

Orchids in Trinidad and Tobago and Their Collectors

By RICHARD EVANS SCHULTES *

THE GOVERNMENT of Trinidad and Tobago has been publishing the flora of the Colony, family by family, over a period now of about 30 years. A study of the native orchids of these West Indian islands has recently been completed at the Orchid Herbarium of Oakes Ames of the Botanical Museum of Harvard University and is scheduled to be published shortly as a part of the "Flora of Trinidad and Tobago." Time and again during the preparation of this work, we have had occasion to admire and to thank those enthusiastic plant-lovers, amateur and professional, who have, through the past 150 years, penetrated the fastnesses of these islands, amassing for our herbaria so many collections and enriching the horticultural world with so many superbly beautiful species of orchids.

Trinidad and Tobago are two small islands constituting a British Crown Colony, situated in the southern part of the Caribbean Sea, north of the Orinoco Delta. Trinidad lies only seven miles off the coast of Venezuela. Their areas are 1,754 and 114 square miles respectively, and their combined population was 697,000 in 1956. Although they are commonly included in the Antilles, their geological formation is South American; and they only very recently were separated from the continent by the formation of the shallow Gulf of Paria between the southwestern tip of Trinidad and the Venezuelan coast. Trinidad is not volcanic, as are so many of the neighboring Antillean islands; most of the rocks are sedimentary in origin, dating from the Upper Jurassic to the Pleistocene. The fact that Trinidad and Tobago are, geologically speaking, not true islands is shown by the low number of endemic plants — 7% of the total flora. So-called true islands — land masses which have never been connected with a continent — are usually high in endemic species: Hawaii, 75%; St. Helena, 90%.

The larger of the two islands, Trinidad, is divided topographically, according to the ecologist Beard (Beard, J. S.: *The Natural Vegetation of Trinidad* [1946] 8 ff.), into five areas. The mountains (1), which run more or less east to west along the north of the island, are called the Northern Range. The highest peaks are El Tucuche and Aripo, both surpassing 3,000 feet. The Northern Range represents a prolongation of the Venezuelan coast. It is from this mountain mass that the greatest number of orchids are known. In the central part of Trinidad, there is a limestone table mountain arising to over 1,000 feet: Mount Tamana; it is of interest because many of the orchids found here are not represented in the Northern Range. The hills (2) are grouped mainly in two chains: the Central Range, cutting across the center of the island and rising to 800 feet, and a lesser range along the southern coast. There are, in addition, occasional isolated domes scattered throughout the peneplain, but these are, in general, much lower. The alluvial terraces (3), lying mainly between the Northern and Central Ranges, are great, flat plains cut up by water courses. They are considered to be of recent age, dating from the Pleistocene. The several extensive savannahs with their characteristic vegetation, such as those at Aripo and Arima, representing flat and poorly drained areas with impermeable subsoil, are situated on the alluvial terraces. These savannahs support a large number of extremely interesting orchids. The dissected pene-

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plain (4), comprising the greater part of the surface of the island, is marked by sharp undulations or by a hilly topography. It lies between 50 and 200 feet and can, insofar as the flora is concerned, be considered as sea level; it is poor in orchids. The swamps (5) cover extensive areas along the coasts and seem to be due to silting and later emergence of the land from the sea. The two greatest are the Caroni Swamp on the western coast and the Nariva Swamp on the eastern. The number of species of orchids in these swamps is very low. There is, in the southwestern part of Trinidad, a curious phenomenon to which attention should be drawn: the famous Pitch Lake or La Brea, a lagoon of bubbling asphalt about 100 acres in extent (Howard, Richard, in *Carib. For.* 12 [1951] 171-178).

Tobago is quite completely mountainous, save for its southwestern end, but the highest peak rises only to about 2000 feet.

The climate of the islands varies, naturally, even though the two land masses are small. It is generally warm and tropical, with abundant rainfall from May through October and with relatively heavy dews during the remainder of the year. Three types of climate can be distinguished: the so-called seasonal climate (1) characterized by seasonal periodicity; and the coastal (2) and montane (3) variants, each due to special physiographic features. Trinidad and Tobago lie outside of the hurricane belt.

