Clerodendrum Pritwitzii*].

August Adriaan Pulle (1878— ), contemporary Dutch botanist of distinction, noted for his work on the flora of Surinam [*Geunsia Pullei*].

Joseph Anton Purpus (1860—1932), noted German plant collector in Mexico [*Cornutia grandifolia* var. *Purpusi*].

Léon Pynaert (1876— ), contemporary Belgian botanist, director of the botanical garden at Eala and honorary director of the Jardin Colonial at Laeken [*Clerodendrum Pynaertii*].

Ellen Dorothy Quillan [née Schulz] (1892— ), American plant collector in Texas [*Aloysia ligustrina* var. *Schulzii*, *Lippia ligustrina* var. *Schulzii*].

Jean Rémy Constant Quoy (1790—1869), French naturalist and zoologist, accompanied Freycinet on his voyage of exploration in 1819 and Captain Dumont d'Urville to the South Seas [*Quoya*].

Ludwig Adolph Timotheus Radlkofer (1829—1927), famous German authority on the *Sapindaceae* and prolific writer on botanical subjects [*Stachytarpheta Radlkoferiana*].

last 40 years of his life and devoted himself to scientific work [*Duranta Raimondii*].

Ramiz, Brazilian friend of Glaziou about whom nothing is known [*Citharexylum Ramizii*].

René Rapin (1621—1687), early French Jesuit writer on gardening [*Rapinia*, *Vitex Rapini*].

Samuel James Record (1881—1945), distinguished American forester and wood technologist, expert on the structure and identification of woods [*Recordia*].

John Reeves (1774—1856), noted English plant collector at Canton and Macao [*Callicarpa Reevesii*].

Anders Fredrik Regnell (1807—1884), well-known Swedish explorer and naturalist, lived and collected in Brazil for 44 years, where he died [*Vitex Regnelliana*].

Alfred Rehder (1863— ), famous contemporary German-American botanist, authority on the taxonomy and bibliography of woody plants, especially those of China [*Rehdera*].

Rehmann, German missionary and plant collector in Transvaal from 1875 to 1880 [*Clerodendrum Rehmanni*, *Lantana Rehmanni*, *Lippia Rehmanni*, *Vitex Rehmanni*].

Carl Friedrich Reiche (1860—1929), distinguished German plant collector in Mexico and Chile [*Aloystia Reichii*].

Eduard Martin Reineck (1869—1931), German plant collector in Brazil [*Lantana Reineckii*, *Verbena Reineckii*, *V. rigida* var. *Reineckii*, *V. venosa* var. *Reineckii*].

Ynes Henriquetta Julietta Reygadas [née Mexia] (1870—1938), distinguished American plant collector; her father was a Mexican general and diplomat; she made 5 collecting trips to Mexico, one to Alaska, and 2 to Brazil, Peru, Chile, and Ecuador, collected about 9300 numbers and 150,000 botanical specimens; became fatally ill in the mountains of Oaxaca [*Clerodendrum ternifolium* var. *Mexiae*, *Stachytarpheta Mexiae*, *Vitex Mexiae*].

Hendrik Adriaan van Rheede tot Drakestein (1637—1691), famous early Dutch botanical collector in Malabar, died at sea [*Callicarpa Rheedei*, *Gmelina Rheedii*, *Vitex Rheedii*].

Henry Nicholas Ridley (1855— ), distinguished English plant taxonomist, explored and collected in Fernando de Noronha, Cocos, and Christmas Islands, Java, Borneo, Sumatra, and all parts of Malaya, famed for his work on the flora of the Malay Archipelago [*Callicarpa Ridleyi*, *Clerodendrum Ridleyi*, *Premna Ridleyi*].

J. G. Fr. Riedel (1832—1911), born in North Celebes, educated in Holland, a civil service officer in the Netherlands East Indies, lived and collected plants in Celebes, New Guinea, Timor, Amboina, and Borneo [*Clerodendrum Riedelii*, *Petraeovitex Riedelii*].

Ludwig Riedel (1790—1861), German plant collector in Brazil, where he botanized for 40 years and died [*Aegiphila Riedeliana*, *Lantana Riedeliana*, *Lippia Riedeliana*, *Riedelia*].

August Rimbach (1862— ), German botanist, noted for his im-



portant collections in Ecuador and Uruguay [*Aegiphila Rimbachii*; *Citharexylum Rimbachii*].

A. Ringoet (1889— ), contemporary Belgian agronomist, chief of the national agronomy service of the Belgian Congo [*Clerodendrum Ringoeti*, *Vitex Ringoeti*].

Robecchi, Italian collector in northern Africa [*Clerodendrum Robecchii*].

Benjamin Lincoln Robinson (1864—1935), well-loved American plant taxonomist, worked extensively on the flora of North America, Mexico, and the Galapagos Islands [*Stachytarpheta Robinsoniana*].

Charles Budd Robinson, Jr. (1871—1913), ill-starred Canadian plant collector, noted for his botanical exploration on the Philippine Islands and Dutch East Indies, murdered by natives on Amboina, his body cast into the sea and never recovered; tales of his having been devoured by cannibals are apparently untrue [*Clerodendrum Robinsonii*, *Sphenodesme Robinsonii*].

Frans Hubert Edouard Arthur Walter Robyns (1901— ), distinguished contemporary Belgian botanist, director of the botanical garden at Brussels [*Vitex Robynsi*].

D. Rodriguez, noteworthy Argentinian plant collector noted for his work on the plants of Salta, Tucumán, and Misiones [*Lippia Rodriguezii*].

Leonard Rodway (1853—1936), English dental surgeon and botanist in Tasmania, where he died [*Lachnostachys Rodwayi*].

Karl Ferdinand Roemer (1818—1891), German professor of geology and paleontology at Breslau, collected in and wrote on the paleontology of Tennessee and Texas [*Verbena canescens* var. *Roemeriana*, *V. Roemeriana*].

Juan Tomás Roig y Mesa (1878— ), contemporary Cuban botanist, specialist on woody and medicinal plants [*Callicarpa Roigii*].

George Thomas Rollisson (1843—1883), English horticulturist, died a suicide [*Clerodendrum Rollissoni*, *C. speciosum* var. *Rollissoni*].

William Roscoe (1753—1831), English horticulturist, founder of the Liverpool botanical garden [*Roscoea*].

John Nelson Rose (1862—1928), and his son, Joseph Sims Rose (1889— ), American plant collectors in Mexico [*Citharexylum Rosei*].

A. von Rosthorn, German plant collector in China in 1891 [*Callicarpa Bodinieri* var. *Rosthornii*, *C. longifolia* var. *Rosthornii*].

William Roxburgh (1751—1815), famous Scottish botanist, collected plants at the Cape of Good Hope, St. Helena, and in India, author of a flora of India [*Callicarpa Roxburghiana*, *C. Roxburghii*, *Premna Roxburghiana*, *Vitex peduncularis* var. *Roxburghiana*].