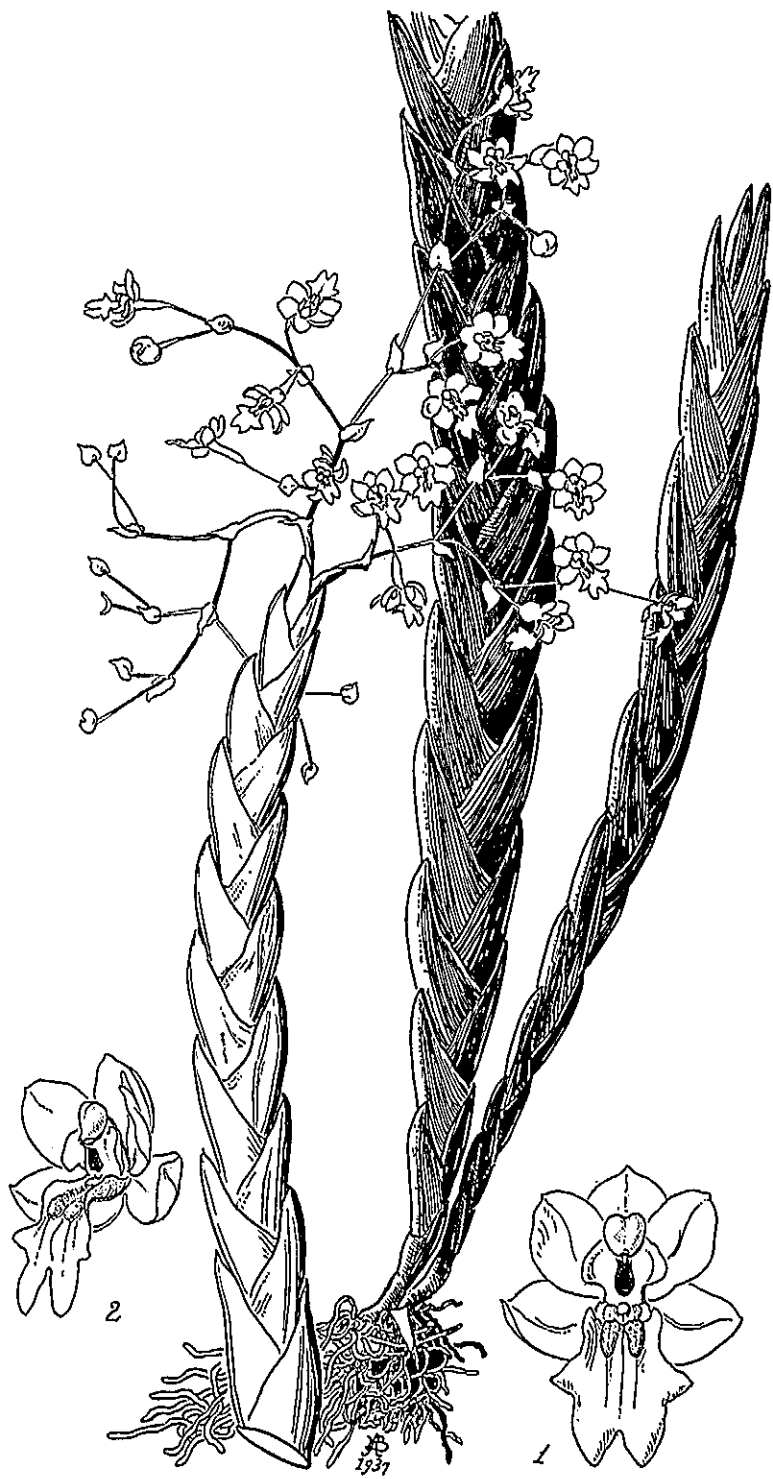
The soils, though not fertile, are adequate in many areas for agriculture. The islands subsist principally on sugar and cacao.

The capital of the Colony, Port-of-Spain, is Trinidad's largest urban center, a city of some 114,000 inhabitants in 1956 and a busy seaport. Tobago's chief center is Scarborough. Excellent roads unite various parts of the islands. Of world renown as a center of research in tropical agriculture is the large Imperial College of Tropical Agriculture, founded in 1921, at St. Augustine, not far from Port-of-Spain.