Karl Rudolph (1881—1937), Czechoslovakian paleobotanist and plant geographer [*Premna mooiensis* var. *Rudolphi*].

Johann Moritz Rugendas (1799—?), German artist who accompanied Langsdorff in Brazil from 1821 to 1825, then resided in Italy and Sicily from 1827 to 1829, returned to South America and traveled there from 1831 to 1846 [*Citharexylum Rugendasii*].

Georg Everard Rumpf [or Rumphius] (1628—1702), famous German collector in the Dutch East Indies, lost all his collections by fire

and shipwreck, died on Amboina [*Avicennia marina* var. *Rumphiana*, *A. Rumphiana*, *Clerodendrum Rumphianum*].

Robert Runyon (1881— ), contemporary American plant photographer at Brownsville, Texas, noted for his thorough collections of the flora of Cameron County [*Verbena Runyoni*].

Henry Hurd Rusby (1855—1940), distinguished American pharmacognocist, plant taxonomist, and explorer; he explored and botanized extensively in various parts of the United States, Mexico, Venezuela, Brazil, and Bolivia; a valiant fighter for pure food and drug laws; discovered and described over 400 new species of plants, mostly from Bolivia, to which country he made his last expedition at the age of 64; author of several books, including "Jungle Memories"; was several times reported as dead, was once placed, while in a coma from fever, in an open grave by his native guides, who sat about at the edge of the grave waiting for him to die, but recovered; an indefatigable and indomitable fighter for what he believed to be right, a key to his character is seen in these words of his written in a letter to a student "I can not say too strongly that in my opinion the first and most important consideration is absolute loyalty in adhering to principle. This does not mean stubbornness in having your own way when the decision is against you. It may be necessary to yield in practice, but you are not compelled to admit a wrong principle. Unfortunately honesty frequently does not yield results which are sufficiently immediate to warrant the old adage. Perhaps the dishonest people do win at the expense of the others, yet I would adhere to the honest course to the very end as the ultimate good of humanity depends on that sacrifice and the one object of life is the improvement of human character"<sup>161</sup> [*Bouchea Rusbyi*, *Clerodendrum Rusbyi*, *Lantana Rusbyi*, *Vitex Rusbyi*].

Paul George Russell (1889— ), contemporary American botanist, collected plants in Mexico [*Verbena Russellii*].

Louis Martin Robert Rutten (1884— ), contemporary Dutch geologist and paleontologist, collected plants in Cuba and the Netherlands East Indies [*Premna Ruttenii*].

Per Axel Rydberg (1860—1931), Swedish botanist, famous for his work on the Middle West and Rocky Mountains region of the United States; monographer of *Physalis*, *Rosaceae*, *Fabaceae*, *Carduaceae*, and other groups of the North American flora; a tireless worker in spite of physical handicaps and the spiteful animosity of some of his colleagues [*Verbena Rydbergii*].

Ramón de la Sagra (1798—1871), Spanish botanist, director of the botanical garden at Havana, noted for his work on Cuban plants [*Clerodendrum Sagraei*].

E. Sahelangi, native chief of a district of Minahassa, North Celebes, assisted S. H. Koorders during his botanical investigations of that region in 1894-1895 [*Clerodendrum Sahelangi*].

Auguste François César Prouvençal de Saint-Hilaire (1779—1853), famous French naturalist and explorer in Brazil and Uruguay, collected about 7600 numbers of plants [*Hilairanthus*].

Philipp Salzmann (1781—1851), noted German plant collector in Brazil from 1827 to 1830 [*Lippia Salzmanni*].

Theophilus Sampson (1831—1897), English plant collector who botanized in China for 31 years [*Vitex Sampsoni*].

Noel Yvri Sandwith (1901— ), contemporary English plant taxonomist, specialist on the *Bignoniaceae*, ardent worker on the plants of the New World, collected in British Guiana [*Lippia Sandwithiana*].

Joseph Sylvestre Sauget, Brother León (1871— ), French botanist of distinction, indefatigable worker on the flora of Cuba, expert on palms [*Callicarpa Leonis*].

Johann Conrad Schauer (1813—1848), famous German taxonomist, monographer of the *Verbenaceae* [*Avicennia Schaueriana*, *Lippia Schaueriana*, *Stachytarpheta Schaueri*, *Vitex Schaueriana*].

Georg Scheffler (?—1910), German plant collector in Africa, where he died [*Clerodendrum Scheffleri*].

Federico Schickendantz (1837—1896), German naturalist, collected extensively in Argentina, where he died [*Lippia Schickendantzii*].

Schiffer, German plant collector in Africa about whom little is known [*Clerodendrum Schifferi*].

Georg Heinrich Wilhelm Schimper (1804—1878), German naturalist, settled in Abyssinia in 1835 and botanized there until his death [*Lippia Schimperii*, *Premna Schimperii*].

H. J. F. Schimpff, German plant collector in Ecuador in 1934 [*Aegiphila Schimpffii*].

Diederich Franz Leonhard von Schlechtendal (1794—1866), German botanist of distinction, professor of botany and director of the botanical garden at Halle, author with Chamisso of many botanical papers [*Lippia Schlechtendalii*].

Frederich Richard Rudolf Schlechter (1872—1925), famous German collector in Africa, Sumatra, Java, Borneo, Malacca, New Guinea, and the Bismark Archipelago [*Bouchea Schlechteri*, *Chascanum Schlechteri*, *Clerodendrum Schlechteri*, *Gmelina Schlechteri*, *Vitex amboniensis* var. *Schlechteri*, *V. Schlechteri*].

H. J. Schlieben, German plant collector in Tanganyika in 1935 [*Clerodendrum Schliebenii*, *Premna Schliebenii*].

Louis Joseph Schlim, famous Luxembourg plant collector in Cuba, Jamaica, Colombia, and Venezuela [*Callicarpa Schlimii*, *Lippia Schlimii*, *Vitex Schlimii*].

Ernest Johannes Schmidt (1877—1933), famous Danish oceanographer, collected plants in Siam, co-author of a text on bacteriology, explored the Mediterranean, Atlantic, Caribbean, Gulf of Panama, China Sea, and Indian Ocean, as well as New Zealand, the Sunda Islands, Moluccas, and Cape of Good Hope; investigated the species and races of fish, their migrations, times and places of breeding, and larval and post-larval development; famous for his discovery of the breeding-place of eels [*Clerodendrum Schmidtii*].

Benno Julio Christian Schnack (1910— ), contemporary Argentinian

tinian botanist, specialist in the genetics of cultivated plants and the taxonomy of the *Verbenaceae* [*Verbena Schnackii*].

Sir Moritz Richard Schomburgk (1811—1890), brother of the next, famous German collector in Guiana (1840) and then Australia, where he became director of the botanical garden at Adelaide and where he died [*Petrea Schomburgkiana*, *Vitex Schomburgkiana*].

Sir Robert Herman Schomburgk (1804—1865), famous German naturalist and collector in the West Indies and British Guiana (1835—1844), Siam, and Malaya [*Lippia Schomburgkiana*].

Arthur Carl Victor Schott (1814—1875), German naturalist, traveled and collected in southern Europe, Hungary, Turkey, Arabia, southwestern United States, Mexico, and Colombia; "a man of many talents, a good linguist, an accomplished scholar and artist, and a thorough naturalist . . . an indefatigable worker, careful and systematic in his methods, and untiring in his efforts to advance the cause of science"<sup>162</sup> [*Citharexylum Schottii*].

Heinrich Wilhelm Schott (1794—1865), Moravian botanist of distinction, collected plants in Austria and Brazil [*Stachytarpheta Schottiana*].

Arnold Schultze, German plant collector in Cameroons from 1906 to 1911 and in Colombia from 1926 to 1928 [*Clerodendrum Schultzei*].

Augusto Gustavo Schulz (1899— ), contemporary Argentinian botanist and educator, noted for his extensive collecting in and publications on the flora of the Chaco region, carried on under great handicaps and difficulties [*Aloysia Schulziana*].

Otto Eugen Schulz (1874—1936), distinguished German taxonomist, authority on *Melilotus*, *Brassicaceae*, *Erythroxylaceae*, and other groups [*Citharexylum Schulzii*].

Georg August Schweinfurth (1836—1925), born in Latvia of German parents; noted botanist, zoologist, geologist, anthropologist, and geographer; famous for his work in eastern central Africa, Libya, Eritrea, Egypt, and Arabia; "Schweinfurth's journey, which lasted three years [to east central Africa] was one of the most fruitful ever carried out by a traveller in Africa"<sup>163</sup> [*Clerodendrum Schweinfurthii*, *Vitex Schweinfurthii*].

Benedetto Scortechini (1845—1886), Italian plant collector in Australia, Indochina, the Straits Settlements, and Malaya, died at Calcutta [*Petraeovitex Scortechini*, *Vitex gamosepala* var. *Scortechinii*].

J. Séguin, French plant collector in China [*Callicarpa Seguinii*].

Franz Seiner, German plant collector in Southwest Africa [*Vitex Seineri*].

Friedrich Sellow (1789—1831), German botanical collector, botanized for 17 years in Uruguay and Brazil, where he died; his collections are among the most important ever brought out of those countries [*Aegiphila Sellowiana*, *Aloysia Sellowii*, *Camara Sellowiana*, *Lantana Sellowiana*, *Lippia Sellowii*, *Stachytarpheta Sellowiana*, *Verbena Selloi*, *Vitex Sellowiana*].



Félix Seret (1875—1910), Belgian agronomist in the colonial service, collected plants in the Belgian Congo [*Clerodendrum Sereti*, *Vitex Sereti*].

Martín Sessé y Lacasta (?—1809), famous Spanish plant collector in Vancouver, Nicaragua, Cuba, Puerto Rico, and especially Mexico [*Citharexylum Sessaei*].

John Adolph Shafer (1863—1918), noted American plant collector in the West Indies, Argentina, Paraguay, and parts of the United States; "Dr. Shafer's several Cuban botanical collections, taken all together, are the largest ever made and studied from that island, and in scientific importance are second only to those of Charles Wright . . . they contain specimens of several hundred species new to science"<sup>164</sup> [*Callicarpa Shaferi*, *Pseudocarpidium Shaferi*, *Vitex Shaferi*].

William Sherard [né Sherwood] (1659—1728), English pupil of Tournefort, collected in England, France, Switzerland, and Turkey, founded the Chair of Botany at Oxford, wrote under the pseudonym "Simon Warton, Anglus" [*Sherardia*].

Myrle Eunice Sherod [née Grenzebach], contemporary American monographer of the genus *Bouchea* [*Citharexylum Grenzebachianum*].

Homi Shirasawa, Japanese botanist and writer on the woody plants of Japan [*Callicarpa Shirasawana*].

Forrest Shreve (1878— ), distinguished American ecologist and plant collector in northern Mexico and southwestern United States [*Citharexylum Shrevei*, *Verbena Shrevei*].

Robert James Shuttleworth (1810—1874), English conchologist and critical botanist, collected in Ireland, Switzerland, and France, assembled one of the largest personal herbaria of his time [*Schuttellworthia*, *Shuttleworthia*].

Philipp Franz von Siebold (1796—1866), famous German botanist and collector in Japan and the East Indies [*Callicarpa Sieboldii*].

Antonio Luiz Patricio de Silva Manso (1788—1818), noted Brazilian physician and botanist [*Casselia Mansoi*, *Timotocia Mansoi*].

Don Thomas Xavier de Lima Wogueira Vasconcellos Telles de Silva, 14th Viscount de Villa Nova, 1st Marquis de Ponte de Lima (1727—1800), Portuguese finance minister [*Limia*].

Philippo Silvestri, celebrated Argentinian zoologist and collector [*Juncellia Silvestrii*, *Verbena Silvestrii*].

Simond, French botanical collector in Indochina [*Callicarpa Simondii*].

Abu Ali Alhoshian Ben Sina (980—1037), famous Persian physician and naturalist [*Avicennia*].

Carl Johan Frederik Skottsberg (1880— ), contemporary Swedish botanist and explorer, collected in Europe, United States, Chile, Juan Fernandez Islands, Hawaii, Japan, Fiji, New Zealand, Easter Island, and other parts of Oceania [*Duranta Skottsbergiana*].

Alexander Frank Skuteh (1904— ), contemporary American ornithologist and botanist, collected in Jamaica, Central America, and Ecuador [*Aegiphila Skutchii*].

John Kunkel Small (1869—1938), distinguished American botanist, expert and prolific writer on the flora of the southern United States [*Citharexylum fruticosum* var. *Smallii*].

Albert Charles Smith (1906— ), contemporary American taxonomist, collected in Brazil, Colombia, Peru, and the Fiji Islands [*Aegiphila Smithii*].

John Donnell Smith (1829—1928), American naturalist, collected in and assembled a huge collection of the plants of Central America, the West Indies, and United States [*Citharexylum Donnell-Smithii*].

Emil Heinrich Snethlage, German plant collector in Brazil in 1925 [*Vitex Snethlagiana*].

Jakob Reinbold Spielmann (1722—1783), Alsatian professor of chemistry, botany, and materia medica at Strassbourg [*Spielmannia*].

Richard Spruce (1817—1893), famous English explorer and collector in South America, where he botanized for 15 years [*Aegiphila Spruceana*, *Amasonia Spruceana*, *Duranta Sprucei*, *Lantana Sprucei*, *Stachytarpheta Sprucei*, *Vitex Sprucei*].

Roy White Squires, American plant collector in Venezuela, friend of Rusby [*Clerodendrum Squiresii*].

Gerold Stahel (1887— ), contemporary Dutch naturalist in Suriname [*Vitex Stahelii*].