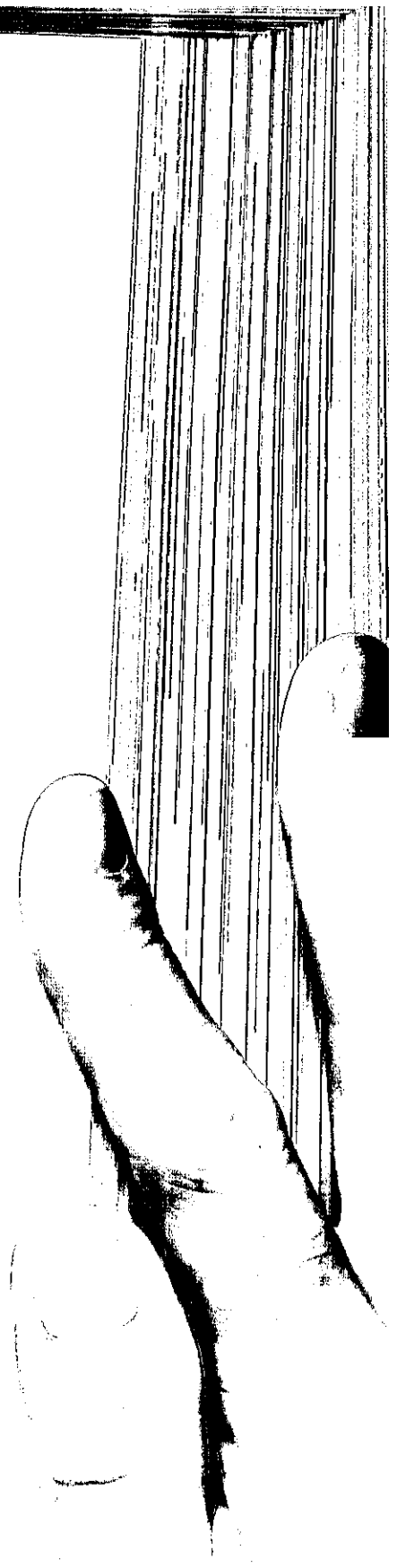
Trinidad and Tobago have been British since the 18th Century. Discovered and named by Columbus in 1495, Trinidad was Spanish until it was seized by the British in 1797. The original Indian inhabitants were either killed or sold into slavery and exported at an early date by the Spaniards. There was some French immigration from Grenada, when the British took this Antillean island from France in 1763. Tobago has had a rather different history. First settled by the Dutch, chiefly in 1632 and 1654, it became a French possession but was ceded to Great Britain in 1763, at the same time that the British acquired Grenada by treaty. Lying only about 20 miles from Trinidad, it was joined administratively to Trinidad in 1889 to form the Crown Colony. Tobago is thought to be the island to which Daniel Defoe referred as Robinson Crusoe's home, and the name of the island traces back to the Carib word which has survived as our modern term "tobacco."

Both islands are enjoying an ever-growing tourist trade, and it seems that they will become better known to Americans and Europeans as time goes on. One attraction which brings in tourists, of course, is the interesting tropical flora with its fascinating scenery.

The earliest account of Trinidad's orchids was never published and apparently is not extant. We know of its existence only through a letter of its author, Bradford, to Kew in which reference to the manuscript was made. The earliest published account of the orchids of Trinidad is that of Grisebach (in Grisebach, A. H. R.: *Flora of the British West Indian Islands* [1864] 606-644). The total number of species and varieties of orchids recorded from the island was 96. He cited no orchids from Tobago. The second account is that of Alfred Cogniaux (in Urban, *Symbolae Antillanae* 6 [1910] 293-696), a scholarly work which recognized as native to Trinidad and Tobago 150 species and varieties. In 1918, Broadway (Broadway, W. E. in *Bull. Dept. Agric. Trin. Tob.* 17, pt. 2 [1918] 95-100;



LOCKHARTIA ACUTA



G. Wilson, ed., in *Orch. Rev.* 33 [1925] 40-43 [abbreviated]), published his significant paper on "The Wild Orchids of Tobago," reporting 52 species. The same investigator brought out in *The Orchid Review* a long series of papers in the late 1920's and the early 1930's entitled "Trinidad Orchids" (Broadway, W. E. in *Orch. Rev.* 34 [1926] 49-50, 67-68, 103-108, 131-136, 170-173, 199-204, 232-236; 35 [1927] 20-21, 97, 130, 144-145, 239-240, 267, 308-309, 353; 36 [1928] 38; 38 [1930] 172; 39 [1931] 35, 109; 41 [1932] 225). These notes were based almost entirely on his own collections.

Both amateur and professional botanists and collectors have played major roles in building up in our herbaria material of the orchid family from Trinidad and Tobago. The all-important contribution of the non-professionals in this achievement can hardly be overemphasized. I know of no other part of the New World where amateur collectors have figured so vitally.

Botanical work and the establishment of an Herbarium at the Royal Botanic Gardens in Port-of-Spain date from about 1818.

Perhaps the earliest plant collectors of note to have contributed measurably to the orchidology of Trinidad are Wrba and Woodford. Franz Wrba collected plants in 1822 in Trinidad; they were sent from the island and distributed to many of the larger herbaria of Europe under the name of the famous collector Franz W. Sieber. It is believed that, due to confusion, some of Sieber's plants labelled as coming from Trinidad were actually collected elsewhere in the West Indies.

Sir Ralph Woodford was Governor at the time of the establishment of the Royal Botanic Gardens of Trinidad. He interested himself deeply in the flora of the island, and there are a few orchid specimens at Kew which he prepared in 1822.

Little indeed is known about the earliest important collector of Trinidad orchids, notwithstanding the citation of many of his specimens in Grisebach's *Flora*. Dr. Edward Bradford, probably a physician and an amateur collector who was active in the 1840's, apparently confined his work to the native orchids. His collections are preserved at Kew and in the Trinidad Herbarium, and they were available to Grisebach at the Göttingen Herbarium in Germany. His name is perpetuated in the delicate *Epidendrum bradfordii* Griseb.,* a species endemic to Trinidad where it is known only from Aripo and Arima. In response to my request for information concerning Bradford, Dr. Victor A. Summerhayes of Kew has supplied me with the following notes which, because of the almost complete lack of data about this early orchid collector, I herewith reproduce.