Paul Carpenter Standley (1884— ), distinguished contemporary American taxonomist, expert on the *Rubiaceae* and *Chenopodiaceae*, collected extensively and a prolific writer on the flora of Mexico and Central America [*Aegiphila Standleyi*, *Citharexylum Standleyi*, *Clerodendrum Standleyi*].

Alois Staudt (?—1897), German plant collector in Cameroons, where he died [*Vitex Staudtii*].

Alban Stewart (1875— ), contemporary American collector in the Galapagos Islands [*Verbena Stewartii*].

Julian Alfred Steyermark (1909— ), contemporary American taxonomist, has done splendid collecting in Central America and various parts of the United States [*Citharexylum Steyermarkii*].

Adolf Ferdinand Stolz (1871—1917), South African Moravian missionary, collected plants in Nyasaland and Tanganyika [*Clerodendrum myricoides* var. *Stolzei*].

Harvey Elmer Stork (1890— ), contemporary American botanist, specialist in the cytology of fungi and in wood anatomy, collected in Costa Rica and Peru [*Cornutia grandifolia* var. *Storkii*].

Stricker, German bookseller in Berlin, friend of Hildebrandt [*Vitex Strickeri*].

Franz Ludwig Stuhlmann (1868—1928), German plant collector in eastern Africa [*Clerodendrum rotundifolium* var. *Stuhlmanni*, *C. Stuhlmanni*].

Wilhelm Nikolaus Suksdorf (1850—1932), distinguished German plant collector in Iowa, California, Montana, Oregon, and Washington [*Verbena Suksdorfi*].

Harvey Adam Surface (1867—1941), distinguished American zoologist and educator expert in economic entomology, plant pathology, and all phases of nature study [*Aegiphila Surfaceana*].

Henry Knute Svenson (1897— ), born in Sweden of American parents, expert on the *Cyperaceae*, collected plants in Ecuador and the Galapagos Islands [*Citharexylum Svensonii*, *Lantana Svensonii*, *Stachytarpheta Svensonii*, *Svensonia*].

Jason Richard Swallen (1903— ), contemporary American agrostologist, collected plants in Brazil [*Petrea Swalleni*].

Olof Peter Swartz (1760—1818), famous Swedish botanist, collected in Sweden, Finland, Gotland, North America, Cuba, and Jamaica, wrote prolifically on fungi, lichens, mosses, ferns, orchids, and the flora of the West Indies [*Aegiphila Swartziana*].

Charles Francis Massey Swynnerton (1877—1938), English naturalist, collected in Southern Rhodesia, famous for his research on the tsetse fly, died in an airplane accident in Tanganyika while on a tsetse fly survey [*Clerodendrum Swynnertonii*, *Vitex Swynnertonii*].

Percy Amaury Talbot (1877— ), English plant collector in Southern Nigeria [*Clerodendrum capitatum* var. *Talbotii*, *C. Talbotii*].

Taquet, French plant collector in Korea in 1911 [*Callicarpa Taquetii*].

Ralph Tate (1840—1900), English, "the accomplished and unwearied Professor of Natural Sciences in the University of Adelaide"<sup>165</sup>, died in Australia [*Tatea*].

A. J. Teague, English plant collector in Southern Rhodesia in 1915 [*Clerodendrum Teaguei*].

Edward Teas, (1870— ), contemporary American nurseryman of Houston, Texas [*Verbena Teasii*].

Francis Paul Louis Alexander, Duke of Teck (1837—1900), born in Austria, president of the Royal Horticultural Society of England and an influential supporter of horticulture [*Chloanthes Teckiana*, *Pityrodia Teckiana*].

Johannes Elias Teijsmann (1809—1882), Dutch forester and plant collector in the East Indies, died in Java [*Teijsmanniodendron*].

Tén, Chinese botanist and collector in Yünnan, China, in 1917 and 1918 [*Premna Tenii*].

Günther Tessmann, German ethnographer, collected in west tropical Africa and Peru [*Clerodendrum Tessmannii*].

Augustin Clément Tétéau, Brother Clément Joseph (1878— ), contemporary French priest noted for his excellent plant collecting in Cuba [*Vitex Clementis*].

Theophrastos Eresios (370—285 B.C.), famous Greek philosopher and naturalist [*Elaeagnum Theophrasti*].

Berthold Ernst Friedrich Thomas (1910— ), contemporary German botanist, ecologist, and agricultural chemist, monographer of the African species of *Clerodendrum* [*Clerodendrum Thomasii*].

Miss Thomas, Australian plant collector about whom little is known [*Dicrastylis Thomasiae*].

René Léon Xavier Thomas (1893— ), Belgian forester and agricuturist, collected and published on the forest flora of Belgian Congo [*Vitex Thomasi*].

Mrs. W. C. Thomson (1836—1858), wife of a Presbyterian missionary at Old Calabar, Nigeria, who died there at the age of 22; her husband asked that the plant, a favorite of hers, he named in her honor; it is now one of our most popular cultivated vines [*Clerodendrum Thomsonae*].

Franz Thonner (1863— ), Austrian botanist who collected in and published on the plants of Europe and Africa [*Clerodendrum Thonneri*, *Vitex Thonneri*].

Clovis Thorel (1833—1911), French plant collector in Indochina [*Premna Thorelii*, *Sphenodesme Thorelii*, *Vitex Thorelii*].

George Henry Kendrick Thwaites (1812—1882), English botanist, director of the Peradeniya botanical garden, collected and died in Ceylon [*Premna Thwaitesii*].

Adolphe Tonduz (1862—1921), famous Swiss collector in Costa Rica and Guatemala, where he died [*Avicennia Tonduzii*].

Tonini, Argentine collector in Patagonia from 1882 to 1884 [*Verbena Toninii*].

Rubén Torres Rojas (1890— ), contemporary Costa Rican naturalist and educator, rector of the national university, noted for his botanical and zoological collecting in Costa Rica [*Lippia Torresii*].

John Torrey (1796—1873), famous American botanist, educator, and author, well-known for his work with Asa Gray on the plants of the United States [*Torreyia*].

Charles Haskins Townsend (1859—1944), American zoologist, director of the New York Aquarium, collected plants in Alaska and the Galapagos Islands [*Verbena Townsendii*].

Richard Thomas Tracy (182?—1873?), learned Irish professor of obstetrics at the University of Melbourne and botanical collector [*Clerodendrum Tracyanum*, *Premna Tracyana*, *Vitex Tracyana*].

Henry Trimen (1843—1896), English botanist famous for his work on the plants of Ceylon [*Stachytarpheta Trimeni*].

H. T. Tsai, well-known contemporary Chinese botanical collector of the Fan Memorial Institute of Biology, collected 12,000 numbers in Yünnan, China [*Clerodendrum Tsaii*].

Nicolaus von Turczaninow (1796—1864), famous Russian botanist, voluminous writer on Russian plants and general taxonomy [*Cyanostegia Turczaninowii*, *Vitex Turczaninowii*, *Viticipremna Turczaninowii*].

James Tweedie (1775—1862), distinguished Scottish collector in southern Brazil, Uruguay, and Argentina, where he died [*Verbena plogiflora* var. *Tweediana*, *V. Tweediana*].



Ernst Heinrich Georg Ule (1854—1915), famous German collector in Amazonian Brazil and Peru, discoverer of many new species [*Citharexylum Ulei*, *Clerodendrum Ulei*].

Ignatz Urban (1848—1931), famous German taxonomist at Berlin, noted for his critical work on the plants of the West Indies [*Citharexylum Urbanii*, *Petitia Urbanii*, *Urbania*].

Sergiei Semenovich Uvarov (1786—1855), famous Russian minister of education, during whose tenure of office Kieff University was established and the custom of sending young scientists abroad was revived, founder of an educational journal [*Uwarowia*].

El Baylío Fr. Don Antonio Valdés y Bazan (1744—1816), distinguished Spanish minister of the navy, known for his development of the Spanish navy, holder of numerous high political offices and recipient of many honors, founder of the botanical garden at Carthage, publisher of several technical works [*Valdia*].

Juvenal Valerio Rodríguez, contemporary Costa Rican educator, inspector of schools, and director of the national museum, noted for his fine collection of Costa Rican plants [*Aegiphila Valerii*].

Morice Frans Jules Pieter Maria Vanoverburgh (1885— ), Belgian missionary and collector in the Philippines [*Clerodendrum Vanoverburghii*].

Luang Vanpruk, native Siamese collector in Siam in 1911 [*Clerodendrum Vanprukii*].

Vauthier, noted French plant collector in Brazil from 1831 to 1833 about whom little is known [*Lippia Vauthieri*, *Vitex Vauthieri*].

Santiago Venturi, contemporary Argentinian botanist who has collected thousands of specimens in every part of that vast land [*Verbena Venturii*].

Francis Marie Camille Vermoesen (1882—1922), Belgian naturalist, curator at the Brussels botanical garden, lecturer at Louvain, government mycologist in the Congo, collected in and wrote on the flora of the Indies and of Belgian Congo [*Vitex Vermoeseni*].

G. M. Versteeg, Dutch plant collector in New Guinea in 1907 [*Clerodendrum Versteegii*].

Julius Rudolph Theodor Vogel (1812—1841), German explorer of the ill-starred Niger Expedition, botanized in Guinea, Fernando Po, and Sierra Leone, died of fever and dysentery at Fernando Po while preparing for further explorations into the interior; "he had spoken daily of the expected wanderings amongst the mountains, and even a few minutes before his death he asked his friend if he had got every thing ready for their excursion."<sup>166</sup> So affected was the great Hooker at the untimely death of Vogel that he wrote "Amongst many other individuals, one of the naturalists of the expedition . . . has succumbed to the destructive influence of the climate. If, however . . . it be the province of eloquence to commemorate illustrious minds, whose labours, owing to an unfortunate concurrence of circumstances, have not been

productive of commensurate effects, and so, to compensate for the want of incident, a more skilful pen than mine is requisite. I must be contented to show what the world and what science have lost, by the simple relation of a few circumstances, and by extracts from the last official records of the deceased"<sup>167</sup> [*Vitex simplicifolia* var. *Vogelii*, *V. Vogelii*].

Johann Christoph Volckamer (1644—1720), German botanist at Nürnberg [*Volkameria*].

Georg Ludwig August Volkens (1855—1917), well-known German collector in northern and tropical Africa [*Vitex Volkensii*].

Georg Anton Volkmann, early German botanist who wrote on Silesian plants, but concerning whom little is known [*Volkmannia*].

Pemberton Walcott, plant collector in Australia [*Lachnostachys Walcottii*, *Walcottia*].

Nathaniel Wallich [né Nathan Wolff] (1786—1854), Danish surgeon, collected at the Cape of Good Hope and various parts of Asia, famous for his work on the plants of India and Nepal [*Callicarpa Wallichiana*, *Caryopteris Wallichiana*, *Clerodendrum serratum* var. *Wallichianum*, *C. serratum* var. *Wallichii*, *C. Wallichianum*, *Sphenodesme Wallichiana*].

Carl Friedrich Wilhelm Wallroth (1792—1857), German botanist, author of many works on the plants of Germany [*Wallrothia*].

Johannes Engenius Bülow Warming (1841—1924), famous Danish collector in Greenland and Brazil [*Vitex polygama* var. *Warmingii*].

Georges Waterlot (1877—1939), French printer whose indefatigable zeal for natural history carried him to Senegal, Dahomey, Madagascar, and Sudan, where he collected plants, animals, minerals, and anthropological material; in recognition of his zeal and achievements he was awarded an honorary doctorate in science and made a chevalier of the Legion of Honor [*Vitex Waterloti*].

Charles Martin Weber, American soldier employed as a botanical collector by Merrill in the Philippines from 1911 to 1916 on funds provided by Oakes Ames, killed by natives on Balabac Island [*Callicarpa Weberi*].

August Weberbauer (1871— ), German collector, famous for his extremely valuable work on the plants of Africa and the Andes [*Citharexylum Weberbaueri*, *Lantana Weberbaueri*, *Lippia Weberbaueri*, *Stachytarpheta Weberbaueri*, *Verbena Weberbaueri*].

Joseph Wedd, Australian about whom nothing is known [*Dicrasyllis Weddii*].

Carl August Friedrich Weinland (1864—1891), German naturalist, collected and died in New Guinea [*Clerodendrum Weinlandii*].

Frederic Wellens (1891—1924), Belgian Catholic missionary in the Belgian Congo, where he collected plant specimens and where he died [*Vitex Wellensi*].

Frederich Martin Josef Welwitsch (1806—1872), Austrian botanist, director of the botanical garden at Lisbon, famous for his collecting in

Angola [*Clerodendrum Welwitschii*, *Siphonanthus Welwitschii*, *Vitex Welwitschii*].

Chester A. Wenzel (1882— ), American plant collector in the Philippine Islands [*Clerodendrum Wenzelii*].

A. S. White, English plant collector at Fundisweni, Natal, in 1867 [*Clerodendrum Whitei*].

Thomas Whitfield, English plant collector in Sierra Leone from 1843 to 1848 [*Clerodendrum Whitfieldii*].

Alexander Whyte (1834—1908), Scottish plant collector in Kenya, Uganda, and Liberia [*Lippia Whytei*].

Maximilian Alexander Philipp zu Wied-Neuwied (1782—1867), Prussian prince who explored and collected botanical and zoological specimens in Brazil [*Lantana Maximiliani*, *Stachytarpheta Maximiliani*].

Ernst Wilczek (1867— ), Swiss collector in Europe and South America [*Junellia Wilczekii*, *Verbena Wilczekii*].

Emile Auguste Joseph de Wildeman (1866— ), distinguished contemporary Belgian taxonomist who did much work on the plants of Belgian Congo [*Clerodendrum Wildemannianum*].