"I have been able to find only one letter in our archives. This was written by Bradford to Sir William Hooker in February, 1860, and asked if he might call on him at Kew and show him a manuscript on the Orchids of Trinidad which he had been preparing for some years. There is nothing more in our archives following up this matter.

"Bradford's letter was written from the Royal Military College at Sandhurst, so it looks as though he was an officer in the Army at that time. Possibly he was stationed for some time at Trinidad, during which he collected and studied the orchids. As he is described on the labels in the Herbarium as Dr. Bradford, it seems likely that he was an Army Surgeon or Medical Officer."

David Lockhart served as the first Superintendent of the Botanic Gardens in Trinidad from 1818 to his death in 1846. Among the plant specimens which he collected and sent to Kew Gardens are many orchids. His name was commemorated by John Lindley in the beautiful orchid genus *Lockhartia*. Special attention was given during Lockhart's superintendency to the introduction and cultivation of spice

* Personal specific names have been decapitalized by the Editor to conform with the policy of the American Orchid Society BULLETIN. — R.E.S.

trees. He likewise imported many plants — including numerous orchids — from Caracas, as well as from St. Vincent, the island which could proudly point to the earliest botanic garden in the West Indies (Howard, Richard in *Geogr. Rev.* 44 [1954] 381-393). Lockhart had earlier worked as a plant collector in tropical Africa. In Trinidad, he collected some of the rarest of the orchids — species which have been found since only once or twice or which, as in the case of *Epidendrum fusiforme* Lindl., have never turned up again.

The second Superintendent of the Botanic Gardens was William Purdie, who served in this post from 1846 to 1857, during which time he collected extensively in Trinidad. A Scot trained in the Edinburgh Botanic Gardens, he started his plant collecting for Kew in 1841, visiting Jamaica, New Granada (Colombia) and other parts of tropical South America. He successfully introduced the famous Ivory Nut Palm (*Phytelephas macrocarpa*) and other economic plants to Trinidad. He died in 1857 and was buried in the Botanic Gardens which he had so ably headed for 11 years. Purdie's collections, among the most important cited by Grisebach, are at Kew and in Trinidad.

One of the great names in Trinidad botany is that of Hermann Crueger, a German who migrated to the island in 1841 as an apothecary and who, fascinated with the luxuriant flora, immediately dedicated himself to a study of the vegetation. In 1857, he was appointed Government Botanist and Director of the Botanic Gardens to succeed Purdie. He died in Trinidad in 1864 at the age of 46. His death was a serious loss, for his most outstanding contribution had been in generating popular as well as scientific interest in Trinidad's flora through his collections and writings. Noteworthy is his "Outline of the Flora of Trinidad" (1858), in which he pointed out the close relationship of the island's flora with that of the Guianas. He described two new genera and 13 species in the Melastomaceae. His collections were distributed to the herbaria at Kew, Berlin and Göttingen, and many are found in the Trinidad Herbarium today. Crueger's collections were among the most valuable for Grisebach's floristic work. Some of the orchids which he found in Trinidad have only recently, after a century, been re-collected. He is commemorated in the name of the diminutive orchid *Ornithocephalus cruegeri* Rchb. f.

Henry Prestoe, Government Botanist and Superintendent of the Botanic Gardens following Crueger's death, was a most enthusiastic collector. He directed the destinies of the Gardens for more than 20 years, from 1864 until 1886, greatly increasing their reputation in Europe. He discovered several of the rarer orchids of Trinidad. Prestoe's collections are preserved at Kew, and some are in the Trinidad Herbarium. They are cited in Grisebach's work.

The German botanist Otto Kuntze, who travelled around the world from 1874 to 1876, collected in Trinidad and other West Indian islands in 1874. Only a few orchids are represented in his material from Trinidad, but they are noteworthy species.

J. H. Hart followed Prestoe as Director of the Botanic Gardens from 1887 to 1911. One of the most active botanical figures ever to work in the Colony, he not only collected horticultural and herbarium material assiduously, but he established the valuable publication *Bulletin of Miscellaneous Information of the Royal Botanic Gardens of Trinidad* and was its editor for 11 years. Before his residence in Trinidad, Hart had supervised the government Cinchona plantation in Jamaica. He collected many orchids and was honored in 1894 by Rolfe who described *Epidendrum hartii*, a fascinating species native to Trinidad and Tobago and very recently discovered in Venezuela. W. Lunt, very able Assistant Superintendent of the Gardens under Hart, collected a few orchids of outstanding interest, chief of

which was *Palmorchis pubescens* Barb.-Rodr., an exceedingly rare orchid which had been collected in Trinidad only once, by Prestoe.

The names of two native professional plant collectors employed by the local government loom importantly in Trinidad orchidology: D. W. Alexander and M. Baptiste. The former worked during the last decade of the last century; the latter around 1911.

Undoubtedly, the most outstanding name in Trinidad botany is that of Broadway. Walter Elias Broadway (1863-1935) was sent out from England to Trinidad in July, 1888, serving as Herbarium Assistant to Hart from 1888 to 1894, having previously studied gardening at Kew for four years. He immediately began an enthusiastic and assiduous study of the flora of Trinidad and Tobago, for many years penetrating the most inaccessible parts of the islands at a period when travel was far from easy. Never before nor since has such an impressive collection of the flora of the Colony been made, and it is no exaggeration to say that virtually no part of Trinidad was left unvisited during his long years of dedicated research. He became Curator of the Botanic Gardens of Grenada, collecting there for several years; he likewise made collecting trips to Venezuela and French Guiana. From 1908 to 1914, he worked in Tobago, as Curator of the Botanic Station on that island, and from 1914 to his retirement on pension in 1923, he served as Assistant Botanist with the Trinidad Department of Agriculture. Retirement did not, however, interrupt his botanical work, for his collecting, which continued until his death in 1935 at the age of 71, seemed to have been intensified once he was freed from his numerous administrative tasks. In 1934, His Majesty, King George V, recognized Broadway's years of dedication by making him a Member of the Most Excellent Order of the British Empire. Although Broadway collected the flora in general, his favorite plants were the orchids, and he obviously gave special attention to them in his work. In addition to the occasional papers which he wrote for *The Orchid Review*, he published several articles of floristic significance, such as "The Wild Orchids of Tobago" (in *Bull. Dept. Agric. Trinidad Tobago* 17, pt. 2 [1918] 95-100) and the "Orchids of Grenada" (in *Gard. Chron.* [Sept. 26, 1908] 228-229). His orchid specimens were distributed to many herbaria, but especially full representations of his collections are to be found in the Trinidad Herbarium, at Kew and in the Ames Herbarium at Harvard University. Most of the orchid collections which he made after his retirement, and some prior to that date, were identified by the late Professor Oakes Ames. Many are the plants which were named in his honor, among which we may cite such fascinating orchids as *Cyrtopodium broadwayi* Ames and *Epidendrum broadwayi* Ames & Schweinf.

Broadway's extensive collecting in Tobago was done in cooperation with G. Humphrey Sworder, a resident planter and orchidophile. Sworder was extremely active during the second decade of the present century.

A number of orchid specimens bear the name of F. Dannouse, a local commercial collector who was active in Trinidad in the first decade of this century. Other noteworthy orchid collections were made during the second decade by Dr. Sankeralli, assistant in the Government Chemical Laboratory and later Director of Medical Services of the Colony.

In the early 1920's, Dr. Nathaniel Lord Britton, Director of the New York Botanical Garden, together with Mrs. Britton, Miss Dorothy Coker, Dr. Walter Mendelson, Dr. T. E. Hazen and William R. Rowland, visited Trinidad and collected plants. Dr. Britton was interested in the vegetation of Trinidad and Tobago in connection with a proposed study of the flora of northern South America. He and his party not only worked in the field, gathering about 6000 specimens, but he assisted in reorganizing the Trinidad Herbarium and prepared a manuscript,



Cattleya deckeri, one of the most ornamental orchids found in Trinidad.

"Provisional List of the Plants of Trinidad," a check list which, although never published, was of inestimable value when Trinidad botanists later began to publish the "Flora of Trinidad and Tobago." The many orchids collected by Britton and his co-workers were sent to Professor Ames of Harvard University for determination, and specimens of them are deposited in the Ames' Herbarium, at the New York Botanical Garden, in Trinidad and elsewhere. In addition to herbarium material, Britton and his party collected living orchids for cultivation.

The Venerable Archdeacon Arthur Hombersley (1866-1941), rector of All Saints Church in Port-of-Spain from 1894 to 1931, was an amateur botanist who collected plants in many parts of Trinidad during the 1920's. He botanized together with Broadway, specializing in the ferns. He amassed an herbarium of 500 fern specimens which he gave to the British Museum, and wrote a manuscript on the fern flora of the island which, however, was never published. But he apparently had an eye alert to rare orchids, and two new species are dedicated to him: *Epidendrum hombersleyi* Summerh. and *Pleurothallis archidiaconi* Ames.

A few highly interesting orchids were collected by Father L. J. Graf, a science and classics master and at present Dean of Studies at St. Mary's College in Port-of-Spain. A mine of information on the Trinidad flora, he was born in Germany in 1885 and has been in Trinidad since 1905.