Robert Statham Williams (1859—1945), American bryologist, collected plants of all groups in Montana, Alaska, Panama, Bolivia, and the Philippines [*Clerodendrum Williamsii*, *Premna Williamsii*].

F. Wilms, prolific collector in the Transvaal in 1895 [*Bouchea Wilmsii*, *Chascanum Wilmsii*, *Clerodendrum Wilmsii*, *Lantana Wilmsii*, *Lippia Wilmsii*, *Vitex Wilmsii*].

William Wilson (1799—1871), English bryologist of note [*Wilsonia*].

Wimberley, presumably an English collector in Burma about whom nothing is known [*Vitex Wimberleyi*].

Ojvind Winge (1886— ), contemporary Danish mycologist and geneticist [*Verbena Wingei*].

Hubert J. P. Winkler (1875— ), contemporary German professor of botany at Breslau, specialist in plant taxonomy and geography, collected in the Malay Archipelago, Borneo, and east Africa [*Sphenodesme Winkleri*].

Gustave Ludwig Wittrock (1895— ), contemporary American botanist, expert on the plants used by the Amerinds and on economic botany in general [*Vitex quinata* var. *Wittrockiana*, *V. Wittrockiana*].

Devillo D. Wood (1886— ), contemporary American forester, formerly in the Philippine service, later director of forestry at Sandakan, collected in the Philippines, British North Borneo, Canada, and the United States [*Callicarpa Woodii*].

Georg Nikoloevitch Woronow (1874—1931), Russian botanist, collected plants in Colombia [*Duranta Woronowii*].

Leonard Wray (1852—1942), English radiologist, naturalist, and inventor, invented a telephone in 1876, collected plants and animals in Malaya and Perak [*Premna Wrayi*].

Charles Wright (1811—1885), famous American collector in Mississippi, Texas, New Mexico, Arizona, Mexico, Cuba, Cape of Good Hope, Australia, Hongkong, the Bonin Islands, Liukiu Islands, Nicaragua, and the Behring Sea area, discovered hundreds of plants new to science, his is the most important plant collection ever made in Cuba [*Aloysia Wrightii*, *Callicarpa Wrightii*, *Lippia Wrightii*, *Pseudocarpidium Wrightii*, *Tetraclea Wrightii*, *Verbena Wrightii*, *Vitex Wrightii*]:

Lajos János Xantus de Vesey (1825—1894), Hungarian botanist who collected in California and Mexico [*Verbena Xanthii*].

Alexander Zahlbruckner (1860—1938), Hungarian lichenologist of great distinction [*Lantana Zahlbruckneri*].

Luis Alberto Zamidio y Diaz, Brother Tomas Alberto (1908— ), contemporary Colombian cleric and educator who has done considerable collecting in Colombia [*Lantana Tomasii*].

Paul Antonio Zappa, early Italian botanist, director of the botanical garden at Pavia [*Zapania*, *Zappania*].

Johann Nepomuk Felix Julius, Graf Zeeh auf Neuhofen (1868— ), German collector in and later governor of Togo [*Vitex Zeehii*].

Georg August Zenker (1855—1922), German botanist who collected and died in Cameroons [*Clerodendrum Zenkeri*, *Premna Zenkeri*, *Vitex Zenkeri*].

Carl Ludwig Philipp Zeyher (1799—1858), German botanist, noted for his collecting at the Cape of Good Hope [*Stilbe Zeyheri*, *Vitex Zeyheri*, *Xeroplana Zeyheri*].

Heinrich Zollinger (1818—1859), Swiss collector in the Netherlands East Indies, died in Java [*Callicarpa Zollingeriana*].

Attilio Zuccagni (1754—1807), Italian botanist, director of the botanical garden at Florence [*Stachytarpheta Zuccagni*].

## EXPLANATORY NOTES AND LITERATURE CITATIONS

<sup>1</sup> W. M. Wheeler, in *Science*, ser. 2, 23: 34. 1906.

<sup>2</sup> M. J. P. Flourens, *The Jussieu and the natural method*, translated by C. A. Alexander, in *Ann. Report Smithsonian Instit.* 1867: 246—276. 1868. Dr. J. H. Barnhart writes us under date of May 7, 1946: "Bernard de Jussieu, in a catalogue of the garden under his care, arranged all in a natural system; this was in 1759. I once assumed that this catalogue was published, but never located a copy, and it seems to have remained in manuscript until its outline was given in *Juss. Gen. Pl.* 30 years later." The Jussieu family is to French botany much what the Candolle family is to the Swiss or the Darwin and Lister families to the English. Six members of the family were famous botanists and apparently most or all of them were associated with the idea of a natural system: Christophle de Jussieu (1685—1758), Antoine de Jussieu (1686—1758), Bernard de Jussieu (1699—1777), Joseph de Jussieu (1704—1779), Antoine Laurent de Jussieu (1748—1836), and Adrien de Jussieu (1797—1853).



<sup>3</sup> A recent (1944) count based on the treatments in Engler & Prantl's "Die natürlichen Pflanzenfamilien," Engler & Diels' "Syllabus," Engler's "Das Pflanzenreich," and other monographic works reveals the fact that about 14,009 genera are accepted today as valid and that these are classified in 965 families, Cfr. H. N. Moldenke, A preliminary classification of the plant kingdom to families (1944) and Supplement I. 1944.

<sup>4</sup> H. K. Svenson, in *Rhodora* 47: 381—388. 1945.

<sup>5</sup> J. H. Barnhart in letter to H. N. Moldenke, dated May 7, 1946.

<sup>6</sup> M. Adanson, *Familles des plantes*, vol. 2, pp. 12, 195—201, & 505. 1763.

<sup>7</sup> Generic names in Adanson's and Jussieu's lists are spelled as these authors spelled them and are accredited as these authors accredited them as a matter of historical interest. These spellings and authorities are not necessarily the correct ones. Adanson gave two spellings for ten of his genera, but the spelling here listed is the one which he seems to have favored.

<sup>8</sup> C. von Linné, *Species plantarum*, ed. 1. 1753; *Mantissa plantarum*, pp. 198, 252, & 253. 1767.

<sup>9</sup> A. L. de Jussieu, *Genera plantarum secundum ordines naturales disposita*, ed. 1, pp. 119—123. 1789; ed. 1791.

<sup>10</sup> A. Gray, *Manual of the botany of the northern United States*, ed. 6. 1890.

<sup>11</sup> N. J. de Necker, *Elementa botanica*, vol. 1, pp. 295—389. 1790.

<sup>12</sup> E. P. Ventenat, *Tableau de regne végétal*, vol. 2, pp. 315—324. 1794.

<sup>13</sup> J. H. Jaume Saint-Hilaire, *Exposition des familles naturelles et de la germination des plantes*, vol. 1, pp. 245—253. 1805.

<sup>14</sup> J. Lindley, *A synopsis of the British flora*, p. 195. 1829.