The Hon. William G. Freeman, F.L.S., served from 1911 to 1917 as Superintendent of the Botanic Gardens and Government Botanist and, later, during the 1920's, as Director of Agriculture of the Colony. He was a keen general plant collector, and many are his collections of orchids cited in the forthcoming orchid section of the *Flora*. It was under Freeman's stimulus that the publication of the "Flora of Trinidad and Tobago" was begun in 1928.

A colleague of Freeman, R. O. Williams, served as Economic Botanist and later as Director of Agriculture in the islands. He made large and valuable general collections, including many orchids, wrote several parts of the *Flora* and, with his son, published the extremely helpful "Useful and Ornamental Plants in Trinidad and Tobago" (1951). He later left Trinidad to direct research on clove cultivation in Zanzibar, a post which he still holds.

H. Bruins-Lich, one of the recent curators of the Botanic Gardens in Port-of-Spain, collected a number of orchids of phytogeographical significance. A Swiss by birth, and trained at Kew, he was active during the 1930's. He is now Director of Parks in Pretoria, South Africa.

E. E. Cheesman, Professor of Botany at the Imperial College of Tropical Agriculture from 1926 to 1947, was, together with Williams, one of the mainsprings of the *Flora*. Although his plant-collecting was not extensive, we are indebted to him for a number of interesting and rare orchid specimens.

During the 1920's, the late Dr. E. Withycombe, who served for a short time as Reader in Entomology in the Imperial College, made a few collections of outstanding orchids, mainly from the savannah areas of Trinidad.

Recent members of the faculty of the Imperial College have continued the collection of orchids from critical localities in Trinidad. To Jacob Wilson of the staff of the Botany Department from 1948 to 1955 and to N. W. Simmonds, Senior Cytogeneticist at the College for about 13 years, we are indebted for several collections of note.

R. S. Ayliffe, a forest officer in the Forest Department of the local government, came to Trinidad in the 1940's and is still working there. His special interest lies in the Loranthaceae, but he makes general collections and has prepared a number of beautiful specimens of orchids for the Trinidad Herbarium.

To Dr. G. A. C. Herklots, Principal of the Imperial College since 1953 and an

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enthusiastic orchidophile who maintains an excellent living collection, we are indebted for several specimens of noteworthy native orchids. Herklots has written the "Orchids of Hong Kong."

I should like, in this paper, to honor especially my good friend, the late Professor Richard E. D. Baker (1908-1954). It was at Prof. Baker's invitation that the Orchid Herbarium of Oakes Ames undertook to work on the orchids of Trinidad and Tobago for the *Flora*, which he had edited since 1947. He came to the Imperial College in 1932 as a post graduate student from Cambridge University. In 1933, he joined the staff; three years later, he became Head of the Department of Mycology and Plant Pathology. He became Professor of Botany at the College in 1949. An enthusiastic collector of fungi as well as of higher plants, he added a number of interesting orchids to the Trinidad Herbarium.



PROFESSOR RICHARD E. D. BAKER

The cause of orchidology has been served for many years in Trinidad by Dr. H. P. S. Gillette, the largest orchid grower on the island. Dr. Gillette, who presently is Director of Medical Services, has, for many years, been collecting and growing native as well as exotic orchids; and, although he has never prepared herbarium material on which a flora could partially be based, he has sparked interest in the orchids in Trinidad to such an extent that his service should be fully recognized by professional botanists.

There are other contemporary orchidophiles who have long cultivated native orchids along with exotics and have thus brought attention to the local botanicals. Gregory A. Duruty, born in Trinidad in 1894 and a retired civil servant, collected extensively with Broadway and has grown Trinidad orchids since 1915. Felix Anduze, a retired planter, born in Trinidad of Venezuelan parents, has cultivated native and exotic orchids for more than 50 years. E. H. H. Wells, a local barrister

and, at present, treasurer of the Orchid Society of Trinidad, has shown much interest in collecting native botanicals; and E. C. Kong, a pharmacist, and Derek Sorzano, a geologist, have likewise been active orchid fanciers.

One of the most outstanding accomplishments in the study of the Trinidad flora is the work of Dr. Wilbur G. Downs and Dr. T. H. G. Aitken. Downs, a medical doctor, and Aitken, an entomologist, are on the research staff of the Rockefeller Foundation's Trinidad Regional Virus Laboratory in Port-of-Spain. Downs is the Director of the Laboratory. They have been interested in native orchids for several years and have systematically combed the island, visiting especially the classic orchid localities of the earlier collectors with the hope of building up a complete representation of living specimens of Trinidad orchids. Thus far, in only three years, they have found about 118 of the 180 species and varieties known to be native. As their plants come into blossom in the lathhouse, flowers, inflorescences and, often, entire plants are put into alcohol and sent to the Orchid Herbarium of Oakes Ames. For nearly all of the species, Downs has made superb habit and floral photographs, some of which are published in this article. These photographs and the corresponding specimens preserved in alcohol have been of inestimable help in writing descriptions of orchids for the *Flora*. The Downs & Aitken collections have turned up several species known only from one or two previous specimens and have likewise brought to light an orchid new to Trinidad: *Maxillaria reichenheimiana* Endres & Rchb. f., hitherto recorded only from Honduras and Costa Rica. Downs has recently published (in *Amer. Orch. Soc. Bull.* 26 [1957] 679-688) an account of one of his visits to the famous Oropouche Cave, on which trip 42 orchids were seen or collected.