<sup>15</sup> B. C. J. Dumortier, *Analyse des familles des plantes*, p. 22. 1829.

<sup>16</sup> F. G. Bartling, *Ordines naturales plantarum*, pp. 178—180. 1830.

<sup>17</sup> J. Lindley, *Introduction to the natural system of botany*, pp. 238—239. 1830.

<sup>18</sup> J. Lindley, *The natural system of botany*, ed. 2, pp. 277—278. 1836.

<sup>19</sup> J. H. Barnhart, *Family nomenclature*, in *Bull. Torrey Bot. Club* 22: 1—24. 1895.

<sup>20</sup> H. F. Link, *Enumeratio plantarum horti regii botanici berolinensis altera*, vol. 1, pp. 122—128 & 174. 1821.

<sup>21</sup> *Bol. Mus. Hist. Nat. Javier Prado* 9: 174. 1945.

<sup>22</sup> E. A. J. de Wildeman, *Annal. Mus. Congo Bot.*, ser. 5, 1: 309. 1905.

<sup>23</sup> R. Sweet, *Hortus britannicus*, ed. 1, 1: 322—325. 1826.

<sup>24</sup> S. Endlicher, *Genera plantarum secundum ordines naturales disposita*, pp. 632, 638, & 639 (1838) & 1401. 1841.

<sup>25</sup> C. F. Meissner, *Plantarum vascularium genera secundum ordines naturales digesta*, pp. 290—292. 1839.

<sup>26</sup> W. G. Walpers, Repertorium botanices systematicae, vol. 4, pp. 3—177 (1844) & vol. 6, pp. 686—693. 1847.

<sup>27</sup> J. C. Schauer in A. de Candolle, Prodrômus systematis naturalis regni vegetabilis, vol. 11, pp. 522—700. 1847 (late November, according to W. T. Stearn, in Candollea 8: 1—4. 1939).

<sup>28</sup> Spelled "*Petreae*" on page 525 and "*Petreeae*" on page 616.

<sup>29</sup> G. Bentham in Bentham & Hooker, Genera plantarum, vol. 2, pp. 1131—1137. 1876 (see Bentham's "On the joint and separate work of the authors of Bentham & Hooker's 'Genera Plantarum'" in Journ. Linn. Soc. Lond. 20: 304—308. 1884).

<sup>30</sup> J. Briquet in Engler & Prantl, Die natürlichen Pflanzenfamilien, vol. 4, part 3a, pp. 132—182. 1895.

<sup>31</sup> S. Junell, Zur Gynäceummorphologie und Systematik der Verbenaceen und Labiaten, in Symb. Bot. Upsal. 4: 1—219. 1934.

<sup>32</sup> H. A. Schrader, Diss. Asperif. 20. 1820.

<sup>33</sup> B. C. J. Dumortier, Analyse des familles des plantes, pp. 20 & 25. 1829.

<sup>34</sup> E. A. J. de Wildeman, Annal. Mus. Congo Bot., ser. 5; 1: 71 (1903) & 309 (1905) & 3: 125. 1909.

<sup>35</sup> W. G. Walpers, Repertorium botanices systematicae, vol. 4, p. 99. 1844.

<sup>36</sup> A. L. P. P. de Candolle, Prodrômus systematis naturalis regni vegetabilis, vol. 9, p. 467. 1845.

<sup>37</sup> J. Lindley, The natural system of botany, ed. 2, p. 279. 1836.

<sup>38</sup> J. Lindley, The natural system of botany, ed. 2, p. 280. 1836 (not *Stilbaceae* E. Fries ex Saccardo, Syl. Fung. 16: 1082. 1902).

<sup>39</sup> M. A. J. Möbius in Möbius & Warming, Handb. Syst. Bot. 414. 1902.

<sup>40</sup> P. F. Horaninov, Tetractus naturae, p. 27. 1843.

<sup>41</sup> J. C. Schauer in A. de Candolle, Prodrômus systematis naturalis, vol. 11, p. 520. 1847.

<sup>42</sup> M. A. Franchet, Nouv. Arch. Mus. Paris, sér. 2, 6: 112. 1883.

<sup>43</sup> S. Endlicher in Schnitzlein, Icon. Fam. Nat. Reg. Veg. 2: [215—216]. 1843.

<sup>44</sup> J. K. Small, Flora of the Florida keys, p. 130. 1913; Florida trees, p. 95. 1913; Flora of Miami, pp. 150 & 161. 1913; Shrubs of Florida, pp. 117—118. 1913; Manual of the southeastern flora, p. 1144. 1933.

<sup>45</sup> S. J. Record, Identification of the timbers of temperate North America, pp. 45 & 107. 1934.

<sup>46</sup> G. Erdtman, Pollen morphology and plant taxonomy. IV. *Labiateae*, *Verbenaceae* and *Avicenniaceae*, in Svensk Bot. Tidsk. 38: 279—285, figs. 1—8. 1945.

<sup>47</sup> P. E. L. Van Tieghem, Journ. de Bot. 12: 345—359. 1898.

<sup>48</sup> J. E. B. Warming, Handb. Syst. Bot., reprint of ed. 2, translated by M. C. Potter, p. 535. 1920.

<sup>49</sup> J. E. B. Warming, Frøplanterna, pp. 396—404. 1912.

<sup>50</sup> P. E. L. Van Tieghem, Journ. de Bot. 12: 359—364. 1898.

- <sup>51</sup> H. N. Moldenke, in *Phytologia* 2: 142. 1946.
- <sup>52</sup> A. L. P. P. de Candolle, *Prodr.* 11: 701—716. 1847.
- <sup>53</sup> J. G. Agardh, *Theoria systematis plantarum*, pp. 295 & 364. 1858.
- <sup>54</sup> G. C. Wittstein, *Etymologisch-botanisches Handwörterbuch*, pp. 24, 270, 353, 420, & 749. 1852.
- <sup>55</sup> F. F. von Mueller, *Fragm.* 10: 59. 1876.
- <sup>56</sup> B. D. Jackson, *Index Kewensis* 1: 734. 1895.
- <sup>57</sup> M. L. Green, in *Kew Bull.* 1935: 509. 1935.
- <sup>58</sup> H. N. Moldenke, An alphabetic list of invalid and incorrect scientific names proposed in the *Verbenaceae* and *Avicenniaceae*. 1942. Supplement 1, pp. 1-30. 1947.
- <sup>59</sup> *Bontia* L., 1758 = *Avicennia*; *Bontia* L., 1735, is a valid genus in the *Myoporaceae*.
- <sup>60</sup> C. A. Mayo, in *Bull. Lloyd Lib.* 28: 7. 1928.
- <sup>61</sup> E. A. Rossmässler quoted in *Bericht. Naturwiss. Ver. Schwaben und Neuberg (Augsburg)* 37: 283. 1906.
- <sup>62</sup> Additional important works of J. Briquet on this group include: *Verbenacearum novarum descriptiones*, in *Bull. Herb. Boiss.* 4: 336—349 (1896) and *Verbenaceae balansanae paraguarienses*, in *Ann. Conserv. et Jard. Bot. Genève.* 7—8: 288—319. 1904.
- <sup>63</sup> H. Bocquillon, *Revue du groupe des verbénacées*, in *Adansonia* 2: 81—165. 1862.
- <sup>64</sup> N. S. von Turczaninow, *Verbenaceae et Myoporaceae nonnullae hucusque indscriptae*, in *Bull. Soc. Nat. Moscou* 36<sup>2</sup>: 193—227. 1863.
- <sup>65</sup> J. Miers, On three new genera of the *Verbenaceae* from Chile and its adjacent regions, in *Trans. Linn. Soc. Lond.* 27: 95—110, pl. 26—28. 1870.
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<sup>170</sup> G. Turner, Chronicle London Missionary Society for June, 1887.