The native species and varieties known at the present time from Trinidad and Tobago number 180. They belong to 66 genera. There are only two other families of flowering plants in the Colony that are comparable in size with the Orchidaceae: the Leguminosae, with 172 species and the Gramineae with 183. The next largest families are, interestingly enough, much smaller: Cyperaceae, 98 species; Melastomaceae, 92; Rubiaceae, 90.

As with the rest of the plants, the orchids show very close relationships with those of the Guianas and Venezuela. Nevertheless, the typical West Indian element is still very appreciable in the orchid flora of Trinidad and Tobago, notwithstanding the fact that these islands, as we have seen, do actually belong geologically to South America and not to the Antilles.

It may be helpful to the growing number of residents and travellers dedicated to an appreciation of the orchidaceous flora of Trinidad and Tobago to present a key by which the genera of the known native orchids may be distinguished. The figure in parentheses which follows the name of each genus represents the number of species and varieties of that genus known at the present time from the islands.

KEY TO THE GENERA OF ORCHIDS NATIVE TO TRINIDAD AND TOBAGO

1. Fertile stamens 2, a third forming large staminode. Pollen not united into masses *Selenipedilum* (1)
- 1a. Fertile stamen 1, with 2 laterals aborted or forming small staminodes. Pollen united into masses or pollinia
2. Caudicle and gland arising from basal part of pollinia. Anthers erect or more or less resupinate, never deciduous. Pollinia always coarsely granular *Habenaria* (6)
- 2a. Caudicle and gland arising from apex of pollinia. Anthers erect or incumbent, usually deciduous (if persisting, soon withering). Pollinia granular, waxy or cartilaginous
3. Pollinia granular, soft. Inflorescence usually terminal
4. Stems climbing and vine-like
- 4a. Stems erect or suberect, often from creeping rhizome *Vanilla* (5)





CAMPYLOCENTRUM MICRANTHUM

5. Apex of ovary with persistent dentate crown *Epistephium* (2)
 5a. Apex of ovary naked
 6. Plant leafless *Wulfschlaegelia* (1)
 6a. Plant leaf-bearing
 7. Leaves deciduous, articulated. Stems cane-like *Elleanthus* (1)
 7a. Leaves persistent, not articulated. Stems not cane-like
 8. Leaves conspicuously clasping stem
 9. Anther decumbent, mobile *Pogonia* (3)
 9a. Anther erect, rigidly attached to column *Triphora* (1)
 8a. Leaves not conspicuously clasping stem
 10. Roots arising from nodes on decumbent stem or rhizome
 11. Lip spurred *Erythrodes* (4)
 11a. Lip not spurred *Psilochilus* (1)
 10a. Roots not arising from nodes on decumbent stem or rhizome
 12. Leaves distributed along stem *Palmorchis* (1)
 12a. Leaves basal
 13. Lip on lower side of flower *Spiranthes* (9)
 13a. Lip on upper side of flower *Cranichis* (1)
 3a. Pollinia waxy or cartilaginous. Inflorescence terminal or lateral
 14. Inflorescence normally terminal or by abortion axillary in uppermost leaves
 15. Viscid disk, if present, produced from apex of pollinia, usually irregular, sometimes rudimentary or wanting
 16. Ovary articulated to pedicel. Pedicel persistent. Stems slender, rigid, usually 1-foliolate
 17. Sepals all connate *Stelis* (2)
 17a. Sepals not all connate, at least with dorsal sepal free or nearly free
 18. Pollinia 2 *Pleurothallis* (15)
 18a. Pollinia 8 *Octomeria* (3)
 16a. Ovary not articulated to pedicel. Pedicel falling away with flower. Stems slender or fleshy-thickened, 1- to several-leaved
 19. Pollinia without appendages
 20. Column very short. Anthers erect *Malaxis* (2)
 20a. Column elongated. Anthers terminal, incumbent *Liparis* (2)
 19a. Pollinia appendaged either with viscid disk or caudicle with viscid apex
 21. Column without foot. Lip more or less adnate to base of column
 22. Pollinia 4, 2 in each anther-cell
 23. Leaves opposite, at apex of stem *Hexisea* (1)
 23a. Leaves alternate, distichous along stem *Jacquinella* (1)
 24. Disk of lip with 2 hollow, horn-like protuberances *Caularthron* (2)
 24a. Lip without horn-like protuberances
 25. Flowers very large, showy. Lip free, more or less surrounding column *Cattleya* (1)
 25a. Flowers usually not large or showy. Lip more or less adnate to column and lamina spreading *Epidendrum* (32)
 22a. Pollinia 8, 4 in each anther-cell
 26. Leaves basal or almost basal, equitant, distichous *Tetramicra* (1)
 26a. Leaves 1 or 2, terminating the pseudobulb
 27. Floral segments linear to acicular. Column very short *Brassavola* (1)
 27a. Floral segments relatively broad. Column more or less elongated *Laelia* (2)
 21a. Column with distinct foot. Lip not adnate to base of column, or, at most, adnate to base of column-foot
 28. Leaves terminal on pseudobulbs or short-thickened stems, not distichous on elongated stem *Scaphyglottis* (3)
 28a. Leaves distichous and scattered along elongated stem *Isochilus* (1)
 15a. Viscid disk present and distinct, with margins well defined, produced from apex of column *Polystachya* (2)
 14a. Inflorescence lateral, produced from base of pseudobulbs or in axils of lowermost leaves or sheaths
 29. Plants forming a monopodium (stems with unlimited apical growth)
 30. Inflorescence 1-flowered. Lip not spurred *Dichaea* (5)
 30a. Inflorescence several- to many-flowered. Lip basally spurred *Campylocentrum* (3)
 29a. Plants forming a sympodium (stems approximate or superimposed and terminated by usually smaller apical leaves)
 31. Pollinia without a stipe. Viscid disk usually rudimentary
 32. Rhizome short, corm-like. Pseudobulbs lacking *Bletia* (1)

- 32a. Rhizom
 31a. Pollinia
 33. Pollinia
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61. Column usually with 2 slender arms on each side near middle *Leochilus* (2)
 61a. Column without arms on each side near middle *Oncidium* (6)
 56a. Leaves not articulated, persistent *Lockhartia* (2)
 55a. Pollinia 4 *Ornithocephalus* (2)
 52a. Anther dorsal and erect. Rostellum erect or ascending
 62. Lip entire *Notylia* (3)
 62a. Lip variously lobed
 63. Lip fleshy-clawed, 4-lobed *Cryptarrhena* (1)
 63a. Lip not clawed, 3-lobed *Macradenia* (1)

Vanda Nellie Morley 'La Veryne'

By WYLY M. BILLING

THIS OLD ADAGE, a favorite of mine for years — "The blind pig sometimes finds an acorn" — certainly applies to our orchid hobby.

One Saturday afternoon in late September Mrs. Billing and I had a party, a most unusual one for us. We called it a christening party but this christening was quite different from the parties we have given for our five grandchildren. This was for a seedling *Vanda Nellie Morley*, flowering for the first time, which had just received two awards of merit. The christening was to give her a varietal name — 'La Veryne' — but perhaps you would like to hear the story.

It all began when we were building a new house, and I was determined to add a small greenhouse to serve as a compromise for my desire to retire to Florida. The main idea was to have flowers and plants in the house; the greenhouse was to be merely a workshop to revive and resuscitate tired and weary house plants. As the greenhouse went up, many people asked if I were going to raise orchids. The answer was an emphatic NO. I felt these exotic plants were not for a rank amateur.

One day, however, my friend Dr. George Snell of Haddonfield, New Jersey, insisted that I bring home some of his extra orchid plants and just give them a try. The plants he gave me were Cattleyas, Cymbidiums, Phalaenopsis, Dendrobiums, and Laelias. Some were mature plants and some were unflowered seedlings, and I hadn't the foggiest idea of what to do with any of them. Within three days some of the leaves were turning brown and I was about ready to throw the whole crop out when it was suggested to me I had burned the leaves with too much sun. Here I was thinking that a greenhouse was supposed to provide maximum sun; and yet too much sun had done a terrific amount of damage in a short time. In the process of finding out what was going wrong, I must have been bitten by a bug. Subsequently, I discovered that the bug was a virus, as I now know that one of the Cymbidium plants was heavily infected, and to this day I haven't found the cure for either the plant or myself.

It didn't take me long to find a young man, Arthur Chadwick, who had had a number of years' experience with orchid culture. With his guidance, the mature plants began to bloom and the seedlings started to grow, much to my delight and pleasure. Through Arthur, I met other people who were interested in raising orchids. They too were willing to share their advice and years of experience with me. However, the diversity of opinions on questions of watering, temperature, light, feeding, etc., convinced me that orchids would survive in spite of me. I seemed to be keeping them happy so why wasn't I too an orchid expert?