## ADDENDA

Page 51, for "Brenes" read "Alberto Mora Brenes."

Page 57, "Adolfo Ducke, distinguished contemporary Swiss botanist . . ." read "Adolfo Ducke, distinguished Triestian botanist . . .".

Page 60, under "Howard Scott Gentry," change to read as follows,—"Howard Scott Gentry (1903— ) contemporary American botanist and naturalist, collected extensively in the southwestern United States and Mexico, and contributed much to the botany, paleontology, and anthropology of the Rio Mayo region of Mexico."

Page 61, For "Goossens" read "Antoine Petrus Gerhardy Goossens."

Page 62, before "Philip Hahn," insert "François Louis Hahn (1844— ) or maybe."

Page 67, Under "Jão Geraldo Kuhlmann," add "(1881?— ); born of German parents."

Page 68, Under "Eugène Langlassé," add that he collected also in "Malaya."

Page 71, under "R. Maldonado B.," indicate that the "B." stands for "Bustos."

Page 72, For "Meechow" read "Alexander von Meechow," and for "nothing" read "little."

Page 84, Under "Julian Alfred Steyermark," add that he collected also in "South America."

Page 89, under "F. Wilms," change "F." to "Frederick," and add that he collected in "South Africa from 1883 to 1897, chiefly in eastern Transvaal."

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DARLINGTON & AMMAL'S "CHROMOSOME ATLAS  
OF CULTIVATED PLANTS"

HAMILTON P. TRAUB

Plantmen, particularly those interested in plant breeding, have felt the need for a ready reference work giving chromosome numbers of plants under cultivation and their near relatives. To search in the literature each time when the need arises is time consuming, and such a search is not even possible in the case of many who are located far from comprehensive plant science libraries. It is fortunate therefore that Darlington & Ammal have provided a valuable book on this subject.<sup>1</sup>

Dr. Darlington has gone a step farther, and has contributed a concise, thought provoking introduction, covering the "Origin of Cultivated Plants"; the importance of chromosomes in plant systematics, and the use and meaning of chromosome numbers.

The main portion of the book, giving in detail the information about the chromosomes of Gymnosperms and Angiosperms, covers 309 pages. The subject is arranged by genera under plant families, and fortunately these authors have chosen Hutchinson's "Families of Flowering Plants" (1926, 1934), with a few exceptions, as the basis of their arrangement. For each genus the basic ( $x$  number) of chromosomes is given, followed by the  $2x$ , or diploid number of chromosomes for each species listed under it, followed by citations to the literature, classification by means of symbols of the plant from the standpoint of economics, and finally the habitat. To stimulate work on important economic plants for which no chromosome information is available, the authors have entered these, necessarily leaving blanks to be filled in when the information is later reported.

This important work was prepared during the war years, and the authors are to be congratulated for the extensive coverage of the subject under the circumstances. It is to be expected that under the conditions, some of the recent work was not available for inclusion. As an instance, the subject of the *Amaryllidaceae* can be cited. The important work in this field by Dr. Flory and others, and the two comprehensive summaries by Flory and Yarnell; and by Flory (Herbertia 1937 and 1944) were apparently not considered, but this deficiency will undoubtedly be made good in a future edition, for the authors state that they wish to "hear from our colleagues in all parts of the world of errors, omissions and possible additions, for correction and use in a later edition."

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<sup>1</sup> C. D. Darlington and E. K. Janaki Ammal. **Chromosome Atlas of Cultivated Plants**. London, George Allen & Unwin. The Macmillan Co., 60 Fifth Ave., New York. pp. 297. 1945. \$2.75.



Some of the omissions noted among important tropical and sub-tropical crops are: the cover crop, the Sarawak Bean, *Dolichos hosei*; *Crotolaria spectabilis* and other *Crotolaria* species extensively grown in the Southeastern United States, to mention only a few, are not included.

The following errors in nomenclature for *Amaryllidaceae* should be noted: *Habranthus robustus* is listed as "*Zephyranthes robusta*"; *Habranthus Andersoni* var. *texanus* is listed as "*Zephyranthes texana*"; *Zephyranthes grandiflora* is listed as "*Z. carinata (grandiflora)*"; *Crinum bulbispermum* is listed as "*C. capense (longifolium)*"; *Brunsvigia rosea* (Lamarek) Hannibal is given as "*Amaryllis belladonna*"; *Amaryllis vittata* and *Amaryllis hybridum* are listed as "*Hippeastrum vittatum*" and "*Hippeastrum hybridum*"; *Amaryllis blumenavia* is listed as "*Griffinia blumenavia*."

Omissions for the *Amaryllidaceae* where chromosome counts are available include *Ixiolirion tataricum*, *Tulbaghia violacea*, and many others.

As indicated above, Hutchinson's classification (1926, 1934) is followed, but the *Allieae* and *Agapantheae* are retained in the *Liliaceae*. This is very unfortunate from the standpoint of the student of the *Amaryllidaceae*. Although the chromosome data are important to the systematist, the morphological characters have very great weight, and when both are considered the *Allieae* and *Agapantheae* decidedly belong with the *Amaryllidaceae*. It is hoped that the authors will reconsider this matter after taking into account the chromosome summaries of Flory and Yarnell; and Flory (Herbertia 1937, 1944).

It should also be noted that the genus *Hosta* with a chromosome complement similar to that of *Agave*, *Yucca*, etc., has been retained in the Tribe *Hemerocallideae*. *Hosta* undoubtedly belongs with the *Agaveae* for its species represent typical *Agaveae* that have evolved under a mesophytic environment. With the removal of the genus *Hosta* from the Tribe *Hemerocallideae*, this tribe undoubtedly belongs with the *Amaryllidaceae* for *Hemerocallis* has the typical amaryllid chromosome complement ( $x = 11$ ), and the gross morphology of the group is similar to that of the amaryllids.

The listing of the omissions and corrections in this review should not in any way be interpreted as detracting from our endorsement of this important book. It is indispensable to all who are seriously interested in plants. Science is constantly developing and for that reason our texts must be revised at intervals to register that progress, but in the meantime, this first edition will serve its very useful purpose.